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Older adults use of online and offline sources of health information and constructs of reliance and self-efficacy for medical decision making

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Abstract

Background—Little is known about older adults' use of online and offline health information sources for medical decision-making despite increasing numbers of older adults who report using the Internet for health information to aid in patient/provider communication and medical decision-making.

Objective—To investigate older adult users and nonusers of online and offline sources of health information and factors related to medical decision-making.

Methods—Survey research was conducted using random-digit-dialing of Florida residents' landline telephones. The Decision Self-Efficacy Scale and the Reliance Scale were used to measure relationships between users and nonusers of online health information.

Results—Study respondents were 225 older adults (age range 50–92, M = 68.9, SD = 10.4), which included users (n = 105, 46.7%) and nonusers (n = 119, 52.9%) of online health information. Users and nonusers differed in frequency and types of health sources sought. Users of online health information preferred a self-reliant approach and nonusers of online health information preferred a physician-reliant approach to involvement in medical decisions on the Reliance Scale.

Conclusion—This study found significant differences between older adult users and nonusers of online and offline sources of health information and examined factors related to online health information engagement for medical decision-making.

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Introduction

Patients' interest in accessing and utilizing information to inform their healthcare decision making and increase their healthcare knowledge and management is well known (Benbassat, Pilpel, & Tidar, 1998; Flynn et al., 2006). However, prior to the World Wide Web access to health information was limited. Traditionally patients obtained information from healthcare providers, mass media sources, or local community members deemed knowledgeable about health issues (Cotton & Gupta, 2004). Today, the Internet offers patients a convenient way to access a wide variety of health prevention and disease management information which can be used to assist with medical decision making (Ybarra & Suman, 2006). Through such applications as personal health records, email, and transmission of medical data from home based devices the Internet can be used as a medium to improve patient-provider communication and as a result quality of care (Kruse, et al., 2012). Recently, in its publication "Best Care at Lower Cost: The Path to Continuously Learning Health Care in America," the Institute of Medicine endorsed current innovations in digital access to health information as improving both healthcare delivery and patient involvement in decision making (Smith et al., 2012).

Through digital access to health information, patients are now taking a more active approach to managing their health. For example, chronic disease patients report using the Internet to seek information that will improve their condition and inform health decisions (Fox, 2007; Fox & Purcell, 2010). In a 2007 study, approximately 75% of all chronic disease patients who used the Internet reported conducting a health information search that contributed to a treatment decision, and 69% stated the information prompted them to ask new questions of their doctors (Fox, 2007). While significant increases in Internet use for health information have been noted in the last decade, little is known about how Internet access to health information affects health related decision-making in older adults (Fox, 2007; Taha, Sharit, Czaja, 2009; Zickuhr & Madden, 2012).

Many medical and health related decisions involve numerous options, with many lacking an optimal clear choice (Frosch et al., 2008). Since older adults often deal with chronic diseases and use healthcare services at a much greater rate than younger adults, they frequently are faced with increased medical decision-making (Anderson, 2010; Taha et al., 2009; Xie, 2009). The Internet is increasingly seen as a useful aid in decision-making (i.e., a tool that provides unbiased information about the advantages and disadvantages of a specific choice) (Stacey et al., 2012; Frosch et al., 2008).

A recent Cochrane review found that decision aids, such as videos or web based tools, increased patient knowledge and their engagement in decision making, improved understanding of medical health outcomes, and ultimately increased patient satisfaction with their decision (Stacey et al., 2012). A randomized controlled trial involving the use of Internet decision support sites by men contemplating prostate cancer screening found

differences between the control and intervention groups in decisional conflict and knowledge differences (Frosch, et al., 2008).

In a 2010 survey, adult Internet users and nonusers ages 40 and over (N = 2,575) rated a doctor as their primary source of information when making medical decisions (Couper, et al., 2010); the Internet was the second most popular source cited by Internet users (Couper et al., 2010). Adults who reported using the Internet to aid in medical decision-making most often accessed information relating to surgeries, medications, and cancer screenings (Couper et al., 2010). It is important to note that health-related information obtained via the Internet does not replace, but augments physician input into major health choices; in fact, only 28 percent of respondents in Couper and colleagues sample reported making a specific medical decision using only information found online. While this study sheds light on patients' use of the Internet for informing medical decisions, findings are limited. Specifically absent is discussion of the relationship between older adults' use of the Internet for health information and their ability or confidence to engage in medical decision making (Couper et al., 2010).

Self-efficacy has been widely used to predict behavior by assessing an individual's confidence or skill level to perform a particular task or behavior (Bandura, 1997). The current literature offers studies using self-efficacy measures to predict technology-use behaviors and one's ability to make informed medical decisions (Chu, Mastel-Smith, 2010; Cranney et al., 2002; Czaja et al. 2006), and patients' confidence in their ability to obtain health information pertaining to treatment options and concerns related to making informed choices (Bunn & O'Connor, 1996; Campbell, 2004; Cranney et al., 2002). However, the literature offers scant evidence evaluating the relationship between older adults who access health information via the Internet and their perceived self-efficacy for utilizing the retrieved information when making medical decisions.

Reliance and Medical Decisions

Growing use of technology in the medical decision making arena has caused a shift in the U.S. healthcare system. Informed medical consumers have shifted medical decision making from the traditional or provider-centric approach to that of a shared decision between the physician expert and an informed consumer or patient (Xie, 2009). As a result, physicians increasingly expect patients to take a more active role when making healthcare decisions (McNutt, 2004).

While the number of patients who prefer to be highly involved in the medical decision-making process appears to be growing, others prefer the traditional provider-centric approach. Predictive factors correlated to low involvement by patients in decision making include severity of illness, culture, patient role, sociodemographic status, and personality (Xie, 2009). While most patients want illness- or treatment-specific information, preferences for involvement in medical decision making differ (Makoul, 1998). Interestingly, when faced with making a medical decision, independent of the level of preferred involvement, most people seek health-related information. However, research describing patients reasons for seeking health information, the benefits obtained from the information, or the impact of access to online health information on the patient/provider relationship is limited (Bagley-Burnett 2004; Bylund, Sabee, Imes, & Sanford, 2007; Xie, 2009).

Makoul (1998) characterized “physician-reliant” patients as individuals who (1) rely on a doctor to make their medical decisions, and (2) are typically uninterested in talking about treatment options. In contrast, Makoul describes a “self-reliant” patient as an individual who prefers a mutual participation approach when making medical decisions. It should be noted that Makoul developed and tested these constructs prior to the popularity of the Internet as a source for health information. Therefore, the patient characteristics offered by Makoul do not take into account use of health information accessed via the Internet in the health decision-making process. Currently, our understanding of the reliance on, and use of Internet accessed and retrieved information as a construct in medical-decision making is limited. While online health information can greatly affect patient and healthcare professionals’ relationships and health outcomes, only one published study explores these constructs among patients accessing the Internet for health information (Bylund, et al., 2007). Interestingly, Bylund, et al. revealed minimal differences in preferences for discussing Internet accessed health information with a healthcare provider between self-reliant and physician-reliant patient groups. Use of a convenience sample and a sample of individuals who reported only using the Internet for health information limit the generalizability of these findings (Bylund et al., 2007).

To our knowledge, the literature contains few studies investigating health information sources, reliance for medical decisions, and the role of self-efficacy in medical decision making between older American users and nonusers of online health information. To address this gap, the purpose of this study was to (1) assess any differences between users and nonusers of online health information and self-efficacy for medical decision making (2) examine preferences between users and nonusers of online health information and their Reliance, either self-reliant or physician-reliant, for medical decisions, and (3) investigate sources of health information sought by users and nonusers of online and offline health information. The following hypotheses were tested: (H1) there will be no significant difference in Decision Self-Efficacy between users and nonusers of online health information; (H2) users of online health information will be more self-reliant and nonusers will be more physician-reliant on the Reliance Scale.

Methods

We conducted a survey of 225 English speaking adults. The Bureau of Economic and Business Research (BEBR) at the University of Florida conducted random digital dialing (RDD) of landline telephone numbers of respondents 50 years of age and older in the state of Florida. Data were collected during six weeks between April and May of 2013. Approval for this study was granted through the University of Florida’s Institutional Review Board.

Trained telephone interviewers collected all data. The survey was pilot tested and refined to ensure item clarity. The interview script directed interviewers to initially ask to speak with a male household resident age 50 years or older. If a male fitting the criteria was not available, the interviewer asked to speak with a female household resident 50 years of age or older. Upon reaching an eligible respondent, interviewers read the informed consent script. Once an eligible respondent verbally consented, they were read each survey question and all response options. Respondents were not asked to provide any identifiable or confidential

information. The total number of dialed calls was 4,524 and potential respondents were reached at 957 numbers. A total of 159 of the 957 potential respondents were excluded from participation for not meeting the inclusion criteria. Refusals from eligible respondents totaled 573, yielding a final sample of 225 eligible respondents with a response rate of 28.2% eligible respondents.

Measures

Decision self-efficacy—The Decision Self-Efficacy Scale, comprised of 11 questions, was used to measure self-efficacy for medical decision making (O'Connor, 1995). The Decision Self-Efficacy Scale was developed to measure older adults ability or confidence in making informed decisions. The scale measures three constructs of decision making, 1) ability to obtain information (questions 1–4), 2) ability to ask questions (questions 5–7), and 3) ability to make an informed choice in relation to medication decisions (questions 8–11) (Dy, 2007; O'Connor, 1995). The scale's origins stem from decisional conflict concepts, self-efficacy, and research on decision aids (Dy, 2007; O'Connor, 1995). The Decision Self-Efficacy Scale is a valid and reliable scale tested among separate populations of patients with schizophrenia and osteoporosis (Bunn & O'Connor, 1996; Cranney et al., 2002). The three-response version of the Decision Self-Efficacy Scale was chosen over the five-response scale for ease of administration over the phone. Answer categories to statements related to confidence for making choices and obtaining information about medications.

Reliance

Reliance for involvement in medical decisions was measured using two single statements each with a four-item Likert response scale, “strongly agree = 1”, “somewhat agree = 2”, “somewhat disagree = 3”, and “strongly disagree = 4.” Lower scores on this scale correspond to a more physician-reliant orientation and higher scores correspond with a more self-reliant orientation in medical decision making. The original scale developed by Makoul (1998) used a six-item Likert scale, “very strongly disagree = 1,” moderately disagree = 2,” slightly disagree = 3,” slightly agree = 4,” moderately agree = 5,” and very strongly agree = 6.” A score of one or two was associated with a greater self-reliant orientation and a score of five or six with a greater physician-reliant orientation for medical care related decision making. Makoul summed responses from the two statement questions, and then divided them by two; a score of five or six related to a physician-reliant orientation preference and a score of one or two related to a self-reliant orientation preference (Makoul, 1998). A correlation of $r = 0.55$ with a sample size of $N = 269$ at $p < .001$, with a U-shaped distribution and reliability of $\alpha = .71$ were reported between the two reliance items (Makoul, 1998). Makoul (1998) tested this on a range of patients in a primary care setting ($n = 855$, age range 0–87) and found that older adults tend to be more physician-reliant than younger adults. This scale was later modified by Bylund et al. (2007). They used a five-item Likert scale ranging from “strongly disagree = 1” to “strongly agree = 5” and changed references to “doctor” in the two statements to “healthcare provider.” Since neither of the two previously mentioned studies used this scale for RDD data collection, it was modified to a four-item Likert answer scale for administration over the phone, ranging from “strongly agree = 1” to “strongly disagree = 4.” Additionally, we modified the statements by changing “doctor” to “healthcare provider” (Bylund et al., 2007).

Health information sources

Health information sources were measured using the following combination of yes/no questions: During the past 12 months have you sought information regarding a health concern or medical problem from (1) healthcare professionals (2) friends or family members (3) Internet or World Wide websites (4) magazines, brochures, or books (5) newspaper articles (6) television or radio, or (7) other (Cotton & Gupta, 2004).

Additionally, questions were asked to assess the respondents' demographics and prior healthcare experience.

Analysis

A confirmatory factor analysis for latent variables was conducted on the Decision Self-Efficacy Scale. *Mplus* 7.1 (Muthen & Muthen, Los Angeles, CA) was used to test factors and model fit, which met the goodness of fit indices criteria on the Comparative Fit Index (CFI) .95 and Root Mean Square Error Approximation (RMSEA) < .05. We also conducted tests of reliability for internal consistency on each scale; standardized Cronbach's alpha for Decision Self-Efficacy Scale, $\alpha = .83$ and Reliance $\alpha = .67$. We conducted univariate analysis to examine frequency and distribution of study variables; and bivariate analysis to test H1 and H2, and Pearson chi-square (χ^2) tests on independent variable differences between users and nonusers of online health information. All analyses were conducted with SAS 9.3 (SAS Institute Inc., Cary, NC).

Results

Participant Characteristics

The sample consisted of 225 older adults (age range 50–92, $M = 68.9$, $SD = 10.4$); 45.8% were male; and 87.6% were White, 6.7% Black, and 6.3% Hispanic. Overall, the majority (78.1%) of respondents had some college education or greater, while approximately 22% had a high school education or less. The majority (64.5%) reported their health status as “good” or “very good” even though most respondents reported living with one or more chronic conditions. Regarding previous experience with the healthcare system, 67.1% had close friends or family members in the medical field and 44.4% reported taking a health related course or emergency training (i.e., CPR) at some time in the past.

Users ($n = 105$) and nonusers ($n = 119$) of online health information differed significantly on *education* $\chi^2(5, N = 222) = 11.47, p = .04$, *age*, $\chi^2(2, N = 220) = 16.65, p = .0002$, and *healthcare exposure*, specifically on “taken health related courses or emergency training” $\chi^2(1, N = 224) = 4.79, p = .03$. Users of online health information tended to be younger ($M = 66.29$ versus $M = 71.13$) and more educated (87.6% versus 69.2% had *some college* education or more) compared to nonusers. Table 1 offers additional demographic information.

Health Information Sources

Overall, most respondents reported accessing health information through *healthcare professionals* (75.6%), followed by the *Internet or World Wide websites* (46.9%). In

addition to the use of the *Internet or World Wide websites* for health information, when compared to offline users, online users reported more offline use of health information sources: *healthcare professionals*, $\chi^2(1, N = 224) = 26.07, p < .0001$, *friends or family members*, $\chi^2(1, N = 224) = 20.11, p < .0001$, *magazines, brochures, or books*, $\chi^2(1, N = 224) = 29.84, p < .0001$, *newspaper articles*, $\chi^2(1, N = 224) = 7.08, p = .008$, and *television or radio*, $\chi^2(1, N = 223) = 4.15, p = .04$. For online users, after the *Internet* and *healthcare professionals*, the most frequently used sources of health information were *magazines, brochures, books, and friends or family members*. Among nonusers the most often cited sources, after *healthcare professionals* were *television or radio* and *newspaper articles*. Respondents in both groups mentioned accessing additional health information through journal articles, medical bulletins, special agencies that supply information on diseases, and Humana health insurance and home care. See Table 2 for differences in health information source by users and nonusers of online health information.

Decision Self-Efficacy and Reliance

T-test results for differences between health information users and nonusers on the Decision Self-Efficacy Scale and Reliance Scale are presented in Table 3. Our first stated hypothesis (H1) predicted no significant difference between users and nonusers of online health information in Decision Self-Efficacy. Because the Decision Self-Efficacy scores between users ($M = 28.93, SD = 3.41$) and nonusers ($M = 28.79, SD = 4.17$) of online health information were not statistically significant, $t(201) = -.25, p > .05$, H1 was supported.

Using the Reliance Scale, H2 predicted self-reliant scores among users of online health information and physician-reliant scores among nonusers. Statistically significant differences on the Reliance Scale scores were present between users ($M = 4.41, SD = 1.68$) and nonusers ($M = 3.68, SD = 1.78$) of online health information, $t(218) = -3.09, p = .0011, d = .42$. As hypothesized, when making medical decisions, lower scores on the Reliance Scale characterized nonusers as more physician-reliant and higher scores corresponded to more self-reliant users. Therefore, H2 was supported.

ANOVAs were conducted on the Reliance Scale and demographic variables. The two groups differed significantly on *age, education, and chronic disease*. Post-hoc comparisons (studentized maximum modulus used for control of familywise error rate) found significant differences between *age* groups, 50–64 versus 75+, $p = .0030$, *education* groups, High School/GED versus Graduate degree, $p = .0316$, and *chronic disease* groups, no chronic disease versus one or more chronic disease, $p = .0334$. ANOVA and post-hoc comparisons are presented in Table 4.

Discussion

Previous research has addressed the barriers and limitations to older adults' use of the Internet to access health information. Lacking are studies focusing on the factors that promote online access of health information and its usefulness for improved medical decision making (Wagner, Bundorf, Singer, & Baker, 2005; Kiel, 2005). This study examined differences between older adult users and nonusers of online and offline health

information sources and investigated the constructs of Reliance and Self-Efficacy for online health information engagement and medical decision making.

This study found significant differences between users and nonusers of online health information related to their preferred health information sources. Consistent with findings in the literature on health information seeking behaviors, both online health information users and nonusers most frequently sought health information offline from healthcare professionals (Cotton & Gupta, 2004; Couper et al., 2010). Unlike previous findings, however, online health users, when compared to nonusers, accessed more sources of offline health information (Cotton & Gupta 2004; Taha et al., 2009). Online health information users also differed from nonusers on the types of offline information sources sought. Nonusers second most frequently reported source of health information was *television or radio*, whereas online health information users cited use of the *Internet or World Wide websites* after healthcare providers. Given that over half of online health information nonusers reported possessing access to the *Internet* and to *desktop computers*, as well as use of *television or radio* as sources for health information, future research should investigate the relative use and value of audio and video health information sources.

The Reliance Scale results revealed the presence of statistically significant results between health information users and nonusers. Users tended to have higher Reliance mean scores than nonusers, indicating preference for self-reliant involvement in medical decisions. Alternatively, nonusers mean scores point to a preference for physician-reliant decision-making. Demographic factors associated with being more physician-reliant included age (75 or older), education (High School/GED), and chronic disease (having one or more chronic disease); whereas factors associated with being self-reliant included being between 50–64 years of age, college Graduate Degree, and absence of a chronic condition.

User preference for self-reliance when making medical decisions is associated with a shared approach that may lead to increased access to healthcare and improved health outcomes (Makoul, 1998). Because Reliance is not a widely used construct, future research using continuous data would strengthen the interpretation of the findings. Nonetheless, Reliance was a significant factor for engaging in online health information.

No significant differences were found between online health information users and nonusers of health information on the Decision Self-Efficacy Scale. Most respondents in this study used multiple sources of health information. It is challenging to determine if Decision Self-Efficacy for medical decision making among older adults was solely dependent on Internet use. A previous study on Internet users and nonusers found that respondents who used other sources of health information more often based their health decisions on familiar sources of offline instead of online health information (Taha et al., 2009). Future studies are needed to test various combinations or isolated sources of health information available for patients and their self-efficacy for medical decisions.

This was the first study to test the Decision Self-Efficacy Scale in a large, random sample of older adult users and nonusers of online health information. Measuring the constructs of “medical decision making” and “use of the Internet as a decision aid tool” are complex and

challenging constructs to measure (Couper, 2007). Few scales are available to measure these constructs, especially for medical decision making in older adult populations (Dy, 2007; Sung et al., 2010).

As the availability of print sources of health information, such as newspapers and magazines diminish and the Internet becomes the preferred platform for the distribution of and access to health information, the Internet will increasingly be used as a source of health information. Older adults must perceive access to health information through the Internet as beneficial to their well being when compared to other modes of access to health information, such as from healthcare providers or print sources. Benefits and barriers mentioned by older adults about use of the Internet for health information in previous studies, included ease of use, improved knowledge, feelings of connectedness, mistrust, and frustration (Gatto & Tak, 2008; Kiel, 2005; Taha et al., 2009; Wagner et al., 2005). Therefore, additional research is needed to determine what types of preferred health information sources patients use to make medical decisions. Research should also be directed at developing scales to measure medical decision making and Internet based decision aid tools to determine how better to advise and direct patients to useful online decision tools.

Limitations

This study used a RDD sample to collect participant data, however, findings from this study are generalizable only to similar older adults, 50 years and older, in the state of Florida. The sample includes respondents who own landline telephones. This limits findings and results to only landline owners and excludes respondents who only own cell phones. Data were self-reported by respondents and measures are limited to the honesty of respondents' responses and participant interpretation of questions, which could differ from the intended construct. Furthermore, respondents may have responded to questions in a socially desirable manner by providing responses to the interviewer assumed to be favorable.

Conclusion

This study found significant differences between older adult users and nonusers of online and offline sources of health information and examined constructs of Reliance and Self-Efficacy related to online health information for medical decision making. More empirical research is needed to extend the literature on the use of the Internet as a patient decision aid for medical decision making. To aid in this research a scale should be developed and tested to measure constructs of medical decision making and Internet based decision tools. As the Internet continues to be a predominate source of available health information, further research is needed to test constructs that predict use of online health information to bridge information and communication gaps between healthcare providers and older adult patients for improved health outcomes and shared medical decision making.

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Table 1

Demographic and characteristic information of users and nonusers of online health information

Demographic/ Characteristics	All (N = 225)	Users of Online Health Information (n = 105)	Nonuser of Online Health Information (n = 119)	<i>p</i> [*]
Age (yrs, M, SD)	68.9 (10.4)	66.29 (9.2)	71.31 (10.9)	.0002
Education (%)				.0427
12 grade	5.8	3.8	7.7	
High School/GED	16.1	8.6	22.2	
Some College	24.7	26.7	23.1	
Associate's Degree	10.3	9.5	11.1	
Bachelor's Degree	18.4	21.9	15.4	
Graduate Degree	24.7	29.5	20.5	
Exposure to Healthcare (%)				
Had significant illness or injuries requiring extended medical care	39.6	42.9	37.0	.3693
Been employed in a healthcare facility	22.7	23.8	21.9	.7269
Close friends/relatives/roommates in a medical field	67.1	71.4	63.9	.2281
Taken health-related courses or emergency training	44.4	52.4	37.9	.0286
Other ways you have been exposed to healthcare	35.6	40.0	31.9	.2086

Note. M, Mean; SD, Standard Deviation; %, percent; yrs, years;

*
pearson chi-square

Table 2

Health information source use between users and nonusers of online health information by age

Health Information Sources	Users of Online Health Information (n = 105)	Nonuser of Online Health Information (n = 119)	Total Users (N = 225)	<i>p</i> [*]
Online Health Information	100		46.9	
50–64 (yrs)	44.8		58.7	
65–74 (yrs)	37.1		54.9	
75+ (yrs)	18.1		27.5	
Healthcare Professionals	91.4	62.2	75.6	<.0001
50–64 (yrs)	91.5	54.6	76.2	
65–74 (yrs)	92.3	65.6	80.3	
75+ (yrs)	89.5	66.0	71.4	
Friends or Family Members	49.5	21.0	34.2	<.0001
50–64 (yrs)	51.1	18.2	37.5	
65–74 (yrs)	46.2	18.8	33.8	
75+ (yrs)	53.6	24.0	31.4	
Magazines, brochures, or books	53.3	18.5	34.7	<.0001
50–64 (yrs)	46.8	15.2	33.7	
65–74 (yrs)	53.9	18.8	38.0	
75+ (yrs)	68.4	22.0	34.3	
Newspaper articles	38.1	21.9	29.3	.0078
50–64 (yrs)	31.9	6.1	21.2	
65–74 (yrs)	41.0	18.8	30.9	
75+ (yrs)	47.4	43.0	37.1	
Television or radio	39.1	26.3	32.1	.0417
50–64 (yrs)	40.4	15.2	30.0	
65–74 (yrs)	46.2	34.4	40.8	
75+ (yrs)	21.1	28.6	26.1	
Other	7.6	10.1	9.3	.5185
50–64 (yrs)	8.5	9.1	8.8	
65–74 (yrs)	10.3	15.6	12.7	
75+ (yrs)	0.0	8.0	7.1	

Note. %, percent;

* pearson chi-square

Table 3

	Users of Online Health Information				Nonusers of Online Health Information				
Measure	M	SD	LL	UL	M	SD	LL	UL	Cohen's <i>d</i>
<i>a</i> Decision Self-Efficacy	28.93	3.41	28.2***	29.6***	28.79	4.17	27.9***	29.6***	.7991**
<i>b</i> Reliance Scale	4.41	1.68	4.1***	4.7***	3.68	1.78	3.4***	4.0***	.0011 ^a

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

M, mean; SD, standard deviation;

*** Satterthwaite p -value reported for unequal variances.

^a Higher scores correspond with higher levels of self-efficacy for medical decision-making.

^b Lower scores correspond to being more physician-reliant and higher scores correspond to being more self-reliant.

95% confidence interval $p < .05$, one-tailed

Table 4

Reliance scale and demographics, ANOVA

Outcome	Predictors	<i>P</i>	SMM	<i>P</i>
Reliance	age	.0045		.0030
	Group 1: 50–64 (yrs)		Groups 1 vs. 3	
	Group 2: 65–74 (yrs)			
	Group 3: 75+ (yrs)			
Reliance	education	.0019		.0316
	Group 1: 12 grade		Groups 2 vs. 6	
	Group 2: High School/GED			
	Group 3: Some College			
	Group 4: Associate's Degree			
	Group 5: Bachelor's Degree			
	Group 6: Graduate Degree			
Reliance	Chronic Disease (none versus one or more)	.0334*		

Note. SSM = studentized maximum modulus used for control of familywise error rate for multiple post hoc comparisons;

* Satterthwaite *p*-value reported for unequal variances.