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journal homepage: www.sciencedirect.com/journal/journal-of-radiology-nursing“Like Us on Facebook[®]”: Nursing in a World of Social Media

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A B S T R A C T

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Social media enables instant dialog and is growing among almost every demographic. Nurses can reach patients and benefit professionally by taking advantage of this internet phenomenon. Social media can be utilized for networking, information sharing, and support. Patients may benefit from support and information provided on various platforms. Online health communities are also effective for connecting patients to nurses and other patients with similar health conditions. There are limitations associated with social media use; however, the possibilities for reaching people quickly and in real time present opportunities for improvement to patient care and the nursing profession.

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Introduction

In a world saturated with social media, it can be difficult to see anything but a negative impact on society. Although social media may contribute to societal ills, there are numerous ways for health care professionals to take advantage of this ubiquitous form of communication. Opportunities abound for nurses who choose to use the popularity of social media to improve patient care and outcomes, advance careers, enhance communication, and disseminate information. In addition, social media has become a place to conduct research and recruit participants. This article outlines various ways that nurses can effectively utilize social media and also identifies potential problems associated with social media use among nurses and patients.

Background

Social media can be defined as a web-based vehicle for interactive communication. Social media, which is accessed from the internet via any computer or from a smartphone application, enables instant and frequent dialog between users and groups of users. Relationships can be formed that previously would have been unlikely, either because of distance or simply a lack of opportunity to connect. There are 3 types of social media discussed in this article: social networks (including messaging platforms), media sharing, and blogs.

Social networks are used to engage in conversation, and share information, photos, and other content. Social networks, which allow for 2-way conversation, include Facebook, WhatsApp, LinkedIn, and Facebook messenger, among others. There are also several media-sharing platforms that allow for video, picture, and information sharing. These often, but not exclusively, utilize 1-way communication. Examples of media-sharing platforms are Pinterest, YouTube, Instagram, and Snapchat (Markham et al., 2017; Smith & Anderson, 2018). Blogs, which function something like a diary, include Tumblr and Twitter (also called a “microblog”) (Wilson, Ransie, Cashin, & McNamara, 2014). Twitter, which allows for only 140 characters per posting, is very interactive and considered by many to be a social network (Markham et al., 2017; Wilson et al., 2014).

Seventy-three percent of adults in the United States use YouTube, making it the most frequented social media platform (Smith & Anderson, 2018). Facebook is a close second at 68% (Smith & Anderson, 2018). Social media use overall is growing, even among older adults. Sixty-four percent of adults aged 50–64 years use social media, whereas 37% of those aged 65 years and older report using some kind of social media (Smith & Anderson, 2018). In contrast, 90.4% of Millennials and 77.5% of Generation X'ers currently use social media. Ninety-one percent of social media users access the platforms via smartphone (Mohsin, 2019). Demographic statistics demonstrate that the likelihood of choosing a social media platform may be related to more than just age. For example, women account for most of the Pinterest users (Smith & Anderson, 2018). College graduates and those with high income are much more likely to use LinkedIn (Smith & Anderson, 2018) compared with those with less education or income. Lower income individuals are more likely to use Facebook and YouTube

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compared with the other social media platforms (Smith & Anderson, 2018).

Prevalent use and ease of access increase the likelihood that patients are engaging with at least one social media platform. This means we can “virtually” meet our patients any time and any place. Furthermore, patients are increasingly using social media for the purposes of health information. It can reflect and influence patients’ health and other behavior choices. As such, social media presents nursing with opportunities to reach patients via approved facility social media tools according to policies and procedures and to connect with other nurses. Unfortunately, social media use can present challenges to nurses as well.

Uses

Historically, nurses have cared for patients through touch and personal presence. The idea of using social media to augment practice can be intimidating for those who were not born into the digital age. Regardless of one’s level of comfort or expertise with digital technology, social media is here to stay. Embracing social media for the purposes of providing optimal care can give nurses access to more people, with greater speed, and in any environment. In fact, there are numerous ways to use social media to improve practice and patient care (Table 1).

Professional Information Sharing

Networking and Professional Development

Social media has an infinite capacity to enable the provision and acquisition of information. Communication is instant and can reach an endless number of people. For these reasons, using social media for education and information sharing can benefit both nursing practice and patient care. Nurses’ professional use of social media includes networking with other nurses, live communication at conferences, and dissemination of professional information through health-related and nursing organizations.

LinkedIn is a common venue for networking with other health care professionals. LinkedIn offers nurses the opportunity to grow

their careers through access to professional services, job boards, and network connections. Twitter enables nurses to follow high-profile nursing professionals. Nurses can also develop friendships with other nurses on Facebook, which is conducive to knowledge sharing. Twitter chats can be used in much the same way, giving nurses the ability to talk to other nurses around the world for the purpose of sharing ideas and information (Isaacson & Looman, 2017).

Social media makes professional development much easier for nurses. Twitter is popular during nursing and medical meetings and conferences, giving attendees the ability to post comments or “tweet” before, during, and after a conference. Networking with other nurses on social media has become an effective means for disseminating information and research, providing an opportunity for broader discourse. Sharing and discussing material presented at a conference extends the reach of the information being presented (Markham, Gentile, & Graham, 2017). Twitter allows for the designation of a “hashtag” to precede a word or phrase. Attendees, or those who cannot attend, can search the hashtag to follow highlights and comments from the event (Kalia, et al., 2018). Social media at conferences also gives presenters and organizers real-time feedback, so that misunderstandings and errors can be addressed immediately (Attai, Radford, & Cowher, 2016). However, conference planners must keep in mind that social media will allow access to the meeting without being present, thus having a potential impact on meeting attendance.

Nursing Education

Organizations such as the American Heart Association, the American Nurses Association, and many hospital systems use a variety of social media platforms for sharing health information and for spreading the word about events and conferences. The presence of such organizations on social media can enable nurses to access the most recent information about specific diseases or other aspects of nursing. The American Association of Diabetes Educators on Facebook is an example of a social media platform being used to provide professional information sharing and support.

Table 1
Social media platforms: descriptions, uses, and limitations

Platform	Description	Possible uses	Limitations
YouTube	A media sharing platform in which users can have accounts and upload videos. Viewer comments and advertising are common.	<ul style="list-style-type: none"> Viewing health information Sharing educational material Researching content 	<ul style="list-style-type: none"> Tends to be 1-way conversation, although comments are possible There can be bad information that misleads users
Facebook	A social networking site that allows for 2-way conversation, posting of pictures and videos, and live events.	<ul style="list-style-type: none"> Online health communities can bring people with similar interests together Events can be posted and broadcast Nurses and patients both can find support Can be a place to conduct or recruit for research 	<ul style="list-style-type: none"> Misinformation can be spread Privacy issues may be a concern Site monitoring may need to be carried out to prevent inappropriate comments
Twitter	A microblog that allows the user to post up to 140 characters at a time. Users can “follow” and comment on others who post.	<ul style="list-style-type: none"> Allows user to connect with larger organizations or experts Nurses and patients can chat with other nurses or patients Allows for “tweeting” at conferences or other events in real time. 	<ul style="list-style-type: none"> Misinformation can be spread Users may unknowingly follow disreputable sources
LinkedIn	A social networking site that is focused primarily on professional networking. Users can post and read content and become professionally “connected” to other professionals.	<ul style="list-style-type: none"> Professional networking Connecting to job recruiters and job boards Disseminating information through posts Posting information about upcoming events 	<ul style="list-style-type: none"> Is not designed for personal connections as much as business Misinformation can be spread Users may be endorsed by other users for skills they do not have (Taub, 2013)
Pinterest	A media-sharing platform in which images and videos (“pins”) of interest to the user can be saved, managed, and shared (Spencer, 2011).	<ul style="list-style-type: none"> Allows for topics of interest, such as disease-specific pictures, to be saved and categorized 	<ul style="list-style-type: none"> Misinformation can be spread Is not designed for 2-way communication
Snapchat	An application for sharing multimedia in which content typically disappears and becomes unavailable after being viewed (Alba, 2012).	<ul style="list-style-type: none"> Stories can be made visible to select individuals or groups 	<ul style="list-style-type: none"> The temporary nature of the media can allow for inappropriate material

Nursing schools have also begun to provide information through social media. Nursing students can use blogs for reflective journaling, YouTube for viewing patient case studies, and Facebook for working together in groups (Ross & Myers, 2017). Blogs are an excellent way to encourage critical reflection or debriefing, especially after a simulation exercise (Ross & Myers, 2017). Nurse educators can also harness the power of social media to deliver curriculum in ways that nursing students are likely to embrace. Faculty have used platforms such as Facebook for the purposes of communicating with students and for delivering case studies (Tippin & Arnold, 2012). In fact, students have expressed that they enjoyed the Facebook interactions with faculty (Tippin & Arnold, 2012).

Regardless of the professional reason for using social media, nurses need to remain cognizant of potential breaches to privacy and confidentiality. Furthermore, employers may have concerns about nurses using social media inappropriately. It is vital that nursing schools and institutions that hire nurses stress the importance of maintaining professionalism on social media. The American Nurses Association has 6 professional principles, listed in the following, for guiding nurses who use social media (ANA social media).

Our principles for social networking are as follows:

1. Nurses must not transmit or place online individually identifiable patient information.
2. Nurses must observe ethically prescribed professional patient-nurse boundaries.
3. Nurses should understand that patients, colleagues, organizations, and employers may view postings.
4. Nurses should take advantage of privacy settings and seek to separate personal and professional information online.
5. Nurses should bring content that could harm a patient's privacy, rights, or welfare to the attention of appropriate authorities.
6. Nurses should participate in developing organizational policies governing online conduct.

Peer and Patient Support

Nursing Support

Beyond networking, many nurses benefit from using social media to support each other, both professionally and personally. Facebook and other social media platforms have become a popular way for nurses to reach out to each other and show encouragement. The Twitter group “WeNurses” is an example of social media connecting nurses for the purpose of providing information and helping nurses cope with career stressors. Nurses are also using social media to change the public's perception of nursing. In recent years, insensitive comments about nursing made on a daytime television show prompted a social media campaign to raise awareness about the nursing profession (McNeal, 2015). The campaign drew the attention of thousands of nurses who posted pictures of themselves wearing a stethoscope in a unified show of support (Belick, 2016).

Patient Support

Online visits between nurses and patients can effectively give patients much needed support (Wagg, Callanan, & Hassett, 2018). Most of the population uses some form of social media (Smith & Anderson, 2018), providing fast, two-way communication that is perfect for virtual visits. A 2013 study that incorporated smartphone applications and 2-way teleconferencing with nurses for home-based cardiac rehabilitation is an example of the important role of social media for providing patient support (Scalvini et al., 2013).

Although social media has become a venue for influencing health decisions, nurses should be aware that patients may not be comfortable using technology to access social media or may have financial barriers that limit access to computers or smartphones. It has been shown there are education and other demographic differences in social media users (Bennetts et al., 2019); therefore, one cannot assume that all patients use or have access to social media. On the other hand, social media interactions have the potential to eliminate barriers to care, such as transportation concerns (Whittaker & Wade, 2014).

Patient Education

Over 2 billion people worldwide use social media (percentage of U.S. population, 2016), so it is likely that a large percentage of patients are familiar with at least one platform. This widespread use presents an opportunity for nurses to leverage social media to reach patients and bridge communication gaps. For better or for worse, patients are more likely to look to social media for answers to their health questions in the absence of provider guidance (Langford & Loeb, 2019). It benefits patients and nurses both when nurses can inform patients and guide them through the sea of information on the various social media platforms. There are many opportunities that result from ease of access to patients, but the most important may be the ability to guide patients through good social media choices (Risling, Risling, & Holtslander, 2017).

Online Health Communities

Patients will seek out clarification regarding their health conditions through online health communities (OHCs) on social media when they perceive their providers are too busy to answer all of their questions (Rupert, et al., 2014). OHCs are virtual communities; forums for discussion where people with the same interests, including those with common diseases or other conditions, can share ideas and experiences (Eysenbach, Powell, Englesakis, Rizo, & Stern, 2004). OHCs encourage patient autonomy by enabling patients to manage their own health conditions (Willis & Roynne, 2017). Because patients tend to actively seek out health information on social media (Willis & Roynne, 2017), OHCs can be an effective means for delivering and sharing advice about health conditions (Oprescu, Campo, Lowe, Andsager, Morcuende, 2013). Reputable health care organizations sponsor many of the OHCs and nurses can encourage patients to utilize these. In addition, nurses and other health care providers can establish an online reputation as health experts, especially within the confines of a reputable OHC. OHCs, like any group on social media, are subject to inappropriate comments or unsolicited opinions and advice from patients within the virtual community. It is important that the site administrator, preferably a nurse who is expert in the health information being delivered, monitors the group to ensure appropriate comments and other material.

Misinformation

Unfortunately, misinformation put forth in OHCs and other forms of social media communication is a significant challenge for many health care providers. Social media users may “crowdsource,” a way of using the internet to access information and ideas from virtual communities. Crowdsourcing can be responsible for large numbers of people believing erroneous information. The propagation of social media health scares can happen in a very short period of time. For example, the antivaccine groups that sprouted up in recent years exist, at least in part, due to the rapid dissemination of bad health information on social media (Kata, 2012). However, it's important to keep an open mind when a patient presents with health information they found on the internet. Patients are often

aware of misinformation and have a desire for 2-way discussions with providers about the online material (Rupert, et al., 2014). Furthermore, patients may feel empowered by information they receive from social media, making it important that the nurse discusses the online information with the patient and offers feedback.

Nurses who are social media savvy can help to reverse some of the damage done by the spreading of misinformation created by social media wildfires. There are a number of ways that nurses can ensure patients find credible health advice as they wade through the sea of information available on the internet. Nursing presence on online forums, moderated by nurses, can be a safe and effective way to use social media to share appropriate health information (Grainger, White, Morton, & Day, 2017). Blog posts are another effective way to disseminate sound health information. Expert nurses can create and administer Facebook pages dedicated to a specific health care organization or even to a particular disease. Furthermore, nurses can connect patients who are social media users, to reputable online health resources. Providing links in tweets or other postings is another way of communicating resources to patients. The Centers for Disease Control offers guidelines for communicating on social media (Guide to Writing, 2016). Using the following may help nurses post content that will stand out to readers:

1. Understand the audience they are trying to reach.
2. Apply health literacy principles.
3. Follow plain language best practices.
4. Use social marketing concepts to improve communications.

Research

Evidence-based practice hinges on reading and utilizing research. Academia.edu is one example of a social media platform designed so that scholars can share research and nurses can follow experts in the field. Nurses can also stay abreast of the latest research by following nurse experts or health-related organizations on Twitter, LinkedIn, or Facebook. Almost any social media platform allows for links to nursing research and best practices. In fact, many peer-reviewed journals, such as the *Journal of Clinical Oncology*, now have a presence on social media, allowing for rapid dissemination (Markham, 2017).

Conducting research on social media may be the last thing many nurses consider, but platforms such as Facebook have become popular for this purpose. Researchers can easily access participants on social media, meaning large numbers of patients can be reached. Furthermore, the discussions on social media may capture patients' unfiltered opinions. A study by Ahmed et al. (2017) examined the uncensored discussions of dialysis patients on Facebook and found that patients used the group primarily for information and encouragement.

Both qualitative and quantitative research designs can be used for social media research to answer almost any kind of question. As an example, investigators interested in the feasibility of using Facebook for research, conducted a mixed-methods study, which revealed patients were open to using social media for the purpose of sharing information and connecting with other patients (Partridge et al., 2017). Social media is also being used as the venue for conducting research (Struik & Baskerville, 2014). Research conducted on social media can include anything from interventions providing health information and support, to use of surveys, to content analysis, in which specific characteristics of posted content are described.

Participant recruitment can be very productive with social media. Thousands of potential participants can be reached through a process called "snowball sampling" in which participants will recruit friends who in turn recruit their friends (Kosinski, Matz, Gosling, Popov, &

Stillwell, 2015). In addition, nurses can use social media for targeted advertising to recruit participants (Bennetts et al., 2019).

Research using social media is not without its problems. Obtaining informed consent can be difficult because of the fact that the participant cannot be seen in person. The researcher must find a way to ensure that the participant signing the consent has an opportunity to ask questions and that they are who they claim to be. In addition, it may be difficult to be sure that the participant is comprehending the consent, or even the content on the social media platform. Waiver of informed consent may be possible in many cases in which the research is low risk and consent is impracticable.

Although researchers can access large numbers of people, the demographics may be skewed, especially because it may attract a younger cohort. Use among those older than 65 years is growing, but most elderly adults still do not access any form of social media (Smith & Anderson, 2018). There are also potential disparities if participants cannot read or are not computer savvy. Self-selection bias, a common concern with social media research in which factors such as having strong opinions on the topic of interest, can influence participants' choice to participate.

As discussed previously, site monitoring needs to be done carefully in the event that patients might make inappropriate comments, express serious health concerns, or offer unsolicited or incorrect advice. Close monitoring allows the site administrator to quickly intervene or remove the post. Disclosures, group policies, and hospital social media policies may all need to be reposted from time to time to remind participants of expectations.

Conclusion

The future of social media in nursing has already arrived. As more of the population becomes technologically savvy, nurses will benefit from finding ways to take advantage of social media to communicate with patients and other nurses. Social media has the potential to expand our reach, take us into the patients' daily lives, and bring people together who may not have otherwise connected. It is important for nurses to understand the limitations and obstacles associated with social media use; however, its possibilities are endless. At one time, we would not have been able to imagine having the capacity to join patients and other health care providers around the world in real time. We now have that ability. It's up to us to use it wisely.

References

- Ahmed, S., Haines-Saah, R.J., Afzal, A.R., Tam-Tham, H., Al Mamun, A., Hemmelgarn, B.R., et al. (2017). User-driven conversations about dialysis through Facebook: a qualitative thematic analysis. *Nephrology (Carlton)*, 22(4), 301-307.
- Alba, D. (2012). Snapchat hands-on: send photos set to self-destruct. Retrieved from <https://www.laptopmag.com/articles/hands-on-with-snapchat-send-photos-set-to-self-destruct>. Accessed May 20, 2019.
- Attai, D.J., Radford, D.M., & Cowher, M.S. (2016). Tweeting the meeting: Twitter use at The American Society of Breast Surgeons Annual Meeting 2013-2016. *Annals of Surgical Oncology*, 23(10), 3418-3422.
- Anonymous Social Media. CDC. Retrieved from <https://www.cdc.gov/socialmedia/tools/guidelines/guideforwriting.html>. Accessed May 20, 2019.
- Anonymous ANA social media principles. Retrieved from <https://www.nursingworld.org/social/>. Accessed April 11, 2019.
- Anonymous U.S. population with a social media profile 2019. Retrieved from <http://www.statista.com/statistics/273476/percentage-of-us-population-with-a-social-network-profile/>. Accessed May 14, 2019.
- Belick, K.D. (2016). We're all in new territory now: a multigenerational look at using Facebook to support colleagues. *Journal of Continuing Education in Nursing*, 47(7), 302-305.
- Bennetts, S.K., Hokke, S., Crawford, S., Hackworth, N.J., Leach, L.S., Nguyen, C., et al. (2019). Using paid and free Facebook methods to recruit Australian parents to an online survey: an evaluation. *Journal of Medical Internet Research*, 21(3), e11206.

- Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., & Stern, A. (2004). Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. *BMJ*, *328*(7449), 1166.
- Grainger, R., White, B., Morton, C., & Day, K. (2017). A health professional–led synchronous discussion on Facebook: descriptive analysis of users and activities. *JMIR Formative Research*, *1*(1), e6.
- Isaacson, K., & Looman, W.S. (2017). Strategies for developing family nursing communities of practice through social media. *Journal of Family Nursing*, *23*(1), 73–89.
- Kalia, V., Oritz, D.A., Patel, A.K., Moriarity, A.K., Canon, C.L., & Duszak, R., Jr. (2018). Leveraging Twitter to maximize the radiology meeting experience. *Journal of the American College of Radiology*, *15*(1 Pt B), 177–183.
- Kata, A. (2012). Anti-vaccine activists, Web 2.0, and the postmodern paradigm – An overview of tactics and tropes used online by the anti-vaccination movement. *Vaccine*, *30*(25), 3778–3789.
- Kosinski, M., Matz, S., Gosling, S., Popov, V., & Stillwell, D. (2015). Facebook as a research tool for the social sciences. *The American psychologist*, *70*(6), 543–556.
- Langford, A., & Loeb, S. (2019). Perceived patient-provider communication quality and sociodemographic factors associated with watching health-related videos on YouTube: a cross-sectional analysis. *Journal of Medical Internet Research*, *21*(5), e13512.
- Markham, M.J., Gentile, D., & Graham, D.L. (2017). Social media for networking, professional development, and patient engagement. *American Society of Clinical Oncology Educational Book/ASCO*, *37*, 782–787.
- McNeal, S. (2015) Nurses are furious after "The View" made fun of miss colorado for her speech about her job. Retrieved from <https://www.buzzfeednews.com/article/stephaniemcneal/nurses-unite>. Accessed May 20, 2019.
- Mohsin, M. (2019) 10 social media statistics you need to know in 2019 [Infographic]. Retrieved from <https://www.oberlo.com/blog/social-media-marketing-statistics>. Accessed May 20, 2019.
- Oprescu, F., Campo, S., Lowe, J., Andsager, J., & Morcuende, J.A. (2013). Online information exchanges for parents of children with a rare health condition: Key findings from an online support community. *Journal of Medical Internet Research*, *15*(1), e16.
- Partridge, S.R., Grunseit, A.C., Gallagher, P., Freeman, B., O'Hara, B.J., Neubeck, L., et al. (2017). Cardiac patients' experiences and perceptions of social media: Mixed-methods study. *Journal of Medical Internet Research*, *19*(9), e323.
- Risling, T., Risling, D., & Holtslander, L. (2017). Creating a social media assessment tool for family nursing. *Journal of Family Nursing*, *23*(1), 13–33.
- Ross, J.G., & Myers, S.M. (2017). The current use of social media in undergraduate nursing education. *Computers Informatics Nursing: CIN*, *35*(7), 338–344.
- Rupert, D.J., Moultrie, R.R., Read, J.G., Amoozegar, J.G., Bornkessel, A.S., O'Donoghue, A.C., et al. (2014). Perceived healthcare provider reactions to patient and caregiver use of online health communities. *Patient Education and Counseling*, *96*(3), 320–326.
- Scalvini, S., Zanelli, E., Comini, L., Dalla Tomba, M., Troise, G., Febo, O., et al. (2013). Home based versus in-hospital cardiac rehabilitation after cardiac surgery: a nonrandomized controlled study. *Physical Therapy*, *93*(8), 1073–1083.
- Smith, A., & Anderson, M. (2018) Social media use in 2018: a majority of Americans use Facebook and YouTube, but young adults are especially heavy users of Snapchat and Instagram. Retrieved from <https://www.pewinternet.org/2018/03/01/social-media-use-in-2018/>. Accessed May 14, 2019.
- Spencer, M.W. (2011) Pinning: these are a few of my favorite things. Retrieved from <https://www.mysanantonio.com/life/article/Pinning-These-are-a-few-of-my-favorite-things-1882964.php>. Accessed May 23, 2019.
- Struik, L.L., & Baskerville, N.B. (2014). The role of Facebook in Crush the Crave, a mobile- and social media-based smoking cessation intervention: qualitative framework analysis of posts. *Journal of Medical Internet Research*, *16*(7), e170.
- Taub, E. (2013) The path to happy employment, contact by contact on LinkedIn. Retrieved from <https://www.nytimes.com/2013/12/05/technology/personaltech/the-path-to-happy-employment-contact-by-contact-on-linkedin.html>. Accessed March 6, 2019.
- Tippin, S., & Arnold, L. (2012). Social networks: bringing a high-fidelity simulator to life on Facebook. *Nurse Educator*, *37*(4), 148–149.
- Wagg, A.J., Callanan, M.M., & Hassett, A. (2018). The use of computer mediated communication in providing patient support: a review of the research literature. *International Journal of Nursing Studies*, *82*, 68–78.
- Whittaker, F., & Wade, V. (2014). The costs and benefits of technology-enabled, home-based cardiac rehabilitation measured in a randomised controlled trial. *Journal of Telemedicine and Telecare*, *20*(7), 419–422.
- Willis, E., & Royne, M.B. (2017). Online health communities and chronic disease self-management. *Health Communication*, *32*(3), 269–278.
- Wilson, R., Ransie, J., Cashin, A., & McNamara, P. (2014). Nurses and Twitter: the good, the bad, and the reluctant. *Collegian*, *21*(2), 111–119.