



Using Electronic Surveys in Nursing Research

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Computer and Internet use in businesses and homes in the United States has dramatically increased since the early 1980s. In 2011, 76% of households reported having a computer, compared with only 8% in 1984 (File, 2013). A similar increase in Internet use has also been seen, with 72% of households reporting access of the Internet in 2011 compared with 18% in 1997 (File, 2013). This emerging trend in technology has prompted use of electronic surveys in the research community as an alternative to previous telephone and postal surveys. Electronic surveys can offer an efficient, cost-effective method for data collection; however, challenges exist. An awareness of the issues and strategies to optimize data collection using web-based surveys is critical when designing research studies. This column will discuss the different types and advantages and disadvantages of using electronic surveys in nursing research, as well as methods to optimize the quality and quantity of survey responses.

Electronic surveys were first introduced in the 1980s and consist of two forms: web-based and email surveys. Web-based surveys invite a participant to a particular website to view and respond to a questionnaire and provide immediate storage of the survey responses using database technology and a hypertext markup language (HTML) interface (Andrews, Nonnecke, & Preece, 2003; McPeake, Bateson, & O'Neill, 2014). Some examples of frequently used online tools are SurveyMonkey®, Zoomerang, Google Forms, and SurveyGizmo. All of these tools offer free versions that may be limited by number of questions or number of responses. Upgraded versions are available for cost and can offer more customized options such as data reporting and statistical analysis. Email surveys are included within an email message or as a word document attachment and re-

sponses must be transferred and entered into storage (Andrews et al., 2003). Email surveys, in comparison to web-based surveys, allow for communication by the researcher with the study participant.

Advantages

Electronic surveys offer numerous advantages to data collection. This approach reduces costs that can be incurred with paper and postage and reduces time photocopying, folding, and enveloping the written questionnaire. Time-saving benefits are achieved as the surveys are delivered faster to the participant than postal surveys, and respondents can complete the survey with the responses then available to the researcher for analysis (Amar, 2008; Umbach, 2004). Sensitive topics can be more easily presented as a result of the anonymous, private approach in comparison to a face-to-face interview. Electronic surveys, in addition, can access a large, geographically diverse sample that targets a population with specific study criteria.

Disadvantages

Several challenges exist in executing an electronic survey. First and foremost, the study population's computer access and computer literacy must be considered. United States Census Bureau findings indicate that Internet use was greater among Asian and Caucasian non-Hispanic individuals, and in individuals with at least a bachelor's degree, with an income of \$100,000 or greater, and who were aged 18–34 years (82%) in comparison to those individuals older than aged 55 years (62%) (File, 2013).

Ensuring up-to-date and accurate email addresses may be another potential problem in using electronic surveys as a means of data collection. Study participants may

also have multiple email addresses and may not routinely check other accounts (McPeake et al., 2014). Surveys via email may also run the risk of not being delivered because of Internet security filters that can block email messages, particularly emails that have attachments.

Achieving high response rates remains a challenge. Nonresponse bias can be a major threat to reliability and validity of survey study findings (Fincham, 2008), and the researcher should strategically plan to encourage response rates when designing studies. Electronic surveys of healthcare providers suggest a low response rate in comparison to other traditional survey methods, such as postal or telephone surveys (Cho, Johnson, & Vangeest, 2013; Lozar Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008; Scott et al., 2011).

Significant time should be allotted to the development and preparation of the survey. The hard copy questionnaire must be converted for delivery via the web either through a web questionnaire set up for analysis software or set up as data configuration that is ported directly into the analysis software (Jones, Murphy, Edwards, & James, 2008). In an effort to heighten complete responses and response rates, questions should be constructed to illicit yes/no or Likert-style scale responses, rather than open-ended questions.

Strategies to Promote Electronic Survey Success

Several strategies have been suggested to increase response rates to electronic surveys. Edwards et al. (2009) conducted a systematic review to identify effective

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