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ABSTRACT *Objective:* Little information exists regarding how individuals with serious mental illness use technology and whether this usage facilitates social connections. This study contributes to filling this knowledge gap by examining ways in which a sample of persons with serious mental illness use cell phones and the Internet. *Methods:* Interviews with 50 consumers living in supported housing were asked about their use of cell phones and computers and their perceptions of social connections. *Results:* Cell phones and computers allowed greater linkage with social, medical, mental health, and employment resources. Nearly all obtained phones through publicly funded programs. "Running out of minutes" was common and associated with disrupted communication and safety concerns. Few people owned computers, resulting in restricted access. *Conclusion:* Policy makers should consider providing free or discounted hardware, subsidizing unlimited plans, and promoting computer literacy.

KEYWORDS: serious mental disorders, cellular phones, communication, community participation, supported housing

Social connection and community inclusion are among the primary aims of community-based psychiatric housing (Temple University Collaborative, 2011; Wong & Solomon, 2002; Yanos, Barrow, & Tsemberis, 2004). The term *social connection* is routinely used to describe the development of personal relationships and involvement in social and civic activities critical to social inclusion and recovery for individuals with severe mental illness (SMI; Substance Abuse and Mental Health Services Administration, 2015). Social networking technologies, including cell phones and Internet-based sites, have become a means for social connection and information gathering among the general population (Horrigan, 2014). However, little information is available on if and how individuals with psychiatric disabilities who are living in the community use these technologies and whether

this use expands their social connections. Although there has been a surge of health-related technology applications targeted to special interest groups, including individuals with mental health conditions (Frueh, 2015), little is known about how technology fits within the context of everyday access and use among people with SMI who live in supported housing contexts.

The widespread use of cell phones and the Internet has prompted research interest in how participation in virtual communities affects engagement in offline, local communities. Whereas concern has grown that participation in virtual communities might heighten social isolation (Franzen, 2003), time spent online has been positively associated with civic engagement (e.g., participation in neighborhood associations, organized sports, clubs, or political action groups) and voting (Hoffman & Appiah, 2008; Jennings & Zeitner, 2003), although empirical results are mixed (Black, 2012; Boulianne, 2009). Some researchers have questioned whether excessive involvement in virtual communities can exacerbate social isolation and limit in-person and community connections for some individuals (Hampton, Sessions, & Her, 2011; Yao & Zhong, 2014). Others have noted that use of social media greatly expands online social connections and these connections often include family and personal relationships that are maintained both on- and offline (Oh, Ozkaya, & LaRose, 2014). Longitudinal research conducted with a national sample of U.S. household members ages 13 to 101 years suggested using the Internet to connect with friends and family members was associated with reductions in depressive symptoms (Bessiere, Pressman, Kiesler, & Kraut, 2010).

The Internet has become an omnipresent source for health and mental health information. Websites such as WebMD that provide interactive, searchable health information have proliferated (Lamberg, 2003) and millions of Internet searches are conducted daily. Corresponding to the growth of health-information websites, online support groups for mental disorders and therapeutic interventions using telemedicine and cell phone applications have burgeoned, leading to questions regarding the effect of technology-mediated supports on mental health outcomes. Several studies, some using randomized controlled trials, have examined the use of mental health interventions for people with SMI using text messages, cell phone conversations, and online exchanges, and have generally found positive outcomes for real-time symptom monitoring, receiving medication reminders, medication adherence, illness self-management, and implementation of mental disorder/ substance abuse prevention programs (Ainsworth et al., 2013; Bogart et al., 2014; Burda, Hack, Duarte, & Alemi, 2012; Depp et al., 2010; Woolderink et al., 2010). However, some randomized controlled trials of technology-mediated interventions exclude people with SMI who cannot be reached by phone (Stentzel et al., 2015). Despite the proliferation of online mental health resources, few studies have looked into whether and how people with SMI are able to access and use technology to address mental health symptoms or simply make social connections.

The Internet offers the opportunity to communicate in a social environment that differs from usual interpersonal contexts (Hoybye, Johansen, & Tjornhoj-Thomsen, 2005), which might be especially important for social connections between members of marginalized subgroups (Whitlock, Powers, & Eckenrode, 2006). Using the Internet for help with psychological concerns or as a means for social connection has many advantages, including convenience, reduced transportation time and cost, anonymity, less exposure to stigma, discussing shared concerns with others, and empowerment (Gainsbury & Blaszczynski, 2011; Hine, 2000; Hoybye et al., 2005; Monaghan & Blaszczynski, 2009; Taylor, Jobson, Winzelberg, & Abascal, 2002; Taylor & Luce, 2003). Potential disadvantages of online interactions include lack of synchronous contact during a crisis (Krysinska & De Leo, 2007), negative interactions between users (Suler, 2004), and the promotion of self-harming behaviors by other users (Lester, 2008; Whitlock et al., 2006).

Little research has examined the ways in which cell phones and online resources are used by individuals with SMI who live in supported community housing and how this use relates to their social integration and community inclusion. Research to date has attempted to characterize the prevalence of technology ownership and use in this population with mixed findings depending on the sample. Ben-Zeev, Davis, Kaiser, Krzsos, and Drake (2013) found that cell phone ownership among a group of people with SMI in urban psychiatric rehabilitation programs was 12% lower than the general population. Among a sample of older adults with schizophrenia, only 27% reported currently owning a cell phone (Depp, Harmell, Vahia, & Mausbach, 2016). Compared with other work that has suggested cell phone and Internet use among people with SMI is low (Handley, Perkins, Kay-Lambkin, Lewin, & Kelly, 2015) and that the majority of people with SMI obtain information from television (Clayton et al., 2009), other studies have indicated that Internet use among people with SMI has risen rapidly. For example, Gowen, Deschaine, Gruttadara, and Markey (2012) found that 94% of National Alliance on Mental Illness (NAMI) survey participants used social networking sites. A survey of outpatient mental health service users (N = 189) indicated that 86% of respondents owned a cell phone and used the device regularly and that about half owned a computer (Carras, Furr-Holden, Eaton, Mojtabai, & Cullen, 2014).

Several studies of homeless youth, many of whom have mental health conditions, have indicated a high prevalence of technology use among these youth. Guadagno, Muscanell, and Pollio (2013) indicated that 75% of a sample of homeless youth reported membership in social networking sites. Other research has reported that as many as 96.5% of homeless youth reported Internet use, and that online contact with family members can have positive behavioral and emotional effects (Rice, Kurzbaum, & Ray, 2012; Rice, Monro, Barman-Adhikarai, & Young, 2010).

Notably, none of these studies has examined the ways in which cell phone and Internet technology might or might not expand social connections (personal rela-

tionships, social and civic engagement, access to resources) among adults with SMI who live in supported housing. Examining means of optimizing social inclusion and community engagement among people with SMI is of paramount importance. Positive perceptions of community connectedness among residents of psychiatric housing are significantly associated with self-reported psychiatric well-being (Brunt & Hansson, 2002; Townley & Kloos, 2011; Wright & Kloos, 2007). However, despite housing providers' focus on increasing community inclusion, many residents of supported and congregate psychiatric housing report loneliness and a lack of civic connection (Perese & Wolf, 2005; Wright & Kloos, 2007). Previous studies have indicated that, as compared with the general population, personal networks of individuals with SMI tend to be smaller and less diverse, with network ties often consisting primarily of family, professional staff, and other individuals with psychiatric illness (Cohen & Sokolovsky, 1978; Froland, Brodsky, Olson, & Stewart, 2000; Kilbourne, McCarthy, Post, Welsh, & Blow, 2007; Pernice-Duca, 2008).

Our study addressed the limited empirical information regarding how people with SMI residing in community-based psychiatric housing use technology by examining participants' use of technology, the ways in which technology facilitates or inhibits social and community connections, how and where technology is accessed, and influences on individuals' virtual and offline social engagement. This research drew upon in-person interviews with individuals who have psychiatric disabilities and live in supported community-based housing. The study specifically explored (a) how consumers accessed, utilized, and paid for cell phones and Internet access; (b) whether cell phones and/or the Internet were sources of social connection; and (c) whether technology was used to link consumers with social, volunteer, education, or employment opportunities.

Methods

Study Participants

In-person, semistructured interviews were conducted with 50 individuals with a serious and persistent mental illness who resided in supported, community-based housing in the State of New Jersey. Respondents were recruited through purposeful sampling. Sampling methods were designed such that we could capture the experiences of service users living in a variety of settings, including congregate living with continuous staff presence; supported housing with noncontinuous staffing; and urban, suburban, and rural environments. Letters describing the study were sent to 18 executive directors of New Jersey-based public and nonprofit mental health organizations that provide supported housing for individuals with psychiatric disabilities as well as day programs that provided mental health services. These names were drawn from a publicly available list of organizations that received funding from a state department of mental health to provide both housing

and mental health services to individuals with SMI. Follow-up phone calls and e-mails requested permission for research assistants to visit congregate housing sites or mental health day programs sponsored by these organizations to post flyers, provide information about the study, and to request volunteers to participate in interviews. Of the 18 organizations invited, 10 organizations consented to participate in the study.

Study Procedure

Interviews were conducted by social work doctoral research assistants with experience and training in qualitative, in-person interviewing. These interviewers received additional training from the project principal investigators on the interview protocol and on interviewing individuals with psychiatric disabilities. The interviews were conducted in private offices or other secluded spaces within the mental health day programs or in respondents' homes (a congregate or supported housing setting). Respondents received $10 for completing the interview. The study protocol was approved by a university Institutional Review Board and written informed consent was obtained from each respondent. The interviews were audio recorded and transcribed verbatim.

Measures

Interviews primarily consisted of open-ended, semistructured interview questions developed by the first author. These questions were developed based on a review of extant mental health and technology literature, gaps in published work on the topic, and from conversations with mental health professionals and service users. The interviews ranged in length from 60 to 100 minutes. Respondents were asked to describe their use of the Internet, social media, and cell phones; to describe how they were introduced to these technologies and by whom; their positive and negative experiences with these technologies; the individuals, organizations, and/or information with which they connected via the Internet, social media, and cell phones; and their perceptions of the meaning and value of these connections. Table 1 provides sample questions from the interview guide.

Qualitative Analysis

Verbatim transcriptions of interview text were analyzed by doctoral research assistants and the project principal investigators using template analysis in Atlas-ti qualitative software and Microsoft Excel 2010. Template analysis was used to develop an a priori set of codes that reflected study aims (Brooks & King, 2012). Broadly, the study hoped to answer the following questions about how technology (cell phones and the Internet) is used by people with SMI living in supported housing: (a) whether service users owned cell phones, (b) for what purposes cell phones were used, (c) whether cell phones were important sources of social con-

Table 1

Examples of Semistructured Interview Items and Follow-up Probes

How often do you use a cell phone?

  Probes:

  How did you get your cell phone?

  What kind of cell phone do you have?

  Do you ever run out of minutes? How does this affect you?

  How do you pay for minutes?

What role do cell phones play in connecting you to others?

  Probes:

  Who calls you?

  Who do you call?

  How often do you text?

How often do you use the Internet?

  Probes:

  Where do you use the Internet?

  What kind of computer do you use?

  Do you own your own computer?

What are some of the websites you visit?

What are some positive experiences you have had with websites you have visited?

What are some negative experiences you have had with websites you have visited?

Are there certain benefits from using the Internet that you value?

Are there any disadvantages to using the Internet in your experience?

nection, (d) whether respondents used the Internet regularly, (e) how they learned to use the Internet, (f) purposes for which the Internet was used, and (g) whether the Internet played a role in establishing or maintaining social connections. The interview questions provided sensitizing concepts for the first round of template analysis in which answers to specific interview questions were grouped across all respondents and read to identify patterns and themes (Brooks & King, 2012). An initial set of five interviews was coded by the entire study team (four investigators). Emergent themes were discussed by the team members and variations in the interpretation of the data were reviewed until consensus was achieved. The result of this process was a codebook used to code the remaining interviews. Two team members subsequently divided those interviews and coded the transcripts using themes from the codebook. Coders had the freedom to introduce new themes if the data could not be represented well by existing themes.

Each transcript was also read as a case to ensure that the individual experiences of participants were fully reflected in the final themes used to summarize the data. Case analysis was supplemented by cross-case and comparative analyses to identify unique themes as well as experiences common to the majority of respondents (Patton, 2001). These case summaries were reviewed and discussed by

the entire study team using the same consensus-building approach described above. The quotations presented in the Results section and accompanying tables are reflective of the full range of themes that emerged from the data.

Results

Study respondents included 29 men and 21 women. All respondents lived in New Jersey in supported housing settings that included congregate housing or staff-supervised apartments. Almost all were poor or low-income and drew on Supplemental Security Income (SSI) and Medicaid. About half of the respondents were White, and half non-White (including Black and Hispanic). Participants ranged from young adults in their early twenties to older adults with children and grandchildren; specific age information was not collected in the qualitative interviews. All of the respondents resided in supported housing because of a psychiatric disability, with diagnoses including schizophrenia, bipolar disorder, and depression. Interviews were conducted primarily in Central and Northern New Jersey, and included urban and suburban communities.

Cell Phone Use

Cell phone use among this sample was almost ubiquitous; 42 participants owned cell phones whereas only five participants indicated they did not own or have access to a cell phone. Of the 42 respondents who owned a cell phone, two people had smartphones with Internet capability and five people had nonworking/damaged phones or had no money to pay for minutes. Three people reported they felt no need for a cell phone. The majority of respondents (29) obtained their cell phones through publicly funded Lifeline assistance programs. Lifeline is a government benefit program supported by the federal Universal Service Fund, which is often supplemented by local utility companies to provide free or discounted services to poor and low-income individuals, including those who receive public assistance such as Medicaid or SSI (Universal Service, 2016). In our sample, most respondents received their phones from Lifeline programs offered through Assurance Wireless (2014) or Safelink (2014) carriers. These services typically provide a basic cell phone without Internet capability and a limited number of minutes and texts per month. Our respondents reported learning about the availability of these services through their case managers or through television ads. Notably, no study participant mentioned learning about cell phone assistance plans online, despite the existence of an application website (http://lifelinesupport.org/ls/). Some service users obtained their phones through plan sharing with friends ($n = 2$), supportive family members ($n = 3$), purchased phones and plans themselves ($n = 13$), or bought disposable phones with reloadable minutes.

A majority of participants ($n = 29$) reported they relied on their cell phones daily. Few of the respondents owned a landline phone ($n = 3$), though many had

shared access to a landline phone in their congregate housing sites. For many participants (n = 32), cell phones were their only way of maintaining contact with important social, medical, and mental health connections. These connections included physicians, case managers, 12-Step program sponsors, family members, neighbors, partners, friends, potential employers, and various community organizations such as churches. Some respondents referred to cell phones as "lifelines," offering them access to resources in the event of health or mental health emergencies.

Purposes Served by Cell Phones

Respondents used their phones for a wide range of purposes that reflected both general uses common to all cell phone users and specific uses related to mental health. Respondents reported using their phones to stay in touch with distant relatives and to get in touch with "difficult-to-reach" friends. Texting was common for most users, and the two respondents with smartphones described frequent use of their phones for trading photographs, shopping, watching YouTube, and using Facebook. With respect to mental health, participants noted that cell phones allowed them to reach someone "in the moment" if they were feeling depressed or vulnerable and needed to talk. For those struggling with drug or alcohol addiction, cell phones represented immediate contact with sponsors from 12-Step and other programs. Real-time phone contact allowed consumers to make appointments for services, facilitate transportation to services, and respond quickly to potential employment opportunities. (See Tables 2 and 3).

"Running Out of Minutes"

Reliance on cell phones as a primary source of social and service connections evoked responses about vulnerability due to inability to maintain service. Almost all respondents reported running out of their monthly minute allotment before the end of the month. Because most of our study participants relied on SSI funds to meet basic needs, few had resources to supplement their subsidized plans or make additional purchases, and many users reported difficulty keeping up with monthly payments. The problem of "running out of minutes" was a frequent refrain among the respondents, as they described disrupted communication, loss of social connections, and concerns regarding safety. Discussions of safety reflected not only individuals' access to medical assistance, particularly among those with serious health conditions, but also the idea that regular and immediate phone contact appeased family members' worries about their well-being. One individual who had experienced several strokes viewed his phone as meaning the difference between life and death.

Given the importance of maintaining phone contact, participants developed a variety of management strategies to avoid running out of minutes. The majority of users had only one phone, usually obtained from Assurance or Safelink. Pub-

Table 2

Participant Responses to "How Often Do You Use Your Mobile Phone?"

"Oh my god—until the battery go dead."

"All day, every day."

"A lot. A big role. A big part. I mean my cell phone 'cause that's how I get in contact with everybody, through my phone."

"I don't use it unless somebody calls me. I really don't use it too much . . . I don't be on the phone that much unless I call sometimes my mother or—usually I use the house phone to call my mother and them, but if I'm home I don't use my cell phone. But if I'm out, that's when I use it—just to call my husband and let him know where I'm at 'cause sometimes he be worried about me."

"Every day I call my daughter . . . You know other than that that's it. My drivers call me and tell me they're coming to get me in 5 minutes. I didn't want to buy no expensive phone with all those gadgets and stuff because I only use it to call up and receive calls—that's all and I ain't with that testing [texting]. I'm not too big on technology today. I think it's good but I think it's also harmful to be quite frank with you."

"I only use it for emergencies . . . I try to keep all my phones open . . . I don't use it that much 'cause I only get 250 minutes."

"If I really wanted a cell phone I would've bought one. You know what I'm saying? It's nothing that I never had before. You know it ain't no biggie . . . it's just for when I need to make a phone call not to be talking talking. It ain't no regular house phone. You got to spend money for it and the minutes don't last that long."

licly funded phones come with a standard limit of 250 minutes and either 250 (Assurance, 2014) or 1,000 texts (Safelink, 2014) per month. The majority of consumers with these plans purposefully limited their cell phone use to conserve minutes for essential calls or emergencies. Those who could afford to do so paid for additional minutes beyond their base plans if they came close to running out or purchased a second, commercial-plan phone and used their publicly funded phone as a back-up. A small number of participants paid for plans with unlimited minutes. For those who could not afford to supplement their plans, limiting calls and texts was the primary way to avoid the frustration and uncertainty associated with running out of minutes. (See Table 4).

Internet Use

Unlike the use of cell phones, we found greater variability in participants' access to computers and online services and their use of the Internet. Only a few respondents owned a computer; most accessed computers and the Internet through public libraries, mental health day programs, or their supported housing facilities. About one fourth of participants (26%, $n = 13$), reported *daily* Internet use, eight reported using the Internet *several times per month*, seven reported Internet

Table 3

Participant Responses "How Do You Use Your Mobile Phone?"

"[Without it] I just wouldn't be able to function 'cause you know not only does it keep me in contact right and keeps me in touch with the Internet but it also reminds me of things. You know I'd just be completely lost without my phone. It's my second brain . . ."

"Well, I'd say it's important. It helps me keep in touch with my driver and then one of my main concerns is that if I get sick, I can always call the ambulance or somebody like that . . ."

"I stopped all them calls because I was getting involved with drugs and stuff, people that use drugs and stuff, and I said, 'No, cut it off.' Cut my phone off for a couple of weeks and I guess people got the message you know, so I don't get no calls no more which is all right with me."

"To others it helps me be able to call my friends if I need help—if I'm feeling really bad and disappointed."

"Talking, texting. I'm like texting like crazy 'cause I get a lot of great texts so if I can't call I'll just text and my friend says, 'Why are you texting?' 'I don't feel like talking to you.' I text like every minute. Sometimes I'm distracted 'cause I'm texting so much, but yeah, I probably send several hundred texts a month."

"I use it as a safety measure when I'm in the community."

"[It's a] lifeline. I've been using cell phones for 20 years. I had a cell phone when they first came out, 'cause my dad, he got me a cell phone to keep in touch with me and make sure I'm okay, where I'm at and everything like that . . ."

Table 4

Participant Responses "Do You Ever Run Out of Minutes?"

"Yeah, constantly. I'm out right now . . . Go crazy, 'cause I'm used to having a cell phone."

"Yes I do, 'cause I be talking to my daughter. They call about anything, everything, then all of a sudden, boom, the minutes gone."

"Yes I do. Ask everybody that knows me. You ran out of minutes again?"

"Always. Everybody runs out of minutes. That, if I run out of minutes, I just be out of minutes. Yeah. It affects anybody if you don' t have a phone. Oh yeah. Yeah, it affects you. You never know. It might be an emergency. Heck, I might have a seizure upstairs. I need my phone."

"Never ran out of minutes because it's monthly, it's unlimited."

"I try to limit it as much as possible, so I don't run into the point where I don't have any more minutes."

"I have two phones, so if I run out of minutes on one I use the other."

use *a couple of times a month*, 10 noted that they went online *infrequently*, and 12 endorsed *never use it* [Internet]. (See Table 5).

When discussing frequency of Internet use, a number of barriers to routine Internet use emerged. Lack of knowledge about computers was a key issue for some. One respondent noted that he does not use the Internet because "*I don't know how to work it.*" Another said that he is "*computer illiterate.*" Several participants learned to use computers from their counselors, mental health day program staff, or computer classes offered at mental health programs/local community colleges. Some users learned to use computers and/or access the Internet through "*trial and error*" approaches, whereas others learned from relatives, especially younger family members such as grandchildren ("*My 11-year-old granddaughter shows me.*") Some younger consumers grew up with computers and were proficient at using them, stating that they learned these skills in high school. Other proficient users were exposed to computers through previous employment.

Table 5
Participant Responses to "How Often Do You Use the Internet?"

"Daily"
"All day every day"
"Six or seven times a week"
"Maybe like twice a week"
"Designated days—Tuesdays and Saturdays"
"Every now and then"—for Facebook
"Once in a while"
"Once or twice a month"
"I don't"
"Well, I don't mess with the Internet 'cause I don't know how to work it. When I go to the library I'll learn how to work it, 'cause I'm trying to locate this girl that I used to go with a long time ago."
"Well, when we have access here, I'll probably use it almost every day, but since I have to walk to the library to use it and you know sometimes you've got to wait to get on the computer, it varies, but when I'm looking for work I'll be using it a lot more. That's for sure."
"I don't use the Internet"
"Never. I don't have the opportunity"
"By the time I get to it [e-mail], I have to erase a thousand and some e-mails—every time I go back to it . . . My e-mail, unless I'm looking/expecting something, I might check it once a week, but I have a lot of junk coming to me, junk mail, junk e-mail, like advertisement. That's mainly all it is really, and that's why I just delete them."
"I would not go on the Internet, 'cause whatever you put there, ain't it—tell me if this is true or not—it's stuck for life."

Lack of physical access to a computer presented a different type of barrier to Internet use. As noted, many participants relied on their local public library to use a computer, which limited their use to 30 minutes, and many reported having to wait in long lines to use a library computer. Many participants used computers provided by their mental health day programs or supported housing facilities, which improved accessibility, although some programs placed restrictions on use. One respondent noted that although his housing unit provides computers for residents, the sponsoring agency places parental controls on all computers, restricting the sites he can access. Other users visited Internet cafes or used computers at the homes of family members or friends. Some participants who had irregular access to computers expressed frustration at the number of e-mails that accumulate in their inboxes over a week's time. Sifting through large numbers of e-mails became a disincentive to Internet use. A number of users had their own computers and Internet service at home and thus had regular access.

Purposes Served by the Internet

Reasons for Internet use mirrored those for cell phone use, with some exceptions specific to this technology. Participants went online to connect with family and friends via Facebook and e-mail, post and view pictures on Instagram, find directions and maps, review weather forecasts, play games, and shop. As described by respondents, these activities were often shared with friends: "*I like to pick all different type*[s] *of music and play it and sing, show my friends the funny things that's happening on YouTube.*" The Internet also offered access to social connections that would have been impossible in person because of geographic distance and/or transportation issues. This aspect of Internet use was particularly central to our study participants because most did not drive and had limited resources and opportunities for travel. (See Table 6).

Specific to this population, an ubiquitous activity among computer users involved searching for information regarding mental health, specific diagnoses, treatments, Medicaid providers, and wellness or recovery. Many respondents also used the Internet to explore job opportunities and to apply for employment. Similarly, participants reported using the Internet to search for information on community resources and activities ranging from movies to food programs to self-help groups. Several respondents also described online connections that allowed them to practice communication skills without the immediacy and anxiety associated with face-to-face interactions. (See Table 7).

Positive Online Experiences

We asked participants about the advantages they perceived from using the Internet. Many responses centered on the importance of being connected to resources and opportunities: "*Well, now everything is computerized, so if you wanted to be con-*

Table 6
Participant Responses to "How Do You Use the Internet?"

"Yeah, I would use that every day, and I get email from like Monster. You know the job websites email me based on my criteria . . . I'm in a new town, so I like to find out what's going on newswise."
"There is a site that's around Medicaid. If I need to find a certain place that takes Medicaid, I'll look it up."
"[Cell phone] plays an important role because I would like to be a Sponsor one day. I would like to be able to sponsor someone and show them the way to live life without the use of drugs and alcohol."
"[Facebook] I've used [it] to communicate with friends and to find other important information that I need . . . I feel it's different (than in person) because instead of hearing a person's real voice and their expression, but I've learned how to express myself in the right form."
"[Facebook] It plays a pretty big role. I'm in touch with people that I'm not in touch with in person. It let's me talk with people I otherwise wouldn't be in touch with. People from high school and stuff."

nected, you have to use a computer." The most commonly expressed advantages of Internet use included communication with other people, which was followed by obtaining information. Web users spoke of enjoying connecting with in-person and online friends and family, often through Facebook. The Internet sometimes provided them with new acquaintances or connections made through social media and online chat groups.

Access to online learning and information was highly valued. This benefit was most keenly expressed by respondents in terms of their searches for information on their own medical and psychiatric conditions and for community resources. Connection with community institutions was an important facet of Internet ac-

Table 7
Participant Comments About "Information on the Internet"

"I can learn a lot of things on the Internet. I could search a lot of things on the Internet. I can follow the news. I could find out all kinds of stuff. I mean the world is yours on the Internet."
"I like to talk to my family even more now that I have Facebook. I like it. I mean, it's joyful."
"I needed to know about a doctor I had in [city] and how do the place look or where was it at, and so our nurse went online and found exactly how to get there, where it was and how it looked and I knew what to look for when I got there. That was a big help."
"It's definitely positive for me, 'cause if you can't get an application like that to fill out, you can do it online."

cess. Websites were an efficient source of social connections that did not require the "legwork" of searching for resources in person. Equally important, websites regarding community resources and activities also sometimes generated in-person connections and experiences in the local community. For example, respondents noted that their participation in community activities, including a local theatre group, an open-mic music night at a local venue, and a poetry "slam" was spurred by information and individuals they discovered online. As one respondent noted, "*It kind of directs you in a way that you want to go. It puts you in a place where you'll be able to say, 'Well, I can call this person and I can reach out to this organization. . .'*" Interestingly, another frequently mentioned Internet advantage was the availability of maps and directions. The Internet offered a way to get to know the local community before going out physically. Online images of buildings were helpful to consumers who had appointments with new providers but were not familiar with the location. Some respondents noted that this familiarity with a new destination provided a sense of safety and reduced fear of getting lost or missing an appointment.

Many respondents talked about searching for employment online and the advantage of a virtual search. The Internet offered chances to explore employment opportunities bidirectionally; not only could consumers search for jobs, but they could also post resumes and request contact from potential employers. Such online searches were described by some as less intimidating than in-person approaches. (See Table 8).

Negative Online Experiences

We also asked participants about negative experiences associated with Internet use. (See Table 9). Concerns about privacy and safety were paramount not only

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Table 8
Participant Comments About "Employment Opportunities" on the Internet

"Found this one job. Well, it wasn't a real job. It was like a few day job through Craig's list. Yeah, so, that's helped me with that."

"I look for jobs online"

"It's wonderful because I can look for employment right from my own home. I don't have to go out."

"I use job searching sites, like Monster, Career Builders, LinkedIn, Craig's List. In 2013 you know Internet is the way to go. That's the way people post jobs, part-time, full-time, every possible level you could think of. It's just the way it is. You know, the newspapers aren't what they used to be, even though I do search them anyway. Yeah, I mean, it's really the best viable option and you can send your resume via email."

"The recovery part, I had went on websites about drug addiction and stuff because I'd like to be a Certified Drug and Alcohol counselor maybe in the future."

Table 9

Participant Comments About "Unsafe People Online"

"Yeah, the perverts. I haven't had none, but all the stuff out there."

"Well one time I was in the chat room and I was threatened by a person. I'm like 'I'm not doing chat room anymore.'"

"I mean I've had somebody I guess they call hack your page."

"Sometimes I think it's good and you know like if you want to get in touch with your family, see what they're doing, but it's a lot of prejudice out there and they like to hurt people and it's not good. Not good at all."

"Well honestly you know I tell my son and grandkids, you know to me those things are like just gossip columns, I really don't like them, and I said "You know you can get fooled by people on that, 'cause anybody can lie. You don't even know who you're looking at. If you can't look them in the eye, face-to-face, you don't know if these person are telling you the truth or not.""

among regular Internet users but also among those who avoided going online. Respondents expressed concern that online content becomes permanent and cannot be deleted or erased. Other concerns frequently mentioned by participants included negative online social interactions, feeling threatened by others, and not being able to verify the identity of online social contacts. The participant comments below were typical of many:

I don't go on Facebook or anything, so I haven't had anything negative happen, but I know that once it's out there, it's out there, so I guess that would be a negative thing. People have to be you know careful what they do on the Internet, 'cause everybody sees it.

People get into other people's business. That is one of the disadvantages, dating. No, especially if you find something on a wall and somebody pick it up and then they'll talk you know. People not minding their own business. Especially family. Wow. That's the only disadvantage I have, you know. You got to be careful what you put out there.

Discussion

Among our sample of low-income individuals with SMI living in community-based psychiatric housing, cell phones and Internet use were key means for connecting with friends, family, community resources, mental health and medical personnel, and information. Equally important, access to these technologies was facilitated by public subsidies for free and discounted cell phone use, publicly supported access to computers and Internet resources through public libraries and mental health day programs, and provision of instruction on computer and

Internet use via classes at mental health programs and community colleges. Public and private service funders and providers thus play key roles in facilitating social and community connections via technology for this group.

Our findings are unique in their focus on low-income adults with SMI living in supported housing and build upon the few studies that have examined cell phone and Internet use among homeless youth, adolescents, and adults with SMI (Ben-Zeev et al., 2013; Pollio, Batey, Bender, Ferguson, & Thompson, 2013). Cell phone ownership in our sample mirrors rates found by Carras and colleagues (2014); however, unlike their outpatient sample, we found that very few people living in supported housing environments in our study owned computers. Ironically, rates of computer use in our sample are substantially lower than among younger homeless populations (Guadagno et al., 2013; Rice et al., 2012; Rice et al., 2010). Our study highlights areas for improvement in helping people with SMI gain access to computers and the Internet.

Contrary to concerns that the Internet encourages social withdrawal and civic *dis*engagement, our findings suggest that cell phone and computer technology facilitate social participation in a sample of adults with SMI. This finding is important for several reasons. First, this finding supports data from general population surveys that these technologies serve as a means for social connection and can facilitate civic engagement. Second, cell phones and computers can offer potential for increasing the social connectedness of people with SMI living in supported community settings. Third, cell phone and computer technology can increase access to and use of information resources (e.g., employment opportunities and neighborhood safety information) critical to recovery. This access to information is especially important given that the social networks and connections of people with SMI living in the community can be as restricted as those of people in long-term residential settings (Brunt & Hansson, 2002).

Our interviews uncovered several uses of cell phones and the Internet that had special meaning and applications for our sample. Key among these were participants' Internet searches for information on their medical and mental health conditions as well as the use of cell phones to stay in contact with people who could give them immediate and ongoing emotional or psychiatric support. Interestingly, maps and locational websites held special appeal to the individuals in our sample. Some participants minimized feelings of uncertainty or lack of safety in their neighborhoods by exploring locations virtually before going out physically. This lessened feelings of anxiety when participants attended service appointments in new locations and when they were exploring community resources or organizations. A similar ease was expressed for submitting employment applications online because the online connections reduced their anxiety about travel, unfamiliar locations, and in-person meetings. Thus, cell phones and computers formed a foundation for connecting our sample to physical and virtual communities that

would have been more difficult, if not impossible, to navigate physically. Future research should examine how these features and uses of technology might translate into phone "apps" or other applications targeted to individuals with SMI.

Conversely, a small number of service users did not have, nor did they desire, to have cell phone and Internet connections. For some, this nonuse was a matter of mistrust of the technology or concern about the inability to verify the identities of people participating in online interactions. For some, this mistrust was intensified because of their lack of knowledge or skill related to the technology. This aspect of our findings deserves further exploration with regard to facilitating access among this population. It is possible that, if given the opportunity and skills, some who voice resistance or anxiety would warm to technology as a means of social connection. Conversely, as in the general population, certain individuals might prefer in-person interaction over virtual participation, even if this preference limits expansion of their social networks.

Our findings also show that people with SMI living in supported housing on limited incomes struggle with maintaining regular access to cell phone and computer technology. This struggle was a common concern expressed by the majority of study participants and was frequently a source of considerable stress. "Running out of minutes" meant loss of social connections, which, even if only temporary, created substantial disruption in participants' lives. Running out of minutes is not a daily consideration for most people who do not have SMI and do not have a substantially limited income. Although it is encouraging that the majority of our study participants had cell phones and that policy exists to address inequality of access to technology (Federal Communications Commission, 2014), we found evidence of persistent issues of access disparities associated with low income. This issue could be readily addressed by expanding subsidized plans to include unlimited minutes and texting, and justified by the evidence that cell phones are key means for maintaining critical psychiatric and social support.

Beyond access issues, one of the biggest sources of technology nonuse is lack of Internet skills. Recent discussions of the *digital divide* have noted that physical access to technology is a simplistic way of thinking about inequalities in use of technology because proficiency and skills are even greater sources of disparities (Steyaert & Gould, 2009; van Deursen & van Dijk, 2011). Digital knowledge includes not only the capacity to explore the Internet using navigation buttons but also the ability to remain oriented in the midst of multiple screens or tabs and understanding how to obtain desired information (van Deursen & van Dijk, 2011). Helping low-income individuals with SMI achieve *digital inclusion* incorporates not only access to technology but also training and user support, including how to safely manage online interactions (Watling, 2012). Investing resources to educate service users about technology might provide considerable tangible and intangible benefits. Regular computer access augmented by skills training has been

associated with increased online submission of employment applications in low-income communities (Araque et al., 2013). Technology use has also been associated with psychological benefits such as feelings of empowerment (Leung, 2009).

Given that technology has the potential to augment social connections and improve information access for people with SMI, it is important to consider how policy makers, housing administrators, case managers, service providers, and other community organizations can devote more attention to issues of access and skills. Although the important role of technology has been incorporated into service standards for social service providers in the United Kingdom (Watling, 2012), this is not the case in the United States. It might be beneficial for service providers to facilitate service users' ability to use computers and the Internet in meaningful ways, including providing greater access to computers and incorporating computer literacy into regular program content. In our study, some mental health day programs offered computer courses, but these programs were not widespread. In addition, the role of public libraries in providing Internet and computer access to individuals with disabilities, the poor, and others with limited access to technology has been recognized by national library associations and public and private funders, and is another avenue for expanding these services for individuals with SMI (American Library Association, 2015; Bertot, Jaeger, & McClure, 2010; Halpin, Rankin, Chapman, & Walker, 2015; McClure & Jaeger, 2009). Some professionals are advocating for enhanced cooperative programs between public libraries and mental health and service organizations, noting as well the role of libraries as gathering places for diverse groups, including those with SMI (Berk, 2015; Bertot et al,. 2010).

Study Limitations

As with any research endeavor, the findings of our study must be interpreted in light of associated limitations. Consistent with most qualitative methods, our sample size was small (50 participants). Small sample sizes limit the generalizability of study findings. However, the goal of the study was to explore research questions that were unanswerable with large-scale survey methods. The small sample size allowed us to collect in-depth information from service users with SMI about their experiences with cell phone and computer/Internet use, including advantages and disadvantages of using technology. Our findings are consistent with those of larger survey studies (Ben-Zeev et al., 2013) and provide additional insights into the role of technology in the lives of people with SMI who live in supported, community-based housing. The fact that the interviews were conducted within a restricted geographic location is also a limitation to generalization of our findings. Our participants lived in supported housing in Central and Northern New Jersey. Although it is possible that study findings might not apply to

other geographical areas, our research indicates that publicly funded cell phone benefits are available by federal mandate (Universal Service, 2016), with similar plan structures available nationwide. Thus, many of our findings related to cell phone use and Internet access likely apply to service users with similar plans. A final limitation is the fact that our participants were integrally linked to mental health programs and services. This established relationship might have augmented their ability to apply for publicly funded cell phones or receive Internet skills training compared with people who are homeless or disengaged from services.

Implications for Practice

Approaches to enhancing the social connectedness and community integration of individuals living in community-based psychiatric housing have long focused on in-person interactions. These approaches must now clearly embrace facilitation of connection via cell phones and the Internet. This population—so vulnerable to social isolation—is largely poor and low-income, drawing primarily on SSI; access to technology is expensive. Key to this technology-connected facilitation is the continued and expanded provision of free or discounted phone and computer hardware, software, and instruction, and the active involvement of policy makers, private industry, and mental health and other community service providers in this support. Evidence from this and other studies regarding the frequency of cell phone and Internet use among low-income individuals with SMI reinforces the feasibility of technology-based therapeutic and supportive interventions, as long as issues of consistent access to the technology are addressed. Technology-based interventions that rely on regular cell phone access might be interrupted when users reach their monthly plan allotments. Future research can further explore the cost-effectiveness and mental health benefits of technology-based resources for expanding social, economic, and civic connections.

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