Improving Quality of Life for Transportation Disadvantaged Older Adults through a Community-Based Healthy Buddy Program

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by

Siwon Jang, Chanyoung Lee, Sanghoon Park, Savana Wright, Mark Yo

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16. Abstract

A growing population of adults over 65 means communities in the United States must prepare to address the unique transportation and health needs of older adults. Phase I of this study sought to determine whether a community-based "buddy" program that pairs college-age students with transportation-disadvantaged older adults could improve quality of life for seniors in Hillsborough County, Florida. A multidisciplinary approach that included transportation planning, public health, and instructional technology was adopted to assess current barriers and identify opportunities for intervention. Specifically, the project conducted an assessment of transportation and health resources in Hillsborough County, and compiled existing community resources that could benefit older adults. Using this data, the Healthy Buddy website was created and pilot-tested in interviews with older adults in Hillsborough County. The interview population was also asked about their individual health and transportation needs, as well as their openness to participating in the Healthy Buddy Program. From these qualitative interviews, it was determined that there is a need to improve the mobility and independence of older adults in Hillsborough County through the provision of information on existing transportation and health resources. Furthermore, the interview population was receptive to the Healthy Buddy concept, and felt it could improve their transportation access and quality of life. Overall, the interview results obtained in Phase I conveyed a need to improve transportation access and health information access in older adults, and as such, will inform the continued development and implementation of the Healthy Buddy Program in Phase II of the project.

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1. Introduction

Based upon current demographic trends, the United States Census Bureau (2018) predicts that by 2035, older adults will outnumber children for the first time in U.S. history (Figure 1). An aging population means communities in the United States must prepare to address the unique health and transportation needs of older adults.

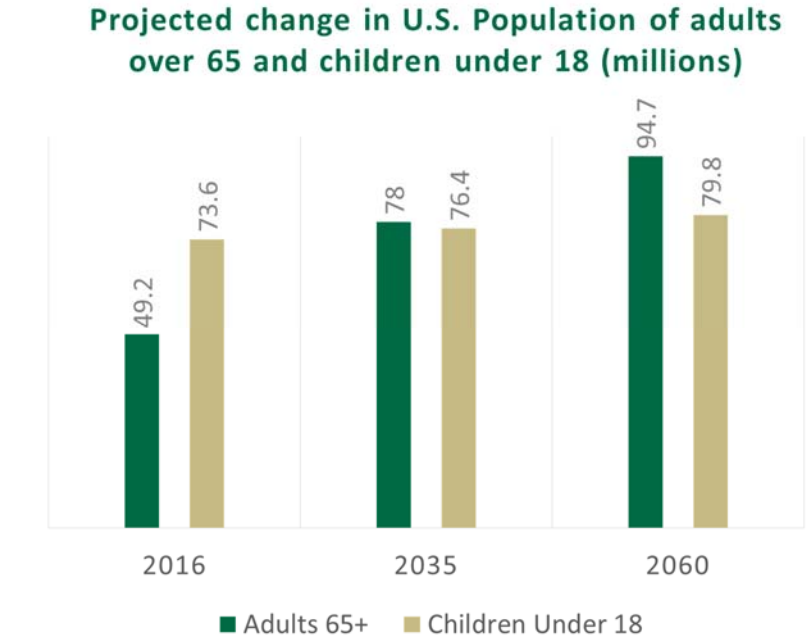

Figure 1-1. Change in Population Distribution in the United States (Census Bureau, 2018).

In particular, older adults have been reported as one of the groups experiencing the greatest transportation disadvantages (Mattson, 2012). Lack of transportation access is a significant concern for this growing population sector, especially for older adults who manage one or more chronic health conditions, since lack of mobility may cause them to miss health care appointments, thus delaying care or the use of medicine (Syed, Gerber, & Sharp, 2013). Moreover, there is an observed overlap between those who are transportation-disadvantaged and medically-underserved communities (Wills, Whitman, & English, 2017).

The Healthy Buddy Program

The primary objective of the Healthy Buddy Program is to enhance transportation-disadvantaged older adults' quality of life by improving their access to health care facilities and daily life events. The Healthy Buddy Program seeks to accomplish this goal by pairing Hillsborough County residents over the age of 65 with students from the University of South Florida. Student volunteers will provide their older adult "buddy" with personalized transportation information and local health resources through a private profile on the Healthy Buddy website.

Prior to community-level implementation, a research protocol was adopted to ensure the effectiveness of the proposed Healthy Buddy Program. Hence, the establishment of the program was broken into two phases: Program research and development (Phase I) and pilot program implementation and assessment (Phase II). Phase I was further subdivided into the following essential tasks:

Task 1: Literature review & resource assessment

- Literature review of transportation and health issues
- Compile available transit options in Hillsborough
- Collect local health and wellness resources

Task 2: Needs assessment of older adults

- Develop interview recruitment flyers
- Distribute flyers at local senior centers
- Conduct qualitative interviews of sample population
- Meet with community partners

Task 3: Program material development

- Compile all resources for seniors
- Determine major chronic diseases found in seniors and locate relevant resources
- Create program name and logo
- Develop training materials for student volunteers

Task 4: Website development

- Create Healthy Buddy website and purchase domain
- Create a sample personal page for older adult buddies
- Create audio narration feature for vision impaired

Report Organization

Phase I of the project began in January 2018 and concluded in October of the same year. This paper serves to describe the research methods employed in the program's first year and to chronical the preliminary development of the Healthy Buddy Pilot Program. This paper will also discuss results obtained in Phase I and their impact on next steps moving into Phase II of the project.

Following the introduction, the report is divided into four additional Chapters: Chapter 2: Literature Review, Chapter 3: Methodology, Chapter 4: Results, Chapter 5: Discussion, and Chapter 6: Conclusions. First, the literature review, a product of Task 1, will cover the unique transportation and health needs of older adults and will provide an overview of existing assistance programs at the local, regional and national level. The literature review will also consider precedent "buddy" programs that have paired students with older adults. Next, Chapter 4 will review the multidisciplinary strategies employed in each task for Phase I of the study. This is followed by Chapter 5, which details products and significant findings from each task. The

results are analyzed in Chapter 6 and summarized in Chapter 7. Finally, Chapter 7 closes by providing recommendations and next steps for the continuation of the project in Phase II.

2. Literature Review

At the onset of Phase I, a literature review was conducted in order to inform the development of Healthy Buddy Program materials and protocol. Specifically, the literature review looked at transportation access and prevalent health issues in adults over age 65. Information on existing programs that aim to improve older adults' quality of life, especially those that have paired older adults with students, were also discussed in the literature review. By understanding current issues and the programs in place to address these issues, the literature review intended to reveal areas of need and identify opportunities for intervention.

Transportation Habits in Older Adults

The majority of older adults plan to stay in their homes and communities as they age, where daily activities require transportation (Farber, Shinkle, Lynott, Fox-Grage, Harrell, 2011). Driving remains the primary choice of transportation for these older adults and most are reluctant to give up driving because it symbolizes independence (Bhat & Naumann, 2013). However, many older adults require alternative transportation options due to physical and cognitive declines. In adults over 65, 21% report no longer driving, and around half of non-drivers over age 65 reported that they do not leave the home on most days, partly due to lack of transportation options (Bailey, 2004).

Effects of Driving Cessation in Older Adults

Older adults who must give up control of their own transportation may have a difficult time adjusting to meet their transportation needs. Driving cessation and the resulting poor mobility have been found to have reduced older adults' friend network, and friend and family visits by 65% (Mezuk & Rebok, 2008; Bailey, 2004). This supports the findings that driving cessation restricts opportunities for social interactions, increases social isolation, and decrease life satisfaction in older adults (Liddle, Gustafsson, Bartlett, & McKenna, 2012). In addition to social interactions, driving cessation may also decrease older adult's productive engagement, such as volunteering and formal employment. Curl and colleagues (2013) found a significant decrease in both of these activities immediately after driving cessation. The summative effect older adults relinquishing control of their personal transportation is severe declines in social and productive engagements.

The negative health effects associated with driving cessation are also well documented. Driving cessation is reportedly associated with declines in general health as well as physical, social, and cognitive function. Relatedly, driving cessation comes with a greater risk of long-term care facility admission, and mortality (Liddle, Gustafsson, Bartlett, & McKenna, 2012; Freeman, Gange, Munoz, & West, 2006; Chihuri et al., 2016; Choi, Lohman, & Mezuk, 2014).

A strong link between driving cessation and depression has also been found, since the perception that transportation is a barrier to visiting friends and family, contributes significantly to depressive symptoms in older adults (Choi & DiNitto, 2016). This depressive effect may be brought on, in part, by the social effects of driving cessation. One study by Edwards et al. 2009 found non-drivers were four to six times more likely to die than drivers, after adjusting for baseline psychological and general health, sensory function, and cognitive abilities. However, it is worth noting that declining health and driving status may be mutually causative, with declining health leading to driving cessation and driving cessation in turn negatively impacting health (Chihuri et al., 2016).

Alternative Transportation Systems

Therefore, when older adults cease to drive, they tend to turn to alternative transportation resources within their community. It is common for older adults who cannot drive to rely on their informal support systems (Choi & DiNitto, 2016). These support systems primarily include friends, relatives, and community members. However, while many older adults are forced to rely increasingly on their own informal support systems, driving cessation has not been shown to change the level of support received from friends or relatives (Mezuk & Rebok, 2008).

Other common alternative transportation sources include: paratransit services, public transportation, taxis, ridesharing companies, and supplemental transportation programs. However, alternatives not specifically designed for older adults can have significant barriers related to accessibility, physical and mental health, comfort with technology, long waits, and fear of crime (Turner, Adams-Price, & Strawderman, 2017). Public transportation, in particular, is often inaccessible to older adults with physical disabilities. Consequently, public transit participation rates are 6% among older adults who can still drive and 16% among individuals who used to drive, but no longer do (Choi & DiNitto, 2016).

Value of Transportation Mobility

The ability to have control over one's transportation is vitally important, especially to older adults who often view this as integral to maintaining their independence. The negative effects of driving cessation and the resulting poor transportation mobility are well established. These effects include declines in social interactions as well as overall health. While increasing available transportation options may be able to offset these negative effects, it can often prove costly for regional transportation authorities. However, recent studies have shown programs that raise awareness of current transportation resources to be effective at increasing their usage.

Awareness of Transportation Resources

Many older adults do not use alternative transportation services due to their lack of knowledge regarding their options (Kostyniuk & Shope, 2003).A 2016 study by Turner et al found that 48% of non-driving older adults had low levels of awareness for transportation services in their area. However, research suggests that older adults who become aware of existing transportation alternatives suitable to their needs will be more likely to utilize them (Tuokko, McGee, Gabriel, & Rhodes, 2007). Moreover, a 2014 study examining the University

Of Queensland's Driver Retirement Initiative (UQDRIVE), found that promotion of alternative forms of transportation increased their usage among older, non-driving adults (Liddle et al., 2014). However, further research is needed due to a high attrition rate within the study.

Older Adult Health

Older adults often have increased health needs when compared to their younger counterparts. Despite being the smallest population group, older adults accounted for 34% of all health care spending in 2012 (Center for Medicare & Medicaid Services, 2018).Currently 80% of older adults have at least one chronic condition and 77% have two (National Council on Aging Statistics, 2018). Chronic conditions are the costliest health expenditure for older adults with top four chronic diseases (heart disease, cancer, stroke, and diabetes) accounting for two-thirds of all deaths each year. However, the negative effects of chronic conditions can be positively modified by altering health risk behaviors. Mental health conditions are highly prevalent in the older adult population. Currently one in four older adults experience a mental disorder, this is expected to double by 2030. It is estimated that two-thirds of these older adults do not receive the treatment they need. A disability is defined as having a limitation in vision, mobility, communication, cognition, and self-care. In 2014 22% of Americans age 65 and older had at least one disability (Federal Interagency Forum on Aging-Related Statistics, 2016). Mobility related disabilities made up 58% of disabilities for men and 71% for women.

Transportation as a Barrier to Healthcare

Transportation mobility has long been cited as a barrier to obtaining health care access (Fitzpatrick, Powe, Cooper, Ives, & Robbins, 2004; Macleod et al, 2015).Transportation barriers can disproportionately affect older adults due to higher prevalence of disability and chronic diseases which require ongoing care and medication. Seniors age 65 and older who no longer drive have been reported as making 15 percent fewer trips to the doctor. (Bailey, 2004).A lack of transportation can lead to delays in obtaining needed health care, such as preventative screenings and regular check-ups. This delayed care may exacerbate chronic health conditions and worsen health outcomes (Henning-Smith, Gonzales & Shippee, 2016).

Medical Transportation

Access to transportation for medical services is vitally important to maintaining a high level of health. Medicare currently covers ambulatory emergency medical transportation. Non-emergency medical transportation may be obtained with a written doctor's order stating that the transportation is medically necessary (U.S. Centers for Medicare & Medicaid Services, n.d.).

Older adults who qualify for Medicaid have additional medical transportation opportunities. Generally, emergency transportation is covered under Medicaid, and non-emergency medical transportation is available for enrollees who have difficulties obtaining reliable transportation. However, since Medicaid services are administered by states, specific guidelines concerning the use of medical transportation and the copay amount for these services may vary between each state's Medicaid programs (U.S. Centers for Medicare & Medicaid Services, n.d.).

In the State of Florida, Medicaid enrollees with limited personal transportation access can schedule non-emergency rides to doctor appointments, dental care, mental health appointments, and dialysis services (State of Florida Agency for Health Care Administration, n.d.).

Existing programs pairing older adults and students

Pairing older adults with students is not a novel concept, as senior mentor programs at medical schools have existed since at least 2001. These senior mentor programs pair older adults, over age 65, with medical students for the purpose of reversing stereotypes about age and building empathy among students. After evaluation Eleazer et al (2009) found that all 10 programs had a positive effect on student attitudes and were strongly accepted by both the students and the mentors.

Building on the successes of senior mentor programs, several other similar programs have formed in the recent years. The buddy program at Monmouth University trains volunteers, including students, to visit homebound, hospitalized, or socially isolated LGBT elders (Monmouth University, n.d.). Similarly, the Florida Hospital College of Health Sciences conducts a buddy program which pairs older adults and students for regular walks to encourage walking and help prevent traumatic brain injury (Winter Park Health Foundation, 2012). In this program, disease specific educational materials were also prepared for the student buddies to share with their paired older adult. While these recent programs have not been formally evaluated, the self-reported results have been overwhelmingly positive. The Florida Hospital College of Health Science's buddy program reports better health and safety for the older adults and an improved education program for their occupational therapy assistants (Winter Park Health Foundation, 2012).

3. Methodology

To establish a foundation for the development of the Healthy Buddy Program, Phase I of the project employed a mixed methodology to identify transportation and health concerns for older adults in Hillsborough County. Information concerning the needs of residents over 65 was collected through a community resource assessment (Task 1) and a needs assessment of older adults (Task 2). From the information gathered in the first two tasks, the methods employed in the development of program materials (Task 3) and the website design (Task 4) evolved overtime to better suit the needs of older adults in Hillsborough County.

Community Resource Assessment

In addition to a review of existing literature (Chapter 2), a community resource assessment was conducted to determine the current availability and accessibility of transportation and health resources for Hillsborough County residents over the age of 65. To accomplish this, students from the College of Public Health and College of Engineering compiled information on transportation for older adults and local health resources. Over 30 agencies and individual experts were contacted to determine the current availability of older adult services in Hillsborough County (Table 3-1).

Table 3-1. Agencies contacted for the community resource assessment

Transportation Agencies	Contact
A1 Taxi	(813) 964-8000
AmeriCare Ambulance Service, Inc.	(813) 930-0911
Checker - Yellow Cab -Tampa	(813) 253-0121
HART- Hillsborough Area Regional Transit Authority	(813) 623-5835
HART Plus (Paratransit)	(813) 623-5835
Home Instead - Tampa	(813) 930-9366
Jtrans	(850) 482-7433
Lightfoot Center - Temple Terrace Demand Transportation	(813) 506-6635
Samaritan Services of Sun City Center	(813) 634-9283
Sunshine Line	(813) 272-7272
Harnish Transportation in Hillsborough County	(813) 477-7914
Access2Care	(727) 282-1451
MedFleet Inc.	(813) 782-6104
A Better Solution of Sarasota	(941) 906-1881
A Better Solution of Venice	(941) 800-4015
ACC Medlink	(800) 550-1025
Ambitrans & Grant Medical Transportation	(941) 743-3665
EasyRider Senior Transport	(727) 403-3851
MTM Florida Non-Emergency Medical Transportation	(772) 266-4971

Hillsborough County Senior Centers	Contact
Lee-Davis Community Center	(813) 272-5220
Ruskin Senior Center	(813) 672-1107
JL Young Senior Apartments	(813) 990-8888
Progress Village Nutrition and Activity Center	(813) 671-7773
Bayshore Presbyterian Retirement Apartments	(813) 839-3381
Plant City Community Center	(813) 757-3871
Brandon Senior Center	(813) 635-8066
Lutz Senior Center	(813) 264-3804
The Oaks at Riverview Senior Center	(813) 272-6829
Town 'N Country Senior Center	(813) 873-6336
Frances Duran Brea – Area Director	(813) 853-1064
Health Education Agencies	**Contact**
University of Victoria Centre on Aging	1-250-721-6369
National Council on Aging (NCOA)	(571) 527-3900

Needs Assessment of Older Adults

Next, a needs assessment was conducted using interviews of older adults in Hillsborough County, age 65 or older, who had chronic health issues and limited access to health care. First, an in-person interview questionnaire (see Appendix A) was developed based on the findings of the literature review and community resource assessment. Questions were designed to cover the interviewee's personal health and transportation needs, to understand the perceived barriers in their community, and to determine their knowledge of community resources. At the end of the interview questionnaire, researchers were instructed to show interviewees the pilot Healthy Buddy Website and ask several questions relating to its usefulness, relevance and accessibility. Questions were open-ended to allow for rich discussion of each topic.

Once interview protocol was established and approved through the University of South Florida IRB, recruitment flyers (see Appendix B) describing the study were distributed to solicit participants over 65 with specified health and transportation needs. Community partners and local transit providers were contacted and agreed to distribute flyers to the target demographic. This initial recruitment method received some responses, however it was soon determined that direct contact with the target demographic might be more effective. Therefore, researchers visited the Brandon Senior Center and Oaks at Riverview Senior Center in Tampa to recruit participants. Direct collaboration with the local senior centers yielded more participants, and allowed for more efficient transportation to and from interviews at the University of South Florida's Center for Urban Transportation Research (CUTR). Fourteen interviews were conducted and recorded using the transcription software "Otter Voice Notes." Three of these interviews were conducted in Spanish and translated to English.

All transcripts made in the Otter software were reviewed by researchers and edited to ensure accuracy. Once all transcripts were completed, they were combined into a single document for analysis. Answers for each question were broken into categories and assigned a text code for ease of analysis. Due to the relatively small number of interviews, this process was

accomplished by reviewing responses and formulating keywords or key points that the interviewee made.

Finally, to supplement information gathered from the interview population, data was collected from the Florida Department of Health's Behavioral Risk Factor database (2016) to determine prevalent health conditions and behaviors in Hillsborough County residents over 65.

Program Material Development

The development of program materials was influenced by the information uncovered in Task 1 of Phase I. Specifically, lists of affordable and free health and transportation resources for older adults was created as a reference tool for future student buddies and Healthy Buddy website users. A database of resources on the top chronic health conditions found in older adults was also assembled for the development of program materials.

Next, to facilitate outreach and program impact in Phase II of the project, a program brochure was developed to help convey the mission and purpose of the Healthy Buddy Program to potential participants and the wider community. Relatedly, a program logo and color pallet were created to help establish a Healthy Buddy "brand" that might be recognizable to future program participants.

Finally, training materials for student volunteers were also created in this phase. An introductory presentation and student guide were created using information gathered from public health literature on working effectively with older adults. Preliminary findings from the interviews in Task 2 also provided valuable insight during the creation of student buddy protocol for Phase II.

Website Design

A pilot version of the Healthy Buddy website was created using the web-development platform Wix, using a systematic design process (analysis, design, development, implementation and evaluation). The website design incorporated the Healthy Buddy Program logo and color pallet to reinforce the branding of the project. Beyond stylistic choices, the information provided on the page was pulled from the literature review and community needs assessment conducted in Task 1. The pilot website was shown to interviewees for feedback and was frequently adjusted to ensure it met the real needs of older adults and was culturally congruent. The website was also enhanced with a human-like avatar that, when clicked, reads the text on the page to promote engagement and to aid users with vision impairment (Park, 2015).

4. Results

The results obtained in Phase I of the Healthy Buddy research project were integral to the development of the Healthy Buddy website and student volunteer protocol. In particular, the results of the community resource assessment and qualitative interviews revealed a need to improve older adults' access to daily life activities. Interview participants also showed a strong interest in learning more about proactive health interventions like exercise and healthy eating.

Community Resource Assessment Results

Hillsborough County community resources were compiled into a database for use by older adults and their student buddies. Although the list is not exhaustive, the gathered information should provide relevant local transportation and health resources for participants with a wide range of physical and economic needs. Moreover, regular updates to the resource list after program implementation will ensure enhanced awareness of available resources.

Transportation Resources in Hillsborough County

In addition to medical transportation services provided by Medicaid, older adults with limited income can use County-subsidized transporation services for daily-life trips, like shopping and visiting friends. Among these options, the Hillsborough Area Regional Transit Authority (HART) has three services that may benefit transportation-disadvantaged seniors including the HartLine, HartPlus and HartFlex. Low-income, elderly and disabled residents can apply for a free bus pass, which provides access to all three services. The HartPlus and HartFlex cater to those with disabilities and uses a reservation system to pick up individuals who cannot access HartLine bus stops. Similarly the Sunshine Line is a door-to-door service designed specifically for seniors. Both of these services have free or reduced fares based on need and provide accommodations for persons with wheelchairs and walkers.

Table 4-1 depicts viable free and affordable transportation options for older adults in Hillsborough County.

Table 4-1. Viable Transportation Services for Older Adults in Hillsborough County

Service Name	Phone	Cost	Website
BATS Taxi	(727) 367-3702	$2.50 pickup and $2.40/mile	http://www.batstaxi.com
Checker Yellow Cab	(813) 514-9858	$2 pickup and $2.25/mile	http://www.yellowcaboftampa.com
Express Medical Transporters	(813) 253-0121	$11.50 pickup and $1.50/mile	http://fssrc.phhp.ufl.edu/content/emt-express-medical-transporters
GoGoGrandparent	(855) 464-6872	$0.27 per minute plus Uber/Lyft rate	https://gogograndparent.com/
Harnish Transportation	(813) 477-7914	Must Call	http://fssrc.phhp.ufl.edu/content/harnish-transportation-hillsborough-county
Hillsborough Area Regional Transit Authority (HART)	(813) 254-4278	$1.50 to $3	http://www.gohart.org
HART Plus	(813)-254-4278	$4	http://www.gohart.org

HART Flex	(813)-254-4278	$1	http://www.gohart.org
Lyft	N/A	Varies	http://www.lyft.com
Samaritan Services of Sun City Center	(813) 634-9283	Free	N/A
Sunshine Line	(813) 272-7272	$0-5	https://www.hillsboroughcounty.org/en/government/departments/sunshine-line
TransCare Plus	(352)-340-5096	Must Call	http://www.transcareplus.com/services.html
Uber	N/A	Varies	https://get.uber.com/
United Cab Company	(813)-872-8294	$2 pickup charge and $2.25/mile	http://www.gulfcoasttransportation.com
Wheelchair Transport Service	(813) 540-3333	Must Call	http://www.wheelchairtransport.com/services.php

Health Information Resources

The top five chronic diseases common in older adults were selected based on the Florida Behavioral Risk Factor Surveillance System (BRFSS) data. Data for older adults (>65 years) was pulled for all chronic diseases and put in rank order. The top five diseases include Diabetes, Obesity, Heart Disease, Arthritis, and Depression. Data was compared for both Hillsborough county and Florida as a whole, however, the rank was identical for both sets.

Health Education and Fitness Resources in Hillsborough County

Several local courses geared towards older adult health and fitness were identified at the Tampa General Hospital and Senior Connection Center. Most courses were free or low-cost, however the schedules at both locations were subject to change. These courses focused on health education and chronic disease management techniques (see Appendix C).

Interviews of the target population also revealed the availability of weekly health and fitness courses through community senior centers. Interview participants stated their senior centers offered chair exercise courses, Zumba Dance lessons, yoga and a walking club. Some interviewees stated they participated in the "Silver Sneakers" program through Medicare. This program provides free access to participating gyms, for eligible older adults.

Needs of Older Adults in Hillsborough County

The specific needs of older adults in Hillsborough County were identified through two separate methods: Qualitative interviews of the sample population and the analysis of 2016 Behavioral Risk Factor Surveillance System (BRFSS) data.

Interviews

The interview portion of Phase I provided key insight into the transporation and health issues faced by older adults in the sample population. Of the 14 interviewees all appeared to use a variety of transportation services simultaneously to compensate for the challenges associated with driving cessation. The majority of interview participants (79%) stated they had used the Sunshine Line as a means of transportation. While this is a significant percentage, it is important

to note that the Sunshine Line provides transportation to and from the Hillsborough County Senior Centers where recruitment of interviewees occurred. Additionally, half of all participants stated they relied on family members for rides, and another half stated they utilized the public bus system. Transportation to medical appointments provided through insurance was the next most common response, with 29% of interviewees mentioning this type of service, followed by friends (21%) and private transportation (21%).

Despite half of all participants stating they currently used public transit, only 43% of interviewees said they were open or somewhat open to using public transit. Interviewees indicated that their aversion to public transit was largely related to a disability or more generally, accessibility issues (79%) and perceived dangers (21%). Lack of funds was mentioned by one participant and lack of information was mentioned by another individual.

Conversely, the majority (86%) of interviewees stated they were open or somewhat open to using private transportation services, however monetary barriers to private transportation were mentioned by more than one-third of interviewees. When specifically asked about private rideshare services like Uber or Lyft, several interview participants had reservations about using the service, due to safety concerns. Interestingly, interviewees that had used a private rideshare service previously stated their experience was positive.

Interviewees were then asked questions specific to the Healthy Buddy Program and related materials. Of the fourteen participants, 12 were receptive to the idea of a USF student assisting them with finding available transportation and health options. The other two participants did not directly address the question however, neither indicated they were opposed to the concept. Similarly, the majority of interviewees (79%) stated they felt the information provided on the pilot Healthy Buddy website was useful and could influence their healthcare access and health habits. The additional 21% of interviews did not answer the question directly.

Common among interviewees was the idea that more information on transportation services would reduce their dependence on others, with 72% of interviewees stating the information on the Healthy Buddy website would make it easier for them to find transportation to non-healthcare locations. Of these responses, one interviewee noted they would benefit from the information if it was clear, simple and located in one place. Only one participant did not feel that the transportation information would benefit them specifically since they preferred to ride their bike, and the other three participants did not directly answer the question.

More than half of participants (57%) felt the website was easy to navigate, 14% did not, and 29% did not answer the question directly. The main critique from interviewees who felt the site was difficult to navigate was that the font was too small. Upon reviewing the entire pilot website, participants were asked if there was any information that they felt would enhance the Healthy Buddy website. The following topics were mentioned by interviewees: food banks, emergencies and natural disasters, social workers, legal services, and healthy exercise and eating. When asked specifically about transportation, information on driving assistance, ridesharing and transportation services reliability were mentioned by interviewees. Relatedly, most participants

felt that the website information was useful, however two respondents stated some of the information was redundant since their senior center provided information and resources.

After exploring the website, participants were asked to provide feedback on the idea of a personalized page. The majority (72%) were open to the idea, with some reservations about navigating the website. One interviewee stated a paper version of the information would be more beneficial, and another stated they would use a personal page with assistance from their family members. While the majority were open to the concept, only 57% of interviewees stated they had access to a computer. Consequently, many participants stated a paper version of the site would be useful. See Appendix D for interview responses broken down by question.

Behavioral Risk Factor Surveillance System Findings

In addition to anecdotal health information retrieved during interviews, quantitative health data was compiled from the Florida Department of Health Behavioral Risk Factor Surveillance System (2016). The survey data revealed the most prominent health and behavioral conditions among adults over 65 in Hillsborough County (Figure 4-1). Data for Hillsborough County was also consistent with national trends in people over age 65:

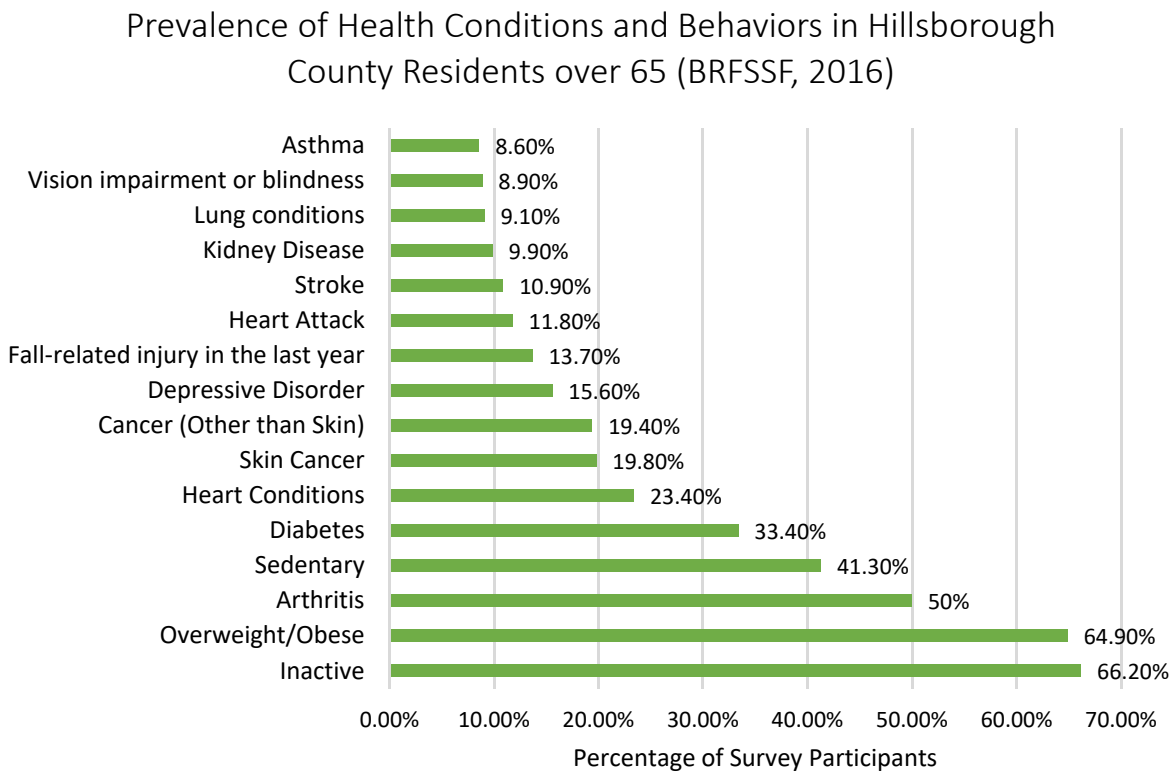

Figure 4-1. Prevalence of health conditions and behaviors in Hillsborough County Residents over 65 (BRFSSF, 2016).

Program Material Development

Website Design

The pilot Healthy Buddy website responded directly to the findings of the literature review and community resource assessment by providing up-to-date information on transportation and health resources in the community. The website contained seven navigation tabs with information on the Healthy Buddy Program and relevant resources (Figure 4-2). The webpage also contained a login and profile button to illustrate what a personal profile would look like for future participants.

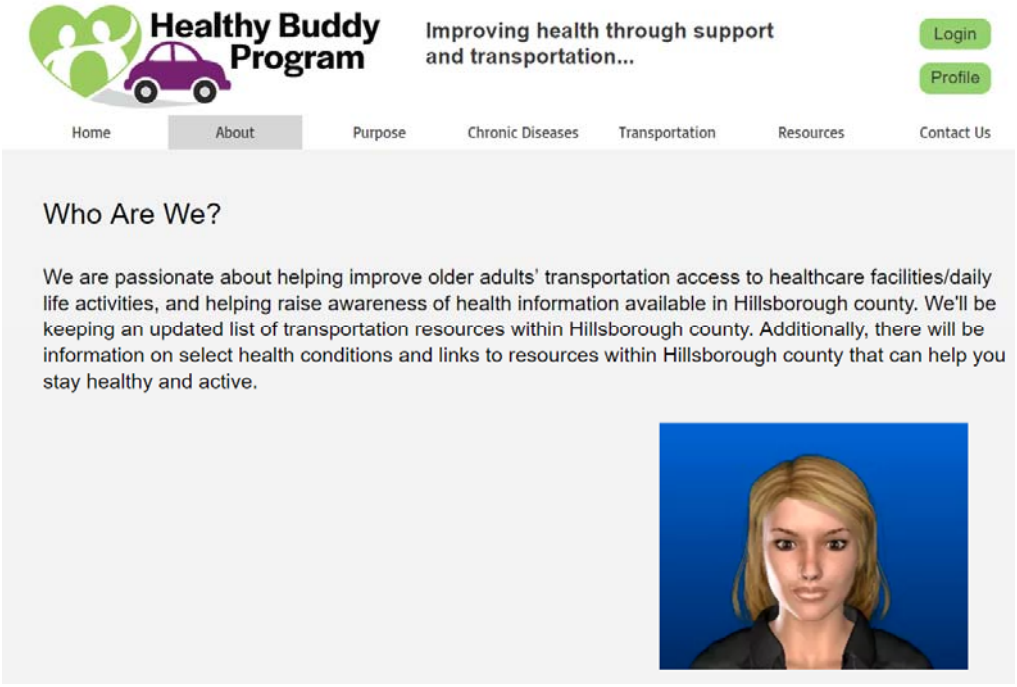

Figure 4-2. Healthy Buddy website showing about page, navigation tabs and login buttons.

Upon receiving feedback from the sample population, the Healthy Buddy website was revised to better meet the needs of older adults in Hillsborough County. Additional resources that fit within the scope of the Healthy Buddy mission were added to the website, including Florida disaster news and emergency preparedness. A personal profile page prototype was also created after receiving interviewee feedback (Figure 4-3).

Figure 4-3. Profile page prototype for older adult buddies.

5. Conclusions

In summary, the objective of the Healthy Buddy Program is to increase transportation-disadvantaged older adults' ability to access health care facilities and daily life activities by providing them with personalized transportation options and local health and wellbeing resources through a Healthy Buddy Program that pairs adults over age 65 with pre-trained students in a health-related university program. To ensure the effectiveness of the proposed program, a scientific methodology was adopted in Phase I to determine barriers and opportunities for intervention. The methods employed in Phase I included a review of current literature, a community needs assessment and interviews of the target population.

Overall, the community needs assessment and feedback from the sample population of older adults in Hillsborough County indicated a need to improve older adults' awareness of existing transportation options, specifically for personal trips. While interviewees were aware of some Hillsborough County-subsidized services, it was clear from interviews that the majority of the sample population wanted additional information on cost-effective or free transit choices. Interview participants were also highly interested in preventative health resources like healthy eating and exercise.

Therefore, Phase I of the Healthy Buddy Program revealed a need to improve older adults' awareness of and access to transportation and preventative health resources. Based on feedback from the sample population, older adults in Hillsborough County need more low-cost or free transportation options, especially for non-medical trips, which tended to be well-covered by individuals' insurance companies.

Furthermore, interview participants were receptive to the idea of engaging in the Healthy Buddy Program, and felt it could have a positive impact on their transportation and health behaviors. Interviewees also indicated that while the website seemed like a beneficial resource, a paper version of the website information would benefit individuals who do not have access to a computer or are not comfortable navigating computers. The results obtained in Phase I will inform future updates to Healthy Buddy materials and was key to the development of program implementation protocol for Phase II.

Next Steps: Phase II

The second phase of the Healthy Buddy Program will build upon the networks established in Phase I, and incorporate feedback received during interviews to begin implementation of the program. Phase II will consist of five major tasks.

In the first task of Phase II, CUTR researchers will update the Healthy Buddy Website based on interviewee feedback. Relevant resources will be added and accessibility considerations, like text size will be addressed. In this task, researchers will also refine the personal profile feature of the site so that it is ready for use by older adults and their student buddies in the fourth task of Phase II.

In Task 2, approximately 40-50 older adults will be recruited through Hillsborough County Senior Centers for an intervention and comparison group. Researchers will rely on existing rapport with Senior Center managers to identify and recruit participants. Flyers describing the study will be created for managers to distribute around their respective centers.

Task 3, student volunteer recruitment and training, will occur in conjunction with Task 2. Students will be recruited primarily though USF courses with volunteer or field requirements. Flyers will also be distributed across campus. Prospective student volunteers will attend an introductory presentation that will include a seminar on student buddy protocol and responsibilities. All student volunteers will be assigned an older adult buddy from the intervention group.

The fourth task includes pilot program implementation and surveys. All older adult study participants will be issued a pre-survey about their transportation and health needs. Once pre-surveys are completed, student volunteers will meet with their assigned buddy from the intervention group. Students will meet with their older adult buddy for a minimum of two sessions, where they will identify transportation and health needs, and create a customized page with relevant resources. Following intervention, a post-survey will be issued to both study groups to determine whether participants in the Healthy Buddy program experienced improvements in their transportation access and quality of life.

In the fifth task, data from the surveys and feedback from the inaugural volunteer group will be analyzed and discussed in a supplementary report and final manuscript.

Expected Program Impacts

By increasing older adults' awareness of existing transportation and health resources in the community, the Healthy Buddy Program hopes to support older adults in their desire to "age in place" and simultaneously improve their quality of life. Additionally, the Healthy Buddy Program hopes to provide a mutually beneficial opportunity for intergenerational communication, by pairing students with older adults. Relatedly, the program has potential to provide students with relevant experience in the field.

After Phase II of the study is complete, the program can be implemented by other community-based organizations to improve mobility and health for older adults who are transportation-disadvantaged. The portal website for the Buddy program will be shared as a technology transport plan so that the website could be localized and actively used to assist with the implementation of the Buddy program.

Finally, the blended interdisciplinary, and multi-level approach may be able to improve the quality of life for transportation-disadvantaged older adults more effectively than programs that address transportation and mental and personal health exclusively.

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Appendix A: Interview Protocol

Review the consent form. Notify the interviewee that all of their information will remain confidential and at any point, they may stop the interview or refrain from answering questions.

1. Can you describe all of your current means of transportation?

2. How open are you to using public transportation in your community?
    a. What public transportation do you use (names) and what for (purpose)?
    b. Before you stopped driving, did you use any public transportation?
    c. Are there any barriers to using public transportation in your community?

3. How open are you to using private (fee for service) transportation within your community?
    a. What is your opinion of Uber or Lyft?
    b. Before you stopped driving, did you use any private transport services?
    c. Are there any barriers to using private transport in your community?
4. Do you have a valid driver's license?

5. What is your household income?

6. What type of housing do you live in?

7. What is your ethnicity?

8. Would you be receptive to a USF health student assisting you with finding out available transportation options in the community, specific health conditions education, and local health promotion resources? Which of these options would you is your primary interest? Are there any specific health topics or community resources you know about that you recommend we add?

    [show website]

9. Do you feel that the information to be provided on the website is useful and relevant to your daily life?

10. Do you believe having access to the information (transportation list, health conditions, local resources) on the website could influence your healthcare access and/or health habits?

11. Do you believe having access to the information in this study would make it easier to find transportation to non-healthcare (i.e. grocery store) locations?

    [allow the interviewee to navigate the website]

12. Do you find the website easy to navigate?

13. Are there any other topics that you wish were included in the website?

    [show the 'Transportation' page]

14. Is there any other transportation-related information that you feel should be included?
    a. *[we provide information, not services]*
    b. *[we plan to update the website monthly]*

    [show the 'Chronic Diseases' page] [show the 'Resources' page]

15. Would you be likely to utilize any of the linked information on the website, such as the Chronic Disease Self-Management Program?

16. What do you think of a personalized page? [contains personalized info about upcoming events, transportation needs, and a way to contact your healthy buddy].

17. Does any of the information on the website seem unnecessary/redundant?

18. Do you have access to a computer?

This is the end of the interview, thank you for providing your insight.

Appendix B: Research Study Recruitment Flyer

Research Study

We would love to hear from you!

Are you an older adult (65+) who struggles to find transportation?

The center for Urban Transportation Research (CUTR) at University of South Florida is seeking Hillsborough county residents, age 65 and older, to take part in an in-person interview. We are interested in learning your thoughts and opinions about a potential research study regarding older adult transportation needs to access health-care facilities and daily activities.

If the following statements describe you, then you may be eligible to participate!

- I am a Hillsborough County Resident age 65 or older.
- I lack regular access to transportation.
- I manage a chronic health condition.
- I have never been diagnosed with Dementia.

Participation benefits?

- Opportunity to voice older adults' real needs about transportation, which will be reflected in a potential research study. This study is proposed to improve older adult's transportation to healthcare facilities.

Time Commitment

- The interview will last no more than 1 hour.

Compensation

- A $70 gift card.

IRB# Pro00035626

For further information please contact:

Mark Yo

Student Research Assistant

Center for Urban Transportation Research

(813) 974-2004 mky@cutr.usf.edu

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Appendix C: Transportation and Health Resources List

Tampa General Health Education Classes

https://www.tgh.org/tgh-resources/health-education

Schedule changes, so must check to see what is offered. Most classes are free, a select few require payment. Can register online or by phone

Current Listings

1. **Prevent T2 Diabetes Lifestyle Change Program**
    a. Cost: $59
    b. Prevent T2 is a year-long program with weekly meetings for the first 6 months, followed by meetings once or twice a month for the second 6 months. This program is offered in the Spring and the Fall.
    c. If you have prediabetes, you can cut your risk of developing type 2 diabetes in half by losing 5-7 percent of your body weight. That is about 10 to 14 pounds for a person weighing 200 pounds. In Tampa General Hospital's Prevent T2 lifestyle change program, participants work in a group with a trained lifestyle coach to learn the skills needed to lose weight, become more physically active, and manage stress. Prevent T2 is a part of the National Diabetes Prevention Program, led by the Centers for Disease Control and Prevention (CDC) and is proven to prevent or delay the onset of type 2 diabetes. This fee covers program materials and light refreshments. Registration is required as seating is limited.

2. **My Strength**

Take charge of your mental health. Tampa General Hospital has partnered with myStrength™ to offer custom tools to help you overcome the challenges you face.

    a. FREE--Online
    b. If you are interested in using the FREE myStrength online self-help resource, please call (813) 660-6107 to receive your Access Code. Then visit www.mystrength.com , click on "Sign Up" and enter your Access Code. Complete the myStrength sign-up process and personal profile to access all resources.

Senior Connection Center Health Classes

Schedule changes, so must check to see what is offered. Most classes are free, a select few require payment. Can register online or by phone

Current Listings

1. **A Matter of Balance**
    a. 8-week structured group intervention that emphasizes practical strategies to reduce fear of falling and increase activity levels.
    b. FREE

Thursdays, Aug 9 through Sept 27

10:00am – 12:00pm

H2U Cortez, 6670 Cortez Road West, Bradenton, FL. 34210

Please call 941-792-0211 to register

2. **Chronic Disease Self-Management Program**
    a. This program is designed to help people gain self-confidence in their ability to control their symptoms and learn how their health problems affect their lives. Small-group, highly interactive workshops are six weeks long, meeting once a week for 2 ½ hours, and are facilitated by a pair of leaders, one or both of whom are non-health professionals with chronic diseases themselves.
    b. Free

Thursdays, Sept 13 – October 18

10:00am – 12:30pm

First Presbyterian Church, 175 Lake Hollingsworth Drive, Lakeland, FL. 33801

Please call 863-686-7187 ext. 242 to register

3. **Tai Chi for Arthritis for Fall Prevention**
    a. Evidenced based program which uses Tai Chi, is effective at preventing falls.
    b. FREE

Wednesdays & Fridays, Sept 5 through Oct 26

10:00am – 11:00am

Trinity Medical Group, 550 Pope Ave. NW Winter Haven, FL. 33881

Please call 863-299-2636 to register

Appendix D: Interview Responses

1) Can you describe all of your current means of transportation?

	Frequency	Percent
Family	7	50.0
Friends	3	21.4
Bus	7	50.0
Insurance	4	28.6
Sunshine	11	78.6
Private Transportation	3	21.4

2) How open are you to using public transportation in your community?

	Frequency	Percent	Cumulative Percent
Open	5	35.7	35.7
Somewhat Open	1	7.1	42.9
Not Very	7	50.0	92.9
Not Open	1	7.1	100.0
Total	14	100.0	

2.1) Barriers

	Frequency	Percent
Funds	1	7.1
Danger	3	21.4
Accessibility	7	50.0
Disabilities	4	28.6
Lack of Information	1	7.1
None	2	14.3

3) How open are you to using private (fee-for-service) transportation within your community?

	Frequency	Percent	Cumulative Percent
Open	8	57.1	57.1
Somewhat Open	4	28.6	85.7
Not Very	0	0	85.7
Not Open	2	14.3	100.0

Total	14	100.0	

3.1) Barriers

	Frequency	Percent
Funds	5	35.7
Lack of Information	3	21.4
Danger	2	14.3
Don't Like It	3	21.4
None	4	28.6

4) Do you have a valid driver's license?

	Frequency	Percent	Cumulative Percent
Yes	3	21.4	21.4
No	8	57.1	78.5
N/A	3	21.4	100.0
Total	14	100.0	

5) What is your household income?

- 1000, SSI
- 1200
- 2500
- 3333
- 450, SSI
- 600+. SSI
- 1094, Social Security, Pension
- 752
- 850, SSI
- 909, Social Security
- Medicaid, Medicare, Social Security, SSI
- Social Security
- Social Security, Pension
- N/A

6) What type of housing do you live in?

	Frequency	Percent	Cumulative Percent
Apartment	1	7.1	7.1
House	2	14.3	21.4
Townhouse	1	7.1	28.5
Senior Citizen Center	3	21.4	49.9
With Family	3	21.4	71.3
Low-Income	2	14.3	85.7
Total	12	85.7	
N/A	2	14.3	100.0

7) What is your ethnicity?

- African-American
- African-American
- Black
- Black
- Black, Puerto Rican
- Caucasian
- Cherokee, Apache
- Cuban
- Guatemalan
- Spanish-American
- Unknown

8) Would you be receptive to a USF health student assisting you with finding out available transportation options in the community, specific health conditions education, and local health promotion resources?

	Frequency	Percent	Cumulative Percent
Yes	12	85.7	85.7
No	0	0	85.7
N/A	2	14.3	100.0
Total	14	100.0	

9) Do you feel that the information to be provided on the website is useful and relevant to your daily life?

	Frequency	Percent	Cumulative Percent
Yes	11	78.6	78.6
No	0	0	78.6
N/A	3	21.4	100.0
Total	14	100.0	

10) Do you believe having access to the information (transportation list, health conditions, and local resources) on the website could influence your healthcare access and/or health habits?

	Frequency	Percent	Cumulative Percent
Yes	11	78.6	78.6
No	0	0	78.6
N/A	3	21.4	100.0
Total	14	100.0	

10) Comments

- Open to transportation use to avoid relying on others.
- More information is beneficial.

11) Do you believe having access to the information in this study would make it easier to find transportation to non-healthcare (i.e. grocery store) locations?

	Frequency	Percent	Cumulative Percent
Yes	10	71.4	71.4
No	1	7.1	78.5
N/A	3	21.4	100.0
Total	14	100.0	

11) Comments

- If the information is available.
- It is organized, clear and simple, and in one place.
- Prefers to bike.
- Relies on others or the shuttle to the grocery.

12) Do you find the website easy to navigate?

	Frequency	Percent	Cumulative Percent
Yes	8	57.1	57.1
No	2	14.3	71.4
N/A	4	28.6	100.0
Total	14	100.0	

12) Comments

- Increase font sizes
- Increase font sizes

13) Are there any other topics that you wish were included in the website?

	Frequency	Percent	Cumulative Percent
Yes	5	35.7	35.7
No	8	57.1	92.8
N/A	1	7.1	100.0
Total	14	100.0	

13) Comments

- Elaborate on resources
- Information about food banks i.e. Meals on Wheels
- More emergency information
- Social worker information
- Yoga, eating properly weight loss, etc.

14) Is there any other transportation-related information that you feel should be included?

	Frequency	Percent	Cumulative Percent
Yes	4	28.6	28.6
No	9	64.3	92.9
N/A	1	7.1	100.0
Total	14	100.0	

14) Comments

- Driving assistance
- Personal ridesharing
- Reliability of transportation services
- Reliability of transportation services

15) Would you be likely to utilize any of the linked information on the website, such as the Chronic Disease Self-Management Program?

	Frequency	Percent	Cumulative Percent
Yes	8	57.1	57.1
No	0	0	57.1
N/A	6	42.9	100.0
Total	14	100.0	

16) What do you think of a personalized page?

	Frequency	Percent	Cumulative Percent
Yes	10	71.4	71.4
No	0	0	71.4
N/A	4	28.6	100.0
Total	14	100.0	

16) Comments

- Paper is better
- Would use it with help from family

17) Does any of the information on the website seem unnecessary/redundant?

	Frequency	Percent	Cumulative Percent
Yes	2	14.3	14.3
No	10	71.4	85.7
N/A	2	14.3	100.0
Total	14	100.0	

17) Comments

- Would like law service (free/volunteer)
- Resources are gotten from the senior center
- Resources are gotten from the senior center
- Resources are gotten from the senior center

18) Do you have access to a computer?

	Frequency	Percent	Cumulative Percent
Yes	8	57.1	57.1
No	4	28.6	85.7
N/A	2	14.3	100.0
Total	14	100.0	

18) Comments

- Many do not have computers, paper necessary
- Paper necessary
- Paper necessary
- Not well.
- Used through family
- Vision-impaired