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Health Management: Occupational Therapy's Key Role in Educating Clients About Reliable Online Health Information

Amy Armstrong-Heimsoth  
*Northern Arizona University* - USA, amy.armstrong@nau.edu

Melissa L. Johnson  
*Arizona State University* - USA, melissajohnson@asu.edu

Meredith Carpenter  
*Northern Arizona University* - USA, mb898@nau.edu

Tincey Thomas  
*Northern Arizona University* - USA, tmt229@nau.edu

Ashley Sinnappan  
*Northern Arizona University* - USA, as3838@nau.edu

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Health Management: Occupational Therapy's Key Role in Educating Clients About Reliable Online Health Information

Abstract

Background: Only 12% of Americans possess proficient health literacy skills. Among those with the lowest health literacy are individuals with chronic health conditions. Occupational therapists are well prepared to assist these clients with health literacy, given our roles in teaching new health management skills and health promotion.

Methods: An educational course was designed and taught to over 100 individuals and caregivers with chronic health conditions to assist in finding and determining trustworthy health information online. An author designed pre-post survey was used to evaluate effectiveness.

Results: There was a significant pre-post change in four categories: finding quality health information online (M = 0.703), judging trustworthiness of online health information (M = 0.624), understanding health information (M = 0.489), and retrieving information using email alerts (M = 0.826).

Conclusion: The ability to find and evaluate health information online empowers clients to fully participate in medical care. Evidence shows that this skill can be efficiently taught to clients or client groups for improved health management. Providing training in finding trustworthy health information online is a skill that occupational therapists can successfully teach in conjunction with overall health management skills for improved occupational participation.

Keywords
eHealth, health literacy, health management, occupational therapy, consumer health information, information literacy education

Cover Page Footnote

The authors would like to express their deepest appreciation to everyone involved in this research project, including our participants from Raising Special Kids, Mighty Moms, Phoenix Children's Hospital, Barrow Neurological Institute, and others. Occupational graduate student, Caitlin Covert, and health information nurse from The Emily Center at Phoenix Children's Hospital, Joy MacLeod, also significantly supported these efforts. The authors conducted portions of this research thanks to funding from Dignity Health, Northern Arizona University, and Arizona State University Library, as well as with support and advice from Roy St. Laurent at Northern Arizona University's Statistical Consulting Lab and Melissa Veselovsky at Barrow Neurological Institute. Portions of this research have been presented at conferences and in poster presentations at the 2017 Arizona Occupational Therapy Association conference (ArizOTA), the 2018 American Occupational Therapy Association conference, the 2018 Arizona Health Equity Conference, and the 2018 Arizona Library Association conference. The results from the pilot study, which focused specifically on educating parents of children with complex medical needs, were published in the June 2017 issue of the Journal of Consumer Health on the Internet. The authors declare no conflicts of interest.

Credentials Display

Amy Armstrong-Heimsoth, OTD, OTR/L, CHIS; Melissa L. Johnson, MSLS; Meredith Carpenter, OTD, OTR/L; Tincey Thomas, OTD, OTR/L; Ashley Sinnappan, OTS

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The U.S. Department of Health and Human Services defines health literacy as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (U.S. Department of Health and Human Services, n.d.c.). Only 12% of adults have proficient health literacy, according to the last National Assessment of Adult Literacy (U.S. Department of Health and Human Services, n.d.a.). In addition, over one-third of U.S. adults, 77 million people, have difficulty with common health tasks, like following directions on a prescription label or understanding a childhood immunization schedule because of basic or below basic health literacy (U.S. Department of Health and Human Services, n.d.a.). Low health literacy is associated with decreased health outcomes, higher use of health care services, and lower use of preventative services (U.S. Department of Health and Human Services, n.d.c.), the effects of which are experienced more acutely by those with health disparities, such as chronic conditions (Mantwill, Monestel-Umaña, & Schulz, 2015). In addition, low health literacy taxes patients and health care systems alike, contributing significantly to inefficiency and wastage of resources (Eichler, Wieser, & Brügger, 2009).

E-health literacy is comprised of a vast confluence of skills and abilities, not limited to numeracy; reading ability; communication and advocacy skills; cultural and social context; bodily experience; and digital, informational, propositional, and procedural literacies (Jaatun, Brooks, Berntsen, Gilstad, & Jaatun, 2014). Several existing frameworks and models outline how these pieces work together to form an overall picture of the foundational skills necessary to have e-health literacy, such as the Health Literacy Model, the Health Literacy Skills Framework, and the e-Health Literacy Framework. The Health Literacy Model was developed through Don Nutbeam’s extensive research on health literacy as a component of public health, concluding that health literacy at its core is a relationship between health education and patient empowerment (2000). The Health Literacy Model is comprised of three levels: functional health literacy, defined as patient education with factual information on public health issues and the benefit of health services, such as the promotion of vaccines for immunization against influenza; interactive health literacy, an approach in which health information is used to motivate people to make choices based on the knowledge and advice received, such as school-based programs that teach social skill development; and critical health literacy, which involves education on the benefits of improving social, economic, and environmental determinants of health, as well as increasing individual and community ability to engage in improving those determinants of health (Nutbeam, 2000). The Health Literacy Skills Framework provides an overarching definition of health literacy made up of four subparts: factors that influence the development of health literacy skills, health related resources, literacy skills needed to comprehend health information, and mediating factors between health literacy and health outcomes (Squier, Peinado, Berkman, Boudewyns, & McCormack, 2012). The e-Health Literacy Framework explores intersections between information seekers and their confidence in engaging in their own health through digital services and the suitability of and access to the digital services and technologies providing the information (Norgaard et al., 2015).

Expectations of consumers’ abilities in these areas have increased as health systems have evolved. One study found that medical interns spent 12% of their day with actual clients (Block et al., 2013), compared to 36% of their day in 2001 (Boex & Leahy, 2003). In a 2007 study, the primary care average visit length was 15 min, with a mean of six different primary care topics covered in that 15 min (Tai-Seale, McGuire, & Zhang, 2007). With a reduction of time in office visits, there is less time available to educate clients about conditions, treatments, and support services; therefore, the burden falls
on clients to find this information themselves. Although it has become significantly easier to find and access information using the Internet, many consumers can neither discern information quality easily nor understand much of the technical jargon inherent to medical research and other more complex information types. The majority of information seeking adult Americans, especially caregivers and patients with chronic health conditions, search for health information online and mainly do so using a search engine (Fox, Duggan, & Purcell, 2013). When these individuals share their findings with a health care provider, just under half are confirmed, meaning often the provider either disagrees with the online findings or a provider is not consulted at all (Fox et al., 2013). Without health information literacy skills, consumers are largely unable to reliably weigh and compare options to inform their health care decisions.

Several national programs have been proposed through the Office of Disease Prevention and Health Promotion (ODPHP) to address limited health literacy in the United States: Healthy People 2020, Healthy People 2030, and the Health Literacy Program National Action Plan (HLPNAP). Healthy People 2020 is an initiative to provide national objectives every 10 years to improve the health of Americans, in which limited health literacy serves as a component of social determinants of health and as a contributor to health disparities (U.S. Department of Health and Human Services, n.d.b.). The framework for Healthy People 2030 features health literacy as a foundational principle and overarching goal (U.S. Department of Health and Human Services, 2019). The HLPNAP goals focusing on use and creation of patient-friendly educational materials, consumer health information credentialing, cross-disciplinary community partnerships and engagement with libraries and information professionals, expanding the provision of adult health information education, increasing health literacy research, and the incorporation of health literacy in graduate health professions research programs are central to this study (U.S. Department of Health and Human Services, 2010). Around the globe, the World Health Organization supports initiatives to define and address health literacy to improve health outcomes and reduce health inequities, a mandate that was developed for the Ninth Global Conference on Health Promotion in Shanghai (World Health Organization, 2016). In addition, several guides have been developed to improve health education materials that prevent patient comprehension because of large amounts of jargon-filled, dense content, such as the Toolkit for Making Written Material Clear and Effective (Centers for Medicare & Medicaid Services, 2012) and the Health Literacy Online website (U.S. Department of Health and Human Services, 2016). Both provide evidence-based guidelines for creating clear, actionable, organized, informed, and engaging health information.

As health care professionals, whose major roles already include educating clients, health promotion, and skill building, occupational therapists are well prepared to respond to these calls to action. In the third edition of the OTPF, the ability to find and evaluate health information is a component required for independence in two independent activities of daily living (IADLs): Care of others (arranging, supervising, or providing care for others), and health management and maintenance (developing, managing, and maintaining routines for health and wellness promotion) (American Occupational Therapy Association [AOTA], 2017b). Addressing a client’s ability to find health information online is a health management skill and well within our already established scope of practice. In addition, the IADL of health management and maintenance may be billed for under the ADL code when working one-on-one with clients; therefore, skilled instruction in finding reliable health information online related to a client’s ability to manage health is a billable service.
AOTA’s Vision 2025 explicitly calls for the promotion, recognition, identification, and dissemination of occupational therapy’s (OT’s) role in the provision of population health solutions both internally and externally, especially in evolving areas of practice (AOTA, 2017c). The AOTA’s Societal Statement on Health Literacy explicitly calls for therapists to gain the communicative and educational skills necessary to promote clients’ health self-management and participation skills, especially through the integration of health literacy-centered systems and services best suited to individuals’ skills, abilities, and sensitivities (AOTA, 2017a). Implementing health literacy in OT practice fulfills these strategic priorities of OT and benefits both clients and providers. For clients, the benefits include increased treatment adherence and improved outcomes, client satisfaction, a focus on patient-centered care, self-advocacy, shared decision-making, and improved patient provider communication. For providers, benefits include improved client education, improved client satisfaction, improved patient provider communication, and cost-effectiveness (Nutbeam, 2000). Previous work by Levasseur and Carrier (2012) examines six ways for occupational therapists to integrate health literacy into practice: to be informed as a therapist, standardize the way in which we provide materials, make information more accessible, strengthen skills to enhance effectiveness, teach health literacy skills, and collaborate with other providers to improve the population’s health literacy overall (Levasseur & Carrier, 2012). Other research in health literacy as it relates to OT mostly targets information for therapists and making written information more accessible (Smith & Gutman, 2011). The research presented here is aimed at teaching health literacy skills in an efficient manner as a health management skill or tool.

Hypotheses and Research Questions

The following research question drove the study: Is an in-person educational intervention provided by occupational therapists effective in increasing participants’ confidence in their health information literacy skills, including finding, understanding, evaluating, retrieving, and sharing quality online health information? We hypothesized that a 1-hr workshop provided by occupational therapists would be effective in increasing community members’ confidence in common health information literacy skills.

Method

The pilot health information literacy program, Good Googling: A Parent’s Guide to Health Care Information, was provided in person by an occupational therapist and four OT doctoral students in collaboration with a health sciences librarian and focused primarily on parents of children with chronic health conditions. A study based on the pilot program \( (n = 30) \) was published in 2017 (Armstrong-Heimsoth et al., 2017). The program consisted of a 1-hr course focusing on the following topics: How and where to look for reliable health information online, how to form a searchable question, how to share findings with health care providers, and how to use information delivery shortcuts to maximize outcomes of the search. The course content was then streamlined and expanded in scope to relate to all health care consumers and caregivers. After receiving institutional review board approval, Good Googling: A Guide to Health Care Information was provided in person by an occupational therapist, three OT doctoral students, and a health sciences librarian. The programs were provided in community settings for a variety of groups in metropolitan Phoenix, AZ.

Participants

Convenience sampling was used for participant recruitment. Because of the popularity of the workshops provided in the pilot study, the research team received multiple requests from local support groups. Prioritizing these requests of the local community led to changes in our initial recruitment plan.
Over the course of 6 months, 1-hr courses were provided for several community health groups, three of which took place at symposiums for patients and caregivers with cystic fibrosis, brain tumors, and epilepsy. One hundred and three participants were reached, the majority of whom were white women with a college degree who served as a caregiver for another person (see Table 1). Participation was voluntary and provided free of charge with no incentives. Participants were eligible to participate if they were 18 years of age or older and were required to make informed decisions regarding their own or someone else’s health care. Information regarding race and ethnicity was collected to determine if our sample was reflective of the population of Maricopa County. Study population percentages regarding race and ethnicity mirrors the ethnic population of the county (U.S. Department of Commerce, 2018). Informed consent was obtained prior to the start of each program, which outlined the benefits and risks of participating and explained the participants’ right to withdraw at any time. The participants were also informed that completion of the survey research was not required as a part of taking the course.

**Table 1**

*Participants Demographics (n = 103)*

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>74</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>High school graduate</td>
<td>7</td>
</tr>
<tr>
<td>Some college</td>
<td>35</td>
</tr>
<tr>
<td>Associate degree</td>
<td>9</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>26</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>23</td>
</tr>
<tr>
<td>Other (Post-graduate degree, LPN)</td>
<td>2</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>8</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>74</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>23</td>
</tr>
<tr>
<td>Black/African American</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Relationship</td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>19</td>
</tr>
<tr>
<td>Caregiver (Parent, grandparent, foster parent, spouse, sibling)</td>
<td>67</td>
</tr>
<tr>
<td>Other (Paid or unpaid caregiver)</td>
<td>8</td>
</tr>
</tbody>
</table>

*Note. Figures for each section do not equal the number of participants (n = 103) because of incomplete surveys.*

**Data Collection**

The authors created pre and postprogram surveys to assess changes in the participants’ perceived confidence in finding, understanding, judging, sharing, and retrieving online health care information.
The participants rated their confidence using a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree) for each of the survey items.

**Survey Questions**

1. I feel confident sharing my knowledge about my or my dependent’s condition with the medical staff.
2. I feel confident I can find good health-related information about my or my dependent’s condition on my own.
3. I feel I can judge between trustworthy and untrustworthy health-related information.
4. I feel I can understand online medical information regarding myself or my dependent.
5. I am confident with having health information sent to me electronically (to set up a Google alert, for example).

**Program Objectives and Content**

The main objectives of the program were to teach the participants how and where to look for reliable health information online, how to form a searchable question, how to share their findings with their health care providers, and how to use information delivery shortcuts, such as email alerts in 1 hr. High-quality, freely available resources, such as PubMed and MedlinePlus, were emphasized throughout the program, as were local community resources, such as consumer health and public libraries. It was assumed that the participants already knew basic information about their own or their dependent’s condition, which is why both primary research resources, such as PubMed and secondary consumer resources, such as MedlinePlus, were emphasized. The participants also received a copy of the slide presentation and a supplementary packet, including a list of criteria to help determine the trustworthiness of online health information, a template to aid in creating searchable research questions, a handout about types of research studies and levels of evidence, a communication sheet to share research findings with health care providers, and a list of online and community information resources.

The first section of the program covered the benefits and risks of health information found through social media and the Internet, such as international support group opportunities and privacy issues. The participants were then taught how to evaluate the quality of a website by examining factors, such as currency, authorship, and website domain. The next section interactively walked the participants through the search process. First, based on the purpose of the search, the participants were instructed to choose between searching a website or a database. After reviewing some advanced search options, the participants were shown two websites and asked to determine whether they were credible. The Trust It or Trash It tool (Access To Credible Genetics Resource Network, 2013) was featured as an additional resource to aid the participants in determining the quality of information provided on a website. Finally, health statistics were explored using examples, such as surgery survival rates and drug effectiveness advertisements, to show differences between correlation and causation, as well as how different types of data visualizations can be misleading.

In the next section, the participants were taught how to search databases by forming search queries using the PICO (Population, Intervention, Comparison, Outcome) format as well as a simpler variation, “Who? What? Why?” After practicing identifying the PICO components in example research questions, they practiced creating their own research questions using the PICO/WWW formats. Next, the participants were introduced to PubMed and Medline Plus and were led through a live search. Parts of an article, methods of determining the quality of the research, and ways to access the full text were
demonstrated. Using a communication sheet created by the presenters, the participants were then shown how to record their findings and share them with their health care providers. The final portion of the program focused on how to push information to the participants through email alerts as opposed to pulling information by conducting searches. The participants were shown how to create Google and PubMed alerts through live demonstrations, after which the participants asked questions of the presenters, completed the post-survey, and reviewed the supplemental handouts.

The supplemental handouts were created with health care literacy principles in mind. Despite the complex nature of the evidence-based subject matter, most handouts were written around a sixth-grade reading level, a common standard for client information material (Badarudeen & Sabharwal, 2010), and a glossary of terms were included to aid comprehension. The handouts included visual aids and graphics, and information was kept concise and as free of medical jargon as possible. Attention was also paid to white space and margins; clear headings and organization; and the use of color, graphics, and bulleted lists to break up blocks of text, as recommended in the PRISM Readability Toolkit (Ridpath, Greene, & Wiese, 2009).

Data Analysis

Likert scale responses from pre and postsurveys were analyzed using paired t-tests in the statistical analysis software JMP 10. While the paired t-test does not meet assumptions of normality, it was used instead of the customary Wilcoxon Signed Ranks test because of findings supporting its application in more robust analysis of small-sample ordinal data (Meek, Ozgur, & Dunning, 2007).

Results

The data analysis revealed a significant change, $p < .05$, in four survey categories: finding quality health information online, $p < .0001$ ($SD = .497$, $t(90) = 1.986$), judging trustworthiness of online health information, $p < .0001$ ($SD = .497$, $t(92) = 1.985$), understanding health information, $p = .0006$ ($SD = .345$, $t(89) = 1.987$), and using email alerts to retrieve information, $p < .0001$ ($SD = .583$, $t(85) = 1.662$).

There was no significant change in the participants’ ability to share information with health care providers, $p = .7341$ ($SD = .040$, $t(88) = 1.987$). Because of incomplete answers to survey questions, the number of responses differed per question, resulting in 449 responses out of a possible of 520 responses (see Table 2).

<table>
<thead>
<tr>
<th>Question summary</th>
<th>n</th>
<th>Pre</th>
<th>Post</th>
<th>Mean Difference</th>
<th>$t$</th>
<th>$SD$</th>
<th>DF</th>
<th>$p$ (≤.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing information</td>
<td>89</td>
<td>3.506</td>
<td>3.449</td>
<td>-0.056</td>
<td>1.987</td>
<td>.040</td>
<td>88</td>
<td>.7341</td>
</tr>
<tr>
<td>Finding information quality</td>
<td>91</td>
<td>3</td>
<td>3.703</td>
<td>0.703</td>
<td>1.986</td>
<td>.497</td>
<td>90</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Judging information trustworthiness</td>
<td>93</td>
<td>2.978</td>
<td>3.602</td>
<td>0.624</td>
<td>1.985</td>
<td>.441</td>
<td>92</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Understanding information</td>
<td>90</td>
<td>3.056</td>
<td>3.544</td>
<td>0.489</td>
<td>1.987</td>
<td>.345</td>
<td>89</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Retrieving information using alerts</td>
<td>86</td>
<td>2.756</td>
<td>3.581</td>
<td>0.826</td>
<td>1.662</td>
<td>.583</td>
<td>85</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Total/Average</td>
<td>449</td>
<td>3.056</td>
<td>3.576</td>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *$p$ values based on t-test.
Discussion

A 1-hr training was effective in significantly increasing participant confidence in finding, judging, understanding, and retrieving online health information. There was no change in the participants’ confidence in sharing information with their providers, however. The communication guide created by the researchers, which promoted asking questions and encouraged professional conversation with the providers, may not have been the most effective way to teach the skills and behaviors necessary for improved client-provider communication. For example, one study used a narrative and social learning approach to develop photo stories and interactive online videos as a communication intervention for older adults with low health literacy levels to identify communication barriers and empower older adults to implement strategies to overcome these barriers (Koops van ’t Jagt, de Winter, Reijneveld, Hoeks, & Jansen, 2016). In a small-scale evaluation, the intervention received positive feedback regarding its effectiveness to support older adults with low health literacy, its ability to address a broad range of communication skills, and its explicit acknowledgement and narrative representation of older adults’ barriers (Koops van ’t Jagt et al., 2016).

OT Applications

The results of this study demonstrate the role of occupational therapists in promoting client participation in health management and self-efficacy as health care consumers. In the future, this course could be offered to occupational therapists with two goals in mind: to teach occupational therapists how to identify, gain access to, and apply reliable online health information for use with clients, as well as a train-the-trainer approach in which occupational therapists learn skills on how to best educate their clients on how to find reliable health care information independently. Client education is a primary role of OT, and this course would provide the training for assessing a client’s health literacy level and empowering their ability to access and apply online health information for their health care needs.

The Health Literacy Model provides a structure in which to integrate this evidence into OT practice and can be applied to various settings in the OT profession. Functional health literacy can be used in the acute care setting to address the client’s need for reliable and relevant health information on benefits, risks, and how to navigate the health system available to them. An example would be to provide written material on energy conservation and work simplification to clients who have poor endurance or fatigue from chronic cardiopulmonary conditions. The interactive health literacy approach would be best implemented in a rehabilitation, outpatient, or work integration setting to increase client self-efficacy and independence with skill development and behavioral change. An example of this approach would be running a series of group classes about lifestyle changes for adults with a high risk of developing diabetes mellitus, with the goal to change behavioral risk factors for that condition. The critical health literacy approach could be used in community settings or with caregivers of people who have disabilities to drive outcomes of social mobilization, advocacy, and effective health services (Nutbeam, 2000).

Further, clients with lower health literacy can gain just as much benefit as clients with higher health literacy regardless of the format in which the health literacy educational materials are provided (Eckman et al., 2012). Other opportunities for integrating this knowledge into daily practice includes implementing validated health literacy screens and assessments, such as the eHEALS or Brief Health Literacy Screening Tool, to identify client needs and providing a list of credible online health information resources that could be used in any setting to increase client participation in health management (Haun, Luther, Dodd, & Donaldson, 2012). Therapists could also integrate different
teaching strategies to ensure a client-centered focus, such as one-on-one practice searches on health topics into treatment sessions as part of health management. Alternative approaches to dissemination, such as an interactive online module, mobile app, or training videos, would also be more effective in reaching a larger population.

**Benefits of Community Collaboration**

Collaboration with information professionals, local community groups, and health care organizations increased the impact and quality of the workshops. Fostering these types of relationships may reach a wider variety and number of clients, reduce the workload and increase the reliability of the content, and create positive change for local spheres of people and communities is highly recommended. Partnering with information professionals, such as hospital, public, and academic librarians who have credentials in information and library science may be especially useful; in this case, the librarians’ experiences with and knowledge about information literacy education strategies and high-quality consumer information tools and resources were leveraged to deeply inform the presentation content and answer information-related questions from the participants. Partnering with local hospitals and health organizations enabled the authors to connect with existing support groups at educational events, such as condition-focused symposiums, that were already in action, well-supported, and well-attended. Third party organizations may also be able to provide funding and other resources in support, as was the case for this project (see acknowledgements).

**Limitations**

Recruitment strategy was changed from the initial plans. The research team received requests for the course from multiple agencies and felt it was in the best interest of the community to meet this need first. Because of the researchers’ prioritization of serving the community need, selection bias occurred in the participant groups. The nature of individuals previously engaged in community support groups and symposiums is not necessarily reflective of the general population in terms of health literacy skills. This may explain the high numbers of well-educated participants in our sample and may have contributed to a sample ceiling effect. As our participant population is already comprised of highly educated individuals attempting to enhance their health literacy skills through community engagement, a number of the participants selected agree statements on the pre-course survey tool ($M = 3.056$). This calls for caution when interpreting the level of significance in results and may limit the generalizability of our findings.

A significant limitation to this study was the use of pre and postsurveys developed and written by the authors as a measurement tool, as opposed to the use of a validated survey instrument for assessing health literacy level and skill retention. For example, the e-Health Literacy Scale (eHEALS) is a validated 8-item instrument developed to “measure consumers’ combined knowledge, comfort, and perceived skills at finding, evaluating, and applying electronic health information to health problems” (Norman & Skinner, 2006, para 2). Using the eHEALS tool could have strengthened the validity of the data collected; comparatively, the survey focused on subjective changes in the participants’ self-perceived confidence rather than on differences in objective measurements of health literacy before and after the workshops. The tool used also featured a 4-point scale rather than a typical 5-point scale and was not validated, which may not have provided an adequate scale and limited the responses gathered. The participants likely interpreted the Likert scale differently when self-assessing their confidence in each area. Using confidence as the central metric for whether the workshops were effective is flawed since most people are overly confident and inaccurately gauge their abilities, especially concerning information literacy (Jackson, 2013; Michalak, Rysavy, & Wessel, 2017; Molteni & Chan, 2015).
results may have differed if the participants rated solely at the end of the workshop how their confidence changed rather than separately rating before and after. The majority of the participants reported a 3-confidence level on the Likert scale for most of the presurvey questions, indicating that they already felt adequately confident in their health literacy skills. Although the differences between the pre and postsurvey results for four out of five survey categories were statistically significant, this particular group of participants were already confident in their skills, which indicates a limitation in sampling methods.

Alternative teaching strategies and approaches to dissemination of the program, such as providing hands-on practice, one-on-one training, or a multiple part workshop, could have improved the health literacy skill retention and application. For example, strategies shown to be effective in teaching health literacy skills include theory-based practice; formative research; cultural sensitivity and reading level awareness; interactive lesson content, including media and hands-on practice; one-on-one delivery; and stakeholder review of content (Silk et al., 2010). Measuring the participants’ health literacy and experience with online information searching beforehand to tailor material to specific needs of each group may have improved overall learning and retention of information. The education provided was tailored to specific diagnoses and circumstances as was appropriate while continuing to be generalizable for the group, but it was not tailored to level of knowledge on the topic. In addition, the educational sessions lasted approximately 1 hr each in an in-person lecture setting, which significantly differs from a typical setting in which OT is provided to clients. Findings and applications may have been more transferable if shorter lessons were provided in a one-on-one or small group format over a longer period instead, which more closely mirrors how OT is delivered.

**Future Directions**

Dissemination of this research project aims to improve health literacy overall in the clients who receive OT and serves as an extension of previous work by Levasseur and Carrier (2012). Alternative approaches to dissemination, such as an interactive online module or mobile app, would be more effective in reaching a larger population. Clients with lower health literacy can gain just as much benefit as clients with higher health literacy, regardless of the format in which the health literacy educational materials are provided (Eckman et al., 2012). Broadening the scope of this research to a more demographically heterogeneous sample, including educational attainment, primary language, race, gender, class, income, or life span, and analyzing results among these groupings would strengthen the body of knowledge and strategies to improve health literacy. Further examination of health literacy skills with broad diversity in all these areas is warranted.

In the future, this course could be offered to occupational therapists in the form of a continuing education course, as a manual, or in entry-level didactic courses. Specifically, the training could cover providing education and training on identifying, gaining access to, and applying reliable online health information for use with clients. Client education is a primary role of OT, and this course would provide therapists with the ability to assess a client’s health literacy level and enable them to use online health information to inform their health care needs. This approach would also result in reaching a larger population of health care consumers. In addition, health literacy experiences like this could be better integrated in OT curricula through classroom, simulation lab, and practicum experiences that teach future therapists how to identify and address health management deficiencies in their clients for better outcomes (Saunders, Palesy, & Lewis, 2019).
Conclusion

Awareness and promotion of clients’ health literacy benefits both clients and providers. Health literacy should serve as a fundamental lens to inform how occupational therapists tailor interventions and interact with clients. Integration of health literacy skills training into routine practice is critical to our role as health care professionals engaged with clients in improving health management. Proficient health management skills mean increased treatment adherence, improved decision-making, better self-advocacy, reduced length of stay and recovery time, better patient-provider communication, increased patient satisfaction, and improved cost-effectiveness. The results of this study demonstrate the role of occupational therapists in promoting client participation in health management and self-efficacy as health care consumers.

Amy Armstrong-Heimsoth, OTD, OTR/L, CHIS, assistant clinical faculty, department of occupational therapy, Northern Arizona University
Melissa L. Johnson, MSLS, web services librarian, ASU library, Arizona State University
Meredith Carpenter, OTD, OTR/L, Northern Arizona University
Tincey Thomas, OTD, OTR/L, Northern Arizona University
Ashley Sinnannan, OTS, Northern Arizona University

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