

HOW DO WE DISSEMINATE HEALTH INFORMATION TO THOSE CONSIDERED  
LOW-SOCIOECONOMIC STATUS? IS IT EFFECTIVE AND IS THERE ROOM FOR  
IMPROVEMENT?

HONORS THESIS

Presented to the Honors College of  
Texas State University  
in Partial Fulfillment  
of the Requirements

for Graduation in the Honors College

by

Rickey A. Johnson

San Marcos, Texas  
May 2018

HOW DO WE DISSEMINATE HEALTH INFORMATION TO THOSE CONSIDERED  
LOW-SOCIOECONOMIC STATUS? IS IT EFFECTIVE AND IS THERE ROOM FOR  
IMPROVEMENT?

by

Rickey A. Johnson

Thesis Supervisor:

---

Jeff Housman, Ph. D.  
Department of Health and Human  
Performance

Second Reader:

---

Jacquelyn McDonald, Ph. D.  
Department of Health and Human  
Performance

Approved:

---

Heather C. Galloway, Ph.D.  
Dean, Honors College

## **Introduction**

The intention of my thesis is not to conduct a critical evaluation of the health educators working in the field, but rather to perform a literature review of their research, provide discussion on how health information is disseminated to members of society in low-socioeconomic status (SES), and the potential for future programs. I have decided to review *Health Information Seeking of Low Socioeconomic Status Hispanic Adults Using Smartphones* by Henna Kim and Yan Zhang, *Characterizing Internet Health Information Seeking Strategies by Socioeconomic Status: A Mixed Methods Approach* by Susan L. Perez, Richard L. Kravitz, Robert A. Bell, Man Shan Chan, and Debora A. Paterniti, and *Effects of Race/Ethnicity and Socioeconomic Status on Information-Seeking, Confidence, and Trust* by Amanda Richardson, Jane Appleyard Allen, Haijun Xiao, and Donna Vallone based on their research on those considered low-SES. I based my selection on their research methods and exploration of technology as a method for disseminating health information to include the Internet, smartphones, and the use of Internet-based search engines.

*Keywords:* low-socioeconomic status, low-SES, health information, health information dissemination, Internet

## **Discussion**

Approximately 70% of all adults in the U.S. have actively searched for health information on the Internet to help guide health decision making, health behavior change,

preventative health behaviors, and in response to illness (National Cancer Institute, 2018) (Lambert & Loiselle, 2007). The Internet has rapidly become a dynamically expanding means with which to disseminate health information. To take advantage of this, health educators must have a thorough understanding of the influence of socioeconomic status on health information-seeking behavior, self-efficacy concerning gathering health information, and the trust of health information sources in order to optimize the dissemination of health information to those most at risk. Taking these concepts into account could potentially lead to a substantial increase in health literacy, informed decision making, and positive health outcomes.

Research suggests those considered low-SES are less likely to seek out health information, have lower levels of self-efficacy towards obtaining health information, and are more apprehensive about trusting certain sources of health information (Amanda Richardson, 2012). This could be one of the underlying causes to the disparities in access to care, quality of care, use of services, noncompliance to treatment protocols, and negative health outcomes by those considered low-SES (Agency for Healthcare Research and Quality, 2009).

An issue that may affect the information-seeking behavior and trusting of health information sources is ineffective communication efforts by healthcare professionals. Individuals considered low-SES are less likely to report that healthcare providers explain health information in a comprehensible manner, respect their comments and questions, or actively involve them in the health decision making process (National Cancer Institute, 2018). Health educators should use these findings to guide health programs that aim to disseminate health information effectively to low-SES populations. Health educators

should present health information written at an appropriate health literacy level, be culturally respectful, and allow for correspondence in order to maximize the outcomes of their health programs.

This lack of trust in traditional health service providers for individuals considered low-SES is a significant barrier, but could also be viewed as an opportunity to create partnerships between organizations that do garner trust from those considered low-SES such as religious, public service, and community organizations. Health educators could potentially coordinate free online training workshops designed for low-SES populations at organizations that are already established and have the trust of the target communities (Amanda Richardson, 2012). Health intervention programs that incorporate partnerships with established organizations within the low-SES communities will assist in overcoming barriers to health information-seeking, self-efficacy, and lack-of-trust of healthcare professionals.

As the accessibility to and the amount of health information on the Internet expands, the potential for health disparities to increase also exists. In order for health educators to create successful programs partnerships with community organizations is paramount to effectively disseminating health information to low-SES populations. Further, health educators must continue to research the effects of low-SES on health information-seeking behavior, self-efficacy, and trust of health information sources to maximize the results of their programs and increase health outcomes.

In spite of the legislative efforts to expand access to healthcare, barriers to healthcare services still persist. Finding a consistent primary care provider, the ability to get an appointment in a timely manner, transportation, and the inability to pay are

persistent barriers that force those classified as low-SES to explore options outside the formal healthcare system (Perez, Kravitz, Bell, Chan, & Paterniti, 2016). Low-SES individuals must continually compare the severity of their symptoms to the barriers they face to healthcare access. Although the use of the Internet is not intended to replace the use of traditional forms of healthcare services, it is among the few available resources of health information for those with limited access to healthcare services. The Internet is a valuable resource for low-SES individuals with limited access to healthcare services due to its economy, ease of access, and vast amounts of health information. Despite of the benefits of the Internet, health educators must take into account that online health information can vary in readability, completeness, and accuracy (Berland, Elliot, Morales, & al., 2001).

The benefits of improved access to health information is limited to an individual's ability to access current and accurate health information relevant to their situation, as well as their ability to comprehend the health information (Perez, Kravitz, Bell, Chan, & Paterniti, 2016). Those considered low-SES with fewer resources, health literacy, and experiences with the healthcare system are less likely to have the capacity to navigate health information on the Internet effectively (Perez, Kravitz, Bell, Chan, & Paterniti, 2016). Psychology theories concerning judgment and decision making can be used to assist in understanding how individuals search for information when addressing a health concern (Evans, 2008). The Dual-Processing Theory suggests that the two ways to process information are deliberatively and intuitively (Kahneman & Frederick, 2005). Further, the theory postulates that those that process information intuitively are more likely to initiate several potential biases and interfering heuristics, where as individuals

that process information deliberately are more systematic in how they assess the information (Kahneman & Frederick, 2005). The research conducted by Perez *et al* indicated those considered low-SES were more likely to engage in intuitive searches when seeking health information on the Internet. Low-SES research participants were also more likely to use heuristics that would narrow the scope of the search reducing the amount of information they were exposed to. When presented with unfamiliar health information, low-SES participants further narrow their search to focus on specific elements of information they did not understand. The narrowing of the scope of the search lead to an inaccurate understanding of the health information.

Studies have shown that access to more health information does not necessarily lead to better health decisions (Hibbard, 2003). Individuals searching for health information base their decisions on past experiences to contextualize the information (Genius, 2012). The inability to understand health information due to low health literacy leads to poorer health outcomes (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011).

Since greater access to or greater amounts of health information is not indubitably better for health outcomes, health educators must include strategies that will account for this during the planning stages of health promotion programs that rely on Internet based health information dissemination. Especially when targeting those with low health literacy, low self-efficacy, and those considered low-SES, health educators must design programs that require a minimal need to engage in intricate Internet search methods to find information. Health information should be written at a level that negates low levels of health literacy. Also, when attempting to present new health information, health

educators should use strategies that associate the relevant experiences of the target population with the introduced information. This will allow the target audience to contextualize the health information, increase understanding, and as a result, increase health outcomes.

Approximately 64% of American adults possess a smartphone, 62% of which have used their phones to search for health information (Kim & Zhang, 2015). Researching health information is the most popular use of smartphones (Kim & Zhang, 2015). This is an opportunity for health and wellness promotions programs to incorporate the use of smartphones as a median to disseminate health information. However, it is not as simple as creating a health information smartphone application or website. Kim and Zhang highlighted the issue of participant's inability to effectively evaluate and understand health information in their research. Health educators must concentrate on key areas to increase the success rate of health promotion programs relying on smartphone use. According to research, the three primary areas of focus that impact the effectiveness of smartphone use for health information dissemination are the characteristics of smartphones themselves, the context in which they are used, and the barriers preventing their use for gathering health information (Kim & Zhang, 2015).

The first area of focus to consider when planning a health promotion program is the characteristics of smartphones themselves. The five main characteristics include functionality and computing power, ease-of-use, ubiquity, privacy, and economy (Kim & Zhang, 2015). The functionality and the multiple applications available to smartphones are the fundamental reasons for considering the use smartphones in health intervention programs. Smartphones allow users to search the web for health information, and provide



the ability search for health providers, schedule appointments, and explore transportation options (ex. bus, Über, Lyft etc.). Smartphones provide easier and quicker access to the Internet. Usually, when accessing the Internet on a computer, one must power on the computer and log in prior to gaining access to the Internet. This can take considerably longer, especially when the computer is shared with multiple users. Smartphones provide superior ease-of-use compared to traditional computers due to the quick access to the Internet they provide. Those considered low-SES usually have multiple obligations and little to no free time. Smartphone users have quick and easy access to the web whenever they have a free moment. As previously noted, smartphones are ubiquitous in the sense that most American adults own one. They can be carried anywhere, and used anytime. The fourth characteristic that affects smartphone adoption is privacy. Health educators must factor in concerns of personal health information. One participant of the King and Zhang study believed smartphones were more private in comparisons to a public computer citing concerns for others being able to view their monitor. Economy is the strongest characteristic of smartphones that affects adoption. Many individuals considered low-SES do not own a computer or are unable to afford a broadband Internet subscription. A smartphone provides access to the Internet anywhere and is a considerably less of an investment than purchasing a computer and subscribing to Internet service.

The second area of focus is the context in which smartphones will be used. Time, location, search activity, social surroundings, and the information technology environment are the contextual components to consider (Kim & Zhang, 2015). Time is when and how long smartphones are used (ex. breaks, lunch, time between classes,

waiting at the bus stop, before bed etc.). Location is where the smartphones are used (ex. home, work, clinics, buses, fast-food restaurants, libraries etc.). Search activities refers to what the smartphones are used to search for (ex. medical conditions, self-diagnosis, health providers etc.). Social surroundings include who is around during smartphone use (ex. relatives, friends, coworkers etc.). The information technology environment refers to what information technology was used by smartphone users (ex. 3G, 4G, Wi-Fi etc.). The context in which smartphones will be used would have a significant impact on the success on any health program including them.

The third area of focus is the barriers preventing the use of smartphones to seek out health information. A barrier can be related to the smartphone technology or the user (Kim & Zhang, 2015). Some barriers related to the technology include small screens, and the inability to access documents or run programs that exclusively work on desktop or laptop computers. Barriers that relate to the user vary substantially and may be difficult to address. Some user related barriers include inability to effectively use smartphones, lack of knowledge on how to effectively use a search engine, health literacy, language, and an inability to evaluate the quality of health information.

The characteristics of smartphones themselves (ex. size, computing power, etc.), the context in which they are used (ex. at home, commuting, etc.), and the barriers preventing their use (ex. cost, language of content, etc.) for gathering health information must all be considered when planning a health and wellness program that incorporates their use.

Research suggests that males in their 20s and 30s, those with higher incomes, and those with higher levels of educational attainment are more likely to own a smartphone

(Lopez & Gonzalez-Barrera, 2013). This is significant when considering smartphones as a median to convey health information. Members of society in lower-SES are by definition there because of low incomes. Also, research shows those considered low-SES are less likely to have attained a college degree (U.S. Department of Education, 2015). Health programs should account for these barriers and pursue opportunities that would subsidize the cost of smartphones. For instance, health educators could approach philanthropic technology company CEOs, such as Bill Gates, and enter into an agreement to create a voucher system to help offset the entry cost to smartphone ownership. Microsoft© would gain a smartphone users base that they could use for research and development, statistics and analytics. They would also potentially benefit from any tax breaks, depending on the current tax code, available for donating to the program. The age of the target population for any health program is important, but especially so when considering smartphones as a means to disseminate health information. As previously mentioned, smartphone users are usually between the ages of 20 and 30. The current research suggests older individuals considered low-SES would not benefit from a health program that incorporates smartphone use. There is potential for smartphones specifically designed for older users could be produced, but further research would need to be conducted to determine how smartphone-based programs would be tailored to target older populations. Additional factors that may influence smartphone adoption include the quality and speed of the broadband connection, the design of the phone, multimedia functions, customer support, perceived usefulness, and ease-of-use. Research has shown that although perceived usefulness and ease-of-use significantly affect smartphone adoption, fun and enjoyment mediate their influence (Kim & Zhang, 2015). So it is

important for health educators to plan a health program that is entertaining and enjoyable if there are prevailing barriers to ease-of-use.

## **Conclusion**

The intention of my thesis is not to criticize how health educators disseminate health information to low-SES populations, but rather explore the research behind the most effective ways to do so. I selected the research articles I reviewed based on their incorporation of technology, and its use to disseminate health information. Technology, specifically the Internet is constantly evolving and expanding in accessibility and the amount of information available. This is an opportunity for health educators to incorporate the use of the Internet in their health intervention programs. However, to do so effectively, health educators must continue to research the effects of low-SES on using the Internet for seeking and understanding health information. When planning health intervention programs that use the Internet as a resource to disseminate health information to low-SES populations, health educators must account for several factors, barriers to adoption, Internet search strategies, the ability to discern quality health information, how to relate health information to relevant experiences, health information-seeking behavior, self-efficacy, and trust of health information sources among other. The Internet has the potential to be a powerful tool for future health educators to overcome barriers and increase health outcomes for individuals considered low-SES as long as improvements in technology correspond to improvements on how health information is disseminated.

## **Annotated Bibliography**

Kim, H., & Zhang, Y. (2015). Health Information Seeking of Low Socioeconomic Status Hispanic Adults Using Smartphones. *Aslib Journal of Information*, 542-560.

Citing the considerable potential of smartphones to lessen the digital divide low-SES individual experience, Kim and Zhang decided to explore the manner in which low-SES Hispanics use their smartphones to access health information. They interviewed 20 self-identified Hispanic adults who spoke English, had not obtained a college degree, made less than \$30,000, and owned a smartphone. The results of the interview revealed that the primary methods for accessing health information on smartphones were Internet search-engines, such as Google, and smartphone applications that manage current health conditions or that are associated with wellness. However, the smartphone applications were used minimally. Kim and Zhang's research found that the economic benefits and practicality of smartphones are a significant motivating factor for low-SES Hispanic users to use smartphones to search out health information. It is important to note that the research showed that the users lacked the sufficient knowledge and skills to proficiently use health and wellness applications, effectively evaluate the quality and accuracy of health information, or to completely understand the health information.

Kim and Zhang's research was limited in the amount of research participants that took part in the study. Kim and Zhang are forthcoming about their study limitations in the text. The research article is well written and highlights the potential factors that may affect the use of smartphones by participants of health programs relying on their use. The research conducted by Kim and Zhang provides useful data for health educators wishing to incorporate smartphone use into their programs.

Perez, S. L., Kravitz, R. L., Bell, R. A., Chan, M. S., & Paterniti, D. A. (2016).

Characterizing Internet Health Information Seeking Strategies by Socioeconomic Status: A Mixed Methods Approach. *BMC Medical Informatics and Decision Making*, 16(107), 1-9.

Because of the Internet's relatively low cost and high accessibility, Perez *et al* elected to investigate how the Internet is used to search for health-related information by individuals from differing SES. Participants of the study were solicited at locations offering social services, door-to-door in low-income housing, at university housing, and at coffee shops. Ranging in age from 21-35 years old, 67% of the participants selected were identified as high-SES and 33% as low-SES. Participants were given one of two clinical scenarios, and asked to perform an Internet search. Data was collected using screen-capture software. The search strategies of participants were analyzed and diagnosed to determine health information-seeking patterns. Results from the study showed low-SES individuals

were more likely to use an intuitive, rather than deliberative, approach to Internet health information-seeking and were also more likely to narrow the scope of their search, rather than branching out from the search.

Perez *et al* researched how Internet searches were conducted by individuals when seeking health information about a health issues they were experiencing.

Although the distribution between the SES of study participants was not evening distributed, the study accurately illustrated how health information was searched for on the Internet based on SES. This article was well written and descriptive. It provided both qualitative and quantitate data on how health information is sought out via the Internet based on SES.

Amanda Richardson, J. A. (2012). Effects of Race/Ethnicity and Socioeconomic Status on Health Information-Seeking, Confidence, and Trust. *Journal of Health Care for the Poor and Underserved*, 1477-1493.

Amanda Richardson, Jane Appleyard Allen, Haijun Xiao, and Donna Vallone used the 2007 Health Information National Trends Survey (HINTS) data with a multivariable logistic regression assessment to measure the effects of race/ethnicity, education, and income on health information-seeking, confidence in gathering health information, and trust of health information sources. The results of the study showed participants considered low-SES were less likely to search for health information, had lower self-efficacy in their ability to acquire

health information. The research also indicated that those considered low-SES were less likely to trust doctors and other healthcare professionals. They concluded that a concerted effort to improve the development and distribution of health information intended for individuals considered low-SES could potentially decrease the effects of disparities in health information-seeking, self-efficacy, and health outcomes.

Amanda Richardson, Jane Appleyard Allen, Haijun Xiao, and Donna Vallone use of existing data led to a well written research article. The results of the study are valuable assets to health educators and health program planners. Particularly, the research articles focus on the barriers to low-SES participants seeking, gathering, understanding, and trusting health information.



## References

- Agency for Healthcare Research and Quality. (2009). *National Healthcare Disparities Report*. Rockville: Agency for Health Care Research and Quality.
- Amanda Richardson, J. A. (2012). Effects of Race/Ethnicity and Socioeconomic Status on Health Information-Seeking, Confidence, and Trust. *Journal of Health Care for the Poor and Underserved*, 1477-1493.
- Berkman, N., Sheridan, S., Donahue, K., Halpern, D., & Crotty, K. (2011). Low Health Literacy and Health Outcomes: An Updated Systematic Review. *Annals International Medicine*, 89-97.
- Berland, G., Elliot, M., Morales, L., & al., e. (2001). Health Information on the Internet Accessibility, Quality, and Readability in English and Spanish. *American Medical Association*, 285.
- Chtourou, M., & Souiden, N. (2010). Rethinking the TAM model: time to consider fun. *Journal of Consumer Marketing*, 27(4), 336-344.
- Evans, W. (2008). *Public Health Branding: Applying Marketing for Social Change*. Oxford University Press.
- Genius, S. (2012). Constructing "Sense" From Evolving Health Information: A Qualitative Investigation of Information Seeking and Sense Making Across Sources. *Journal of the American Society for Information and Science Technology*, 1553-1566.
- Hibbard, P. J. (2003). Supporting Informed Consumer Health Care Decisions: Data Presentation Approaches that Facilitate the Use of Information in Choice. *Annual Review of Public Health*, 413-433.

- Kahneman, D., & Frederick, S. (2005). *A Model of Hueristic Judgement*. Cambridge: Cambridge University Press.
- Kim, H., & Zhang, Y. (2015). Health Information Seeking of Low Socioeconomic Status Hispanic Adults Using Smartphones. *Aslib Journal of Infomation*, 542-560.
- Lambert, S., & Loiselle, C. (2007). Health Information Seeking Behavior. *Quality Health Resources*, 1006-1019.
- Lopez, M., & Gonzalez-Barrera, A. a. (2013). *Closing the Digital Divide: Latinos and Technology Adoption*. Retrieved from PEW Hispanic: [www.pewhispanic.org/2013/03/07/closing-the-digital-divide-latinos-and-technology-adoption/](http://www.pewhispanic.org/2013/03/07/closing-the-digital-divide-latinos-and-technology-adoption/)
- National Cancer Institute. (2009). *HINTS Breif 14: Social Context Influences Interpersonal Health Communication*. Bethesda: National Cancer Institute.
- National Cancer Institute. (2018, April 12). *Health Information National Trends Survey 2007 Data*. Retrieved from National Cancer Institute: <http://hints.cancer.gov/question-details.aspx?dataset=2007&qid=687&qdid=2251&method=combined>
- Perez, S. L., Kravitz, R. L., Bell, R. A., Chan, M. S., & Paterniti, D. A. (2016). Characterizing Internet Health Information Seeking Strategies by Socioeconomic Status: A Mixed Methods Approach. *BMC Medical Infomatics and Decision Making*, 16(107), 1-9.
- U.S. Department of Education. (2015, January). *National Center for Education Statistics*. Retrieved from Digest of Education Statistics: [https://nces.ed.gov/programs/digest/d14/tables/dt14\\_104.91.asp](https://nces.ed.gov/programs/digest/d14/tables/dt14_104.91.asp)

