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# Research in Developmental Disabilities



## Quality comparison of websites related to developmental disabilities



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### ABSTRACT

The Internet is commonly used to seek health-related information, but little is known about the quality of websites on developmental disabilities. Therefore, we sought to evaluate the characteristics and quality of websites located by searching ten common terms related to developmental disabilities and explore relations between website characteristics and website quality in order to make recommendations on ways to ensure locating good online information. We located 208 unique websites in our November 2012 US searches of Google and Bing. Two independent coders evaluated 10 characteristics of the websites and two different coders assessed the quality of the websites. From the 208 websites, 104 (50%) provided relevant information about the disability being searched. Of these 104 websites, those found to be of highest quality were least likely to be a sponsored result, contain advertisements, be from a for-profit company, and did contain references to peer-reviewed publications or had a top-level domain of .gov or .org. Individuals with developmental disabilities and their family members who choose to obtain disability-related information online should remain vigilant to ensure that they locate high-quality and accurate information and should not replace information obtained from health-care professionals and educational specialists with information found online.

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## 1. Introduction

The Internet is one of the main resources people use to find information on health-related issues (Fox & Duggan, 2013; Fox & Jones, 2009; Khoo, Bolt, Babi, Jury, & Goldman, 2008; Moretti, de Oliveira, & da Silva, 2012; Wainstein, Sterling-Levis, Baker, Taitz, & Brydon, 2006). A 2012 survey indicated that 72% of American Internet users searched for health information online (Fox & Duggan, 2013), typically using popular search engines such as Google and Yahoo (Eysenbach & Kohler, 2002; Khoo et al., 2008), although the use of mobile software applications (apps) for health purposes is increasing (Fox & Duggan, 2012). Although people report having much trust in health-related information that they locate online (Fox & Rainne, 2002), the World Wide Web is characterized by uncontrolled and unmonitored publishing. Website consumers report relying more on esthetics than content (Kim, Eng, Deering, & Maxfield, 1999; Stanford, Tauber, Goff, & Marable, 2002), leaving open the possibility that malicious sites with 'official looking' pages will mislead consumers into believing they are authoritative (Cline & Haynes, 2001). There are tools for assessing website quality (e.g., DISCERN (Charnock, 1998), Stratchclyde Website Evaluation Form (SWEF) (Akram, Thomson, Boyter, & Morton, 2008), and HONcode (Foundation, 2010)) (Wilson, 2002), and one tool, DISCERN, has been shown to be sensitive in distinguishing good treatment oriented informational websites (Khazaal, Chatton, Zullino, & Khan, 2012; Khazaal et al., 2009). However, the utility and appropriateness of these tools for

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consumer use has been questioned (Bernstam, Shelton, Walji, & Meric-Bernstam, 2005; Gagliardi et al., 2003), and it is likely that consumer adoption and use of the tools is low.

Using the Internet to locate information is also true of parents of children with developmental disabilities (Bussing et al., 2012; Porter & Edirippulige, 2007; Roche & Skinner, 2009; Zaidman-Zait & Jamieson, 2004) and adolescents and adults who have developmental disabilities (Bussing et al., 2012; Davis, 2002; Karras & Rintamaki, 2012; Moreno, Coret, Jimenez, Marquez, & Alcantud, 2012). Examinations of parents using the Internet to locate information on developmental disabilities has shown that parents are often seeking general information on topics such as characteristics, treatment options, and resources (Porter & Edirippulige, 2007; Roche & Skinner, 2009; Zaidman-Zait & Jamieson, 2004), as well as for emotional and social support (Zaidman-Zait & Jamieson, 2004). Zaidman-Zait and Jamieson (2007) found that mothers of young children with disabilities expressed serious concerns regarding the reliability of the information. This fear has been confirmed by research showing many general health-related websites (Eysenbach, Powell, Kuss, & Sa, 2002; Scullard, Peacock, & Davies, 2010) and websites specifically pertaining to developmental disabilities including autism (Chowdhury, Drummond, Fleming, & Neufeld, 2002; Di Pietro, Whiteley, & Illes, 2012; Reichow et al., 2012; Stephenson, Carter, & Kemp, 2012), ADHD (Akram et al., 2008; Mitchell & Read, 2012), speech impairments (Ghidella, Murray, Smart, McKenna, & Worrall, 2005) and hearing impairments (Laplante-Lévesque, Brännström, Andersson, & Lunner, 2012; Porter & Edirippulige, 2007) have inaccurate or misleading information. Examination of Internet use by individuals with disabilities has shown that while they find it useful, they cannot always access the information (Davis, 2002) and have difficulty distinguishing good from bad information (Karras & Rintamaki, 2012; Moreno et al., 2012).

### 1.1. Objective

There are millions of websites with information on developmental disabilities on the World Wide Web. The few studies referenced above provide but a glimpse of what can be found online and the paucity of research on websites related to developmental disabilities does not allow us to make general conclusions about the quality of information on developmental disabilities contained on the Internet. This paper presents the results of a study evaluating the characteristics and quality of websites that were located by searching ten common terms related to developmental disabilities, and analyses of whether certain characteristics predicted quality across sites.

## 2. Methods

### 2.1. Sample

The sample consisted of the websites (including sponsored advertisements) appearing on pages containing the top 10 results returned when one of ten terms related to developmental disabilities was entered into the Google (<http://www.google.com>) and Bing (<http://www.bing.com>) online search engines on November 16, 2012. We chose to use the Google and Bing search engines because they are the two search engines in the United States with the largest market share. All searches were formed on a new computer that had never been used and local identifiers were disabled (i.e., the location of the searches were set to the United States instead of Farmington, CT). Two faculty members (BR and MBB) created a list of ten most commonly used terms related to developmental disabilities. Google AdWords was then searched to determine which term or phrase was searched most during the previous month. The ten developmental disability terms we used were (a) ADHD, (b) autism, (c) blind, (d) cerebral palsy, (e) deaf, (f) developmental delay, (g) developmental disability, (h) Down syndrome, (i) intellectual disability, and (j) learning disability.

### 2.2. Data collection

We collected two sets of data on the websites we located. First, we collected data on specific characteristics of each website by having two trained raters independently code 10 variables with disagreements resolved by a third party. The two coders were research assistants under the supervision of the first and last author who were told the purpose of the study was to examine characteristics of websites related to developmental disabilities. The 10 variables were previously used by the first author in an examination of autism websites (Reichow et al., 2012) and were based on reviews of other published assessments of health-related websites. First, we coded *relevance* by considering if the website contained general information on the disability that was entered into the search engine. For the websites that were not relevant, no further evaluation was done. For the relevant websites, we coded nine additional variables. Websites containing an *advertisement* were websites that contained a link (either image or text) that redirected the user to a commercial site. Websites with *attribution* were sites containing references to peer-reviewed information. *Authorship* was defined by websites displaying the names of one or more authors of the information provided on the page. Websites with a *disclaimer* were sites containing a statement that the information should not replace the opinion of a qualified professional. *Disclosure* was coded when the website contained information on the site's affiliations, alliances, financial supports of bias, conflicts of interest, or potential jeopardy of credibility. We coded a *purpose* of the website into one of eight categories (government, for-profit commercial company, news agency, online informational site, university, individual's forum or blog, non-profit organization, or other). The *rank* of the website was the ordinal placement of the website when searched using Google or Bing, not including

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