COURSE #91053 — 3 CONTACT HOURS/CREDITS RELEASE DATE: 04/01/21 EXPIRATION DATE: 03/31/24

Health 2.0: Implications for Care

HOW TO RECEIVE CREDIT

- Read the enclosed course.
- Complete the questions at the end of the course.
- Return your completed Evaluation to NetCE by mail or fax, or complete online at www.NetCE.com. (If you are a physician, behavioral health professional, or Florida nurse, please return the included Answer Sheet/Evaluation.) Your postmark or facsimile date will be used as your completion date.
- Receive your Certificate(s) of Completion by mail, fax, or email.

Faculty

Alice Yick Flanagan, PhD, MSW, received her Master's in Social Work from Columbia University, School of Social Work. She has clinical experience in mental health in correctional settings, psychiatric hospitals, and community health centers. In 1997, she received her PhD from UCLA, School of Public Policy and Social Research. Dr. Yick Flanagan completed a year-long post-doctoral fellowship at Hunter College, School of Social Work in 1999. In that year she taught the course Research Methods and Violence Against Women to Masters degree students, as well as conducting qualitative research studies on death and dying in Chinese American families.

Previously acting as a faculty member at Capella University and Northcentral University, Dr. Yick Flanagan is currently a contributing faculty member at Walden University, School of Social Work, and a dissertation chair at Grand Canyon University, College of Doctoral Studies, working with Industrial Organizational Psychology doctoral students. She also serves as a consultant/subject matter expert for the New York City Board of Education and publishing companies for online curriculum development, developing practice MCAT questions in the area of psychology and sociology. Her research focus is on the area of culture and mental health in ethnic minority communities.

Faculty Disclosure

Contributing faculty, Alice Yick Flanagan, PhD, MSW, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

Division Planners

Ronald Runciman, MD
Jane C. Norman, RN, MSN, CNE, PhD
Randall L. Allen, PharmD
James Trent, PhD

Director of Development and Academic Affairs

Sarah Campbell

Division Planners/Director Disclosure

The division planners and director have disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

Audience

This course is designed for physicians, nurses, pharmacy professionals, social workers, therapists, and mental health counselors who may utilize Web 2.0 technology in their practices or in patient care.

Accreditations & Approvals

JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

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A complete Works Cited list begins on page 23.

Successful completion of this CME activity, which includes participation in the evaluation component, enables the learner to earn credit toward the CME and Self-Assessment requirements of the American Board of Surgery's Continuous Certification program. It is the CME activity provider's responsibility to submit learner completion information to ACCME for the purpose of granting ABS credit.

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Through an agreement between the Accreditation Council for Continuing Medical Education and the Royal College of Physicians and Surgeons of Canada, medical practitioners participating in the Royal College MOC Program may record completion of accredited activities registered under the ACCME's "CME in Support of MOC" program in Section 3 of the Royal College's MOC Program.

NetCE designates this continuing education activity for 3 ANCC contact hours.

This activity was planned by and for the healthcare team, and learners will receive 3 Interprofessional Continuing Education (IPCE) credits for learning and change.

NetCE designates this continuing education activity for 3.6 hours for Alabama nurses.

AACN Synergy CERP Category B.

NetCE designates this activity for 3 hours ACPE credit(s). ACPE Universal Activity Numbers: JA4008164-0000-21-093-H04-P and JA4008164-0000-21-093-H04-T.

As a Jointly Accredited Organization, NetCE is approved to offer social work continuing education by the Association of Social Work Boards (ASWB) Approved Continuing Education (ACE) program. Organizations, not individual courses, are approved under this program. State and provincial regulatory boards have the final authority to determine whether an individual course may be accepted for continuing education credit. NetCE maintains responsibility for this course.

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NetCE is recognized by the New York State Education Department's State Board for Social Work as an approved provider of continuing education for licensed social workers #SW-0033.

This course is considered self-study, as defined by the New York State Board for Social Work. Materials that are included in this course may include interventions and modalities that are beyond the authorized practice of licensed master social work and licensed clinical social work in New York. As a licensed professional, you are responsible for reviewing the scope of practice, including activities that are defined in law as beyond the boundaries of practice for an LMSW and LCSW. A licensee who practices beyond the authorized scope of practice could be charged with unprofessional conduct under the Education Law and Regents Rules.

NetCE is recognized by the New York State Education Department's State Board for Mental Health Practitioners as an approved provider of continuing education for licensed mental health counselors. #MHC-0021.

This course is considered self-study by the New York State Board of Mental Health Counseling.

NetCE is recognized by the New York State Education Department's State Board for Mental Health Practitioners as an approved provider of continuing education for licensed marriage and family therapists. #MFT-0015.

This course is considered self-study by the New York State Board of Marriage and Family Therapy.

Social Workers participating in this intermediate to advanced course will receive 3 Clinical continuing education clock hours.

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Individual State Nursing Approvals

In addition to states that accept ANCC, NetCE is approved as a provider of continuing education in nursing by: Alabama, Provider #ABNP0353 (valid through 07/29/2025); Arkansas, Provider #50-2405; California, BRN Provider #CEP9784; California, LVN Provider #V10662; California, PT Provider #V10842; District of Columbia, Provider #50-2405; Florida, Provider #50-2405; Georgia, Provider #50-2405; Kentucky, Provider #7-0054 (valid through 12/31/2025); South Carolina, Provider #50-2405; West Virginia, RN and APRN Provider #50-2405.

Individual State Behavioral Health Approvals

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Special Approvals

This activity is designed to comply with the requirements of California Assembly Bill 1195, Cultural and Linguistic Competency.

About the Sponsor

The purpose of NetCE is to provide challenging curricula to assist healthcare professionals to raise their levels of expertise while fulfilling their continuing education requirements, thereby improving the quality of healthcare.

Disclosure Statement

It is the policy of NetCE not to accept commercial support. Furthermore, commercial interests are prohibited from distributing or providing access to this activity to learners.

Course Objective

Web 2.0 has promoted the collaboration, interaction, and sharing of information and continues to revolutionize the healthcare industry. The forces of technology change will inevitably impact how practitioners provide health care and interact with patients/clients. The purpose of this course is to provide health and mental health professionals with the information necessary to address the use of Internet technologies in their practices and in their patient populations.

Learning Objectives

Upon completion of this course, you should be able to:

1. Discuss general Internet usage patterns and the prevalence of individuals seeking health information online.
2. Define Web 2.0, Health 2.0, and various Internet technologies with applications in health care.
3. Evaluate the merits and limitations of Health 2.0, including the role of Web 2.0 in promoting interprofessional collaborations and practice for healthcare providers.
4. Explain how practitioners can assist patients/clients in evaluating the validity and reliability of online health information, including implications of health literacy.

Pharmacy Technician Learning Objectives

Upon completion of this course, you should be able to:

1. Outline the history and current use of Internet technologies in health care and information dissemination.
2. Describe how Web 2.0 technologies can be effectively used in the provision of health care.

E B
EVIDENCE-BASED
PRACTICE
RECOMMENDATION

Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the course material for better application to your daily practice.

INTRODUCTION

As is increasingly evident, the Internet is not only rapidly changing public life but professional and private life as well. The first wave of Internet technology, referred to as Web 1.0, launched in 1993, focused on the functionality of accessing information through search engines and hyperlinks—a top-down approach [1; 4]. The second wave, beginning around 2003, or Web 2.0, refers to a second generation of Internet technology that uses applications to facilitate interactions, collaborations, and collection and dissemination of information [4]. The impact of Web 2.0 has extended into many fields, including health care and mental health. In fact, it is believed Web 2.0 will revolutionize how health care is provided, leading to the use of such terms as Health 2.0 or Medicine 2.0. Consumers of healthcare services are increasingly utilizing technology to seek information about health and to connect with others through social networking sites. For example, consumers using Facebook may share evaluations of physicians, potentially resulting in more informed decisions when choosing a healthcare provider [2]. Practitioners may also use Web 2.0 applications to discuss cases and problem solve collaboratively.

Web 2.0 allows for the accumulation of a vast amount of information, generated by both experts and the general public, and makes it instantly available to anyone with access to the technology. Health information can be accessed at any time using cellular phones and smartphones, which has resulted in the democratization of health information. Individuals who are emotionally or physically distressed can use web logs (blogs) and social networking sites to tell their stories, seek support, and gain empowerment. These technologies have the potential benefits of being not only educational but also therapeutic [3]. However, there is also a downside. With the amount of information readily available, it can be difficult for consumers to critically evaluate the numerous claims and make informed decisions. In some cases, individuals may rely too heavily on Internet technologies, possibly hindering earlier detection of problems or delaying access to more appropriate support and professional services [3].

The goal of this course is to provide an overview of the roles and functions of Web 2.0 in the healthcare, social work, nursing, and mental health fields. Examples of specific Health 2.0/Medicine 2.0 technologies will be provided. It will explore how practitioners, educators, and clients/patients are using Web 2.0 to educate, provide support, and seek health information and how this ultimately influences health decisions.

GENERAL INTERNET USAGE PATTERNS

As of 2016, 82% of American households had an Internet subscription, and as of 2019, 73% of households had broadband Internet access [5; 8]. There appears to be no gender differences in Internet usage, with 89% of men and 88% of women reporting Internet use [8]. Individuals 18 to 29 years of age are the most likely to use the Internet (100%), while adults 65 years of age and older are the least likely (73%) [8]. With Web 2.0, people have increasingly used social networking sites and are creating and viewing podcasts, vodcasts, and blogs. In 2019, 72% of adults were using social networking sites, with 18 to 29 year olds leading at 89% [8]. In 2017, 42% of persons 65 years of age and older reported owning smartphones, compared with 18% in 2013 [97].

Podcasts or vodcasts are audio or video digital media files that can be downloaded from the Internet. In December 2020, there were 41.9 million podcasts according to Apple [9]. As of 2017, 24% of individuals 12 years and older had listened to a podcast in the last month, an increase from 9% in 2008 [98]. On average, those who listen to podcasts listen to approximately six podcasts per week [9]. Generally, men download podcasts more often than their female counterparts, and adults 18 to 49 years of age are the most likely of all age-groups to have downloaded a podcast [6].

It is estimated that 12 to 26.4 million Americans blog and 57 to 94 million read information from blogs [7]. The number of bloggers in the United States was estimated to be 31.7 million in 2020 [99]. On average, 120,000 blog entries are generated each day, and approximately 500 million blogs existed in 2019 [22]. Blog content ranges from very personal to professional. According to Nielsen, more women blog over men, and 1 out of 3 mothers blog. As of 2015, the top three blogging sites are Blogger, WordPress, and Tumblr [71].

Social networking sites include Facebook, Instagram, Snapchat, Twitter, TikTok, and LinkedIn. In 2019, 69% of Americans 18 years of age and older used Facebook, 37% used Instagram (a Facebook company), 28% used Pinterest, 27% used LinkedIn, and 22% used Twitter [100]. This is astounding considering that only 38% of Internet users were social networking in 2005 [10]. When looking at Web 2.0 usage patterns in other countries outside the United States, Nielsenwire reported that in 2010 that the average American spends 6 hours and 35 minutes on blogs and social networking sites; this compares with 5 hours and 52 minutes for those in the United Kingdom, and 7 hours and 19 minutes for Australians [72].

PATTERNS OF SEEKING HEALTH INFORMATION ONLINE

Although consumers prefer to seek health information from their physicians, more consumers are taking advantage of Internet technologies to obtain health-related information [11]. This trend is the result of several factors. First, there is a growing interest in preventive medicine and self-care, which promotes a healthcare model that is more patient-centered and consumer-oriented. Second, The breadth and depth of available health information is daunting, even for healthcare professionals. Finally, there is an increased interest in alternative approaches to health and well-being [129]. These factors all tend toward rejection of the physician or healthcare professional as the only source of health and wellness information.

According to a Harris Poll, 50 million adults in the United States had ever gone online to seek health information in 1998; by 2009, this number jumped to 154 million [12]. An estimated 81% of Internet users seek online health information, and 49% of users report using the Internet to do research after having seen their physician [12]. In a study of adults (18 years of age and older) in California, 65% of Internet users reported searching for medical information online [101]. In a national study, 40% of adults used the Internet to search for health information and 3.7% used online health chat rooms [102].

A study with 569 Internet users found that there are four types of health information that consumers tend to seek online: medical treatment, difficult to discuss health topics, family health, and methods to improve health [11]. In a focus group study on health-related use of the Internet conducted with 19 adults, participants reported using the Internet for symptom troubleshooting, searching for information before an appointment, and searching for health information for someone else (e.g., a family member or friend) [73]. In general, people tend to conduct searches related to the symptoms of various health conditions [74]. One study using analytic data of website queries on the Mayo Clinic's consumer health information website found that the most common health queries were about symptoms, followed by the "causes" of conditions and treatment and drugs [74]. Research indicates that adults typically seek online medical information on specific diseases, medical treatments, and healthy behaviors [103]. In one study, more than two-thirds of participants preferred to use general search engines (e.g., Google) and another one-fifth reported that they employed Wikipedia for information about mental disorders and medications rather than going to the websites of hospital or professional organizations [130]. One study found a decline in online health information seeking between 2002 and 2012, which researchers attributed to the public's concern about the validity and reliability of health information online [103]. In addition, consumers are increasingly searching online for information about healthcare providers, experimental treatments, health insurance, medications, fitness, and nutrition. However, it appears that purchasing medications or medical devices is less common. According to a 2009 study of 1,428 adults in the United States, only 6.4% had purchased prescription drugs and 2% had purchased medical equipment over the Internet [13]. A study conducted between 2005 and 2008 using 4,008 respondents from the Washington University School of Medicine confirmed this trend [75]. They found that the primary source of obtaining medications/drugs was through dealers, friends and relatives, and physicians' prescriptions; only 3% reported obtaining drugs through the Internet [75]. A study of 1,959 Internet users found that participants most often searched for pharmacies, symptoms of medical condition, and pain [131].

It is estimated that every day 6 million people in the United States search for information about a health-related topic online [14]. Internet health information seekers maintain that the Web 2.0 improves the way they access health information, which ultimately assists in promoting a healthier lifestyle.

One digital marketing firm found that 34% of online health seekers use social media resources (such as Wikipedia, online discussion boards, social networking sites, blogs, and synchronous chat rooms) to obtain their information [15]. Much of this involves disease education rather than information about specific healthcare providers, care facilities, or insurance.

People are most likely to start searches for medical information with Google, MedlinePlus, and/or WebMD. Google is perceived to be easy to use and reader-friendly information, and MedlinePlus is viewed as a credible source [104]. Furthermore, 58% of individuals with chronic illnesses are enthusiastic about sharing medical information and their experiences with others [16]. In a 2010 study conducted by the Pew Research Center's Internet and American Life Project, the researchers noted that individuals with chronic illnesses, even after controlling for demographic factors, are more likely to blog, use mass email (e.g., Listserv), and participate in online health discussion boards than those without chronic illnesses [17; 104]. A comprehensive literature review of articles published between 2011 and 2016 found that individuals primarily seek information about specific diseases or illnesses and public health issues on social media sites [132]. The primarily motivations are emotional support and a desire to interact with other like-minded people. Internet technologies allow patients to obtain in-depth information about a health topic and to reach out to others using the Internet as a communications tool.

Using cellular phones to access online health information is also becoming increasingly popular. In general, mobile applications have been used for communication, education, and tracking and monitoring health and symptoms [105]. The Pew Internet Project and the California HealthCare Foundation found that 17% of cellular phone owners have used their phones to search for health information, with the highest rates of this usage among adults 18 to 29 years of age (29%) [18]. Furthermore, 15% of individuals in this age group have an application on their cell phones to monitor their health. Interestingly, Hispanic cellular phone owners are more likely to use their phones to access health information compared to non-Hispanic white users (25% vs. 15%) [18]. Healthcare providers have also reported benefits of using cell phones or smartphones to disseminate health information. In a study examining the use of cell phones or smartphones by community health advisors (paraprofessionals) in the African American community, providers reported that communicating through apps or texts enhanced their ability to reach underserved populations and provide information related to cancer screening, awareness raising, and concrete services [76].

Gender appears to influence Internet health-seeking patterns. Compared to men, women tend to be more likely to search for health and medical information online [13; 131]. At least one study found that women were three times more likely to look for health information online than men [133]. In particular, women are more likely to search for information regarding mental health and psychiatric issues such as depression (26%) than men (19%) [19]. Mothers with young children tend to use the Internet to seek pediatric health information on specific health conditions and symptoms [20]. In a study of 360 parents, mostly mothers, who had visited the pediatric emergency department in an Australian hospital, 43% had used the Internet to seek health information for their child in the 6 months prior to the visit. Unfortunately, 31% reported using Google to obtain the information rather than a specific authoritative health website, such as a government source [21]. A separate study of data from the National Cancer Institute found that gender, particularly being a woman, consistently predicted use of e-health tools [77].

There are some findings that indicate racial and ethnic differences in online health information seeking and attitudes regarding the usefulness of obtaining health information on the Internet. Studies of racial/ethnic differences in health-seeking online have found that white users are more likely to use the Internet to search for health information compared to their Hispanic and African American counterparts [78]. Similar findings were reported in a study of 2,780 adults (18 years of age and older) [23]. In this study, Hispanics were less likely to search on the Internet for health information (28.9%) compared to whites (35.6%). Attitudes about online health information were also different between the two groups. Hispanics were less likely to agree that online health information can improve the lay public's understanding about medical conditions and their treatments, give people a greater sense of empowerment and confidence when interacting with healthcare providers, and assist patients to obtain appropriate treatment. However, Hispanic individuals were more likely to agree that online health information could prevent a physician office visit [23].

Some argue that these differences can be attributed to the digital divide, or disparities in the access to the Internet due to socioeconomic differences. A 2014 study failed to find any racial/ethnic differences in e-health usage, although it did note the role of socioeconomic status and education as predictors of the use of e-health tools [77]. Patients with lower levels of education were less likely to search for a healthcare provider online, to track their personal health information, or to use websites to track health outcomes. Higher literacy level is a positive predictor of online health information seeking [134]. Research indicates that those with lower levels of education are more likely to engage in online health communities to obtain factual information about a condition or different treatment options compared with those in higher socioeconomic levels [104]. Individuals with higher e-health literacy scores are more likely to have a smartphone and more willing to use the Internet to obtain health information [106].

DEFINITIONS

WEB 1.0 AND WEB 2.0

Before discussing how Internet technologies have been and may be used in the health and mental health fields, it is vital to have a clear understanding of the terms. Web 1.0 revolved around static pages, with little or no user interaction, essentially making the Internet "read only." Personal websites, Internet directories, online (static) encyclopedias, Internet browsing, and taxonomies are examples of Web 1.0 [24; 25]. Meanwhile, Web 2.0 is considered user-centric, because it promotes group interaction, collaboration, community, conversations, networking, and connections [24; 107]. Web 2.0 has been coined the "social web" because it is much more interactive than Web 1.0. Examples of Web 2.0 applications include [2; 24; 26; 27; 107; 108]:

- Blogs
- Social networking sites (e.g., Facebook, LinkedIn)
- Wikis (e.g., Wikipedia)
- Social bookmarking (e.g., Pinboard)
- Podcasts and vodcasts
- Video sharing (e.g., YouTube)
- Photo sharing (e.g., Instagram)
- Really simple syndication (RSS 2.0) feeds
- Google documents and presentations
- Three-dimensional virtual worlds (e.g., Second Life)

The differences between Web 1.0 and Web 2.0 become clear when considering the example of online encyclopedias. Under the Web 1.0 application, individuals would search for information in a static online encyclopedia. In the Web 2.0 generation, individuals not only search for information in online encyclopedias, but can create and edit entries (as with Wikipedia) [28]. Web 2.0 is characterized by an active audience, with multidirectional and participatory communication [79]. Again, there are benefits and drawbacks of both.

The future of Internet technology is Web 3.0, or the semantic web. Web 3.0 refers to [109]:

> ...a supposed third generation of Internet-based services—such as those using semantic web, microformats, natural language search, data-mining, machine learning, recommendation agents, and artificial intelligence technologies—that emphasize machine-facilitated understanding of information in order to provide a more productive and intuitive user experience.

In Web 3.0, the Internet is viewed as a database with intelligent search capabilities [4]. This could involve moving beyond the sharing of information to the comparing of data in meaningful ways. The relationships between ideas or information would become more important. For example, uploaded photographs might exist on a calendar platform that also displays activities or appointments for that day, giving some insight into what the individual was doing when the photograph was taken. However, it is unclear when or if this will become the dominant force in Internet technology.

A hypothetical Web 4.0 in health care refers to the implementation of virtual, synchronous platforms distributed to a variety of stakeholders [135]. Essentially, this would create a smart network linking the entire healthcare system [135]. Examples include the larger categories of Internet of Things and Internet of Services. For example, a patient might be given a device to monitor his/her blood pressure, with the data distributed to healthcare providers for real time assessment and monitoring.

HEALTH 2.0/MEDICINE 2.0

One of the main themes of Web 2.0 is collective intelligence, using dynamic Internet applications so consumers can interact and participate with the system and each other [29]. Applying Web 2.0 to health care, Eysenbach has defined Health 2.0/Medicine 2.0 as [30]:

> ...web-based services for healthcare consumers, caregivers, patients, health professionals, and biomedical researchers that use Web 2.0 technologies and/or semantic web and virtual-reality tools to enable and facilitate specifically social networking, participation, apomediation, collaboration, and openness within and between these user groups.

The definition of Health 2.0 has been nebulous and there is no clear roadmap [136; 137]. Some have categorized Health 2.0 under the broader category of digital health. Others have defined Health 2.0 simply as, "the use of social software and its ability to promote collaboration between patients, caregivers, medical professionals, and other stakeholders in health" [25]. The end result is health care that takes place constantly, rather than a series of episodic events. The hope is that this enhancement of the healthcare experience will allow the provider to foster a team approach to care instead of an expert/novice relationship [29]. Consumers of health services use Web 2.0 applications not only to find health information but to develop communities to support one another, share experiences and information with one another, and evaluate physicians and healthcare providers [2; 110]. It is used by patients but also by healthcare and mental health professionals [137]. Examples include [2; 31; 32; 80; 110; 111; 137]:

- Individuals can use Facebook to evaluate physicians, which may influence others' healthcare decisions.
- Social bookmarking, wikis, and blogs
- Consumers can obtain up-to-date information on health care and the healthcare system at The Health Care Blog.
- A 3D virtual world may be developed in which a user is in a simulated restaurant, making different food decisions and being informed about various food items' health impact.

- Video sharing through YouTube can be an effective means for patients to learn about their diagnosis. Sharing information via video (with visual and auditory stimuli) can be more effective than text-based approaches.
- Health records are controlled by individual health consumers so they can determine who has access to their health record. In addition, individuals can enter data into their own records.
- Individuals with HIV can watch videos to obtain the latest information about treatment.
- PatientsLikeMe is a social networking site for individuals to locate others who share a similar medical condition.
- HealthyPlace.com: America's Mental Health Channel provides information and resources targeted to mental health topics and is the home of online communities for individuals seeking to connect with others with similar mental health concerns.
- Sermo is an online community of physicians wishing to connect with one another to collaborate and consult on cases and discuss new treatments, clinical issues, and medical devices.
- Doximity is a social networking site for healthcare providers.
- Calorie Cruncher is a diary that gives users an opportunity to track their physical activities, calories, and BMI scores and those of their friends. Users can then connect via Facebook to support and provide accountability to one another.
- The 10,000 Steps Program allows users to employ pedometers to track the number of steps they take daily and engage and challenge one another on an online forum.

EVIDENCE-BASED PRACTICE RECOMMENDATION

The Department of Veterans Affairs Work Group recommends using trauma-focused psychotherapies that have demonstrated efficacy using secure equipment and software when post-traumatic stress disorder treatment is delivered via video teleconferencing.

(https://www.healthquality.va.gov/guidelines/MH/ptsd/VADoDPTSDCPGFinal012418.pdf. Last accessed March 5, 2021.)

Strength of Recommendation: Strong For

WEB 2.0 TOOLS IN HEALTH CARE

Due to the stress and time constraints of daily clinical practice, it can be difficult to incorporate new technologies and spend time learning about different Web 2.0 applications. However, it is crucial to do so. Health consumers today are technologically and digitally savvy and will likely be using these applications themselves.

Digital literacy refers to an individual's proficiency and competency with the use of digital technologies, including mobile devices, personal computers, recording devices, the Internet, and Web 1.0 and 2.0 platforms [81]. According to the U.S. Department of Commerce, it is not clear whether the minority of persons in the United States who do not use the Internet due to a lack of skills or a lack of financial resources to obtain Internet access, or if there are other factors involved [82].

Many adults may be categorized as what is termed "digital immigrants," meaning they did not grow up in the digital world and are trying to learn and adapt to this new environment [33]. Digital immigrants may employ technology, but tend to be less familiar with its potential, although they do acknowledge its importance for some tasks [34]. On the other hand, adolescents and young adults are generally considered "digital natives," as they were raised using digital technology and have no difficulty using new technological mediums with ease and familiarity [33]. Digital natives tend to use technology for numerous tasks and adapt as the tools change [34]. It is likely that the majority of health and mental health practitioners fall into the category of "digital immigrants," and many clients, particularly adolescents and young adults, are "digital natives." Consequently, many younger consumers will access health and mental health information and make health decisions based on information from Web 2.0 applications.

However, it is important to not assume all younger practitioners will adopt Web 2.0 tools in clinical practice. A survey of Millennial nursing students (i.e., those who have been raised in the era of digital technology) found that they were less positive in their views of telehealth activities than in their views of common nursing activities [112]. The authors caution making the statement that all digital natives will want to incorporate Web 2.0 tools and technology into practice.

In order to ensure that consumers are receiving the best possible information and care, practitioners will require a solid understanding of the different pathways to health and mental health services via these applications. Furthermore, the next generation of health, counseling, social service, and mental health practitioners will be proficient in using these applications in the work environment [35]. Many Web 2.0 tools can be integrated into the day-to-day operations of the organizational structure to minimize costs and maximize employee productivity [35]. For example, a facility may use online calendars to schedule meetings or an intranet to edit documents, eliminating the need to constantly email documents back and forth. Supervisors can more readily provide updates and announcements on a blog that employees can access anytime and from anywhere [35].

PRACTITIONERS' PROFICIENCY IN USING WEB 2.0 TOOLS

As with most technologies, Web 2.0 tools have both benefits and drawbacks when used in health or mental health care settings. It is important that all applications are used ethically, professionally, and appropriately, as there are certainly risks for breaches of confidentiality, inaccurate self-diagnoses, and the establishment of inappropriate professional boundaries. The first step in using Web 2.0 tools in the health or mental health fields is a greater knowledge of the available technologies and how they are intended to be used.

In order for practitioners to work alongside patients/clients to fully optimize Health 2.0 tools, it is important that they feel comfortable and competent using computers, the Internet, and Web 2.0 applications. Guiding patients/clients to find good quality information online and to use Internet technologies is a growing part of health and mental health care. However, some data suggest there may be a lag in health and mental health practitioners' acceptance of and proficiencies in computer and Internet technologies [138]. Some may be skeptical regarding the benefits and potential costs of using Internet and Web technologies in health care [138]. However, practitioners are increasingly using Web 2.0 tools in their practice. In a 2014 survey of 330 counselors, 41.5% reported using Google docs and 33.6% reported using social networking sites for their practice [83]. Other studies have indicated that physicians are increasingly turning to Twitter to reach out to patients and colleagues [84]. The largest barrier to utilizing Web 2.0 tools and mobile health apps are the time necessary to implement the activities and lack of knowledge related to developing the online workspace as well as lack of investment by an organization [83; 105]. Some healthcare providers write medical blogs to dispel erroneous health information generated by non-medical professional [139].

A study of 695 psychologists found that established psychologists rarely used social networking sites, and psychologists in general feel the ethics related to using rapidly changing technology are unclear [36]. This lack of technological proficiency has been found among nurses as well. In a 2006 study, nurses in several university hospitals rated their computer skills and competency as fair or poor [37]. It has been speculated that nurses may be wary of the implementation of informational technology because they are concerned with the potential negative ramifications to patient care—the fear that computers and technology may replace human contact with patients [38]. However, in a study of 470 healthcare workers in two Finnish psychiatric hospitals, nurses who had more experience with computers or with the implementation of computer systems were more likely to be motivated to use computers at work than those without experience [39]. Younger personnel and men were also more likely to have had experience in the implementation of computer systems at the work setting. Factors that impeded staff from using computers at work included lack of interest in computers, not owning a computer at home, and lack of work time to use computers.

In a 2016 study with 371 social workers, researchers found that almost all (99%) used emails and 88% used texting in their personal lives [113]. As a component of their professional activities, 50% reporting using Listservs, 47% employ online petitions, and 44% use data management systems. Social workers appear to use information technology more as a communication mechanism and as a way to enhance their work more effectively. However, they do not tend to employ information technologies in a creative manner to deliver services, interact with stakeholders, or for advocacy purposes. In a 2018 study, more than 70% of healthcare professionals reported using social networking tools for interprofessional collaboration, to more effectively deliver clinical information, and to obtain pharmacologic consultations [140].

BENEFITS OF WEB 2.0 TECHNOLOGIES IN THE HEALTH AND MENTAL HEALTH FIELDS

Promote Patient/Client Autonomy and Empowerment

In one study, individuals tended to use the Internet for health information prior to a consultation to obtain health information to bring to their office visit, prior to medical contact for self-diagnosis purposes, and after a medical visit to confirm a diagnosis [40]. The ability to easily access health information and communicate with practitioners using Internet technologies promotes patient/client autonomy. Being informed and connected may increase patients' confidence, self-efficacy, and empowerment in terms of making health decisions. They are no longer passive consumers of health services, but play an active role in maintaining their own health [32]. Internet elements that promote autonomy as it pertains to disease management are perceived as useful by users [104].

Research related to older adults and chronic disease has found some evidence that older adults experience a greater sense of self-efficacy by using Web 2.0 platforms. These individuals are better able to manage their disease through increased education and skills building and through interacting with practitioners and others patients with similar diagnoses [85]. Patient empowerment and engagement were the key benefits, although it is not clear how this specifically translates to positive health outcomes [86].

In general, health consumers are not replacing conventional forms of communication with Internet-based tools [13]. Instead, new technology is being used in conjunction with traditional healthcare contact. Overall, individuals who use Web 2.0 tools have more options and access to more information when making health decisions, which contributes to their overall sense of empowerment.

Improve the Clinician/Consumer Relationship

Using Web 2.0 applications can allow practitioners to engage and converse with patients/clients prior to seeing them face-to-face or after visits as a follow-up, providing more seamless services and ultimately increasing patient/client satisfaction. Seeking, providing, and exchanging information facilitates a sense of patient/client competence [114]. Patients/clients can obtain basic information prior to seeing a practitioner. This can save some of the time spent educating the patient/client regarding the "basics" and instead allow the practitioner to focus on answering specific questions and providing individualized counseling [32; 141].

In an online survey, 800 participants were asked about the benefits of using mobile health apps after surgical procedures. Participants positively responded to being able to interact with the surgeon post-operation, gain additional information, and limit follow-up visits [114]. Health 2.0 technologies can promote relational engagement, which involves fluid conversations between practitioners and patients/clients, rather than hierarchical (expert-novice) communications [115; 141].

Reduce Inequities and Disparities

Web 2.0 technology may have the potential to facilitate the more equitable distribution of health services across groups [32; 142]. Utilizing these applications correctly and ethically promotes the ethical principle of justice, which deals with the distribution of benefits and risks. Today, the majority of health information can be accessed relatively freely, and therefore, there should be a more equal and widespread distribution of information [41]. However, some argue that a "digital divide" still exists. The term digital divide refers to social inclusion/exclusion and equality/inequality of Internet access, which is influenced by socioeconomic differences among various groups (e.g., inability to afford a computer or cellular phone) [42]. If Web 2.0 technology is implemented without maintenance of traditional tools, existing health disparities might be heightened for those who are economically disadvantaged [32]. One study found that urban users of online health communities tend to be suppliers of social support while those from rural areas were recipients [116]. Online health communities can perhaps mitigate health disparities in rural areas, but continued research is needed to explore this issue. At this point, it is not clear the extent to which social media and other Web 2.0 platforms can reduce health disparities, as there is very limited empirical evidence available [79].

Patient-Centered Health System

The American healthcare system is focused on a Western explanatory model of health and illness, the biomedical model, which focuses on identifying the pathogenic/causal agent, biological dysfunction, and symptoms [43]. In this model, the physician handles the care of the patient and validates the presence of the disease. The emphasis is on diagnosing and treating disease, to the point that, in some cases, the patient's experience of the illness is relegated to the background [44]. However, the use of Web 2.0 technologies in health care may allow a shift from medicocentric to patient-centered care [45; 87; 143]. Patient-centered care emphasizes integrating patients' values, preferences, and expressed needs into care plans, and is believed to increase patient satisfaction, compliance, and outcomes [46]. When providing information, it is should be individualized and personalized [117]. This is exemplified by the P4 (preventive, participatory, personalized, and predictive) model in medicine [87]. By using Web 2.0 tools, patients may be less reactive and be more participatory in their own care, allowing diagnosis and treatment to be individualized to a greater degree [87].

Greater Transparency

The collective wisdom encouraged by Web 2.0 tools, such as social networking sites, helps to promote greater transparency and accountability in the healthcare industry. In traditional healthcare sectors, in which physicians and practitioners are considered the gatekeepers knowledge, Web 2.0 applications can promote a greater dialogue between providers and patients/clients and collaboration among managers and employees [35; 143]. Furthermore, consumers can access reviews and offer evaluations of health providers and services in order to make more informed health choices.

Promote Greater Interprofessional Practice and Collaboration Among Practitioners

Interprofessional practice and collaboration is characterized as a process whereby multiple service providers representing different professional fields work together to provide comprehensive services to patients in order to coordinate high-quality services across settings. The World Health Organization defines interprofessional collaboration as occurring "when multiple health workers from different professional backgrounds work together with patients, families, carers, and communities to deliver the highest quality of care across settings" [144]. It requires professionals to alter the way they practice—moving away from working in silos and toward working in a collaborative and trusting manner, sharing information, resources, and multiple perspectives to address the complex problems of patients. Efficiency, cost containment, and measurable outcomes are all benefits of effective interprofessional collaboration. One of the core features of interprofessional collaboration is sharing philosophies, values, perspectives, data, and processes for planning interventions [145]. It also involves sharing roles, responsibilities, decision making, and power [146]. Every team member employs their expertise, knowledge, and skills to work collectively on a shared, patient-centered goal or outcome [146; 147]. Another feature of IPC is interdependency. Instead of working in an autonomous manner, each team member's contributions are valued and maximized, which ultimately leads to synergy [145]. Each member's knowledge, expertise, and strengths are capitalized and valued [147]. At the heart of this, are two other key features: communication and mutual trust and respect [147]. In order to share responsibilities, the differing roles and expertise are respected. However, one cannot assume that every member innately understands the roles, responsibilities, and knowledge of each member.

Web 2.0 mechanisms also provide venues for practitioners to collaborate and share knowledge without the barriers of geographical proximity [84; 88]. Healthcare providers can easily share knowledge with one another by participating in online communities and discussing cases [88]. The sharing of information on online communities is particularly important when providers are geographically constrained [148; 149]. The use of Web 2.0 platforms offers rapid and cost-effective sharing of best practice information. Social media sites (e.g., Facebook, LinkedIn) can provide information of available resources, advertise and promote upcoming educational and health events, and connect professionals almost instantaneously [148]. Web 2.0 tools can also mitigate professional isolation, particularly for providers in rural areas, and facilitate collaboration within and across disciplines [149].

CONCERNS REGARDING HEALTH 2.0

Inaccurate Self-Diagnosis

The fact that some individuals employ the Internet to assist in self-diagnosis has serious health implications. For example, many individuals use Google to assist in self-diagnosis. However, when dealing with complex conditions with an array of differential diagnoses, promoting self-diagnosis is an area of concern [118]. It has been approximated that Google finds the correct diagnosis 57.7% of the time, but this is primarily for conditions with very unique symptoms; the actual rate is believed to be lower [47]. Taking the time to self-diagnose can have serious consequences in acute healthcare emergencies (e.g., stroke), when emergency medical contact should be initiated as soon as possible after the onset of symptoms. Another consideration is individuals' inability to critically evaluate health information. This can be included in patient/client teaching, as will be discussed in detail later in this course.

Ethical Concerns

One of the paramount concerns of using Web 2.0 tools in the healthcare and mental health fields is patient/client privacy and confidentiality [84; 86]. Practitioners who use Web 2.0 tools must be conscious about revealing too many personal identifiers of their clients, which can risk practitioner/client confidentiality and privacy [142]. Practitioners in the health fields should keep the Health Insurance Portability and Accountability Act (HIPAA) in the forefront of their minds when blogging or posting in online discussion groups. HIPAA privacy rules protect any identifiable health data, including any present, past, or future health information of an individual that can be used to determine the identity of an individual [48]. Bemis-Dougherty gives an example of a practitioner who blogged about a difficult client seen at a facility at a particular time and date [49]. Although the client's name was not provided in the blog, it was possible to determine the facility in question because the author of the blog was identified, and certainly the identity of the client could be linked to the time and date of the appointment. It is also important to caution patients/clients that altering privacy settings does not necessarily mean that privacy is maintained, as hackers can sabotage privacy settings [119]. All of these points must be considered.

Another ethical issue that may arise is conflict of interest. Practitioners should be cautious of openly endorsing any products or services. Some Web 2.0 software platforms, particularly those without use fees, have advertisements that display along with the platform. Practitioners must be careful to avoid dual relationships or even having the appearance of a conflict of interest with service providers.

Professional Boundaries

The use of Web 2.0 applications can affect professional relationships and boundaries between providers and patients/clients. However, professional organizations and ethics committees have been slow to establish rules for interacting with patients/clients online. In a 2013 survey of psychologists, social workers, and physicians, 59% of practitioners indicated they maintained a Facebook account and 75% of these users reported using a privacy setting [89]. In another study, 77% of psychologists indicated they had an account on a social networking site, and of these users, 85% used privacy settings [36]. However, practitioners were unclear about what to do when clients contacted them through a social networking site. On the surface, it appears to be an innocuous request, but it may allow the client access to personal information and interactions that may fall outside established professional boundaries and create dual relationships [90; 150]. If the practitioner does not accept the request or ignores the contact, the client might misconstrue this as rejection. In addition, professionals' behaviors on social networking sites (e.g., posted pictures, interactions with friends) could inadvertently have a negative effect on the integrity of the profession [90; 91]. Therefore, there is a blurring of private and public spaces [119].

Information Accountability and Intellectual Property Issues

Every person who has access to the Internet can contribute to available health information using various Web 2.0 technologies. This has been freeing in some ways, but it also has led to the questions of accountability and reliability. When accessing online health information, one should have some knowledge of contributor(s) and their credentials, experiences, and professional background, and the validity and reliability of the information provided [35]. This raises the issue of the extent to which consumers have the ability to critically evaluate information online. Health literacy and the practitioner's role in educating patients/clients regarding the need to critically evaluate online health information are essential.

Inaccurate Information

In a meta-analysis of articles related to the use of Web 2.0 platforms in health care, researchers found that health information generated by general users on social media platforms was not always consistent or accurate with clinical guidelines or scientific evidence [79]. A meta-analysis of studies that evaluated online health information found that the quality of the online sources varied tremendously and more than half concluded that the quality of online health information was a problem [120]. Because user-generated content on blogs and wikis is not peer reviewed, it can lead to the dissemination of inaccurate information, which can be dangerous [88]. This speaks to the importance of educating the public in how to evaluate online health information, which will be reviewed in detail later in this course [84].

GUIDELINES FOR PRACTITIONERS WHO WISH TO INCORPORATE HEALTH 2.0 INTO PRACTICE

It can be overwhelming for providers to implement Web 2.0 into practice [92]. Sharma, Kilian, and Leung recommend considering the following issues prior to initiating use of a Web 2.0 platform [93; 120]:

- Identify the goals and objectives: Will you be using social networking platforms (e.g., Facebook, Twitter) for health education? Promoting awareness? Disseminating concrete health information? Facilitating relationships between the patient and provider? Offering a forum for patients to ask questions?
- Identify and know who the main audience will be: Will you be targeting adults? Mothers? Adolescents? Men with depression? Depending on the target population, the tone used in the writing, the layout of messages, and the style may vary.
- Determine how to best deliver the information: To what extent will delivering the information asynchronously be sufficient? Is a real-time element (e.g., chats) necessary?
- Discern who will develop the content: It may be necessary to hire a third party (e.g., a marketing company, subject matter expert) to create the content and determine how the content can be delivered in the most effective manner.
- Consider and evaluate the accessibility and functionality of the website. Ensure that links work and the site is usable to those with disabilities. Consider whether users need to download software to view the materials.

- Evaluate whether the website is culturally sensitive and appropriate for users and the extent to which photos, language, formatting, and messages are appropriate for users from diverse backgrounds.

In focus groups, marketers who used Web 2.0 for health promotion suggested that using simple, lay-friendly language was important. In addition, content should be easily searchable and retrievable using tagged categories [92].

HEALTH 2.0 AND IMPLICATIONS FOR TECHNICAL PROFICIENCY

In order for patients to obtain health information online, many skills are needed. At the most basic level, technical skills related to the use of a computer (operations) and Internet searching (navigation) are required in order to effectively access the Web [94]. A higher level of proficiency, including cognitive critical thinking skills, is necessary in order to evaluate the tremendous amount of information retrieved and to choose the most relevant and valid recommendations.

In a 2013 study, researchers recruited adults to complete a set of tasks related to retrieving information from the Internet pertaining to rheumatic diseases [94]. The participants all had experience searching on the Internet, but they were less familiar with using Web. 2.0 tools. The majority could not complete the tasks, experiencing difficulties navigating the Internet in general, using search strategies effectively, evaluating the accuracy of the content, and protecting their privacy [94]. In an integrative review, researchers found that healthcare professionals' digital skills must be continuously updated [151]. Technology changes rapidly, and full workplace implementation of these technologies are a function of healthcare professionals' attitudes, confidence, and proficiency.

HEALTH 2.0 AND IMPLICATIONS FOR HEALTH LITERACY

Health literacy refers to the "degree to which individuals have the capacity to obtain, process, and understand basic health information and services that they need to make appropriate health decisions" [50]. More specifically, it involves being able to navigate from lower to higher stages of critical thinking [121]. According to the 2003 National Assessment of Health Literacy, 14% of individuals in the United States have "below basic" health literacy, which means they lack the ability to understand health information and make informed health decisions [51; 52]. A systematic review of more than 300 studies showed that an estimated 26% of patients had inadequate literacy and an additional 20% had marginal literacy [53]. Health literacy varies widely according to race/ethnicity, level of education, and gender, and clinicians are often unaware of the literacy level of their patients [54; 55]. Predictors of limited health literacy are poor self-rated reading ability, low level of education, male gender, and nonwhite race [55; 56]. Low health literacy makes patients vulnerable to poor health outcomes, including medication errors, rehospitalization, and noncompliance to medical interventions [122].

E-health literacy has been defined as ability to seek, evaluate, and apply health information from online and other digital sources to a health problem [152]. There are several subcategories of e-health literacy [133]:

- Information
- Media
- Traditional
- Health
- Science
- Computers

e-HEALS is an instrument that consists of eight closed-ended items to measure e-health literacy. This brief instrument is valid and reliable and can be used by providers to assess patients' self-perceived comfort and knowledge in locating, assessing, and applying online or digital health information [153].

Of course, health literacy is affected by overall literacy rates in the United States. According to the National Adult Literacy Survey, 11 million adults in the United States are nonliterate in English; 36% of these adults speak/read a language other than English [52; 57]. Practically speaking, individuals who are nonliterate are not able to answer simple written test questions.

However, health literacy is not merely about being able to read the information but includes social components and the creation of meaning [58]. Informational competence, for example, involves appropriately evaluating the validity and authority of health information. Autonomous competence, the ability not only to evaluate the information but also apply it within the context of one's life, is also a part of health literacy [58]. Health literacy also includes an individual's ability to navigate the health system, communicate with their providers, follow prescribed treatment plans, and evaluate health information and evidence [95].

An individual's literacy level and competence in navigating health information can promote or impede health decision making, and readability of the health information is hugely important. In general, patient/client education materials should be written at no higher than an 8th grade reading level; yet, printed materials are often written above this level [59]. In a study of 10 cancer brochures from various cancer organizations, the average reading level was 12.1, ranging from 9 to 15, well above recommended guidelines [60]. In another study of online brochures created for children and adolescents about mental health issues, the average reading grade level of the brochures was 13.23, ranging from 11.1 to 14.8 [61]. A study of fact sheets on the websites of state domestic violence coalitions indicated the materials were written at an average of an 11th grade reading level [62]. In a 2017 study about the readability of e-cigarette information on health websites, all the test was determined to be written at a higher grade level than that recommended for the general public [123].

The rise of smartphones has made the readability of online health information and functionality of apps for mobile devices even more important. In a study that explored 270 mobile websites targeted to health conditions, 15.9% were not fully optimized for readability [124]. Generally, government websites are not as mobile-friendly as commercial sites.

EVALUATING ONLINE HEALTH INFORMATION

As discussed, the amount of health information available online and the collective wisdom garnered from others in using Web 2.0 tools can certainly be empowering for consumers of health and mental health services. However, it is vital that consumers have the skills necessary to evaluate, interpret, and apply this information, as the quality can vary tremendously. In one study, researchers searched the Internet for "weight loss diets" using the Excite search engine and analyzed the first 50 websites returned as search results [64]. The authors then compared the content on these websites to published clinical guidelines for obesity. They found that only three websites offered sound dietary advice; most promoted diet aids (e.g., diet replacements and supplements). Because the benefits and risks of these types of products are unclear, consumers must be able to critically evaluate health information for applicability and bias.

Individuals tend to use multiple heuristics simultaneously to assess online health information [154]. Heuristics are mental short cuts used to make rapid decisions for problem-solving, and they tend to be employed in situations in which there is a tremendous amount of information and uncertainty, producing cognitive overload. However, heuristics can be self-confirming or based on perceived endorsement, which can reinforce myths and/or biases [154].

In a focus group study, participants placed high importance on the reputation of the website [73]. The perceived reputation was based primarily on name recognition and on lack of advertising, with more ads signaling greater commercial interest and focus on profits [73]. In another study, researchers examined whether the credibility of sources for online health information had any effect on consumers' judgment of the quality of the health information [65]. Ideally, if the health information was from a highly credible source, consumers would rate the information to be of high quality compared to health information from a source with low to no credibility. For the purpose of this study, the three "credible" sources of information were the websites of the National Cancer Institute, the American Lung Association, and the American Cancer Society. All of the participants were given information originating from one of these sources, but only some were told the information came from highly respected organizations. Other participants were only told that the information came from a "webpage." Findings indicated that participants who were given the content and told the information was from a credible source did not judge the information to be any more trustworthy or valid compared to the participants who were told the information simply came from a "webpage;" credibility of the source did not influence judgments about trustworthiness of information. A similar pattern was observed among participants in a survey, which found that consumers tended to use the most popular websites returned in Internet searches and did not recognize that the quality of the health information might vary between online sources [14]. In general, health websites that end with .gov, .edu, or .org are perceived to be more credible and valid. However, research indicates that users with low literacy are more likely to distrust these types of websites, perhaps because they do not trust these types of institutions [155].

In an observational study of online search behaviors for health information, researchers found that participants tended to rely on what information they could locate rapidly rather than searching for more credible sources, relying mainly on information found on search engines such as Yahoo or Google [66]. They will not often verify the information. The majority of the participants also relied on the first five search results to obtain the information. Other research has found that participants tend to judge results of health information searches based on position or rank or based on other users' comments [121]. This speaks to the necessity for practitioners to educate consumers regarding the importance of gaining informational and autonomous competency [58].

EVALUATON SKILLS FOR CONSUMERS

Practitioners can assist patients/clients to evaluate the quality and accuracy of online health information. Being better consumers is a vital aspect of Health 2.0, with its emphasis on shared information and the team approach to care. Practitioners should review specific evaluation guidelines with patients/clients so they are empowered to critique the validity and reliability of online health information. This can involve assessing the "who, what, and when" of an online source. First, the "who" questions should be asked when reviewing online health information [67; 143; 156]:

- Who is the author? What are the author's credentials? In other words, is he or she qualified to write about the subject matter?

- Who maintains or sponsors the website, blog, or chatroom? Is it a government agency, a medical organization, a university, a pharmaceutical company, or a medical device manufacturer? Is the sponsor credible and do they have a good reputation? Is there any conflict of interest (e.g., is the sponsor selling anything)?
- Who is identified as the contact person? Is contact information for a webmaster or customer service provided?

Second, consumers should ask the "what" questions [67; 156]:

- What is the goal of the website or blog? Is it to sell a product or to educate the public? (Think about conflict of interest when answering this question).
- What sources are used as a basis of the health claims on the website or blog? For example, are evidence-based studies used or are the claims based on testimonials or the author's opinions? To what extent is the information presented in an unbiased manner?

Finally, consumers should ask the "when" question. Essentially, this involves exploring when the blog or website was produced. When was it last updated? How recent is the health information?

Alternatively, Roberts offers the 5C evaluation tool as a framework for practitioners to help their patients/clients evaluate online health information [68]. This follows the "who, what, when" model somewhat, but it expands to ask questions about readability and usability as well. This model addresses credibility, currency, content, construction, and clarity.

Credibility refers to the legitimacy of online health information and the author's qualifications for offering the information. Evaluating credibility can involve asking the following questions [68; 156]:

- What other information has the author written?
- What information is returned when you do a search for the author?
- Does the web address provide clues about the author? For example, an extension of .edu may indicate that the author holds an academic position, while a .com extension indicates a commercial website.

Currency of information is vital, as new research findings can lead to different implications regarding health practices and clinician recommendations. Consumers may ask [68; 156]:

- When was the website or blog created or last updated?
- If there are references to other health materials, how recent are they?
- Do referenced links work or are they inactive?

Assessing the content of a website is more in-depth. This will involve evaluating the actual information for accuracy and bias [68; 143]:

- Is the information written in first person? If so, this may indicate that the author is posing his/her opinions.
- To what extent is the information consistent with other information found in journals, books, and/or other online platforms?
- Are commercial products advertised? This may indicate sponsorship and conflict of interest. Some websites may include specific statements regarding the author's affiliations with pharmaceutical or other companies.

Construction refers to how the online information is presented and the type of impression it conveys [68]:

- How reader friendly is the blog or website?
- Is there enough color and graphics so readers can easily assimilate the information?

- Is the information presented in an organized manner?
- What size font is used? Very small font may not be suitable for all consumers.
- Are there any barriers to accessing the information?

Finally, consumers should assess the source's clarity. This will allow a determination of whether the information on the online platform addresses the needs of the target audience. They may consider [68; 143]:

- What is the reading level of the information presented? Is it appropriate for the target audience?
- Are the information and graphics presented in a manner that is suited to the target audience?
- Is the information available in different languages?
- Are podcasts or other options offered for those who may want (or need) to hear rather than read the information?

interactive activity

For a tutorial on assessment of health information published online, review Evaluating Internet Health Information, developed by the National Library of Medicine, at https://medlineplus.gov/webeval/webeval.html.

O'Sullivan offers the acronym TRUTHFUL to help individuals evaluate online health content. Many of the concepts are similar those already described in this section; however, clients/patients might better remember the acronym [96]:

- **T**: What are the **technical** aspects of the website like? Is the website and any multimedia platforms user friendly? Are there any grammatical or spelling errors? When was the information updated?
- **R**: Has the website been **rated and reviewed** by sources like Health on the Net (HON)?
- **U**: What is your **understanding** of the purpose of the website?
- **T**: Does any discussion of **treatments** include both the advantages and disadvantages? Does it provide a disclaimer?
- **H**: **Have you seen** the information before? Is it consistent with other information from literature and other sites?
- **F**: What is the **funding** the website? This could help when assessing the credibility and potential conflicts of interest.
- **U**: If **your** personal information is requested, does it indicate the reason? Do you know why it is necessary and how it will be used?
- **L**: What is the **legitimacy** of the health information? What are the qualifications of the author? What source(s) or evidence support the information provided?

In 1995, several health experts founded a nonprofit organization devoted to promoting standards for disseminating online health information and providing criteria for evaluating the quality of online health information [69]. HON is an accrediting organization that provides an approval logo (certified seal) to all sites that conform to the HON standards. Their certification is based on eight HONcode principles used to evaluate online health information [69]:

- Authority: Give qualifications of authors
- Complementarity: Information to support, not replace
- Confidentiality: Respect the privacy of site users
- Attribution: Cite the sources and dates of medical information
- Justifiability: Justification of claims should be balanced and objective
- Transparency: Provide valid contact details and accessibility

- Financial disclosure: Provide details of funding
- Advertising: Clearly distinguish advertising from editorial content

Instructing consumers to look for the HON logo can be helpful [125]. However, it is not a singular solution to evaluating health information online; other skills remain necessary [70]. Analysis have revealed that only 22.7% of asthma websites and 36% of chronic pain websites displayed a HON logo [126; 127]. While the HON logo is related with the degree of accuracy of health information on websites, one cannot assume that the lack of a logo means that the health information is not accurate.

The criteria described in this section are tools consumers can use when they evaluate online health information, but other approaches may be taken. Practitioners should view themselves as playing a key role in educating consumers about valid online information. In a study of postgraduate nurses, the majority did not question their patients regarding whether they retrieved health information online and did not evaluate their patients for any misinformation [63]. It is recommended that practitioners inquire if their patients/clients have searched online for health or mental health information, how this information informed their health decisions and help-seeking behaviors, and which Internet and Web 2.0 tools they used, if any. It is important to encourage patients/clients to utilize multiple sources when gathering information for health decisions, moving beyond obtaining information from simple Internet search results.

In addition to educating patients/clients using the established criteria, it is also important to consider, and possibly guide away from, the criteria that people generally employ to evaluate searches (e.g., search result rank, website layout and appearance) [128].

CONCLUSION

Prior to the current Internet era, consumers of health, wellness, and mental health information and services were forced to rely mainly on the medical establishment for education. However, the Internet has altered the healthcare landscape. Web 1.0 gave consumers the opportunity to search for information using tools like Yahoo, Google, and health directories, but the second generation, Web 2.0, has promoted the collaboration, interaction, and sharing of information and continues to revolutionize the healthcare industry. Patients are using Web 2.0 applications to share stories, provide emotional and informational support to one another, and obtain more health information than ever before. Meanwhile, practitioners are utilizing Web 2.0 tools to discuss cases, share resources, and provide consultation with one another. Researchers, scholars, and guideline authors have also joined online conversations to disseminate newly found information regarding clinical regimens and interventions. This is not to say there are no downsides of Health 2.0. Issues and concerns regarding patient/client privacy and confidentiality, professionalism, intellectual property, and accountability of information are still being debated and discussed. Certainly, how the forces of technology change will inevitably impact how practitioners provide health care and interact with patients/clients in the coming decades.

RESOURCES

The following websites are examples of Web 2.0 applications. They may be explored for more insight into the benefits and possible uses of Web 2.0 technology.

The Health Care Blog
https://thehealthcareblog.com

PatientsLikeMe
https://www.patientslikeme.com

Healthy Place
https://www.healthyplace.com

Sermo
https://app.sermo.com

Doximity
https://www.doximity.com

Implicit Bias in Health Care

The role of implicit biases on healthcare outcomes has become a concern, as there is some evidence that implicit biases contribute to health disparities, professionals' attitudes toward and interactions with patients, quality of care, diagnoses, and treatment decisions. This may produce differences in help-seeking, diagnoses, and ultimately treatments and interventions. Implicit biases may also unwittingly produce professional behaviors, attitudes, and interactions that reduce patients' trust and comfort with their provider, leading to earlier termination of visits and/or reduced adherence and follow-up. Disadvantaged groups are marginalized in the healthcare system and vulnerable on multiple levels; health professionals' implicit biases can further exacerbate these existing disadvantages.

Interventions or strategies designed to reduce implicit bias may be categorized as change-based or control-based. Change-based interventions focus on reducing or changing cognitive associations underlying implicit biases. These interventions might include challenging stereotypes. Conversely, control-based interventions involve reducing the effects of the implicit bias on the individual's behaviors. These strategies include increasing awareness of biased thoughts and responses. The two types of interventions are not mutually exclusive and may be used synergistically.

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