

Perceived technology needs among older Mexican Americans

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P.R. Pennathur, L.R. Contreras, W. Dowling. Technology use among older Mexican Americans. Gerontechnology 2008; 7(1):58-61. The Mexican-American minority of the USA is rapidly aging, and at the same time disadvantaged with poor health and low income. Use of various home, work, and healthcare technologies was assessed in this study with a questionnaire (n=108). The association of age, gender, marital status, education level and yearly income on one side and technology use on the other was studied with multiple logistic regression analysis. No difference in technology use appeared between male and female subjects. Income level and marital status were found associated with use of VCR/DVD (odds ratio = 1.19, $p < 0.05$), cellular phones (odds ratio = 0.19, $p < 0.05$), automobiles (odds ratio = 14.40, $p < 0.05$) and blood pressure monitors (odds ratio = 5.91, $p < 0.05$). Education and promotion of awareness of the benefits of technology are key challenges for policymakers.

Keywords: technology use, Mexican American, older adults

Older adults use new technologies, such as automatic teller machines (ATMs), video-enabled communication devices and cell phones for independent and competent living¹. The older Mexican American population along the border region in El Paso is unique in demographics: over 60% is 60 years or older, as compared to 5% of the US population². This study addresses use and need for enhancing technologies as perceived by active older Mexican American adults and the barriers they encounter.

METHODS

After approval from the human subjects review board, a questionnaire was administered at four senior recreation centers in El Paso county that were selected by the El Paso Aging Services Administration. Four

survey administrators (2 trained in English, and 2 trained in Spanish) traveled to senior centers, informed the older persons present with a PowerPoint presentation, distributed survey booklets, monitored and guided participants, and collected completed survey booklets. Only interested subjects (n=108) could enter the survey, meaning that we sampled the more active and vital part of the older population. Participants could choose between Spanish and English questionnaires.

To reduce translation bias, a bilingual native speaker of Spanish translated the English version of the questionnaire³ into Spanish. Accuracy of the translation was ensured by a back-translation approach. The questionnaire used in the study is available from the authors upon request.

We added an item on car driving. For each technology, participants were asked whether they used the technology, and how often if they used it. Non-users were asked to specify the reasons for not using. Open-ended questions were added for each technology.

In total 99 older Mexican Americans completed the questionnaire (41 men and 58 women). In the mean the women were younger and had less income than the men. 50% of the women formed a 1-person household, against only 42% of the men. Educational level of men and women did not differ. Forty participants answered the survey in English and sixty-eight in Spanish (*Table 1*).

For each technology, its use as the response variable was measured with multiple logistic regression⁴ based on the proportion of users and non-users. Predictor variables were the demographics parameters, highest completed level of education (categorical with 6 levels – elementary school, high

school, bachelor degree, graduate degree, technical degree and other), and total yearly income levels (categorical with 5 levels – less than US\$ 10,000, US\$ 10,001 to US\$ 20,000, US\$ 20,001 to US\$ 30,000, US\$ 30,001 to US\$ 40,000 and above US\$40,001). Confidence limit was set at 5%. A Logit link function for the logistic distribution was used for model fitting⁴. Non-users were considered the reference event. Odds-ratios and goodness-of-fit test statistics were generated.

Since data collection was conducted at senior centers and information was only collected from participants that completed the questionnaire, the study is biased for the more active and vital older adults with transportation means.

RESULTS

Age, gender, marital status, education levels and income levels were not associated with using a TV, remote control, electric blender, ATM, blood sugar monitor, or medical bracelets.

Table 1. Characterization of the 41 males and 58 females participating in the study

Age in years	Marital Status				Highest completed education			Yearly income x US\$ 1,000				
	Married	Single	Widowed	Divorced or separated	< High School	High School	College degree	Unknown	<10	10-30	>30	Unknown
Males												
< 65	0	0	2	0	1	1	0		0	1	0	
65-69	6	0	0	2	2	4	1		3	3	1	
70-74	10	2	2	0	6	5	1		10	4	0	
75-79	6	0	4	0	4	5	0		4	7	0	
≥ 80	2	2	3	0	2	3	2		4	1	0	
Totals	24	4	11	2	15	18	4	4	21	16	1	3
Females												
< 65	7	1	2	1	4	4	1		12	3	0	
65-69	8	0	2	1	5	5	1		7	1	1	
70-74	7	2	6	1	4	8	2		13	1	0	
75-79	3	0	7	0	3	4	1		4	4	0	
≥ 80	4	0	5	1	3	4	2		4	3	0	
Totals	29	3	22	4	19	25	7	7	40	12	1	5

Increasing age was associated with increasing odds of being a non-user of a VCR/DVD (odds ratio 1.2, 95% interval 1.0-1.4), caller ID on telephones (odds ratio 1.1, 95% interval: 1.0-1.3), and electric can openers (odds ratio 0.9, 95% interval: 0.8-1.0).

A low income (US\$ 10,000 to US\$ 20,000) was associated with increasing odds of being a non-user of VCR/DVD technology (odds ratio 0.1, 95% interval 0.0-1.0) and cellular phones (odds ratio 0.2, 95% interval 0.0-0.9). Income between \$20,001 and \$30,000 was associated with increasing odds of being a user of a home computer.

Being widowed was associated with increasing odds of not driving a car (odds ratio 14, 95% interval 2 to 133) and of not using blood pressure monitors (odds ratio 5.9, 95% interval 1.0-34.3). A yearly income of US\$ 20,000 to US\$ 30,000 was associated with computer use at home.

Important barriers for non-users were lack of perceived need for the technology and cost (*Table 2*). In addition open-ended comments from the older adults revealed that some technologies were lacking interface design features and some were clumsy to use. For example, one of the reasons home computers were found dif-

Table 2. Percentage of users (n=99) and their highest frequency of use of selected technologies, and barriers perceived by the non-users; N/A = not applicable; a = cannot drive a car

Technology with % of users (highest frequency among users)	Barriers perceived by non-users					
	No need	Too expensive	Use not clear	No trust	Not aware	Other
TV – 98% (Everyday 86%)	0	100	0	0	0	0
Microwave oven – 94% (Everyday 62%)	40	20	0	0	0	40
Electric blender – 93% (1-3 Days / week 52%)	83	0	0	0	0	17
Remote control device – 89% (Everyday 83%)	31	15	23	0	0	31
Vacuum cleaner – 87% (1-3 Days / week 63%)	50	30	10	0	0	10
Car driving – 79% (Everyday 85%)	12	44	32 ^a	0	0	12
VCR/DVD – 70% (1-3 Days / week 60%)	32	34	22	0	10	2
Caller id on telephone – 59% (When receiving 81%)	38	46	0	0	0	16
Electric can opener – 58% (1-3 Days / week 42%)	67	12	7	0	5	9
Blood pressure monitor – 25% (1-3 Days / week 44%)	42	33	15	0	6	6
Blood sugar monitor – 25% (1-3 Days / week 45%)	71	12	8	0	6	4
Home computer – 25% (1-3 Days / week 32%)	35	27	28	0	0	10
ATM – 22% (1-3 Days / week 48%)	59	0	16	17	0	9
Cellular phone – 21% (Sometimes 50%)	35	42	16	0	0	8
Medical bracelets – 6% (N/A)	42	8	8	1	32	9

difficult to use were the numerous software and hardware updates and lack of training and support.

DISCUSSION

The most important reported barrier to using new technologies is absence of a perceived need, followed by income level, and 'use not clear'. While a separate response item to understand why they do not need certain technologies was not included in the questionnaire, informal comments of participants provided the view that cultural factors might play a role. Consumer buying decisions among the micro-culture are also influenced by the product type, utilitarian vs. entertainment, and are found to be different from the host culture⁵. The high percentage of undetermined other perceived barriers in case of the microwave and remote control devices may be culture related.

Older Mexican Americans do not differ from other Americans in their use of televi-

sion, a microwave oven or remote control devices, but make lesser use of other new technologies^{6,7}. About 1/5th of the non-users of remote control devices, VCR/DVD, and home computers state that the use of these technologies is not clear, indicating the current design needs improvement.

Widowed older Mexican American adults are significant non-users of even basic medical instrumentation such as blood pressure or blood sugar monitors. Since older Mexican American adults are at a higher risk for diabetes and cardiovascular disease⁸, this low prevalence of use of medical monitoring technologies presents additional health risks.

The lack of awareness and use of enhancing technologies, such as medical bracelets, presents key challenges for policymakers: (i) education and promotion of awareness of the potential benefits of the technology, and (ii) making these technologies affordable to many.

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