Addressing Barriers to Care: An Integrative Model Approach to Understanding Older Adults' Perceptions of Teleneuropsychological Modalities

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INTRO

- 5.8 million Americans age 65+ with dementia in 2020 (Alzhiemer's Association, 2020).
- Among patients with positive screening results for dementia, approximately half (47.7%) refused further assessment to confirm their screening results. (Boustani, 2006)
- Psychological factors, such as subjective cognitive decline, anxiety, depression can act as barriers that prevent individuals from participating in cognitive screenings.
- Timely detection and intervention of dementia symptoms have shown to lead to better health outcomes and reduced healthcare costs (Getsios et al., 2010; Barnett et al. 2014).
- Other barriers to services include cost, time away from work, transportation difficulties, living in a rural setting, and mobility issues.
- These barriers to early detection could be mitigated by the convenience, comfortability, and cost-effectiveness of teleneuropsychology.
- We integrated The Health Belief Model (HBM) and Technology Acceptance Model (TAM) to determine older adults' perceived likelihood to engage in teleneuropsychological services (Glasgow & Stange, 2013; Davis, 1989).

SPECIFIC AIM

Investigate the impact that perceptions around technology and cognitive assessment in addition to psychological, financial, and physical barriers have on older adults' perceived likelihood to participate in various teleneuropsychological modalities (e.g. smartphone, computer, tablet).

METHODS

A nation-wide sample of 483 adults ages 50-79 completed an online survey via the crowdsourcing website Amazon Mechanical Turk. Demographic information including age, sex, race, geographic location, and income was obtained from participants. Likelihood of participation in teleneuropsychological services was measured using 4 Likert-scale items. Total likelihood was calculated by summing items. The SCD-MyCog (Rami et al, 2014) Questionnaire was used to calculate total SCD score. Items from The The Perceptions Regarding Investigational Screening for Memory in Primary Care (PRISM-PC) were summed to create total Assessment Benefit and Acceptance Items. The PRISM-PC is a questionnaire based on the HBM that has previously been used to study older adults' likelihood of participation in cognitive screening (Fowler & Boustani, 2014).
Anxiety and depressive symptoms were measured using Patient-Reported Outcome Measurement Information System scales. Participants were also asked how likely they would be to participate in various teleneuropsychological modalities (e.g. tablet, computer, smartphone, and videoconference). Participants rated their ability to use these various modalities (Technology Usability). They were also asked how they perceived home-based cognitive assessment to be beneficial compared to in-person assessment (Technology Usefulness).

RESULTS

Table 2.
Univariate Regression Predicting Likelihood of Participation in Teleneuropsychological Service

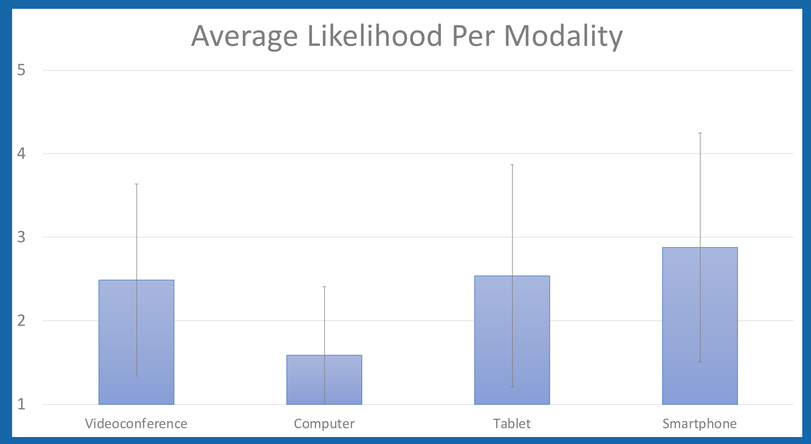
Variable	B	SE	F	P-value	M(SD)	Range
Age	-.016	.007	5.026	.025*	63.61 (5.47)	50-79
Race	-.009	.049	.032	.858		
Sex	.145	.084	2.96	.086		
Income	.087	.026	11.541	.001*		
Technology Usability	.179	.020	82.28	<.001*	9.73 (1.8)	4-20
Technology Usefulness	.242	.025	95.70	<.001*	12.13 (1.47)	7-14
Perceived Benefits	.082	.008	112.66	<.001*	29.33 (4.68)	7-35
Perceived Acceptance	.129	.011	149.77	<.001*	15.95 (3.32)	4-20
Subjective Cognitive Decline	.024	.007	12.42	<.001*		
Anxiety	.004	.007	.275	.600	4.71 (5.77)	0-24
Depression	-.005	.006	.621	.431	13.04 (5.68)	7-31
Mobility Issues	.030	.116	.066	.797	13.18 (6.32)	8-39
Geographic Location	-.005	.058	.007	.933		

Table 1.
Demographics of Study Sample

Variable	N	%
Total	483	100
Sex		
Male	162	33.5
Female	321	66.5
Race		
White	446	92.3
Black or African American	20	4.1
Other	17	3.6
Geographic Location		
Rural	137	28.4
Suburban	253	52.3
Urban	93	19.3
Total Household Income		
0 - 20,000	85	17.6
20,001- 40,000	139	28.8
40,001- 60,000	103	21.3
60,001 – 80,000	71	14.7
>80,001	85	17.6

Variables Predicting Increased Likelihood of Participation

Variable/Model/Concept	Specifiers Measured
Age	N/A
Technology Acceptance Model	Technology Usability Technology Usefulness
Health Belief Model	Perceived benefits of cognitive assessment Perceived acceptance of cognitive assessment
Psychological Barriers	Subjective cognitive decline
Financial Barrier	Income

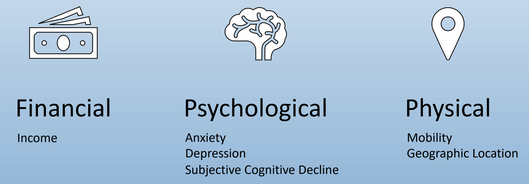


DISCUSSION

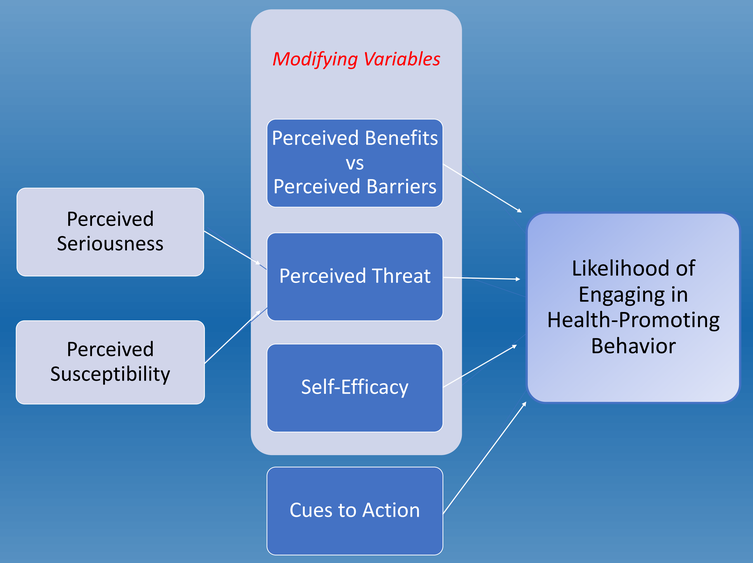
Physical barriers of mobility and geographic location do not appear to play a significant role in older adults' likelihood of participation in teleneuropsychological services. However, variables from the Technology Acceptance Model (Technology Usability and Usefulness) and Health Belief Model (Perceived Benefits and Acceptance of Assessment) were strong predictors in increased likelihood. Likewise, income and subjective cognitive decline also significantly predicted increased likelihood of participation. These suggest that income and perceptions about one's own cognition may play a role in older adults' likelihood to participation in teleneuropsychological services. Additionally, perceptions around technology and cognitive assessment also largely influence perceived likelihood of participation.

THEORETICAL APPROACH

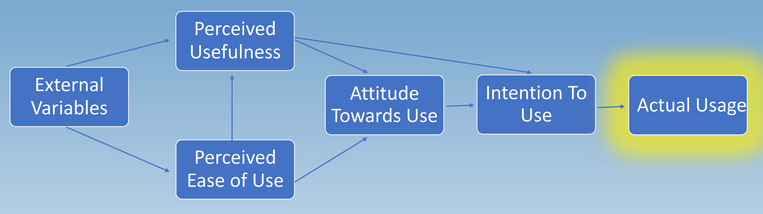
Barriers to In-Person Assessment



Health Belief Model



Technology Acceptance Model



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