

# The Internet as Social Support for Older Carers of Adults With Intellectual Disabilities

Elizabeth A. Perkins\* and Kimberly M. LaMartin†

\*Department of Child and Family Studies; †Morsani College of Medicine, University of South Florida, Tampa, FL, USA

**Abstract** Social support is a potentially powerful mediator of well-being for family carers. Given that social engagement often decreases with age, the Internet broadens the opportunities for aging carers of individuals with intellectual and developmental disabilities (I/DD) to provide support to one another. This article reviews what constitutes social support, its importance to older adults, and more specifically carers of those with I/DD. Computer and Internet usage by older adults is briefly reviewed. The Internet as a medium for facilitating social support and support groups for carers is discussed. The role of the Internet in the lives of people with I/DD is also briefly reviewed. The literature review, compiled from a literature search of PubMed, Science Direct, PsycInfo, OvidSP, and CINAHL databases, revealed that there is a relative paucity of information regarding support on the Internet for aging carers, particularly for aging carers for people with I/DD. The review also revealed the utility of the Internet to be utilized as a medium for social support groups. The authors noted that aging adults can acquire new technological abilities and cognitive benefits when learning new skills. Both older adults and individuals with I/DD benefit when web sites are attentive to layout and usability. The authors suggest that Internet-based aging carer support groups that also incorporate educational content should be developed. Although many research questions remain about the design of Internet-based carer groups, web sites that appeal to both carers and individuals with I/DD for peer support and information are interesting avenues for further investigation.

**Keywords:** aging, carers, caregivers, intellectual disabilities, Internet, social support

## INTRODUCTION

In the United States, the population of persons aged 65 and older is projected to climb from 35 million in 2000 to 72 million in 2030 (Federal Interagency Forum on Aging-Related Statistics, 2010). The proportion of aging families caring for adult children with intellectual and developmental disabilities (I/DD) in the home is steadily increasing as well (Rizzolo, Hemp, Braddock, & Schindler, 2009). Older carers (also known as caregivers) of individuals with I/DD have significant challenges, including the long duration of their caregiving roles, experiencing the onset of their own age-related health issues as well as those of their care recipient (Haley & Perkins, 2004). Furthermore, they have the additional anxiety of accompanying concern for the future well-being of their adult child with I/DD when they are no longer capable of being the primary carer (Haley & Perkins, 2004). Peer support interventions for future planning targeted at aging carers and adults with I/DD have been shown to significantly decrease the carer burden (Heller & Caldwell, 2006).

In general, the Internet has expanded opportunities for information dissemination and social interaction for many different types of caregiving situations (e.g., Kinnane & Milne, 2010; Pierce et al., 2004). However, older carers use the Internet for information about caregiving considerably less than their younger counterparts do. Although 29% of carers aged 18–49 and 25% aged 50–64 report using the Internet to find information to help them in their caregiving activities, only 10% aged 65 and older do so (National Alliance for Caregiving, 2009). However, over a 1-year period, from 2009 to 2010, social networking among Internet users aged 50 and older doubled (Madden, 2010). This indicates that the Internet and the rapidly evolving technologies it offers may progressively play a more pivotal role in the lives of older adults—carers and care recipients alike.

This review first provides a brief description of what constitutes social support and its importance to older adults, carers, and then specifically carers of those with I/DD. The Internet as a medium for facilitating social support and carer support groups is discussed. This article then explores the attitudes, abilities, and specific interests of older adults in relation to computer and Internet use. The role of the Internet in the lives of people with I/DD is briefly reviewed. The article concludes with a discussion of the salient findings. Future research and design considerations in the development of Internet caregiving groups are then suggested.

Received September 14, 2011; accepted January 5, 2012

Correspondence: Elizabeth Perkins, PhD RNMH, Florida Center for Inclusive Communities/UCEDD, Department of Child and Family Studies, College of Behavioral and Community Sciences, University of South Florida, 13301 Bruce B. Downs Blvd., MHC 2113A, Tampa, FL 33612, USA. Tel: +1 813 970 7076; E-mail: eperkins@mail.usf.edu

## METHOD

Articles were compiled from a literature search of PubMed, Science Direct, PsycInfo, CINAHL, and OvidSP databases. Combinations of the following key words used were *social support*, *Internet*, *technology*, *social networks*, *online*, *Facebook*, *MySpace*, *Twitter*, *support groups*, *interventions*, *older adults*, *carers*, *caregivers*, *intellectual disabilities*, and *developmental disabilities*. This review predominantly focused on highlighting articles published from 2000 onward due to the rise of the Internet as a topic of research over the last decade.

## FINDINGS

### *The Importance of Social Support to Older Adults and Carers*

**Older adults** The term “social support” has been subject to many definitions and conceptualizations, and is often applied to older adulthood, and caregiving scenarios. Tardy’s model (1985) included several types of social support including emotional (e.g., receiving empathy from others), instrumental (e.g., tangible support such as financial assistance) informational (e.g., helpful advice about resources available), and appraisal (e.g., receiving feedback from others). Social support can also be described objectively and subjectively (George, 1996). Objective social support can be measured in terms of social network size, composition, and interactions within the networks, whereas subjective social support, also referred to as perceived social support, refers to a carer’s perception of quality and actual availability of support from others (Lin, 1986).

Social support as a coping mechanism and resource for bolstering resilience against stress is a robust finding replicated over decades of research (Thoits, 1995). Physical and psychological health, general well-being, and life satisfaction in older adults can all be positively influenced by how social networks are comprised and how individuals within those networks provide support to the individual (Bishop, Martin, & Poon, 2006; Pinquart & Sörensen, 2000; Yang, 2006). Unfortunately, older adults are also noted to have reduced social networks and lowered attendance at social gatherings and religious services with increasing age (Fiori, Antonucci, & Cortina, 2006). Social support to carers is particularly valuable, and as reported in the general older population, higher levels of social support received are associated with decreased feelings of stress and carer burden (Chang, Brecht, & Carter, 2001; Chappell & Funk, 2011; Houde, 1998; Parrish & Adams, 2003). In fact, highly stressed carers can suffer health decrements that actually lead to an increased risk of mortality (Schulz & Beach, 1999). As such, carer health is now considered a major public health issue (Talley & Crews, 2007).

**Carers and aging carers of people with I/DD** Similar findings from the general caregiving literature are replicated in studies that specifically target carers of children and adults with I/DD. For example, greater levels of social support have been associated with increased psychological well-being of parents/carers of individuals with I/DD (e.g., Tsai & Wang, 2009; Weiss, 2002; White &

Hastings, 2004). As stated previously, aging carers of adults with I/DD are a notable and unique population of carers that have long been identified (e.g., Haley & Perkins, 2004; Heller & Factor, 1993). A comparative study of younger vs. older carers of adults with I/DD, reported that the older carers had less family social support (Chou, Lee, Lin, Kröger, & Chang, 2009). Hong, Seltzer, and Krauss (2001), in their study of older caregiving mothers of adults with I/DD, found that younger age carers (aged 58–65 years) had larger social networks and received greater amounts of emotional support than older age carers (aged 66–87 years). Furthermore, in their older group, Hong et al. reported that increased amounts of support from network members was predictive of an increase in psychological well-being, whereas increased numbers of their social network was not. This suggests that creating more opportunities to increase social interactions of current network members might be more salient for older carers than merely trying to increase the number of new friends and contacts. The Internet provides an alternative method for increasing social interactions. Llewellyn, McConnell, Gething, Cant, and Kendig (2010) reported that aging carers of adults with I/DD who had larger local support networks (i.e., had close relationships with family, friends, and neighbors) reported better mental health, emphasizing the importance of social support derived from one’s immediate community beyond that of immediate family.

With increasing age, carers of adult children with I/DD also face the distinct possibility of becoming carers to other family members who, in fact, may be the same family members who had previously provided them with assistance in their caregiving responsibilities (Perkins, 2010; Perkins & Haley, 2010). A notable finding by Greenberg, Seltzer, Krauss, and Kim (1997) was that older carers do continue to utilize support groups. Their sample of 288 carers aged 55 and above ( $M_{age} = 66.8$ ) were current members of a support group. Therefore, even though carers had been carers for considerable lengths of time, there is a sizeable population of aging carers to whom support group membership may confer enough benefit to warrant their continued membership.

Social support, because of its potential to bolster a carer’s resilience to the adverse quality of life outcomes, is not only important to younger carers of individuals, but potentially more so to aging carers who have to adapt to changes in their long-term social support structures and changing health status of both themselves and their care recipients. Indeed, older adults with I/DD have reported that their major concerns with increasing age are changes in services and family circumstances (Thompson, 2011). Furthermore, as adults with I/DD are noted to rely heavily upon their carers and family members for their own social support needs (Lippold & Burns, 2009), a cascade effect may operate whereby reduced social support received by the aging carer, even more adversely reduces the social support network of their care recipients given their greater reliance on the carers’ social network. Thus, adults with I/DD may find adverse reductions in social support network members as their carers age, unless efforts are undertaken to forge new friendships and alternative supports from others. Clearly, as lifelong carers to people with I/DD age, the ability to maintain adequate social support becomes increasingly problematic, and may have wide-reaching consequences.

### Computer and Internet Usage by Older Adults

**Adaptability of older adults to utilize the Internet** Before reviewing the role and use of the Internet, consideration of the openness of older adults to utilize this technology is warranted. Several studies have explored the interest and aptitude of older adults with regard to their computer skills and Internet usage. These studies have documented that older adults can master computer and Internet skills with appropriate guidance (e.g., Hickman, Rogers, & Fisk, 2007). Furthermore, potential cognitive benefits have also been noted. For example, a study of magnetic resonance imaging brain activity of a sample of older adults divided into “net naïve” ( $M_{age} = 65.8$ ) and “net savvy” ( $M_{age} = 62.4$ ) was undertaken while they performed either a novel Internet search task or the control task of reading text on a computer screen (Small, Moody, Siddarth, & Bookheimer, 2009). The net savvy group displayed a significant increase in activity in brain regions controlling vision, complex reasoning, and decision making compared with the net naïve group when presented with the Internet search task. Small et al. asserted that Internet searching might positively influence the responsiveness of older brains in the neural circuitry responsible for decision making and complex reasoning.

A small-scale study, conducted by Ordonez, Yassuda, and Cachioni (2010), compared 22 older adults ( $M_{age} = 67.5$ ) who underwent a computer/Internet-based digital inclusion workshop with a control group of 20 older adults who did not ( $M_{age} = 67.2$ ). Those who attended the workshop showed significant improvement in language and memory skills. All participants had to be able to read and write as well as be unfamiliar with personal computers or the Internet. Another study of adults aged 65 and older who underwent a computer training program for 5 weeks demonstrated decreased anxiety toward computers, increased computer confidence, and greater self-efficacy compared with a control group who did not undergo the training (Chu & Mastel-Smith, 2010). Furthermore, in an exploratory study of 34 older adults ( $M_{age} = 70.4$ ), overall high mean values for ease of use were reported regarding a computer software system that promoted exercise and prescribed exercise recommendations, independent of prior experience with computers, leading the authors to conclude that their older participants demonstrated a positive outlook when presented with new technology (Kressig & Echt, 2002). Out of this small sample of adults, all had no contraindications to exercise and sufficient dexterity to utilize a mouse (Kressig & Echt, 2002).

These studies, although limited in sample size, indicate the potential for cognitive benefits of Internet and computer use in older adults as well as attest to the capability of older adults to acclimatize to such technology. The well-known gerontological adage of “use it or lose it” is apt in this situation, especially as the Internet can provide many resources for cognitively stimulating activities and even more importantly social activities. Usability is a key element in the discussion of older adults and computer and Internet use. The National Institute on Aging (2009), for example, produced a report on constructing a “senior-friendly” web site, advocating options such as having text read aloud and multimedia formats transcribed into text form, along with basic design elements such as high-contrast color combinations, minimal scrolling, and the ability for users to enlarge text. The function of universal design is to limit the number of those persons who can

be excluded from the applications of technology, thus encouraging inclusion of people such as the older population, persons with disabilities, recent immigrants, and children (Harrysson, Svensk, & Johansson, 2004). Access to the Internet usually refers to the ability of a user to purchase or have use of the necessary computer hardware and software, and an Internet service provider, to enable the user to go online. Accessibility refers to tailoring web content so that diverse audiences can successfully navigate the information (e.g., those with visual/hearing impairments and physical disabilities). Global guidelines have been developed to standardize web content to promote accessibility (W3C [World Wide Web Consortium], 2008). Adults aged 65 and older have been found to be significantly less likely to trust the Internet for health information, but this mistrust is eliminated when confusion due to a surplus of content and lack of knowledge of the source providing the information is taken into account, further demonstrating the importance of both ease of accessibility and the need for transparency on the Internet (Zulman, Kirch, Zheng, & An, 2011). Also of note is that readability and the literacy level of users are often overlooked when it comes to content available on the Internet (Chu & Mastel-Smith, 2010).

**Barriers to Internet use** Despite the implementation of guidelines, and notwithstanding research documenting the ability of older adults to benefit from computer training, older adults can remain quite disconnected from this cultural shift, suggesting there may be other barriers separating Internet use among those of disparate social, economic, and demographic strata (Cresci, Yarandi, & Morrell, 2010). This includes ethnic disparities. Fairlie (2007) investigated rates of both home computer access and home Internet access across race (physical) and ethnic (cultural) groups in the United States and found that large disparities continue to exist. He observed that Asian Americans (76.5%, 69.7%) and European-heritage Americans (71.5%, 64.3%) had the highest rates of computer access and Internet access, respectively, followed by Native Americans (50.1%, 40.5%), African Americans (49.6%, 40.0%), and Hispanics (46.7%, 37.3%). Non-Internet users in another study were likewise found to be ethnic minorities, older, less educated, and less healthy (Chou, Hunt, Beckjord, Moser, & Hesse, 2009). While ethnicity appears to be a factor, gender is not. Generally, in the United States, gender inequalities in access to the Internet are no longer a cause of concern (Ono & Zavodny, 2003), and gender differences are also minimal in web use abilities and online skills (Hargittai & Shafer, 2006).

A study specifically investigating older adults' Internet usage ( $n = 2,284$ , aged 50 and older,  $M_{age} = 63.27$ ), reported 49.8% were Internet users, 91.5% were European heritage, and 55.4% were women (Hogeboom, McDermott, Perrin, Osman, & Bell-Ellison, 2010). It also replicated ethnic disparities of lower Internet usage by African Americans and Hispanics, as well as finding decreased Internet use for older adults with lower income, and those having a blue-collar occupation. Hogeboom et al. also reported 62% of those aged 50–64 were Internet users, compared with 33% aged 65 and older, and also found that gender had no significant effect on Internet usage. A Pew Research Center study (Zickuhr, 2010) reported 76% of adults aged 50–64 go online, compared with 58% of those aged 65–74, and 30% of those aged 75 and above. Cresci, Yarandi, and Morrell (2010) studied 1,410 older urban residents ( $M_{age} = 71.6$ ) in Detroit, Michigan. The sample was 82.5% African

American, 12.5% European heritage, and 70.6% female. Current access to computers was reported by 43.8%, although only 27% considered themselves computer users. These urban computer users were 2.3 times more likely to have employment, 1.8 times more likely to volunteer, and 1.6 times more likely to belong to community organizations than noncomputer users. Computer users when compared with nonusers also reported significantly better health, and they were more likely to have more than a high school education (66.2% vs. 23.9%) and an income greater than US\$20,000 (60.7% vs. 10.3%). Thus, although factors including increasing age, ethnic minority status, and lower income can reduce the likelihood of Internet usage, nevertheless older adults are becoming increasingly familiar and comfortable in utilizing the Internet, and substantial percentages of the older population are now Internet savvy, including those of advanced ages.

### *The Internet as a Medium for Facilitating Social Support*

The Internet provides opportunities for not only information retrieval but also social support, although there is an ongoing debate over its value and impact on society as a whole (Bargh & McKenna, 2004). Many regard the Internet as a powerful social change agent because of its ability for rapid spread ("viral") of information, its ability to create social networks, and thus build momentum and social capital (DiMaggio, Hargittai, Neuman, & Robinson, 2001). For example, Hogeboom et al. (2010) in their sample of 2,284 adults aged 50 and above found a positive association between frequent contacts with friends and family, as well as participation in organizations, and Internet use, and none of these associations were shown to be moderated by age.

From a study of 38 residents of a retirement community ( $M_{age} = 78$ ), Nahm, Resnick, and Gaines (2004) concluded modified computer-mediated social support measures were both reliable and valid, leading the authors to encourage the further exploration and study of the psychosocial impacts of Internet use. Findings have been mixed; for example, a randomized-control study determined that computer and Internet use did not positively or negatively impact the daily functioning, well-being, or social network of older adults between 64 and 75 years of age who were in good health and living independently (Slegers, van Boxtel, & Jolles, 2008). However, cumulative evidence that Internet-based interventions can positively impact the psychosocial well-being of older adults, among those with poor health or no computer experience has also been discussed in the literature (O'Brien, 2011). Indeed, it may be that those in poorer health have more to gain, as their decreased face-to-face communication opportunities and potential transportation difficulties may be circumvented by Internet use in finding information and support from others.

Internet support groups are a more specific example of how technology can facilitate social contact. Online groups offer several advantages over traditional support groups; the opportunity of participation irrespective of transport issues or geographical location that may affect the ability to attend a physical meeting; having a larger group of participants (which would be more restricted in a physical group); greater availability for interaction that is not restricted to specific dates or times; and participants having control over their contributions, privacy, and the

extent to which they engage with others (Scharf, 1997; Sparks, 1992).

Initially, the focus of literature regarding Internet support groups has been on peer-to-peer interactions between people experiencing a particular health condition. In a literature review of 38 studies, of which only six focused solely on peer-to-peer interventions, there was a failure to find robust evidence on health benefits of virtual communities and peer-to-peer interactions (Eysenbach, Powell, Englesakis, Rizo, & Stern, 2004). Additionally, only one study dealt with unmoderated sites. A systematic review of 13 studies on Internet support groups for depression summarized that the main forms of social support provided on such venues were companionship, emotional support, and sharing information (Griffiths, Calear, Banfield, & Tam, 2009). The authors also noted the lack of studies regarding the efficacy of these groups, along with the fact that none of the studies broached the subject of potential disadvantages to Internet support groups for those with depression. Part of the limitation of research may be because Internet support groups are still evolving. Even among "e-patients," which refers to all varieties of online health consumers, 25% had participated in traditional support groups vs. 5% who had participated in an online equivalent (Kim & Kwon, 2010).

The emergence of social media such as MySpace, Facebook, and Twitter has, indeed, altered the nature of societal interaction, allowing members of divergent backgrounds, ages, and lifestyles to connect with past relationships, network professionally and be politically active (Madden, 2010). However, social media can also highlight common concerns regarding the Internet such as confidentiality and anxiety generation (Farmer, Bruckner Holt, Cook, & Hearing, 2009). It has also been posited that social media could potentially provide a false sense of intimacy (Boyd, 2008). Furthermore, as with traditional support groups, guidelines to facilitate what is considered appropriate communication/etiquette are needed, especially as conflicts within online support groups can develop (Aakhus & Rumsey, 2010). Oftentimes, such conflicts arise when there is confusion or differences in opinion regarding the right to criticize, the role of venting, and the value of disagreement in communicating support (Aakhus & Rumsey, 2010).

In describing the health applications available on Facebook, it was noted that the majority of these applications included social features, although it was often not possible to determine if these health services were supervised by professionals (Fernandez-Luque, Karlsen, Krogstad, Burkow, & Vognild, 2010). However, other researchers have asserted that part of the draw of such informal spaces may be the anonymity from health professionals these spaces provide (Ahmed, Sullivan, Schneiders, & McCrory, 2010). The latter authors also documented the potential social benefits of Facebook in a qualitative study between October 2006 and April 2009 of 17 Facebook groups of users who had suffered a concussion, observing that 65% of the postings served the purpose of relating personal experiences. Similarly, a qualitative analysis of 15 diabetes groups on Facebook found that 66% of posts conveyed personal experience with management of their illness (Greene, Choudhry, Klabuk, & Shrank, 2010). In this study, 13% of posts were described as containing specific requests for personal information and 27% of posts promoted products, although only 3% of posts were deemed to contain inappropriate



and unsubstantiated therapeutic claims. A qualitative study of breast cancer groups on Facebook revealed that 7% of the groups were centered on patient and carer support, while 44.7% and 38.1% were created for fundraising and increasing awareness, respectively (Bender, Jimenez-Marroquin, & Jadad, 2011).

### *Internet Support Groups for Carers*

Carers have reported positive benefits of using the Internet for support and information. For example, 74% of family carers surveyed by the National Alliance for Caregiving (2011) asserted that technology had the potential to increase their feelings of effectiveness as a carer and reduce stress. Just the mere use of the Internet for e-mail and visiting chat sites compared with non-Internet users was found to be significantly associated with better mental health in a study of older carers (Lam & Lam, 2009). However, the most common obstacle to carers' incorporating technology into daily life was the perception of expense.

Rentz and Von Hoene (2010) developed a web-based program geared to supporting carers—the *Online Coaching Program* for carers of individuals with Alzheimer's disease. In this program, 121 caregiving participants had the opportunity to connect with a licensed social worker via e-mail, journal entries, or, occasionally, the phone, as well as to participate in forums and to access library resources on caregiving and Alzheimer's disease. After 7 months, 81% of the initial survey respondents felt that they were better prepared to cope with current and upcoming caregiving issues; this number increased to 94% of survey respondents after 32 months. A pilot study that investigated the use of Internet video conferencing to facilitate a psychosocial support group for carers of those with Alzheimer's disease, stroke-related dementia, or Parkinson's disease, compared with a nonintervention control group, reported that the Internet group reliably adhered to the support sessions and had a significant reduction in stress (Marziali & Donahue, 2006).

Survey data from 1,838 respondents on Caregiving.com reported that health information and practical caregiving tips were the two top interest categories (Kernisan, Sudore, & Knight, 2010). Other foci of respondents were planning for the future and connecting with other "e-carers" as well as addressing legal and financial concerns. In a study of the use of computer-mediated support groups by carers ( $M_{age} = 65$ , age range 32–93, standard deviation = 13) of persons with dementia, it was found that the sharing of coping strategies demonstrated a significantly higher importance rating than any other social support (Smyth, Rose, McClendon, & Lambrix, 2007). Informational support was also considered significantly higher in importance compared with both emotional and companionship support, especially among African Americans and females. A study of carers regarding their perceptions of the advantages and disadvantages of Internet-based social support revealed that carers appreciated the anonymity, convenience, connectivity to other carers, and immediacy of response to questions (Colvin, Chenoweth, Bold, & Harding, 2004). However, carers noted some disadvantages including the absence of physical contact (e.g., eye contact and hugs), absence of social context cues, and difficulties with online communication, and one participant noted feeling excluded because of the formation of cliques in the online environment.

### *Internet Support Groups for Carers of People with I/DD*

The literature on Internet support groups referencing family carers of people with I/DD has focused almost exclusively upon parents with younger children (e.g., Baum, 2004; Fleischmann, 2005; Jones & Lewis, 2001; Leonard et al., 2004). For example, Leonard et al. reported that more than half of the parents who utilized an electronic mailing list connecting them with other parents of daughters with Rett syndrome indicated their doctor's information was not adequate and that they had difficulty acquiring knowledge about the syndrome. Despite the need for information, the parents cited the emotional support they received as the primary reason for encouraging the use of the electronic mailing lists to others. Jones and Lewis (2001) noted the majority (73%) of messages requesting advice in an Internet discussion group dedicated to carers of persons with Down syndrome were posted past working hours. They also noted that the carers still received many quick responses, and it was information that they probably would not have obtained as quickly using other traditional methods.

In a study of traditional support groups for parents of children with autism, parents of children with increased self-injurious behaviors and other behavioral and communication issues were the most likely to attend (Mandell & Salzer, 2007). The authors also observed that such groups were used to a lesser degree by parents from lower socioeconomic backgrounds and by African-American parents. It has been suggested that web sites for parents with autism assist in combating isolation and help facilitate the formation of emotional solidarity for the self-selected group of parents who choose to participate (Fleischmann, 2005). In Baum's (2004) study, carers reported that finding people with similar challenges, receiving guidance and information, and feeling understood and accepted were perceived to have the most lasting effect on their well-being. Internet support groups for carers of a child with special health needs have also been shown to improve the carer and child relationship; however, the potential for maladaptive coping or pressure to adopt distorted group beliefs when engaging in online peer-to-peer support must also be acknowledged and further investigated (Baum, 2004).

Currently, there is little empirical evidence regarding the utility of Internet support groups specifically targeted toward older carers of adults with I/DD. A small study of a created online community for individuals who were predominantly homebound (from disability or circumstance) and thus isolated from their community found that a sense of camaraderie and community developed between these new "virtual" friends (Bradley & Poppen, 2003). Interestingly, the group comprised of a very diverse sample including older adults, individuals with various types of disabilities and/or health conditions (e.g., persons with cerebral palsy, diabetes, multiple sclerosis and epilepsy), and carers of older adults, or persons with disabilities, were also eligible (and could apply exclusive of their care recipients' involvement). A 12-month follow-up after their initial introduction to the online group found that the participants' level of satisfaction with the amount of contact they have with other people had significantly increased. Mentors were used to help teach participants the basic computer skills needed, and the online community utilized a designated web site, discussion group, electronic

mailing list, and online chat. In fact, the authors reported that the group also became politically aware and active through sharing information and undertaking e-mails, letters, and phone calls to legislators. The potential to mobilize people for a common cause thus offers very beneficial group benefits, in addition to individual benefits. Mobilizing otherwise disconnected people for social/political change might be particularly empowering to a caregiving population that is often overlooked and has had difficulty in garnering social capital.

Hasman and Zafron (2010) have bemoaned the apparent paucity that exists in online resources for carers of adult children with I/DD. Information is plentiful for caregiving in general terms but lacks specificity for the circumstances experienced by aging carers of adults with I/DD. However, there is a notable example of informational web site regarding the management of diabetes aimed at both carers for persons with I/DD and the individuals with I/DD who have diabetes (Lennox, Edie, Taylor, Rey-Conde, & McPhee, 2009). The aptly titled *Diabetes to the Point* web site (<http://www2.som.uq.edu.au/som/Research/ResearchCentres/qcidd/Pages/Diabetes.aspx>) utilizes extensive use of graphics for the sections designed for individuals with I/DD, whereas more textual information is displayed for carers (Lennox et al., 2009).

Many sibling carers of adults with I/DD often find themselves assuming the primary caregiving role when their parents can no longer continue. Heller and Kramer (2009) found that 38% of current siblings expected to assume this responsibility but were rarely involved in such plans. Siblings have reported that they would welcome more psychoeducational support groups, information about future planning, and greater use of Internet-based support groups (Heller & Kramer, 2009). Clearly, much opportunity exists for the development of Internet-based support groups that incorporate emotional support, and also for workshops and webinars that can provide invaluable information. Future sibling carers might be the catalyst for the growth of such Internet-based groups, which could then be capitalized upon by older carers. Siblings of persons with I/DD might be the ideal mentors to aid their older parents (and siblings with I/DD) in becoming familiar with computer and Internet use.

It is reasonable to conclude that the advantages of Internet-based support groups would likely translate to their use by aging carers. The logistical and time-saving convenience alone may be enough to enable their participation, where traditional support groups needed not only transport, but also the organization of alternate carers or respite care. Perkins and Haley's (2010) study of aging carers emphasizes that time is often a precious commodity, as the aging carers in their sample ( $n = 91$ ;  $M_{age} = 60$ ) spent an average of 39 hours per week (range 7–88 hours) specifically undertaking their caregiving roles and responsibilities as well as many other activities (e.g., work, house/yard work, and other responsibilities).

#### *Internet Usage by Adults With I/DD*

It is worth considering the receptiveness of people with I/DD to use computers and the Internet. An individual with I/DD may become the first user of a computer and the Internet in their household, rather than their aging carers. Their usage may well

ignite the interest of their aging carer to try this new technology. Just as the value of usability has been touted in increasing older adults' comfort with technology, guidelines have been implemented to also improve accessibility to the Internet for individuals with I/DD (Karreman, van der Geest, & Buursink, 2007). Graphics, rapid loading times, and minimal text were shown to improve Internet usability for eight adults with a mild-to-moderate intellectual disability when one-on-one staff support was provided (Johnson & Hegarty, 2003). Another study that explored how to improve Internet navigation for people with mild-to-moderate I/DD found that text, in particular, proved to be a barrier for the participants, and the authors advocated for the use of screen-reading programs and text-scanning technology for those with difficulties reading or typing (Harrysson et al., 2004). Karreman et al. (2007) compared the effects of an adapted webpage vs. a nonadapted webpage in adults with I/DD ( $M_{age} = 37$ ). This study also compared the effects of the adapted webpage vs. nonadapted webpage in people without I/DD. Although efficiency was not improved by use of an adapted web site by individuals with I/DD, comprehension of the contents of the adapted site was improved in persons both with and without I/DD. Participants with I/DD preferred the adapted web site, while participants without I/DD preferred the nonadapted sites. These results are consistent with other findings. Wong, Chan, Li-Tsang, and Lam (2008), for example, who having determined that successful search engine (i.e., Internet Explorer) performances were achieved by matching appropriately between the participants' abilities and task demands, advocated that computer training programs should be specific to the ability profile of the user. For instance, the unique preferences of people with I/DD and diabetes, and their carers, were taken into account in designing the previously mentioned web site *Diabetes to the Point*, employing extensive graphics for the sections of individuals with I/DD, whereas more textual information was given for carers (Lennox et al., 2009).

Carey, Friedman, Bryen, and Taylor (2005) interviewed 83 adults with I/DD about their use of electronic technologies; they found that 24% were current computer users, with 62% reporting regular assistance with computer use. Thirty-eight percent of computer users utilized the Internet. Of computer nonusers, 10% cited expense as a barrier to use, 27% reported not having access to a computer, and 12% reported not having someone to support them in computer utilization. McClimens and Gordon (2009), in their study on blogging and people with I/DD, reported that the act of documenting feelings and experiences in an online community setting was "incidental to the participants' enjoyment," and the engagement and participation inherent in the study were the positive forces. Jordan (2010) noted that discussion boards and chat rooms can reduce the anxiety of in-person interactions for some people with autism spectrum disorders. Thus, the use of the Internet for support, information, and interaction between family carers may likewise be equally beneficial to their care recipients with I/DD to foster their own peer interactions.

#### DISCUSSION

The research, although still evolving, has shown that older adults have exhibited enthusiasm and interest in computer and

Internet training programs. Significant proportions of older adults are becoming Internet users, many among them will be carers. If given the appropriate opportunity, carers may derive great benefit and increase in their well-being and life satisfaction by harnessing the social support that can be derived via Internet support groups.

This literature review has highlighted several benefits of using the Internet as a medium for social support. It negates the issue of lack of participation because of transport/logistical issues and time constraints imposed by caregiving roles (e.g., arranging respite care), allows for a larger pool of potentially helpful members (especially useful for brainstorming and problem solving) and rapid responses that are not time restricted. However, safeguards against potential exploitation and misinformation need to be considered, as should attention to setting appropriate guidelines for types of communication (venting, criticizing, misinterpretations caused by absence of other social/body language cues). Attention to group dynamics and leadership and ensuring all carers feel included and valued are very important. Both awareness of and adherence to universal web design guidelines help increase usability and comfort for older adults and individuals with I/DD in utilizing the Internet.

Carer Internet-based support groups can provide alternative venues to build communities in the virtual setting that are by no means any less relevant. Indeed, they may positively impact the feelings of solidarity and support for both carer and care recipient, while allowing both to utilize and access the Internet for their mutual benefit and the wealth of knowledge that their peers can provide. Carer support groups on the Internet can be specific to a particular health condition (e.g., Alzheimer's disease), or a particular care recipient population (e.g., aging carers of adults with I/DD). However, a useful approach could be to combine carer support into informational web sites that are also user friendly to their care recipients with I/DD. The *Diabetes to the Point* web site exemplifies on such a synthesis (Lennox et al., 2009) and provides a model that could be expanded to incorporate carer support groups.

Although the Internet does have an abundance of resources for caregiving in general, it does appear that the development of dedicated web sites specifically for aging carers of those with I/DD, which includes a support group and pertinent information and resources, is long overdue. Support groups could provide educational (web-based) workshops and information on topics ranging from accessing aging services, carer/care recipient health and preventive health topics, aging-related health issues of older individuals with I/DD, facilitating future planning, retirement options, as well as being a forum for organization of face-to-face activities, and even a springboard for political action.

The literature does indicate that older adults still do not utilize computers and the Internet as much as younger adults; however, significant numbers are now starting to embrace this technology. This potentially presents a unique opportunity for both carer and care recipient to learn a new skill together. Computer training sessions that can instruct carers and individuals with I/DD simultaneously would allow both to share the learning experience and become more proficient in a skill that could reap handsome dividends for both. Siblings might be an ideal group to target to become computer/Internet mentors to both their aging parents and siblings with I/DD. An interesting fact is that with the demo-

graphic reality of population aging, which is increasing the proportion of older adults within the overall population, there will be a corresponding increase of older adults with well-honed technology skills in the future (Blaschke, Freddolino, & Mullen, 2009). This ongoing change will also mean that research agendas involving older adults' use of technology will be dynamic and evolving for the foreseeable future (Blaschke et al., 2009).

While it is readily apparent that little research currently exists that has investigated Internet supports groups for aging carers of adults with I/DD, the potential benefits are evident, and it is an interesting area of research that deserves more attention. Some pertinent research questions that should be addressed would include to what extent does the inclusion of structured educational activities (e.g., webinars) enhance emotionally supporting activities? Is it important that Internet support groups still offer the opportunity for occasional face-to-face meetings and activities to increase group cohesion and a sense of community? What about support group leader/facilitators who provides the direction for the group? Is it better to have a designated carer leader, or a professional to oversee the group? Does the type of leader stifle or facilitate open and honest communications among carers? Given that geographical restrictions are no issue for Internet support groups, do support groups function better when there is membership based on a common characteristic (e.g., restricting membership to carers aged 65 and above and carers of individuals with autism spectrum disorders) or are heterogeneous groups perceived to be more beneficial as it can increase the breadth of collective knowledge and experiences that can be drawn upon? What causes attrition from Internet support groups (other than poor health, cessation of caregiving duties)? What are the characteristics of Internet support groups that sustain their membership over time compared with those that falter?

## CONCLUSION

The Internet as a medium for carer support is abundant with possibilities, and the development of Internet-based carer intervention and support programs tailored specifically to interests and needs of aging carers of adults with I/DD is most definitely a worthwhile endeavor. Aging carers may face great difficulties in receiving social support in their physical life, but may find more than enough support to compensate in online community life. Perhaps there has been a lack of impetus to systematically design and formally implement these types of carer support groups. However, there is great potential that has yet to be realized, and indeed it is our own lack of ingenuity that has not capitalized on the opportunities for the connectivity and social support that the Internet can offer aging carers of adults with I/DD. Hopefully, the future will bring a welcome change in this regard.

## ACKNOWLEDGMENTS

Dr. Perkins's work in this project was supported by a grant awarded to the Florida Center for Inclusive Communities, A University Center for Excellence in Developmental Disabilities Education, Research, and Service (#90-DD-0668) by the



Administration on Developmental Disabilities (ADD), Administration for Children and Families (ACF), U.S. Department of Health and Human Services.

## REFERENCES

- Aakhus, M., & Rumsey, E. (2010). Crafting supportive communication online: A communication design analysis of conflict in an online support group. *Journal of Applied Communication Research*, 38, 65–84.
- Ahmed, O. H., Sullivan, S. J., Schneiders, A. G., & McCrory, P. (2010). iSupport: Do social networking sites have a role to play in concussion awareness? *Disability and Rehabilitation*, 32, 1877–1883.
- Bargh, J. A., & McKenna, K. Y. (2004). The Internet and social life. *Annual Reviews of Psychology*, 55, 573–590.
- Baum, L. S. (2004). Internet parent support groups for primary caregivers of a child with special health care needs. *Pediatric Nursing*, 30, 381–401.
- Bender, J. L., Jimenez-Marroquin, M. C., & Jadad, A. R. (2011). Seeking support on Facebook: A content analysis of breast cancer groups. *Journal of Medical Internet Research*, 13, e16.
- Bishop, A. J., Martin, P., & Poon, L. (2006). Happiness and congruence in older adulthood: A structural model of life satisfaction. *Aging & Mental Health*, 10, 445–453.
- Blaschke, C. M., Freddolino, R. P., & Mullen, E. E. (2009). Ageing and technology: A review of the literature. *British Journal of Social Work*, 39, 641–656.
- Boyd, D. (2008). Facebook's privacy train wreck: Exposure, invasion, and social convergence. *Convergence: The International Journal of Research into New Media Technologies*, 14, 13–20.
- Bradley, N., & Poppen, W. (2003). Assistive technology, computers and Internet may decrease sense of isolation for homebound elderly and disabled persons. *Technology and Disability*, 15, 19–25.
- Carey, A. C., Friedman, M. G., Bryen, D. N., & Taylor, S. J. (2005). Use of electronic technologies by people with intellectual disabilities. *Mental Retardation*, 43, 322–333.
- Chang, B. L., Brecht, M., & Carter, P. A. (2001). Predictors of social support and caregiver outcomes. *Women and Health*, 33, 39–61.
- Chappell, N. L., & Funk, L. M. (2011). Social support, caregiving, and aging. *Canadian Journal on Aging*, 30, 355–370.
- Chou, W. S., Hunt, Y. M., Beckjord, E. B., Moser, R. P., & Hesse, B. W. (2009). Social media use in the United States: Implications for health communication. *Journal of Medical Internet Research*, 11, e48.
- Chou, Y. C., Lee, Y. C., Lin, L. C., Kröger, T., & Chang, A. N. (2009). Older and younger family caregivers of adults with intellectual disability: Factors associated with future plans. *Intellectual and Developmental Disabilities*, 47, 282–294.
- Chu, A., & Mastel-Smith, B. (2010). The outcomes of anxiety, confidence, and self-efficacy with Internet health information retrieval in older adults. *Journal of Medical Internet Research*, 28, 222–228.
- Colvin, J., Chenoweth, L., Bold, M., & Harding, C. (2004). Caregivers of older adults: Advantages and disadvantages of Internet-based social support. *Family Relations*, 53, 49–57.
- Cresci, M. K., Yarandi, H. N., & Morrell, R. W. (2010). The digital divide and urban older adults. *Computers, Informatics, and Nursing*, 28, 86–94.
- DiMaggio, P., Hargittai, E., Neuman, W. R., & Robinson, J. P. (2001). Social implication of the Internet. *Annual Review of Sociology*, 27, 307–336.
- Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., & Stern, A. (2004). Health related virtual communities and electron support groups: Systematic review of effects of online peer to peer interactions. *British Medical Journal*, 328, 1166–1170.
- Fairlie, R. W. (2007). Explaining differences in access to home computers and the Internet: A comparison of Latino groups to other ethnic and racial groups. *Electronic Commerce Research*, 7, 265–291.
- Farmer, A. D., Bruckner Holt, C. E., Cook, M. J., & Hearing, S. D. (2009). Social networking sites: A novel portal for communication. *Postgraduate Medical Journal*, 85, 455–459.
- Federal Interagency Forum on Aging-Related Statistics. (2010). *Older Americans 2010: Key indicators of indicators of well-being*. Retrieved from [http://www.agingstats.gov/agingstatsdotnet/Main\\_Site/Data/2010\\_Documents/Docs/OA\\_2010.pdf](http://www.agingstats.gov/agingstatsdotnet/Main_Site/Data/2010_Documents/Docs/OA_2010.pdf)
- Fernandez-Luque, L., Karlsen, R., Krogstad, T., Burkow, T. M., & Vognild, L. K. (2010). Personalized health applications in the web 2.0: Emergence of a new approach. *Conference Proceedings of the International Conference of IEEE Engineering in Medicine and Biology Society, 2010*, 1053–1056.
- Fiori, K. L., Antonucci, T. C., & Cortina, K. S. (2006). Social network typologies and mental health among older adults. *Journal of Gerontology: Psychological Sciences*, 61B, P25–P32.
- Fleischmann, A. (2005). The hero's story and autism: Grounded theory study of websites for parents of children with autism. *Autism*, 9, 299–316.
- George, L. K. (1996). Social factors and illness. In R. H. Binstock & L. K. George (Eds.), *Handbook of aging and the social sciences* (4th ed., pp. 229–252). San Diego, CA: Academic Press.
- Greenberg, J. S., Seltzer, M. M., Krauss, M. W., & Kim, H. (1997). The differential effects of social support on the psychological well-being of aging mothers of adults with mental illness or mental retardation. *Family Relations*, 46, 338–394.
- Greene, J. A., Choudhry, N. K., Klabuk, E., & Shrank, W. H. (2010). Online social networking by patients with diabetes: A qualitative evaluation of communication with Facebook. *Journal of General Internal Medicine*, 26, 287–292.
- Griffiths, K. M., Calear, A. L., Banfield, M., & Tam, A. (2009). Systematic review on Internet support groups (ISGs) and depression: What is known about depression ISGs? *Journal of Medical Internet Research*, 11, e41.
- Haley, W. E., & Perkins, E. A. (2004). Current status and future directions in family caregiving and aging people with intellectual disabilities. *Journal of Policy and Practice in Intellectual Disabilities*, 1, 24–30.
- Hargittai, E., & Shafer, S. (2006). Differences in actual and perceived online skills: The role of gender. *Social Science Quarterly*, 87, 432–448.
- Harrysson, B., Svensk, A., & Johansson, G. I. (2004). How people with developmental disabilities navigate the Internet. *British Journal of Special Education*, 31, 138–142.
- Hasman, L., & Zafron, M. (2010). An analysis of online resources for parents, siblings, and other caregivers of adults with intellectual disabilities. *Journal of Consumer Health on the Internet*, 14, 33–41.
- Heller, T., & Caldwell, J. (2006). Supporting aging caregivers and adults with developmental disabilities in future planning. *Mental Retardation*, 44, 189–202.
- Heller, T., & Factor, A. (1993). Aging family caregivers: Changes in burden and placement desire. *American Journal on Mental Retardation*, 98, 417–426.
- Heller, T., & Kramer, J. (2009). Involvement in adult siblings of persons with developmental disabilities in future planning. *Intellectual and Developmental Disabilities*, 47, 208–219.
- Hickman, J. M., Rogers, W. A., & Fisk, A. D. (2007). Training older adults to use new technology. *Journals of Gerontology Series B: Psychological Sciences & Social Sciences*, 62B, 77–84.
- Hogeboom, D. L., McDermott, R. J., Perrin, K. M., Osman, H., & Bell-Ellison, B. A. (2010). Internet use and social networking among middle aged and older adults. *Educational Gerontology*, 36, 93–111.
- Hong, J., Seltzer, M. M., & Krauss, M. W. (2001). Change in social support and psychological well-being: A longitudinal study of aging mothers of adults with mental retardation. *Family Relations*, 50, 154–163.



- Houde, S. C. (1998). Predictors of elders' and family caregivers' use of formal home services. *Research in Nursing and Health*, 21, 533–543.
- Johnson, R., & Hegarty, J. R. (2003). Websites as educational motivators for adults with learning disability. *British Journal of Educational Technology*, 34, 479–486.
- Jones, R. S., & Lewis, H. (2001). Debunking the pathological model: The functions of an Internet discussion group. *Down Syndrome Research and Practice*, 6, 123–127.
- Jordan, C. J. (2010). Evolution of autism support and understanding via the world wide web. *Intellectual and Developmental Disabilities*, 48, 220–227.
- Karreman, J., van der Geest, T., & Buursink, E. (2007). Accessible website content guidelines for users with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, 20, 510–518.
- Kernisan, L. P., Sudore, R. L., & Knight, S. J. (2010). Information-seeking at a caregiving website: A qualitative analysis. *Journal of Medical Internet Research*, 12, e31.
- Kim, K., & Kwon, N. (2010). Profile of e-patients: Analysis of their cancer information-seeking from a national survey. *Journal of Health Communication*, 15, 712–733.
- Kinnane, N. A., & Milne, D. J. (2010). The role of the Internet in supporting and informing carers of people with cancer: A literature review. *Supportive Care in Cancer*, 18, 1123–1136.
- Kressig, R. W., & Echt, K. V. (2002). Exercise prescribing: Computer application in older adults. *The Gerontologist*, 42, 273–277.
- Lam, L., & Lam, M. (2009). The use of information technology and mental health among older care-givers in Australia. *Aging & Mental Health*, 13, 557–562.
- Lennox, N., Edie, G., Taylor, M., Rey-Conde, T., & McPhee, J. (2009). Diabetes, to the point: Designing a website about diabetes for adults with intellectual disability and carers. *Technology and Disability*, 21, 11–18.
- Leonard, H., Slack-Smith, L., Phillips, T., Richardson, S., D'Orsogna, L., & Mulroy, S. (2004). How can the Internet help parents of children with rare neurologic disorders? *Journal of Child Neurology*, 19, 902–907.
- Lin, N. (1986). Conceptualizing social support. In N. Lin, A. Dean, & W. Ensel (Eds.), *Social support, life events, and depression* (pp. 17–30). Orlando, FL: Academic Press.
- Lippold, T., & Burns, J. (2009). Social support and intellectual disabilities: A comparison between social networks of adults with intellectual disability and those with physical disability. *Journal of Intellectual Disability Research*, 53, 463–473.
- Llewellyn, G., McConnell, D., Gething, L., Cant, L., & Kendig, H. (2010). Health status and coping strategies among older parent-carers of adults with intellectual disabilities in an Australian sample. *Research in Developmental Disabilities*, 31, 1176–1186.
- McClimens, A., & Gordon, F. (2009). People with intellectual disabilities as blogging: What's social capital got to do with it anyway? *Journal of Intellectual Disabilities*, 13, 19–30.
- Madden, M. (2010). *Older adults and social media: Social networking use among those ages 50 and older nearly doubled over the past year*. Pew Internet: Pew Internet & American Life Project. Retrieved from <http://www.pewInternet.org/Reports/2010/Older-Adults-and-Social-Media.aspx>
- Mandell, D. S., & Salzer, M. S. (2007). Who joins support groups among parents of children with autism? *Autism*, 11, 111–122.
- Marziali, E., & Donahue, P. (2006). Caring for others: Internet video-conferencing group intervention for family caregivers of older adults with neurodegenerative disease. *The Gerontologist*, 46, 398–403.
- Nahm, E., Resnick, B., & Gaines, J. (2004). Testing the reliability and validity of computer-mediated social support measures among older adults. *Computers, Informatics, Nursing*, 22, 211–219.
- National Alliance for Caregiving. (2009). *Caregiving in the US 2009*. Retrieved from [http://www.caregiving.org/data/Caregiving\\_in\\_the\\_US\\_2009\\_full\\_report.pdf](http://www.caregiving.org/data/Caregiving_in_the_US_2009_full_report.pdf)
- National Alliance for Caregiving. (2011). *E-connected family caregiver: Bringing caregiving into the 21st Century*. Retrieved from [http://www.caregiving.org/data/FINAL\\_eConnected\\_Family\\_Caregiver\\_Study\\_Jan%202011.pdf](http://www.caregiving.org/data/FINAL_eConnected_Family_Caregiver_Study_Jan%202011.pdf)
- National Institute on Aging. (2009). *Making your website senior friendly: Tips from the National Institute on Aging and the National Library of Medicine*. Retrieved from [http://www.nia.nih.gov/sites/default/files/Sr\\_Web\\_tips\\_forweb\\_final\\_032509\\_0.pdf](http://www.nia.nih.gov/sites/default/files/Sr_Web_tips_forweb_final_032509_0.pdf)
- O'Brien, C. (2011). Participation in online communities and psychosocial well-being among older adults. *Mather LifeWays Orange Papers*. Retrieved from [http://www.matherlifeways.com/documents/MLIA/MLWOrangePaper\\_InternetUse\\_2.pdf](http://www.matherlifeways.com/documents/MLIA/MLWOrangePaper_InternetUse_2.pdf)
- Ono, H., & Zavodny, M. (2003). Gender and the internet. *Social Science Quarterly*, 84, 111–121.
- Ordóñez, T. N., Yassuda, M. S., & Cachioni, M. (2010). Elderly online: Effects of a digital inclusion program in cognitive performance. *Archives of Gerontology and Geriatrics*, 53, 216–219.
- Parrish, M. M., & Adams, S. (2003). Caregiver comorbidity and the ability to manage stress. *Journal of Gerontological Social Work*, 42, 41–58.
- Perkins, E. A. (2010). The compound caregiver: A case study of multiple caregiving roles. *Clinical Gerontologist*, 33, 248–254.
- Perkins, E. A., & Haley, W. E. (2010). Compound caregiving: When life-long caregivers undertake additional caregiving roles. *Rehabilitation Psychology*, 55, 409–417.
- Pierce, L. L., Steiner, V., Govoni, A. L., Hicks, B., Cervantez Thompson, T. L., Friedemann, M. L. (2004). Internet-based support for rural caregivers of persons with stroke shows promise. *Rehabilitation Nursing*, 29, 95–99.
- Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging*, 15, 187–224.
- Rentz, M., & Von Hoene, A. (2010). Online coaching for caregivers: Using technology to provide support and information. *Alzheimer's Care Today*, 11, 206–209.
- Rizzolo, M. C., Hemp, R., Braddock, D., & Schindler, A. (2009). Family support services for persons with intellectual and developmental disabilities: Recent national trends. *Intellectual and Developmental Disabilities*, 47, 152–155.
- Scharf, B. (1997). Communicating breast cancer on-line support and empowerment on the Internet. *Women and Health*, 26, 65–84.
- Schulz, R., & Beach, S. R. (1999). Caregiving as a risk factor for mortality: The caregiver health effects study. *Journal of the American Medical Association*, 15, 2215–2219.
- Slegers, K., van Boxtel, M. P. J., & Jolles, J. (2008). Effects of computer training and Internet usage on the well-being and quality of life of older adults: A randomized, controlled study. *Journal of Gerontology: Psychological Sciences*, 63B, P176–P184.
- Small, G. W., Moody, T. D., Siddarth, P., & Bookheimer, S. Y. (2009). Your brain on Google: Patterns of cerebral activation during Internet searching. *American Journal of Geriatric Psychiatry*, 17, 116–126.
- Smyth, K. A., Rose, J. H., McClendon, M. J., & Lambrix, M. A. (2007). Relationships among caregivers' demographic characteristics, social support ratings, and expectations of computer-mediated support groups. *Journal of Applied Gerontology*, 26, 58–77.
- Sparks, S. M. (1992). Exploring electronic support groups. *American Journal of Nursing*, 98, 62–65.
- Talley, R. C., & Crews, J. E. (2007). Framing the public health of caregiving. *American Journal of Public Health*, 97, 224–228.
- Tardy, C. (1985). Social support measurement. *American Journal of Community Psychology*, 13, 187–202.
- Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior*, 35, 53–79.
- Thompson, D. (2011). "Well, we've all got to get old haven't we?" Reflections of older people with intellectual disabilities, aging, and change. *Journal of Gerontological Social Work*, 37, 7–23.

- Tsai, M., & Wang, H. (2009). The relationship between caregiver's strain and social support among mothers with intellectually disabled children. *Journal of Clinical Nursing*, 18, 539–548.
- W3C (World Wide Web Consortium). (2008). *Web Content Accessibility Guidelines (WCAG) 2.0*. Retrieved from <http://www.w3.org/TR/2008/REC-WCAG20-20081211/>
- Weiss, M. J. (2002). Hardiness and social support as predictors of stress in mothers of typical children, children with autism, and children with mental retardation. *Autism*, 6, 115–130.
- White, N., & Hastings, R. P. (2004). Social and professional support for parents of adolescents with severe intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, 17, 181–190.
- Wong, A. W., Chan, C. C., Li-Tsang, C. W., & Lam, C. S. (2008). Competence of people with intellectual disabilities on using human-computer interface. *Research in Developmental Disabilities*, 30, 107–123.
- Yang, Y. (2006). How does functional disability affect depressive symptoms in late life? The role of perceived social support and psychological resources. *Journal of Health and Social Behavior*, 47, 355–372.
- Zickuhr, K. (2010). *Generations 2010*. Pew Internet: Pew Internet & American Life Project. Retrieved from [http://pewinternet.org/~media/Files/Reports/2010/PIP\\_Generations\\_and\\_Tech10.pdf](http://pewinternet.org/~media/Files/Reports/2010/PIP_Generations_and_Tech10.pdf)
- Zulman, D. M., Kirch, M., Zheng, K., & An, L. C. (2011). Trust in the Internet as a health resource among older adults: Analysis of data from a nationally representative survey. *Journal of Medical Internet Research*, 13, e19.