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Access to and Use of the Internet by Veterans with Serious Mental Illness

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Abstract

This study evaluated internet use among 239 veterans with serious mental illness who completed questionnaires assessing demographics and internet use in 2010-2011. The majority of individuals (70%) reported having accessed the internet and among those, 79% had accessed it within the previous 30 days. Those who were younger and more educated were more likely to have accessed the internet, as were those with a schizophrenia spectrum disorder, bipolar disorder, or major depressive disorder, compared to individuals with PTSD. Veterans with serious mental illness commonly use the internet, including to obtain health information, though use varies across demographic characteristics and clinical diagnosis.

Keywords

Serious Mental Illness; Veterans; Internet Use

Individuals with chronic health conditions, including those with serious mental illness, are increasingly utilizing the internet to acquire information about and manage their illnesses (Ayers et al. 2007; Borzekowski et al. 2009). While the ownership of internet-accessible technologies such as mobile phones and computers is significantly lower among individuals with serious mental illness compared to the general population (Ben-Zeev et al. 2013; Black

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et al. 2013), an increasing number of individuals with serious mental illness are utilizing the internet, both for personal use and to access health-related information (Borzekowski et al. 2009; Ben-Zeev et al. 2013; Khazaal et al. 2008; Schrank et al. 2010). Additionally, a growing number of health interventions are utilizing internet-based technologies to supplement traditional psychiatric care (i.e., for tracking psychiatric symptoms and enhancing medication adherence) among individuals with psychiatric disorders (Ehrenreich et al. 2011; Alvarez-Jimenez et al. 2014).

The Department of Veterans Affairs (VA) is increasingly using consumer health informatics applications to improve access to health information and health services in order to promote veterans' active involvement in their own healthcare. One example of this is the MyHealtheVet website (<https://www.myhealth.va.gov/index.html>) which permits veterans to research health education information, keep a personal health journal, and request medication refills. Veterans are also able to access and share their personal medical records with healthcare professionals on a computer or smartphone via the MyHealtheVet Blue Button feature. In a 2002 sample of 3,408 veterans, 54% had used the internet and 29% had used the internet for health purposes (McInnes et al. 2010). In a more recent 2010 sample of 7,215 veterans, 71% of veterans reported using the internet, a fifth reported using My HealtheVet, and mental health service users were equally likely to use both the internet and My HealtheVet as veterans who were not mental health service users (Tsai et al. 2012). The VA has not only been a pioneer in establishing an electronic medical record system and developing consumer health websites, but it is also now developing smartphone applications designed to improve consumer access to personal and general health information (<https://mobilehealth.va.gov/appstore>).

Some individuals with serious mental illness, however, experience certain barriers such as neurocognitive deficits, including impairments in higher-level executive functioning, working memory, and sustained attention, that may hamper their ability to use technologies such as computers and mobile phones, as well as to access the internet and navigate websites effectively (Rotondi et al. 2007; Rotondi et al. 2013). Accordingly, some previous studies have indicated that individuals with serious mental illness use the internet less than the general population does, to varying degrees (Clayton et al. 2009; Tsai et al. 2014). However, a recent study found that access to internet-based electronic personal health records among individuals with serious mental illness significantly improved quality of medical care and increased use of medical services (Druss et al. 2014). In order to better understand how veterans with serious mental illness utilize now widely available personal healthcare data and resources, the present cross-sectional study aimed to evaluate internet access and use among this group of veterans.

Methods

Data were drawn from a randomized controlled trial examining a computerized intervention that assisted veterans with serious mental illness in receiving recommended monitoring for the metabolic side effects of second-generation antipsychotic medications (Park et al. 2014; Klingaman et al. 2015). Between March 2010 and October 2011, participants were recruited from two VA outpatient mental health clinics in the U.S. Mid-Atlantic region. Potential

participants were between ages 18 and 70; had a chart diagnosis of a schizophrenia spectrum disorder (schizophrenia, schizoaffective, or psychotic disorder not otherwise specified), bipolar disorder, major depressive disorder, or posttraumatic stress disorder (PTSD); were prescribed one or more oral or injectable second-generation antipsychotic medications; had at least two outpatient visits with the prescribing provider (psychiatrist or nurse practitioner) in the past year; were deemed by the prescriber to be clinically stable to participate in the study; and had at least a fourth-grade reading level. The Institutional Review Board of the University of Maryland School of Medicine approved the study, and all participants (N=239) provided written informed consent after receiving a complete study description.

Participants completed various self-report assessments (e.g., demographic characteristics) at baseline prior to the start of the intervention. Using questions derived from a survey developed by Borzekowski et al. (Borzekowski et al. 2009) for a similar study in a non-veteran population with serious mental illness, participants were queried about their internet access and use, including frequency of use, as well as pre-specified reasons for and barriers to use. Univariable statistics were used to describe participants' internet use, and we conducted a multivariable logistic regression analysis to determine the associations between veterans' internet use and demographic/clinical characteristics, including age, gender, race, education level, employment status, housing arrangement, and diagnosis. All variables were entered simultaneously.

Results

Participants

Among 1512 Veterans screened for eligibility, 630 (42%) met inclusion criteria and were approached for participation in the mental health clinic or via recruitment letters mailed to their homes. A total of 431 (68%) responded to a letter or were contacted in the mental health clinic. Among those who responded to the letter, 191 refused to participate in the study or attempts to schedule an enrollment interview were unsuccessful. Reasons for refusing to participate included not being interested (81%), not having time (6%), not being comfortable (2%), and other reasons (11%) such as lack of transportation, distance, and medical issues. A total of 240 (56%) provided informed consent after receiving a complete study description. One participant randomized to the control condition was administratively withdrawn from the study and analyses due to inadvertent exposure to the intervention, leading to a final sample size of 239.

Demographic/Clinical Characteristics

Most of the 239 participants were male (89%, N=213); the mean±SD age was 54.3±8.3. The sample was racially diverse: 47% white (N=113), 47% black (N=113), 4% multiracial (N=9), 1% American Indian or Alaska Native (N=3), and 1% Native Hawaiian or other Pacific Islander (N=1). Fifty-six percent (N=134) of participants had at least some college education, 20% (N=49) were working for pay, 84% (N=200) lived in an unsupervised house or apartment, and 8% (N=19) were enrolled in school or college. Seventy-two percent (N=173) served in the Vietnam War era, 24% (N=58) served in the Persian Gulf War era, and 3% (N=7) served in Operation Enduring Freedom/Operation Iraqi Freedom/Operation

New Dawn era. Thirty percent (N=72) had a chart diagnosis of a schizophrenia spectrum disorder, 32% (N=76) had bipolar disorder, 26% (N=63) had major depressive disorder, and 12% (N=28) had PTSD.

Internet Usage

Seventy percent (N=167/239) of participants reported having ever accessed the internet, and 79% (N=132/167) of those participants had done so in the past 30 days. Older individuals were less likely to access the internet within the past 30 days (odds ratio [OR]=.91, confidence interval [CI]=.87-.95, $df=1$, $p<.001$), while individuals who completed some college or higher education were more likely to access the internet (OR=2.65, CI=1.45–4.84, $df=1$, $p<.005$). Compared to veterans diagnosed with PTSD, those diagnosed with a schizophrenia spectrum disorder (OR=2.77, CI=1.28–6.04, $df=1$, $p<.05$), bipolar disorder (OR=5.08, CI=2.25–11.47, $df=1$, $p<.001$), or major depressive disorder (OR=6.90, CI=2.35–20.22, $df=1$, $p<.001$) were more likely to access the internet within the past 30 days. Gender, race, employment status, and housing arrangement were not significantly associated with internet use.

Most participants stated that they accessed the internet frequently, with 58% (N=77/132) accessing it 6 to 7 days per week, and 54% (N=71/132) accessing it more than once per day. The majority (97%, N=128/132) of participants reported having ever accessed the internet using a desktop or laptop computer, while 30% (N=40/132) reported ever accessing it via a mobile phone.

Internet Activities

A variety of internet activities were reported among 132 participants who reported using the internet in the past 30 days (Table I). The most common activities were emailing (83%, N=109/132), checking the news (82%, N=108/132), and looking up health information (66%, N=87/132). The most common health topics researched were medications (84%, N=73/87), mental health issues (70%, N=61/87), diet and nutrition (56%, N=49/87), and fitness or exercise (49%, N=43/87). Other commonly researched health topics included cardiovascular disease (32%, N=28/87), diabetes (31%, N=27/87), and smoking cigarettes (25%, N=22/87). Among the individuals who reported using the internet within the past 30 days, a large majority expressed interest in finding out more information about mental (83%, N=110/132) and physical (82%, N=108/132) health online.

Barrier to Internet Usage

Thirty seven percent (N=89/239) of veterans did not report any barriers to internet access. Among the entire sample, the most commonly cited barriers were lack of knowledge (38%, N=90/239), cognitive problems (20%, N=48/239), problems with typing (19%, N=45/239), high cost (18%, N=44/239), problems with eyesight (14%, N=34/239), fear of technology (7%, N=18/239), and problems reading (4%, N=9/239).

Discussion

This study analyzed internet access and use among veterans with serious mental illness, and found that the majority of veteran participants (70%) had accessed the internet, with over half reporting using it on most days of the week. Approximately 2 years prior to the present study, Borzekowski et al. (Borzekowski et al. 2009) analyzed internet and media use by outpatients with serious mental illness receiving treatment in the public mental health system in inner city Baltimore, and found that only 36% had ever used the internet. While the present study recruited participants from both urban and suburban/rural locations in the Baltimore metropolitan area, the Borzekowski et al. study recruited participants solely from inner city Baltimore. Thus, the considerable difference between the two studies may be attributed in part to the differing socio-demographics (including veteran status) of the studies' populations as well as to the VA's growing online presence.

A more recent study (Tsai et al. 2014) compared internet use among veterans with serious mental illness who were receiving treatment from a psychosocial rehabilitation center at the VA Connecticut Healthcare System to a sample of veterans who had responded to the National Survey of Veterans in 2010 and a subset who were users of general mental health services. This study found that veterans with serious mental illness were significantly less likely to use the internet than the overall sample of veterans (57% versus 71%) and the subset of users of general mental health services (74%). Interestingly, our study's finding that 70% of veterans with serious mental illness had accessed the internet is more similar to both groups of non-seriously mentally ill veterans in the Tsai et al. study, as well as the approximately three-quarters of the general population of individuals who accessed the internet in 2009-2011 (Pew Research Center 2013). The differences in internet use between the two samples with serious mental illness may be explained, in part, because of differences in their clinical presentation. Whereas the veterans with serious mental illness included in the Tsai et al. study were receiving services from a VA psychosocial rehabilitation center, the present study sample was recruited from VA outpatient mental health clinics. Thus, the veterans in our study may have been more clinically stable and had higher levels of community functioning that enabled greater access to resources including the internet.

Supporting this, few veterans with serious mental illness in the present study reported experiencing barriers in accessing the internet. While lack of knowledge and self-reported cognitive problems were cited as the most frequently experienced barriers, they were only reported among 38% and 20% of participants, respectively. This is considerably lower than the 78% of individuals reporting lack of skills or knowledge and 56% reporting cognitive difficulties as barriers to internet use in the non-veteran sample (Borzekowski et al. 2009). Importantly, expense was not reported to be a significant barrier to internet use in our study (18% reported cost as a barrier), in contrast to what was found in the Borzekowski et al. study (81% reported cost as a barrier) and what was suggested by Tsai et al..

With regard to facilitators of internet use, we found that younger, more highly educated veterans were more likely to access the internet, consistent with previous research findings in the aforementioned non-veteran sample with serious mental illness (Borzekowski et al. 2009) as well as samples of veterans with and without serious mental illness (McInnes et al.

2010; Tsai et al. 2012). Interestingly, in our study, individuals diagnosed with a schizophrenia spectrum disorder, bipolar disorder, or major depressive disorder were also more likely to access the internet compared to individuals diagnosed with PTSD. As many veterans in this study used the internet to email friends, it is possible that those with PTSD may have been less likely to engage in this activity due to their symptoms of PTSD (e.g., social isolation and avoidance). However, this should be further explored in future research to determine whether this finding could be replicated and if so, to investigate the possible cause. Nevertheless, it is encouraging that many individuals with mental illnesses that are considered by some to be more disabling made relatively frequent use of the internet.

The results of this study also indicate that veterans with serious mental illness regularly access the internet to obtain health information about a variety of physical and mental health conditions. The most common health information topics researched were medications and mental health issues. Information regarding cardiovascular disease, diabetes, and smoking cigarettes were also frequently researched topics, all of which are common issues faced by individuals with serious mental illness (DeHert et al. 2011). These results suggest that veterans with serious mental illness are interested in utilizing technology to gain information about their own health conditions and may be receptive to future health informatics interventions.

The present study has several limitations. First, there was no comparison group of veterans without serious mental illness included in the study. Additionally, the sample primarily consisted of older males. The responses of participants were also self-reported, and thus true internet usage may have been over- or under-estimated. Fourth, participants were recruited and surveyed in 2010 and 2011. Consequently, reported data may not reflect the most up-to-date frequencies of internet usage.

The internet represents an ideal platform through which information, including personal and general health information, can be readily disseminated to large groups of individuals in a cost-effective manner. While some studies have questioned whether individuals with serious mental illness have access to and utilize the internet to the degree that the general public does, this study suggests that veterans with serious mental illness frequently access the internet and have an interest in utilizing it to research both physical and mental health conditions. This highlights the importance of clinicians routinely asking about their patients' internet access and use, and providing recommendations for online resources with the most reliable physical and mental health information.

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Table I
Participants' Self-Reported Internet Activities

Internet activity	Number of participants	% of participants
Email friends	109	83
Get news	108	82
Get health information	87	66
Medications	73	84
Mental health issues	61	70
Diet and nutrition	49	56
Fitness or exercise	43	49
Heart disease	28	32
Diabetes	27	31
Cancer	24	28
Smoking cigarettes	22	25
Alcohol use	18	21
Drug use	18	21
Hepatitis	17	19
Illness support groups	14	16
HIV/AIDS	10	11
Parenting	10	11
Get travel information	87	66
Shop/buy things	80	61
Get information about sports	61	46
Get to social networking sites	57	43
Download music	52	39
Get information about or play music	52	39
Get information about TV or movies	41	31
Instant message (IM) with friends	34	26
Get information about or play games	32	24
Download video	27	20
Check online blogs	12	9
Go to chat rooms/check online boards	9	7