

Journal of Family Strengths

Volume 17

Issue 1 *Innovative Practices to Eliminate Health Disparities*

Article 8

5-1-2017

Preferred health information sources: An examination of vulnerable middle-aged and older women

Caroline D. Bergeron

Bexar County Community Health Collaborative, caroline.bergeron@healthcollaborative.net

Marcia Ory

Texas A&M Health Science Center School of Public Health, mory@sph.tamhsc.edu

Heather H. Goltz

University of Houston - Downtown, goltzh@uhd.edu

Samuel D. Towne Jr

Texas A&M School of Public Health, towne@sph.tamhsc.edu

SangNam Ahn

University of Memphis, sahn@memphis.edu

See next page for additional authors

Follow this and additional works at: <http://digitalcommons.library.tmc.edu/jfs>

Recommended Citation

Bergeron, Caroline D.; Ory, Marcia; Goltz, Heather H.; Towne, Samuel D. Jr; Ahn, SangNam; Mier, Nelda; and Smith, Matthew Lee (2017) "Preferred health information sources: An examination of vulnerable middle-aged and older women," *Journal of Family Strengths*: Vol. 17 : Iss. 1 , Article 8.

Available at: <http://digitalcommons.library.tmc.edu/jfs/vol17/iss1/8>

The *Journal of Family Strengths* is brought to you for free and open access by CHILDREN AT RISK at DigitalCommons@The Texas Medical Center. It has a "cc by-nc-nd" Creative Commons license" (Attribution Non-Commercial No Derivatives) For more information, please contact digitalcommons@exch.library.tmc.edu



Preferred health information sources: An examination of vulnerable middle-aged and older women

Acknowledgements

This study was supported by the Center for Community Health Development under Cooperative Agreement Number 1U48 DP001924 from the Centers for Disease Control and Prevention through the National Center for Chronic Disease Prevention and Health Promotion and the National Center for Injury Prevention and Control.

Authors

Caroline D. Bergeron, Marcia Ory, Heather H. Goltz, Samuel D. Towne Jr, SangNam Ahn, Nelda Mier, and Matthew Lee Smith

Americans are exposed to approximately 10,000 advertisement messages per day (Marshall, 2015) and check their phones for messages at least 46 times daily (Eadicicco, 2015). In this “data smog” of the information age (Shenk, 1997), consumers have to navigate through these messages and select the most appropriate and accurate information for their health. Women are more likely than men to be consumers of health information (Bidmon & Terlutter, 2015; Rice, 2006; Rowley, Johnson, & Sbaffi, 2015). They primarily use this information to make health decisions, manage their medical care or others’ care, and improve their health behaviors (Meadows, Thurston, & Berenson, 2001; Warner & Procaccino, 2004).

As women age, they may be exposed to more sources of health information and potentially more content due to their interactions with the healthcare system both to care for others (Jenkins, 1997; Scommegna, 2016; Singleton, 2000) and to consult for their own chronic conditions. In a recent survey of 38 million U.S. women ages 55 years and over, 80% of women had one or more chronic diseases, including diabetes, cardiovascular disease, and cancer (Centers for Disease Control and Prevention, 2015). Increased interactions with different health professionals for help managing their chronic conditions may result in frustration and confusion caused by conflicting or contradictory health information (Smith et al., 2017).

Middle-aged and older women may also reside with family members in multigenerational homes (Coleman & Ganong, 2008; Keene & Batson, 2010). According to the Pew Research Center (Fry & Passel, 2014), approximately 57 million Americans currently live in multigenerational family households. Household characteristics may introduce additional sources of information that are taken into account when making health decisions. For example, the belief system of a multigenerational household may influence past and future coping patterns in the face of illness and adversity, making family members knowledgeable sources of information (Rolland, 2005).

Thus, much is known about women’s health information-seeking behaviors at all ages (Beach, Hill-Briggs, & Cooper, 2006; Chang, Basnyat, & Teo, 2014; Friedman & Hoffman-Goetz, 2003; Gollop, 1997; Jacobs, Amuta, & Jeon, 2017; Massey, 2016; Shieh, McDaniel, & Ke, 2009). For example, older adults prefer to seek health information from healthcare providers and traditional media compared to younger age groups (Jacobs et al., 2017). Whites seek health information less from healthcare professionals compared to non-Whites (Jacobs et al., 2017). The challenge is that little is known about White, African American, and Hispanic women’s preferred sources of receiving health information. This nuance—seeking

versus receiving health information—is important, especially in this reality of information overload. It is likely that women will pay more attention to health content received by their preferred sources of information (Hoekstra, Prendinger, Bee, Heylen, & Ishizuka, 2007).

Health information is associated with positive health outcomes (Baker, 2006; Nutbeam, 2000; Street, Makoul, Arora, & Epstein, 2009). Receiving health information can improve a person's knowledge and understanding (e.g., about prevention, health risks, screenings, treatment, and health services and resources available), create positive attitudes (e.g., improved self-efficacy, confidence, empowerment), contribute to skill development (e.g., enhanced self-care skills), lead to informed decision-making and behavior change, and ultimately result in better health (Baker, 2006; Nutbeam, 2000; Street et al., 2009).

Considering the different contexts in which women live and age, the purposes of this study were to: (1) identify preferred sources of receiving health information among middle-aged and older women; and (2) identify sociodemographics, family/household characteristics, health status, and health-related behaviors associated with middle-aged and older women's preferred sources of receiving health information.

Method

Participants and Procedures

Data were collected in 2010 as part of a regional health assessment of the Brazos Valley in Central Texas. The Institutional Review Board at Texas A&M University provided approval of this study. The survey was conducted by the Center for Community Health Development at the Texas A&M Health Science Center School of Public Health and was intended to assist local communities in identifying and prioritizing health problems. Results of this survey, conducted approximately every four years, are used by the Brazos Valley Health Partnership as part of their planning for community health action. The assessment utilized random-digit dialing to obtain a population-based sample of the non-institutionalized civilian population. Sampling was stratified by county to ensure adequate representation of counties in the region.

Target areas. The Brazos Valley includes seven different counties in central Texas: Brazos, Burleson, Grimes, Leon, Madison, Robertson, and Washington. Sociodemographic characteristics of these counties taken from the 2010 Census vary by county. Brazos County has a total population of 194,851 residents with 333 people per square mile. Approximately 7.2% of its population are 65 years of age or older, 73.3% are White alone, and

23.3% are Hispanic, and the median household income is \$39,808 per year. Burleson County has a total population of 17,187 individuals, representing 26 people per square mile. Approximately 17.5% are ages 65 or older, 77.9% are White alone, 18.4% are Hispanic, and the median household income is \$51,821 per year. Grimes County has a total population of 26,604 residents, with 33 people per square mile. Approximately 13.8% are older adults, 73.0% are White alone and 21.2% Hispanic, and the median household income is \$46,195. In Leon County, there are 16,801 residents with only 16 people per square mile. The older population represents 21.5% of the population, Whites alone are 84.9%, Hispanics are 13.5% of the population, and the median household income is \$49,802 annually. Madison County has a total population of 13,664 people, which represents approximately 29 people per square mile. Close to 14% (13.9%) are ages 65 or older, 67.0% are White alone, 19.7% are Hispanic, and the median household income is \$39,390 per year. Robertson County is composed of 16,622 residents, with 19 individuals per square mile. Approximately 16.7% are older, 67.7% are White alone, and 18.0% are Hispanic. The median household income is \$46,501 annually. Finally, Washington County has a total population of 33,718, with 56 people per square mile. Approximately 18.4% are 65 years of age or older, 74.2% are White alone, 13.8% are Hispanic, and the median household income is \$51,269.

Further randomization within each household was achieved using the next-birthday method. That is, when making recruiting phone calls, investigators asked to speak with the resident 18 years of age or older present in the household who had the birthday that would next occur. That resident was then informed of the survey purpose and recruited to participate in the assessment. Of those reached by phone, 51.9% agreed to participate and received a paper survey by mail. Two reminder postcards were sent at two-week intervals following mail-out of the survey packet. Of those who were sent surveys, 62.1% ($N = 3,946$) returned completed surveys (i.e., overall response rate = 32.2%).

Of the 3,946 completed surveys returned, some cases were initially omitted to align with the study purpose. Cases were removed for males ($n=1,194$) and those not identifying as middle-aged or older adults ($n=844$). Additional cases were omitted for not having complete data on variables of interest. More specifically, cases were omitted for missing data on the preferred source of receiving health information ($n=96$), education ($n=132$), race/ethnicity ($n=115$), physical activity ($n=157$), and routine physician visits in the past 12 months ($n=117$). Because some cases had missing data on more than one of these variables, the final analytic sample was 1,765 middle-aged (45 to 64 years old) and older (65 years old or over) females.

Instrument

Participants were surveyed using a mailed community assessment instrument that asked questions about the respondent's health, lifestyle behaviors, healthcare access, neighborhood factors, and personal characteristics. The instrument included Likert-type scales, checklists, and close-ended and open-ended response formats. Participants generally completed the questionnaire in approximately 45 minutes.

Data and Measures

Dependent variables. The dependent variable for this study was participants' self-reported preferred source of receiving health-related information. Response categories for this variable included "a healthcare provider," "the Internet," "a family member or friend," and "mass media." Given that "a healthcare provider" was the most frequently endorsed response choice (62.7%), it was used as the referent group for the multinomial logistic regression.

Health status. Participants self-reported the number of diagnosed chronic condition types, which were recorded as a continuous variable ranging from 0 to 4 ("cardiovascular," "diabetes," "respiratory disease," or various mental or emotional conditions). Body mass index (BMI) was calculated from participants' self-reported height (in feet and inches) and weight (in pounds), which were converted to meters and kilograms, respectively. BMI levels were calculated by dividing weight by height and rounded to the nearest tenth (Garrow & Webster, 1985). BMI categories were then created as follows: "normal weight," "overweight," and "obese" (World Health Organization, 2017).

Health-related behaviors. To examine whether or not health behaviors were associated with preferences for obtaining health information, the current study included the following self-reported behaviors: whether the participant had a routine physician visit in the past 12 months ("no," "yes"), smoking status ("never smoker," "past smoker," or "current smoker"), number of alcoholic beverages consumed per week, number of fruit/vegetable servings consumed per week, and number of minutes the participant engaged in "moderate" physical activity per week. Minutes of moderate physical activity were dichotomized at 150 minutes (i.e., ≤ 149 minutes per week versus ≥ 150 minutes of moderate physical activity per week) to indicate whether or not the participants were compliant with the *Physical Activity Guidelines for Americans* for moderate physical activity (U.S. Department of Health and Human Services, 2008).

Family/household characteristics. To identify family and household characteristics of participants, variables utilized in this study were: marital status (“no,” “yes”) and the number of children who reside in the household (those ages 5 years or younger, those ages 6 to 17 years).

Personal demographics. To identify personal demographics of participants, variables utilized in this study were: age (“45-54 years,” “55-64 years,” “65-74 years,” and “75+ years”), race/ethnicity (“Non-Hispanic/Latino White,” “Non-Hispanic/Latino African American,” and “Hispanic/Latino”), highest education level achieved (“high school education or less” and “more than a high school education”), and residential rurality (“urban,” “rural”).

Data Analysis

All statistical analyses for this study were performed using SPSS version 24. Frequencies were calculated for all major study variables that were initially examined in relationship to the respondent’s preferred source of obtaining health information. Pearson’s chi-squared tests were performed to assess distribution differences for categorical variables, and one-way ANOVA were used to assess mean differences for continuous variables. We used multinomial logistic regression to identify factors associated with preferred health information sources, with those reporting a healthcare provider as the preferred source serving as the referent group.

Results

Sample

Table 1 presents sample characteristics by preferred sources of obtaining health information. Overall, 62.7% of participants preferred obtaining health information from a healthcare provider, followed by the Internet (13.5%), mass media (12.2%), and family/friend (11.6%). Approximately 41% of participants were ages 65 years or older. The majority were non-Hispanic/Latino White (85.5%), had more than a high school education (53.8%), and resided in urban areas (58.8%). Over 61% of participants were married and did not live with youth under age 17 years. Specifically, 96.6% of participants did not live with youth ages 5 years or younger, and 86.3% did not live with youth ages 6 to 17 years.

On average, participants self-reported 1.44 (± 0.97) chronic conditions. Almost one third (32.4%) of participants were categorized as overweight, and 35.1% were obese. Over three quarters (78%) of participants completed a routine physician visit in the past 12 months, yet only 33.7% reported meeting the U.S. guidelines for moderate physical activity. On average, participants reported consuming 8.18 (± 2.91) servings

of fruits/vegetables and 1.89 (± 4.70) alcoholic beverages per week. Thirteen percent of participants reported being a current smoker, and 27.4% reported being a former smoker.

[TABLE 1]

When comparing sample characteristics by preferred sources of obtaining health information, many observed differences were associated with the group preferring to obtain health information from the Internet. More specifically, a larger proportion of participants who were younger ($\chi^2=112.64$, $p<0.001$), non-Hispanic/Latino White ($\chi^2=35.05$, $p<0.001$), more educated ($\chi^2=28.42$, $p<0.001$), and married ($\chi^2=16.94$, $p=0.001$) preferred to receive health information from the Internet. On average, participants with fewer chronic conditions ($t=14.27$, $p<0.001$), residing with more children ages 6 to 17 years ($t=4.65$, $p=0.003$), and consuming more alcoholic beverages per week ($t=6.85$, $p<0.001$) preferred to obtain health information from the Internet. A larger proportion of participants who were obese ($\chi^2=23.68$, $p=0.001$) and had a routine physician visit in the past year ($\chi^2=63.69$, $p<0.001$) preferred to obtain health information from a healthcare provider.

Factors Associated with Preferred Sources of Health Information

Table 2 shows findings from the multinomial logistic regression analysis with preferred sources of receiving health information as the dependent variable and all other study variables entered as independent variables. The first model block compared those who preferred receiving information from the Internet to those reporting a healthcare provider as the preferred source. In this block, participants between the ages of 65 and 74 years ($OR=0.25$, $p<0.001$) and those ages 75 years or older ($OR = 0.10$, $p<0.001$) were less likely to prefer receiving health information from the internet. Non-Hispanic/Latino African American participants ($OR = 0.17$, $p=0.001$), those residing in rural areas ($OR=0.73$, $p=0.041$), and those who reported more chronic conditions ($OR=0.77$, $p=0.003$) were significantly less likely to prefer receiving health information from the Internet. Participants who were obese ($OR=0.56$, $p=0.004$), who were overweight ($OR=0.67$, $p=0.027$), and who completed a routine physician visit in the past 12 months ($OR=0.46$, $p<0.001$) were less likely to prefer receiving health information from the Internet. Participants with more than a high school education were more likely to prefer receiving health information from the Internet ($OR=1.40$, $p=0.042$).

The second model block compared those who preferred receiving information from a family member or friend to those reporting a healthcare

provider as the preferred source. In this block, participants between the ages of 65 and 74 years (OR=0.36, $p<0.001$) were less likely to prefer receiving health information from family/friend. Participants who were married (OR=0.68, $p=0.027$), who were obese (OR=0.54, $p=0.004$), and who completed a routine physician visit in the past 12 months (OR=0.42, $p<0.001$) were less likely to prefer receiving health information from a family member or friend. Participants residing with children ages 6 to 17 years were less likely to prefer receiving health information from a family member or friend (OR=0.69, $p=0.028$), whereas participants residing with children ages 5 years or younger were more likely to prefer receiving health information from a family member or friend (OR=1.78, $p=0.022$).

The third model block compared those who preferred receiving information from mass media to those reporting a healthcare provider as the preferred source. In this block, non-Hispanic/Latino African American participants were more likely to prefer receiving health information from mass media (OR=1.82, $p=0.013$). Participants who were obese (OR = 0.59, $p=0.008$) and those who completed a routine physician visit in the past 12 months (OR=0.51, $p<0.001$) were less likely to prefer receiving health information from mass media.

[TABLE 2]

Discussion

The aims of this study were to explore middle-aged and older women's preferred sources of receiving health information and to identify factors associated with preferring these sources. Consistent with previous research with older individuals (Burns, Jones, Iverson, & Caputi, 2013; Chaudhuri, Le, White, Thompson, & Demiris, 2013; Hesse et al., 2005; Pew Research Center, 2011), healthcare providers remain the top preferred source for receiving health information for middle-aged and older women. This trend held especially true among those who had visited a health professional in the past 12 months, illustrating their need to actively discuss their health with living, in-person sources of information (Chaudhuri et al., 2013). These women may have established good relationships with primary care providers who know their medical and family history and whom they trust, making them more willing to receive and accept medical advice and preventive services from these sources (Freeman & Hughes, 2010; Xu, 2002).

Women with more chronic conditions and higher BMIs may also frequently consult their doctors for in-depth assistance and health management (Benjamin, 2010), consequently becoming the women's

preferred sources for receiving health information. Frequent medical visits, however, may leave women feeling tired of describing their same conditions over time (Smith et al., 2017) and potentially opening them to reliance on other sources of health information.

Non-Hispanic/Latino African American women preferred to obtain health information from an established doctor rather than the Internet (Morey, 2007). This finding contradicts other studies where African American patients believe that they receive inferior care and information due to racial discrimination by health professionals (Warren et al., 2012). However, it supports other researchers' findings that providers' interpersonal and technical competence can help build trust with their African American patients, which then facilitates care-seeking and health information exchange (Jacobs, Rolle, Ferrans, Whitaker, & Warnecke, 2006). Non-Hispanic/Latino African American women in our study also preferred receiving health information from mass media rather than from a healthcare provider. In general, mass media can be a good source of health information as it can introduce different health topics, interview health experts, as well as stimulate health discussions, information seeking, and specific follow-up actions (Van Slooten, Friedman, & Tanner, 2013).

Rural women preferred obtaining health information from a doctor rather than from the Internet. In Gessert and colleagues' (2015) systematic review of rural definitions of health, health was associated with not having to see a doctor, avoiding doctors, or using them as a last resort. It is possible, though, that in dire situations, doctors remain the preferred source to receive health information considering that those living in rural areas have less Internet access, lower device use, and less participation in online activities compared to those living in urban areas (National Telecommunications and Information Administration, 2016).

Overall, the Internet remains a trusted health information source among younger, more highly educated women (Hesse et al., 2005; Pew Research Center, 2011; Zulman, Kirch, Zheng, & An, 2011). Women may receive quick online information to determine if a visit to the doctor is necessary or even to arrive well informed at the doctor's office (McMullan, 2006; Ybarra & Suman, 2008; Zulman et al., 2011). Middle-aged women managing one or more chronic conditions may also appreciate obtaining health information from health organizations, government websites, and even online discussion groups that can help them improve their disease self-management and care (Pettus et al., 2016). What remains key is for middle-aged and older women to be able to discern between credible and non-credible sources of online health information (Liao & Fu, 2014; Metzger, 2007). The credibility of online health information can be assessed by

examining the accuracy, authority, objectivity, currency, and coverage of the information and its source (Metzger, 2007). Writing for the Mitretek Health Summit Working Group, Ambre, Guard, Perveiler, Renner, and Rippen (1997) also recommend examining a website's credibility along with its content, disclosures, links, design, interactivity, and caveats to effectively assess the quality of the health information provided online. Training and education are available for middle-aged and older women using the Internet to recognize reliable health information (Federal Trade Commission, 2008; Metzger, 2007; National Institute on Aging, 2017; Xie & Bugg, 2009).

Middle-aged and older women residing with children five years of age or younger preferred to receive information from family and friends. Researchers on parenting and social networks found that parents generally rely on family and friends, including spouses, mothers, and friends in similar situations, for parenting information (Civitas, Zero to Three, & Brio Corporation, 2000; Cochran & Niego, 2002). Interestingly, women with school-aged children and adolescents preferred to obtain information from healthcare providers rather than other sources. This may indicate that these women perceive the health of their older children to be more complex, thus requiring professional advice to manage special healthcare needs and circumstances (Centers for Disease Control and Prevention, 2017; KidsHealth, n.d.; National Institute of Mental Health, n.d.). Although we do not know the roles of the middle-aged and older women in these multigenerational households, it is possible that they are responsible for these children's needs and, therefore, interested in obtaining health information from family and friends as well as providers (Children's Defense Fund, 2012).

A few limitations require discussion. First, these data were collected in 2010; thus, responses may not fully represent the evolving population characteristics in this Texas region or advancements in information-seeking technology. New technology has diversified potential health information sources since the data were collected in 2010. Middle-aged and older women can now receive health information on their phones, computers, or tablets via text message, email, social media such as Twitter and Facebook, and more (Hawn, 2009; Pew Research Center, 2011; Robillard, Johnson, Hennessey, Beattie, & Illes, 2013). In addition, online patient-provider communication, which has been found to be a faster and more convenient way of communicating with doctors (Umefjord, Petersson, & Hamberg, 2003), has started to blur the lines between these two preferred sources of information (Antoun, 2016; Beckjord et al., 2007; Newhouse, Lupiáñez-Villanueva, Codagnone, & Atherton, 2015; Santana et al., 2010). Despite these limitations, knowing women's preferred sources for receiving health

information and the factors associated with these sources based on this dataset can help health providers use the best communication channel to reach each specific audience of aging women (e.g., non-Hispanic/Latino African American older women or middle-aged women with diagnosed chronic conditions) with accurate and reliable health information. Similarly, this study represents an important snapshot of middle-aged and older women in time; however, it will be important to explore how these preferences to receive health information change as women age and technology continues to evolve. Second, it is acknowledged that all possible response choices for the dependent variable (i.e., preferred sources of obtaining health information) may not have been available to participants. While the most frequently endorsed source of health information was healthcare providers, this category may have been too broad. For example, had this healthcare provider category been separated and more nuanced (e.g., to separate physicians, nurses, nurse practitioners), more insightful information for specific intervention recommendations and implications may have resulted. Further, this survey combined family members and friends into the same response option. It is therefore not possible to know whether family or friends were most important depending on women's characteristics (e.g., age, household). Third, because the instrument for this study was generated as part of a community health assessment (with input from community health partners), many of the items were not previously validated. Finally, this study only explored women's preferred sources of health information. A similar study is needed to explore preferences of middle-aged and older men for receiving health information.

Overall, this study enabled a greater understanding of preferred sources to receive health information specifically among middle-aged and older women. Tailored efforts seeking to reach diverse populations (e.g., age, area of residence, race/ethnicity) of women with accurate and reliable information through their preferred sources may enable a greater chance of recipients being open to receiving the information provided. This may in turn allow women to understand the information, thereby increasing the likelihood they are equipped to make well-informed health decisions for themselves and their families.

References

- Ambre, J., Guard, R., Perveiler, F. M., Renner, J., & Rippen H. (1997). Criteria for assessing the quality of health information on the Internet. Retrieved from http://www.aeemt.com/contenidos_socios/Informatica/Guias_y_recomendaciones/Criteria_Quality_Health_Inform_19971014.pdf
- Antoun, J. (2016). Electronic mail communication between physicians and patients: A review of challenges and opportunities. *Family Practice*, 33(2), 121-126.
- Baker, D. W. (2006). The meaning and the measure of health literacy. *Journal of General Internal Medicine*, 21(8), 878-883.
- Beach, M. C., Hill-Briggs, F., & Cooper, L. A. (2006). Racial and ethnic differences in receipt and use of health information in encounters between patients and physicians. *Medical Care*, 44(2), 97-99.
- Beckjord, E. B., Finney Rutten, L. J., Squiers, L., Arora, N. K., Volckmann, L., Moser, R. P., & Hesse, B. W. (2007). Use of the Internet to communicate with health care providers in the United States: Estimates from the 2003 and 2005 Health Information National Trends Surveys (HINTS). *Journal of Medical Internet Research*, 9(3), e20.
- Benjamin, R. M. (2010). Multiple chronic conditions: A public health challenge. *Public Health Reports*, 125(5), 626-627.
- Bidmon, S., & Terlutter, R. (2015). Gender differences in searching for health information on the Internet and the virtual patient-physician relationship in Germany: Exploratory results on how men and women differ and why. *Journal of Medical Internet Research*, 17(6), e156.
- Burns, P., Jones, S. C., Iverson, D. C., & Caputi, P. (2013). Where do older Australians receive their health information? Health information sources and their perceived reliability. *Journal of Nursing Education and Practice*, 3(12), 60-69.
- Centers for Disease Control and Prevention. (2015). Percent of U.S. adults 55 and over with chronic conditions. Retrieved from https://www.cdc.gov/nchs/health_policy/adult_chronic_conditions.htm
- Centers for Disease Control and Prevention. (2017). Children with ADHD. Retrieved from <https://www.cdc.gov/ncbddd/adhd/data.html>
- Chang, L., Basnyat, I., & Teo, D. (2014). Seeking and processing information for health decisions among elderly Chinese Singaporean women. *Journal of Women and Aging*, 26(3), 257-279.

- Chaudhuri, S., Le, T., White, C., Thompson, H., & Demiris, G. (2013). Examining health information-seeking behaviors of older adults. *Computers, Informatics, Nursing*, 31(11), 547-553.
- Children's Defense Fund. (2012). *The state of American's children handbook*. Retrieved from <http://www.childrensdefense.org/library/data/soac-2012-handbook.pdf>
- Civitas, Zero to Three, & Brio Corporation. (2000). What grown-ups understand about child development: A national benchmark survey. Comprehensive Report. Retrieved from <http://files.eric.ed.gov/fulltext/ED448909.pdf>
- Cochran, M., & Niego, S. (2002). Parenting and social networks. In M. H. Bornstein (Ed.), *Handbook of parenting* (Vol. 4) (pp. 123-148). Mahwah, NJ: Lawrence Erlbaum Associates.
- Coleman, M., & Ganong, L. (2008). Normative beliefs about sharing housing with an older family member. *International Journal of Aging and Human Development*, 66(1), 49-72.
- Eadicicco, L. (2015, December 15). Americans check their phones 8 billion times a day. *Time*. Retrieved from <http://time.com/4147614/smartphone-usage-us-2015/>
- Federal Trade Commission. (2008). How to find information online: Health information for older people. Retrieved from <https://www.consumer.ftc.gov/articles/0320-how-find-information-online-health-information-older-people>
- Freeman, G., & Hughes, J. (2010). Continuity of care and the patient experience. The King's Fund. Retrieved from https://www.kingsfund.org.uk/sites/files/kf/field/field_document/continuity-care-patient-experience-gp-inquiry-research-paper-mar11.pdf
- Friedman, D. B., & Hoffman-Goetz, L. (2003). Sources of cancer information for seniors: A focus group pilot study report. *Journal of Cancer Education*, 18(4), 215-222.
- Fry, R., & Passel, J. S. (2014, July 17). In post-recession era, young adults drive continuing rise in multi-generational living. Pew Research Center. Retrieved from <http://www.pewsocialtrends.org/2014/07/17/in-post-recession-era-young-adults-drive-continuing-rise-in-multi-generational-living/>
- Garrow, J. S., & Webster, J. (1985). Quetelet's index (W/H²) as a measure of fatness. *International Journal of Obesity*, 9(2), 147-153.
- Gessert, C., Waring, S., Bailey-Davis, L., Conway, P., Roberts, M., & VanWormer, J. (2015). Rural definition of health: A systematic literature review. *BMC Public Health*, 15(1), 378.

- Gollop, C. J. (1997). Health information-seeking behavior and older African American women. *Bulletin of the Medical Library Association*, 85(2), 141-146.
- Hawn, C. (2009). Take two aspirin and tweet me in the morning: How Twitter, Facebook, and other social media are reshaping health care. *Health Affairs*, 28(2), 361-368.
- Hesse, B. W., Nelson, D. E., Kreps, G. L., Croyle, R. T., Arora, N. K., Rimer, B. K., & Viswanath, K. (2005). Trust and sources of health information: The impact of the Internet and its implications for health care providers: Findings from the first Health Information National Trends Survey. *Archives of Internal Medicine*, 165(22), 2618-2624.
- Hoekstra, A., Prendinger, H., Bee, N., Heylen, D., & Ishizuka, M. (2007). Presentation agents that adapt to users' visual interest and follow their preferences. In *Proceedings of the 5th International Conference on Computer Vision Systems*. Retrieved from <https://www.informatik.uni-augsburg.de/lehrstuehle/hcm/publications/2007-ICVS-Bee/WCAA2007-152.pdf>
- Jacobs, E. A., Rolle, I., Ferrans, C. E., Whitaker, E. E., & Warnecke, R. B. (2006). Understanding African Americans' views of the trustworthiness of physicians. *Journal of General Internal Medicine*, 21(6), 642-647.
- Jacobs, W., Amuta, A. O., & Jeon, K. C. (2017). Health information seeking in the digital age: An analysis of health information seeking behavior among US adults. *Cogent Social Sciences*, 3(1), article 1302785.
- Jenkins, C. L. (1997). Women, work, and caregiving: How do these roles affect women's well-being? *Journal of Women & Aging*, 9(3), 27-45.
- Keene, J. R., & Batson, C. D. (2010). Under one roof: A review of research on intergenerational coresidence and multigenerational households in the United States. *Sociology Compass*, 4(8), 642-657.
- KidsHealth. (n.d.). Medical care and your 13- to 18-year-old. The Nemours Foundation. Retrieved from <http://kidshealth.org/en/parents/medical-care-13-18.html>
- Liao, Q. V., & Fu, W.-T. (2014). Age differences in credibility judgments of online health information. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 21(1), article 2.
- Marshall, R. (2015, September 10). How many ads do you see in one day? Red Crow Marketing Inc. Retrieved from <http://www.redcrowmarketing.com/2015/09/10/many-ads-see-one-day/>

- Massey, P. M. (2016). Where do U.S. adults who do not use the Internet get health information? Examining digital health information disparities from 2008 to 2013. *Journal of Health Communication, 21*(1), 118-124.
- McMullan, M. (2006). Patients using the Internet to obtain health information: How this affects the patient–health professional relationship. *Patient Education and Counseling, 63*(1), 24-28.
- Meadows, L. M., Thurston, W. E., & Berenson, C. A. (2001). Health promotion and preventive measures: Interpreting messages at midlife. *Qualitative Health Research, 11*(4), 450-463.
- Metzger, M. J. (2007). Making sense of credibility on the Web: Models for evaluating online information and recommendations for future research. *Journal of the American Society for Information Science and Technology, 58*(13), 2078-2091.
- Morey, O. T. (2007). Health information ties: Preliminary findings on the health information seeking behaviour of an African-American community. *Information Research, 12*(2), paper 297.
- National Institute of Mental Health. (n.d.). Antidepressant medications for children and adolescents: Information for parents and caregivers. Retrieved from <https://www.nimh.nih.gov/health/topics/child-and-adolescent-mental-health/antidepressant-medications-for-children-and-adolescents-information-for-parents-and-caregivers.shtml>
- National Institute on Aging. (2017). Online health information: Can you trust it? Retrieved from <https://www.nia.nih.gov/health/publication/online-health-information>
- National Telecommunications and Information Administration. (2016). The state of the urban/rural digital divide. Retrieved from <https://www.ntia.doc.gov/blog/2016/state-urbanrural-digital-divide>
- Newhouse, N., Lupiáñez-Villanueva, F., Codagnone, C., & Atherton, H. (2015). Patient use of email for health care communication purposes across 14 European countries: An analysis of users according to demographic and health-related factors. *Journal of Medical Internet Research, 17*(3), e58.
- Nutbeam, D. (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International, 15*(3), 259-267.
- Pettus, A. J., Mendez-Luck, C. A., Bergeron, C. D., Ahn, S. N., Towne, S. D., Jr., Ory, M. G., & Smith, M. L. (2017). Internet-based resources for disease self-care among middle-aged and older women with chronic conditions. *Journal of Women's Health, 26*(3), 222-233.

- Pew Research Center. (2011). The social life of health information, 2011. Retrieved from http://www.pewinternet.org/files/old-media/Files/Reports/2011/PIP_Social_Life_of_Health_Info.pdf
- Rice, R. E. (2006). Influences, usage, and outcomes of Internet health information searching: Multivariate results from the Pew surveys. *International Journal of Medical Informatics*, 75(1), 8-28.
- Robillard, J. M., Johnson, T. W., Hennessey, C., Beattie, B. L., & Illes, J. (2013). Aging 2.0: Health information about dementia on Twitter. *PLOS One*, 8(7), e69861.
- Rolland, J. S. (2005). Cancer and the family: An integrative model. *Cancer*, 104(Supplement S11), 2584-2595.
- Rowley, J., Johnson, F., & Sbaffi, L. (2015). Gender as an influencer of online health information-seeking and evaluation behavior. *Journal of the Association for Information Science and Technology*, 68(1), 36-47.
- Santana, S., Lausen, B., Bujnowska-Fedak, M., Chronaki, C., Kummervold, P. E., Rasmussen, J., & Sorensen, T. (2010). Online communication between doctors and patients in Europe: Status and perspectives. *Journal of Medical Internet Research*, 12(2), e20.
- Scommegna, P. (2016). Today's research on aging: Family caregiving. Population Reference Bureau. Retrieved from <http://www.prb.org/Publications/Reports/2016/todays-research-aging-caregiving.aspx>
- Shenk, D. (1997). *Data smog: Surviving the information glut*. San Francisco, CA: HarperSanFrancisco.
- Shieh, C., McDaniel, A., & Ke, I. (2009). Information-seeking and its predictors in low-income pregnant women. *Journal of Midwifery and Women's Health*, 54(5), 364-372.
- Singleton, J. (2000). Women caring for elderly family members: Shaping non-traditional work and family initiatives. *Journal of Comparative Family Studies*, 31(3), 367-375.
- Smith, M. L., Bergeron, C. D., Adler, C. H., Patel, A., Ahn, S., Towne, S. D., Jr., . . . Ory, M. G. (2017). Factors associated with healthcare-related frustrations among adults with chronic conditions. *Patient Education and Counseling*, 100(6), 1185-1193.
- Street, R. L., Jr., Makoul, G., Arora, N. K., & Epstein, R. M. (2009). How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Education and Counseling*, 74(3), 295-301.

- U.S. Department of Health and Human Services. (2008). *2008 physical activity guidelines for Americans*. Retrieved from <https://health.gov/paguidelines/pdf/paguide.pdf>
- Umefjord, G., Petersson, G., & Hamberg, K. (2003). Reasons for consulting a doctor on the Internet: Web survey of users of an Ask the Doctor service. *Journal of Medical Internet Research*, 5(4), e26.
- Van Slooten, E., Friedman, D. B., & Tanner, A. (2013). Are we getting the health information we need from the mass media? An assessment of consumers' perceptions of health and medical news. *Journal of Consumer Health on the Internet*, 17(1), 35-53.
- Warner, D., & Procaccino, J. D. (2004). Toward wellness: Women seeking health information. *Journal of the American Society for Information Science and Technology*, 55(8), 709-730.
- Warren, J. R., Kvasny, L., Hecht, M. L., Burgess, D., Ahluwalia, J. S., & Okuyemi, K. S. (2012). Barriers, control and identity in health information seeking among African American women. *Journal of Health Disparities Research and Practice*, 3(3), article 5.
- World Health Organization. (2017). BMI classification. Retrieved from http://apps.who.int/bmi/index.jsp?introPage=intro_3.html
- Xie, B., & Bugg, J. M. (2009). Public library computer training for older adults to access high-quality Internet health information. *Library and Information Science Research*, 31(3), 155-162.
- Xu, K. T. (2002). Usual source of care in preventive service use: A regular doctor versus a regular site. *Health Services Research*, 37(6), 1509-1529.
- Ybarra, M., & Suman, M. (2008). Reasons, assessments and actions taken: Sex and age differences in uses of Internet health information. *Health Education Research*, 23(3), 512-521.
- Zulman, D. M., Kirch, M., Zheng, K., & An, L. C. (2011). Trust in the Internet as a health resource among older adults: Analysis of data from a nationally representative survey. *Journal of Medical Internet Research*, 13(1), e19.

Table 1

Sample Characteristics by Preferred Source of Obtaining Health Information

Table 1. Sample Characteristics by Preferred Source of Obtaining Health Information

	Total (n = 1,765)	Healthcare Providers (n = 1,106)	Internet (n = 238)	Family or Friend (n = 205)	Mass Media (n = 216)	χ^2 or F	P
Age						112.64	<0.001
45-54 Years	26.9%	23.2%	46.6%	30.2%	20.8%		
55-64 Years	32.4%	30.0%	37.8%	33.7%	37.0%		
65-74 Years	23.2%	26.6%	11.3%	13.7%	28.2%		
75+ Years	17.5%	20.2%	4.2%	22.4%	13.9%		
Race/Ethnicity						35.05	<0.001
Non-Hispanic White	85.5%	85.8%	95.4%	81.0%	77.3%		
Non-Hispanic African American	9.0%	8.9%	1.7%	12.2%	14.4%		
Hispanic	5.6%	5.3%	2.9%	6.8%	8.3%		
Education						28.42	<0.001
High School or Less	46.2%	46.5%	31.9%	53.7%	53.2%		
More than High School	53.8%	53.5%	68.1%	46.3%	46.8%		
Married						16.94	0.001
No	38.3%	38.5%	27.7%	45.4%	42.1%		
Yes	61.7%	61.5%	72.3%	54.6%	57.9%		
Number of Children Reside With							
Age 5 Years and Younger	0.05 (\pm 0.27)	0.04 (\pm 0.24)	0.06 (\pm 0.32)	0.09 (\pm 0.37)	0.05 (\pm 0.25)	2.55	0.054
Age 6 to 17 Years	0.20 (\pm 0.58)	0.18 (\pm 0.55)	0.33 (\pm 0.74)	0.16 (\pm 0.48)	0.21 (\pm 0.61)	4.65	0.003
Rurality						3.55	0.314
Urban	58.8%	57.1%	61.3%	60.0%	63.0%		
Rural	41.2%	42.9%	38.7%	40.0%	37.0%		
Number of Chronic Conditions	1.44 (\pm 0.97)	1.55 (\pm 0.95)	1.12 (\pm 0.98)	1.32 (\pm 0.97)	1.40 (\pm 0.97)	14.27	<0.001
BMI Category						23.68	0.001
Normal	32.6%	28.8%	42.0%	37.1%	37.0%		
Overweight	32.4%	33.0%	30.3%	33.7%	30.1%		
Obese	35.1%	38.2%	27.7%	29.3%	32.9%		
Regular Physician Visit (past 12 months)						63.69	<0.001
No	21.7%	15.8%	33.2%	34.1%	27.3%		
Yes	78.3%	84.2%	66.8%	65.9%	72.7%		
Minutes of Moderate Physical Activity (per week)						3.23	0.358
< 150 minutes	66.3%	67.8%	62.6%	65.4%	63.9%		
\geq 150 minutes	33.7%	32.2%	37.4%	34.6%	36.1%		
Fruit/Vegetable Servings Per Week	8.18 (\pm 2.91)	8.17 (\pm 2.89)	8.34 (\pm 2.98)	7.88 (\pm 2.77)	8.32 (\pm 3.06)	1.13	0.338
Number of Alcoholic Beverages Per Week	1.89 (\pm 4.70)	1.70 (\pm 4.52)	3.13 (\pm 5.52)	1.93 (\pm 5.61)	1.45 (\pm 3.22)	6.85	<0.001
Smoking Status						3.61	0.729
Never Smoked	59.6%	58.7%	61.3%	61.0%	61.1%		
Past Smoker	27.4%	28.4%	26.1%	23.4%	27.3%		
Current Smoker	13.0%	12.9%	12.6%	15.6%	11.6%		

Table 2

Factors Associated with Preferred Sources of Health Information (n = 1,765)

Table 2. Factors associated with preferred sources of health information (n = 1,765)

	Internet				Family or Friend				Mass Media			
	OR	P	95% CI		OR	P	95% CI		OR	P	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Age: 75+ Years	0.10	<0.001	0.05	0.21	0.63	0.076	0.38	1.05	0.62	0.099	0.35	1.09
Age: 65-74 Years	0.25	<0.001	0.15	0.41	0.36	<0.001	0.21	0.60	1.23	0.391	0.77	1.95
Age: 55-64 Years	0.74	0.103	0.52	1.06	0.88	0.546	0.59	1.32	1.48	0.075	0.96	2.26
Age: 45-54 Years	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Race/Ethnicity: Hispanic	0.45	0.062	0.19	1.04	1.17	0.631	0.61	2.25	1.53	0.153	0.86	2.73
Race/Ethnicity: Non-Hispanic African American	0.17	0.001	0.06	0.49	1.34	0.268	0.80	2.24	1.82	0.013	1.14	2.92
Race/Ethnicity: Non-Hispanic White	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Education: More than High School	1.40	0.042	1.01	1.94	0.78	0.120	0.56	1.07	0.75	0.075	0.55	1.03
Education: High School or Less	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Married: Yes	0.83	0.285	0.58	1.17	0.68	0.027	0.48	0.96	0.83	0.264	0.60	1.15
Married: No	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Number of Children Reside With: Age 5 Years and Younger	1.49	0.151	0.87	2.56	1.78	0.022	1.09	2.92	1.00	0.998	0.56	1.80
Number of Children Reside With: Age 6 to 17 Years	0.97	0.795	0.77	1.22	0.69	0.028	0.49	0.96	1.02	0.890	0.77	1.34
Rural	0.73	0.041	0.53	0.99	0.90	0.532	0.66	1.24	0.78	0.115	0.57	1.06
Urban	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Number of Chronic Condition Types	0.77	0.003	0.65	0.91	0.86	0.087	0.72	1.02	0.89	0.181	0.75	1.06
BMI: Obese	0.56	0.004	0.38	0.83	0.54	0.004	0.36	0.83	0.59	0.008	0.40	0.87
BMI: Overweight	0.67	0.027	0.46	0.96	0.86	0.414	0.59	1.24	0.71	0.066	0.49	1.02
BMI: Normal	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Regular Physician Visit (past 12 months): Yes	0.46	<0.001	0.33	0.65	0.42	<0.001	0.30	0.59	0.51	<0.001	0.35	0.72
Regular Physician Visit (past 12 months): No	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Physical Activity Per Week (≥ 150 minutes)	1.10	0.548	0.80	1.51	1.04	0.815	0.75	1.45	1.10	0.557	0.80	1.51
Physical Activity Per Week (< 150 minutes)	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--
Fruit/Vegetable Servings Per Week	1.00	0.855	0.94	1.05	0.97	0.310	0.92	1.03	1.03	0.348	0.97	1.08
Number of Alcoholic Beverages Per Week	1.02	0.172	0.99	1.05	1.00	0.846	0.96	1.03	0.98	0.261	0.94	1.02
Smoking Status: Current Smoker	0.69	0.126	0.43	1.11	0.93	0.767	0.58	1.49	0.74	0.226	0.45	1.21
Smoking Status: Past Smoker	0.91	0.605	0.64	1.30	0.79	0.207	0.54	1.14	0.95	0.759	0.67	1.34
Smoking Status: Never Smoked	1.00	--	--	--	1.00	--	--	--	1.00	--	--	--

Referent Group: Healthcare Provider as the preferred source
Nagelkerke R-square = 0.180