Barriers to the Use of Traditional Telephones by Older Adults With Chronic Health Conditions

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Key words: aging, disability, telephone

ABSTRACT

As people age, they face motor, sensory, and cognitive decline that may compromise their performance of activities of daily living and instrumental activities of daily living. Telephone use is an important instrumental activity of daily living for older adults, but many have difficulty in making and receiving calls. Today, there are many features that can be added to the telephone that can help compensate for impairments, but often these features are not used. To better understand the problems of older adults in using their telephones, we surveyed 609 older adults living in the community who had chronic health conditions. Interviews were conducted face-to-face, by telephone, or by mail. The most common reasons for not using more telephone special features were cost, lack of perceived need, and lack of knowledge of the features. Occupational therapists who work with older adults must understand the importance of telephones in their lives and offer them information and assistance in finding telephones with features that match their special needs. The findings of this study suggest that a significant number of older adults with chronic health conditions are unaware of low-cost, feature-laden telephones that could make their communications easier or, for some, possible.

As people age, they face declines in motor performance (Light, 1990) and sensory functions such as vision, hearing, taste, and olfaction (Nusbaum, 1999). These changes may compromise performance of activities of daily living and instrumental activities of daily living (IADLs). Among all of the IADLs performed by older adults in the course of a day, the use of the telephone is rated most important (Fricke & Unsworth, 2001). The telephone is used for emergencies, arranging for in-home care, and socializing with family and friends (Cream & Teaford, 1999). The use of a telephone decreases loneliness and increases feelings of connectedness among nursing home residents (Gueldner et al., 2001). Telephone services for older adults can provide health information and monitor their health. Telehealth services can decrease the number of visits to emergency departments and physician offices, which can save health care dollars (MacMaster, Goldenberg, Beynon, & Iwasiw, 1999).

Many older adults experience difficulties in using their telephone. Telephone menu systems are frustrating for all of us, but even more so for older adults. Menu options are often presented too rapidly. The location of the telephone in a house can also impede access. Having a telephone in the kitchen is useful for daily calls, but having a telephone in the bedroom is helpful for emergencies (Cream & Teaford, 1999).

Today, telephones offer many features, some of which compensate for impairments faced by older adults (Mann, 1997). Fine motor impairment can be compen-

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sated for by telephones with bigger buttons, redial, and memory features. Ringer amplification control and voice amplification control can compensate for hearing impairment. If the individual is deaf, special telephones called telecommunication devices for the deaf (TDDs) can be used. TDDs "provide a keypad for sending messages and a digital display for reading the message from the sender. It requires either that users on both ends of a call have a TDD or that a relay service be used" (Mann, 1997, p. 326). Visual impairment is another common problem experienced by older adults that can be compensated for with bigger buttons, buttons that light up, and buttons with better contrast. To address mobility impairment, telephones that can be answered across the room, such as a remote speaker telephone, can be used. Another option is a cordless telephone or mobile telephone that the person can always have close by.

Although telephones with special features can be easily found in stores, many older adults who need them do not have them, or are not using them. Furthermore, some older adults have difficulties with certain features. The problems they have with their telephones can be categorized as: need for repair, maintenance, or both; poor device performance; and poor person-to-device fit. Older adults are often unaware of the telephone features that make it easier to use and perform more functions (Mann, Hurren, Charvat, & Tomita, 1996).

This study complements an earlier study on the use of the telephone (Mann et al., 1996) by exploring the needs and barriers of the use of the telephone and its features from the perspective of older adults. The study also provides more information about older adults' awareness and use of telephone features.

Methods

The purpose of this study was to better understand how older adults use their standard telephones, if they are satisfied with them, and what features they would like to add to their telephones. In meeting the University of Florida Rehabilitation Engineering Research Center on Technology and Aging mission to advance the utility and ease-of-use of products for older adults, consumer feedback was sought on communication technologies and assistive technology. Consumer feedback in this study was structured around the following research questions:

1. *Telephone ownership, use, and satisfaction*: How many telephones, by type, were owned by study participants? How often were they used? Are par-

Table 1
Demographic Data of the Participants (n = 609)

Characteristic	No. (%)
Age (y)	
Mean	74.4
Standard deviation	8.4
Gender (n = 602)	
Female	411 (68.3)
Male	191 (31.7)
Race (n = 604)	
White	553 (91.5)
Black	35 (5.8)
Hispanic	4 (0.7)
Asian	3 (0.5)
Other	9 (1.5)
Education level (n = 604)	
College (bachelor's degree or higher)	289 (47.8)
Some college, no degree	102 (16.8)
High school or less	213 (35.3)
Marital status (n = 602)	
Married	243 (40.4)
Not married	359 (59.76)
Living status (n = 598)	
Live alone	288 (48.2)
Live with someone	310 (51.8)
Housing status (n = 589)	
Own	411 (69.8)
Rent	133 (22.6)
Other	45 (7.6)
Type of house (n = 576)	
Single-family detached home	320 (55.6)
Senior apartment	51 (8.8)
Retirement community	48 (8.3)
Townhouse or condominium	38 (6.6)
Walk-up apartment building	29 (5.0)
Elevator apartment building	27 (4.7)
2-unit building	19 (3.3)
Mobile home in mobile park	11 (2.0)
Isolated mobile home	9 (1.6)
Other	24 (4.2)

ticipants satisfied with their telephones? Are their telephones important to them? For what purpose do they use their telephones?

2. *Problems experienced with telephones*: Do they have enough time to get to the telephone when they

Table 2 Chronic Conditions Reported by Study Participants (n = 605)	
Condition	**No. (%)**
Fatigue	393 (65.0)
Joint problems	351 (58.0)
Muscular weakness	347 (57.4)
Difficulty with hand tasks	306 (50.6)
Bladder/bowel control problems	296 (49.0)
Back problems	269 (44.5)
Poor hearing	202 (33.4)
Low vision	194 (32.1)
Paralysis of legs	178 (29.4)
Memory difficulties	177 (29.3)
Paralysis of arms	100 (16.6)
Speech difficulties	81 (13.4)
Learning disability	32 (5.3)
Blind	28 (4.6)
Deaf	20 (3.3)
Other	125 (20.7)

Table 3 Activities Difficult to Perform (n = 544)	
Activity	**No. (%)**
Climbing stairs	420 (77.2)
Walking	383 (70.4)
Doing housework	331 (60.8)
Getting out of chair	278 (51.1)
Shopping	264 (48.6)
Driving	251 (46.1)
Bending	244 (44.9)
Preparing meals	194 (35.7)
Writing	180 (33.1)
Getting on and off the toilet	175 (32.2)
Bathing	174 (32.0)
Getting dressed	165 (30.3)
Using a computer	130 (23.9)
Managing bowel/bladder tasks	103 (18.9)
Reading	101 (18.6)
Using the telephone	89 (16.7)
Grooming	76 (14.0)
Holding eating utensils	71 (13.1)
Other	72 (13.2)

receive a call? Do they have problems with wiring across the floor? What prevents them from using more features?

3. *Use of telephones in emergencies*: Have they ever needed their telephones in an emergency and, if so, were they able to use them successfully?

4. *Telephone features*: What features could be added to their telephones that would help them? Which features do they have in their telephones, and which features do they use?

The protocol and consent form for this study was reviewed and approved by the University of Florida Institutional Review Board.

Sample

Six hundred and nine older adults with chronic health conditions that limit activities were surveyed from 2001 to 2002. Among older Americans, 28.8% of those aged 65 to 74 years and 50.6% of those older than 75 years have chronic health conditions that limit activities (Fowles, 2001). All of the participants had at least one telephone in their home and were at least 60 years old with a mean age of 74.4 years. Women represented 68.3% of the sample, 91.5% were white, 47.8% had completed college, 40.4% were married, 48.2% lived alone, and 69.8% owned their own home (Table 1).

The most common chronic conditions reported by participants were fatigue (65.0%), joint problems (58.0%), muscular weakness (57.4%), difficulty with hand tasks (50.6%), bladder and bowel control problems (49.0%), and back problems (44.5%) (Table 2). The activities reported as being most difficult to perform were climbing stairs (77.2%), walking (70.4%), doing housework (60.8%), getting out of a chair (51.1%), shopping (48.6%), driving (46.1%), and bending (44.9%) (Table 3).

Data Collection

Data for this study were collected with a questionnaire that included yes or no, multiple-choice, open-ended, and Likert scale questions and answers. Basic demographic data were requested along with the responses to the questionnaire. Prior to distributing the questionnaire, it was reviewed by professionals and older adults with chronic health conditions and revised in response to reviewer feedback.

Appointments were scheduled at times convenient for study participants. Occupational therapists and nurses experienced in research interviewing conducted the interviews, which required approximately 1 hour to complete. Six hundred and nine study participants were surveyed; 53 surveys were conducted face-to-face in the participants' homes, 168 interviews were conducted by telephone or home in-

terview, and 388 were completed using a mailed survey. The telephone and in-home interviews included older adults from Western New York, Southern California, and Northern Florida. The mailed survey included older adults with disabilities throughout the United States. The use of a combination of in-home and telephone interviews and a mailed survey made it possible to include a larger sample.

The Southern California sample (n = 18) were drawn from patients who received services at Ranchos Los Amigos Medical Center in Downey, California. The in-home interviews were completed at a continuous care retirement community in Naples, Florida, and with study participants identified by the Rehabilitation Engineering Research Center on Technology and Aging in Northern Florida and Western New York. The mailed survey included older adults with disabilities from across the United States who had subscribed to an assistive technology information service called Project Link (Mann, 1994).

Analysis

Descriptive statistics were used to report sample characteristics. All analyses were completed using SPSS version 11.0 software (SPSS, Inc., Chicago, IL). Frequencies for categorical variables, means, standard deviations, and ranges for non-categorical variables and cross-tabulation of study participants were reported.

Results
Telephone Ownership, Use, and Satisfaction

Touch-tone telephones had the highest ownership rate (1,294; mean = 2.12), followed by cordless telephones (723; mean = 1.2), rotary telephones (133; mean = 0.21), and TDD telephones (35; mean = 0.10). There were 66 telephones in the category of Other (mean = 0.10). Daily telephone use was reported by 86.1% of the participants (Table 4). Although a previous study (Cream & Teaford, 1999) found that daily telephone calls were usually made from a telephone located in the kitchen, the current study did not explore telephone location in the participants' homes. However, most of the participants had more than one telephone.

The most common reasons for using a telephone were social contact (98.2%), setting up medical appointments (90.3%), refilling prescriptions (81.2%), business (55.6%), and calling for help/assistance (49.0%). More than twice as many study participants used the telephone for social contact than for connecting to the Internet.

Most of the participants were very satisfied with their telephones. The highest rate of satisfaction

Table 4 Telephone Use	
Criteria	**No. (%)**
Frequency	
Daily	521 (86.1)
3–6 days/week	54 (9.0)
1–2 days/week	18 (3.0)
1 day/week	12 (2.0)
Reason	
Social contacts	591 (98.2)
Medical appointments	544 (90.3)
Refilling prescriptions	489 (81.2)
Business	335 (55.6)
Calling for help/assistance	295 (49.0)
Connecting to the Internet	262 (43.5)
Shopping	245 (40.7)
Banking	238 (39.5)
Other	50 (8.3)

(64.1%) was with touch-tone telephones (Table 5). More than half of the participants stated that the telephone was a very important device (Table 6). This finding is consistent with Fricke and Unsworth (2001), who reported that the use of the telephone is one of the most important IADLs performed in the course of a day. Touch-tone telephones had the highest proportion of the study participants (90.3%) rating them as important.

Problems Experienced With Telephones

The participants were almost evenly divided when asked whether they had enough time to get to the telephone when they received a call; 272 (45.9%) of the participants responded yes, whereas 320 (54.1%) responded no. Approximately 1 in 10 (65; 10.1%) had problems with long telephone wires across the floor. Cost was cited as the major reason that prevented participants from using more features (53.6%), followed by a lack of perceived need (32.3%), lack of knowledge of the device (27.1%), too complicated or confusing (14.5%), mobility (10.3%), access (9.2%), and too difficult to learn (9.0%) (Table 7).

Use of Telephones in Emergencies

Participants were asked whether they had ever needed to use their telephone in an emergency; 394 (65.9%) responded yes and 204 (34.1%) responded no. Of those who had used their telephone in an emergency, 358 (91.8%) had used it

| | | Table 5 | | | | |
| | | Telephone Satisfaction | | | | |
Type	Missing	Not at All Satisfied (%)	Not Satisfied (%)	Somewhat Satisfied (%)	Very Satisfied (%)	Total
Touch-tone	22	9 (1.7)	18 (3.4)	164 (30.8)	341 (64.1)	554
Cordless	23	27 (5.8)	28 (6.1)	135 (29.2)	272 (58.9)	485
Rotary	8	5 (5.9)	7 (8.2)	36 (42.3)	37 (43.5)	93
TDD	4	3 (15.8)	—	5 (26.3)	11 (57.9)	23
Other	4	2 (4.2)	7 (14.6)	13 (27.1)	26 (54.2)	52

TDD = telecommunication device for the deaf.

| | | Table 6 | | | | |
| | | Telephone Importance | | | | |
Type	Missing	Not at All Important (%)	Not Important (%)	Somewhat Important (%)	Very Important (%)	Total
Touch-tone	25	7 (1.3)	16 (3.0)	91 (17.2)	478 (90.3)	554
Cordless	29	9 (2.0)	14 (3.0)	79 (17.3)	354 (77.6)	485
Rotary	9	7 (8.3)	10 (12.0)	17 (20.2)	50 (59.5)	93
TDD	4	4 (21.0)	1 (5.2)	2 (10.5)	10 (52.6)	23
Other	4	3 (6.2)	2 (6.2)	6 (12.5)	37 (77.1)	52

TDD = telecommunication device for the deaf.

successfully and 32 (8.2%) were not able to use it successfully.

Telephone Features

Few of the study participants provided responses when asked what features could be added to their telephones that would help them. Of those who did respond, 13.3% would like to be alerted when mail (traditional land mail) arrived, 8.2% would like to be alerted about time and weather and conditions, 5.7% would like to be alerted when someone was at the door, 5.1% would like to have a feature to block telemarketers, and 3.4% would like to have a voice-activated telephone (Table 8). The participants were also asked which telephone features they had and which features they actually used. Participants who had particular features on their telephones did not always use them (Table 9).

Discussion

This study confirms earlier findings about the importance of the standard telephone for older adults (Fricke & Unsworth, 2001; Mann et al., 1996). Overall, they were satisfied with their telephones and considered them to be important devices. Almost all participants used their telephones every day.

Among all of the activities that participants find difficult to perform, using the telephone was rated very low. Only 16.7% of participants reported having problems performing this activity. However, approximately half of the participants reported not being able to get to the telephone in time to answer, which can be explained by their difficulties in climbing stairs, walking, and getting out of a chair. This finding suggests that the location of the telephone in a house is more problematic than the use of the telephone itself. An earlier study reported that the location of the telephone in the house can be a barrier to its use (Cream & Teaford, 1999).

Occupational therapists could play a role in suggesting better placement of existing telephones, such as next to a favorite chair or couch. Rearrangement of furniture and providing additional furniture such as a bedside table are other options. Likewise, therapists could recommend the use of a cordless or mobile telephone and additional devices or features such as an answering machine or a remote speaker telephone that can be answered from across the room.

Another concern raised by this study is wires running across the floor that could cause a fall. Use of cordless telephones, better placement or wiring, installation of new jacks, or additional telephones could serve as alternatives to this unsafe practice.

Table 7
Factors That Prevent Use of Telephone Special Features (n = 601)

Factor	No. (%)
Cost	322 (53.6)
Lack of perceived need	194 (32.3)
Lack of knowledge of devices	163 (27.1)
Too complicated or confusing	87 (14.5)
Mobility	62 (10.3)
Access	55 (9.2)
Too difficult to learn	54 (9.0)
Hearing impairment	46 (7.6)
Visual impairment	41 (6.8)
Training not available	31 (5.1)
Lack of user manual	26 (4.3)
Pain	24 (4.0)
Privacy/trust	21 (3.5)
Cognitive impairment	16 (2.7)
Not interested	8 (1.3)
Other	65 (10.8)

Table 8
Telephone Features That Participants Thought Would Be Helpful

Feature	No. (%)
No opinion	89 (25.2)
Alert when mail has arrived	47 (13.3)
Alert about time and weather	29 (8.2)
Alert when someone is at the door	20 (5.7)
Block telemarketers	18 (5.1)
Voice activated	12 (3.4)
Caller identification	10 (2.8)
Reminder to take medication	8 (2.3)
Button for emergency	4 (1.1)
Other	116 (32.9)

Table 9
Telephone Features That Participants Have and Use[a]

Feature	Have No. (%)	Use No. (%)
Redial	491 (88.5)	384 (76.5)
Ringer volume control	486 (86.6)	358 (73.1)
Answering machine	441 (76.9)	414 (91.2)
Memory dial	404 (75.1)	263 (60.2)
Lighted keypad	243 (43.7)	198 (68.5)
Speaker	221 (41.7)	153 (55.6)
Amplification	215 (40.0)	151 (52.4)
Big buttons	151 (28.1)	137 (62.0)
Call waiting	141 (25.3)	128 (61.8)
Paging ringer	119 (23.4)	48 (27.7)
Caller identification	114 (21.3)	96 (50.3)
Voice mail	74 (13.4)	62 (40.8)
Visual ring signal	73 (14.6)	55 (36.2)
Headset	60 (11.0)	46 (32.6)
Hearing compatibility	58 (11.4)	34 (26.7)
Photographs/pictures	7 (1.3)	1 (1.2)
Braille keypad	3 (0.6)	—

[a]Not all participants provided an answer for this question. The percentage was computed after removing respondents with missing values.

More than half of the participants had used the telephone for emergency purposes and most of them were able to use it successfully. However, the main reason for using the telephone was to make social contacts and to set up medical appointments.

When asked about the features they would like to have on their telephones, few participants provided an answer. Several of those who did respond suggested an "alert" function so they would be alerted when mail arrives and about time and weather conditions.

Common features used by participants included redial, ringer volume control, and an answering machine. More than half of the participants did not use more features because of the cost of getting a telephone with additional features. Some participants lacked the knowledge of the features. Speaker, amplification, and large buttons are features that can help with sensory declines, but these features are underutilized. Telephones with these features are relatively low-cost; therefore, it may be that many older adults are not aware that they are affordable (Mann et al., 1996). Occupational therapists could play a role in providing information on sources of assistance for acquiring telephones with special features. Every state has a program to provide telephones for individuals with disabilities below a set income level.

This study strongly suggests a role for occupational therapists relative to traditional telephones. Therapists should be prepared to address issues related to telephone placement and wiring, furniture placement, and provision of information about cost and telephone features that address specific impairments. Therapists can also address issues about

background noise, telephone maintenance, nuisance calls, and special services.

As underlying technologies develop, the traditional telephone is being replaced by new devices or integrated into multi-purpose devices. Smart telephones are available that offer Internet connectivity, personal digital assistant functions, and camera functions, as well as traditional voice communication. The Internet offers the opportunity for "visual" social contact by sending e-mails with attached pictures, or using a Web camera. Future research should address the challenges older adults may face when using new communication devices to ensure their successful use.

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