The interaction between psychology and technology has a rich history. Psychologists have always been resourceful in finding ways to utilize technology to enhance the provision of clinical care. However, the proliferation of computers and the Internet has vastly expanded the possibilities. The Internet, in particular, has ushered in the new field of eHealth within psychology. eHealth has been defined as the delivery of health services and information through the Internet and related technologies (Eysenbach, 2001). Given that families with children have a very high rate of computer (93%) and cell phone (93%) ownership (Kennedy, Smith, Wells, & Wellman, 2008), as well as the notable fact that 93% of youth (ages 12–17 years) and 94% of parents of these teens (87% of all parents) are online (Macgill, 2007), this has particular relevance to pediatric psychology.

The Internet has become an important source of health care and medical information. Between 75% and 80% of Internet users have searched for health-related information online, making the act of looking for health information one of the most popular uses of the Internet (Fox, 2006, 2008). Parents, in particular, frequently use the Internet to search for information about their child’s condition (Whyte & Hunter, 2008), and are more likely to use the Internet, and to look for health and medical information online, than nonparents (Fox, 2005). In addition, parents whose children suffer from a chronic condition are more likely to search the Internet for health-related information than those who have healthy children or children with acute conditions (Tuffrey & Finlay, 2002).

With eight million American adults looking for health information on the Internet on a typical day and more than half that number reporting that their online searches had some kind of impact on how they take care of themselves or others, the Internet is playing a role in how, when, and why people seek medical attention (Fox, 2006). While most health-related websites provide, at best, basic patient education information (Fox & Fallows, 2003; Rabasca, 2000), there are a growing number of sites delivering health and mental health interventions that individuals can use on their own or in combination with traditional treatment. These Internet interventions are usually based on effective face-to-face behavioral treatments that have been operationally transformed for Internet delivery. They are often highly structured, but personalized and tailored to the user. They can be utilized as self or semi-self guided programs, and most are interactive and enhanced using the multimedia aspects of the Internet (Ritterband et al., 2003).

Although Internet interventions can address a wide range of problems, some programmatic similarities exist across programs, and these help define how Internet interventions work. In general, Internet health programs contain core information that is specific to the targeted problem. More interactive systems allow for the input of personal details regarding the user’s condition, particularly as they relate to the presenting problem, to help tailor the program to the user. This results in the delivery of material specific to the individual’s issues and needs. Treatment recommendations are then typically provided, and users are encouraged to follow them over a specified period of time. Additional follow-up information can be entered by the user resulting in more tailored feedback. The programs frequently track specific behaviors and symptoms over time.

With the explosion of Internet interventions and other forms of eHealth technologies, the editors of this special issue sought to apprise pediatric psychologists of the important new developments in this area. Thus, the impetus for this special issue grew from our own interests and work in this field and a desire to highlight emerging areas in both assessment and intervention using eHealth technologies in pediatric psychology.

Special Issue

There are three main sections to this special issue: (a) eHealth promotion, (b) Internet intervention research, and (c) eHealth in pediatric psychology.
including articles on mental health and medical populations, and (c) integration of other eHealth technologies in pediatric psychology, including use of cellular phones, virtual reality, and personal digital assistants.

EHealth promotion, the first section of this special issue, addresses interest in and willingness to use various technologies to treat pediatric problems. The first article, by Tercyak and colleagues (2009), finds that adolescents’ were willing to use technologies, including the Internet, for health promotion purposes. The authors also observe that there was a relationship between higher risk (i.e., increased behavioral risk factors) and adolescents’ willingness to use technology for eHealth promotion. Thorndike (2009) discusses both parent and provider interest in an Internet intervention to prevent infant sleep problems, and reports that there was a high rate of concern about infant sleep and related parental sleep problems. The majority of parents and almost all providers surveyed were interested in using the Internet to address these concerns. Clinicians have questioned whether consumers would be interested in receiving care through these methods, but these findings clearly document interest among potential consumers of eHealth interventions in pediatric psychology, including children, adolescents, and their parents.

The second section of this special issue includes a series of articles reporting on the development and efficacy of various pediatric Internet interventions. The first two articles examine mental health-based Internet interventions. March and colleagues (2009) report on the efficacy of an Internet-based cognitive-behavioral intervention for children with anxiety. Those who received the intervention showed significantly greater reductions in anxiety and improvements in functioning compared to a wait-list control group. This treatment group was reassessed at 6 month follow-up and found to have further improvements. Deitz and colleagues (2009) recruited parents at work, a fairly unique sample set, to test an Internet intervention that provides the necessary parent knowledge and skills for the prevention and early intervention of mental health programs in youth. They find that parents who received the Internet intervention had greater knowledge and related self-efficacy compared to those who did not receive the program.

The next four articles focus on health issues and utilization of technology for purposes of both assessment and treatment. The first article, by Stinson and colleagues (2009), is a review of Internet interventions for youth with health conditions. While the adult Internet intervention literature is growing rapidly (Murray, Burns, See, Lai, & Nazareth, 2005; Ritterband et al., 2003; Wantland, Portillo, Holzemer, Laughter, & McGhee, 2004), there is a smaller but emerging focus on pediatric problems using this medium. In the Stinson review, only nine articles met inclusion criteria; however, the majority of the Internet interventions in these studies were found to be successful treatments. The next two articles, by Long and Palermo (2009) and Wade and colleagues (2009), provide information on the development of Internet interventions for adolescents with chronic pain and children with traumatic brain injury, respectively. Both articles provide feasibility and usability data for promising online treatments. Ewing and colleagues (2009) report on the development and viability of a website created as a social support and informational resource for families of children with cancer. They found that utilization of the website was less than expected. This article highlights the need to consider which specific populations and what time frame in the course of diagnosis and treatment for health conditions are targeted when developing Internet interventions.

The last two articles of this section examine predictors of Internet intervention usage and outcome. These articles fit within a framework of a model for Internet interventions in which, in part, user characteristics lead to website utilization, eventually resulting in behavior change and symptom improvement (Ritterband, Thorndike, Cox, Kovatchev, & Gonder-Frederick, in press). In Magee and colleagues’ (2009) article, parental worry about their children’s health was found to be the largest significant predictor of program usage for an Internet intervention for pediatric enuresis, even after accounting for other plausible predictors such as symptom severity. DeBar and colleagues (2009) found that website use was associated with behavioral change (diet and physical activity) in a health promotion Internet intervention for adolescent girls. Examining predictors of usage and outcome is a critical area of research as it can guide researchers in the development of future Internet interventions. This topic will likely remain a major area of focus for Internet intervention researchers.

The final section of this special issue contains three articles on other technologies used to deliver eHealth interventions. The first two (Askins et al., 2009; McClellan et al., 2009) examine the use of electronic handheld devices as a vehicle for providing effective treatments. Askins and colleagues (2009) were able to successfully deliver maternal problem-solving skills training on a personal digital assistant (PDA) to both English- and Spanish-speaking mothers of children with cancer, finding comparable improvements to treatment administered in person. McClellan and colleagues (2009) use cellular phones to deliver a coping skills intervention for pain management in youth with sickle cell disease. They describe the use of technology for purposes of both assessment and
intervention (practice of coping skills), and include data showing that youth were willing to use the device for these purposes. In an eloquently designed experiment, the third article, by Dahlquist and colleagues (2009), finds that a virtual reality head-mounted display helmet of a videogame used for distraction improved pain tolerance for older children undergoing cold pressor pain. The final article of the special issue is a commentary by Tunick and Mednick (2009) regarding issues of privacy and confidentiality related to electronic communication, a potential issue facing pediatric psychologists today in their daily practice. Using the example of patient “blogs,” they provide an interesting discussion and informative guidelines advising pediatric psychologists on these issues of privacy and confidentiality.

Conclusions

This series of articles reveals some of the diversity of this young field of eHealth in pediatric psychology. The eHealth interventions developed and tested show great promise and may even have some significant advantages over traditional forms of care. For example, Internet interventions may lower barriers associated with face-to-face treatments, such as eliminating the need to travel to receive specialized care, the inconvenience of scheduling appointments, and missing work/school. Internet interventions also have the potential for wide-scale dissemination as they are capable of providing treatment to much greater numbers of people. This could be of particular importance in areas with limited resources or in the event that mass resources are needed.

eHealth interventions may also have the potential to reduce health disparity, particularly disparity caused by geographical isolation. In the United States, there are large and persistent racial, ethnic, and socioeconomic disparities in health across the life course (Harris, Gordon-Larsen, Chantala, & Udry, 2006; National Center for Health Statistics, 2002), with increasing economic and racial inequality (Lenfant, 1996). Although the reduction and ultimate elimination of these health disparities has been identified as a major public health goal (Satcher, 1996), these health disparities remain a steady trend in the US health system. Internet interventions and other technologies can be used to increase access to care by offering a method of treatment that is not restricted by geographical location, work schedule, or the availability of insurance. For example, the Askins et al. paper in this series, which focused on the use of PDAs to deliver problem-solving skills training to Spanish-speaking mothers, demonstrates the potential of using an eHealth treatment to provide care to an underserved group.

The eHealth field of pediatric psychology is still in its infancy and must address numerous challenges. Feasibility and efficacy trials, particularly related to pediatric-based Internet interventions, are showing promising results, but few studies have begun to examine how these programs might fare in the “real world” (Ritterband et al., 2008). Further, empirical support and validation is necessary as we move from efficacy to effectiveness trials. This research will be critical to establishing these types of programs as truly viable treatment options. However, if future research is able to build on the pioneering work presented here and continues to find results that support this treatment modality, Internet interventions may have the potential to reach more children and their families than would otherwise be served through more traditional forms of care. As we stated at the outset, we believe it is important for clinicians and researchers to be apprised of how eHealth technologies are being used in pediatric psychology and to consider these developments when thinking about provision of care in the future.

Conflicts of Interest: None declared

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