

Mail Versus Internet Surveys

Determinants of Method of Response Preferences Among Health Professionals

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The authors evaluated determinants of response to Internet-based surveys in a sample ($n = 5600$) of Texas healthcare professionals. Participants were given the option of responding by mail or over the Web (response, 66%). Internet respondents were younger ($p < .001$), had worked fewer years in healthcare ($p < .001$), and were more likely to be male ($p < .001$) and to work in a hospital ($p = .007$). Missing questionnaire items were significantly higher among Web responders with regard to age, sex, race, body mass index, and smoking ($p < .001$). In the final multivariate logistic regression, only male gender (odds ratio [OR] = 2.09, 95% CI = 1.56-2.80) and younger age remained significantly associated with response over the Internet. Age quartile and responding electronically were inversely associated. Taken together with a priori knowledge of the demographic and professional profile of a study population, these findings can be useful in planning and implementation of surveys among healthcare workers.

Keywords: *determinants; health care professionals; Internet surveys; response rate*

Obtaining high response rates from mail surveys is critical to achieving reliable and valid results from survey research. Certain populations are well known for low response rates to mail surveys. Health professionals, and especially physicians, have been one such group. Depending on the purpose of the study, modes of administration, and target populations, typical response rates for health professionals vary widely, from 16% to 91% (Donaldson, Moinpour, & Bush, 1999; Field et al., 2002; Gore-Felton, Koopman, Bridges, Thoresen, & Spiegel, 2002; Harrison, Holt, & Elton, 2002; Kasprzyk, Montañó, St. Lawrence, & Phillips, 2001; Leung, Ho, Chan, Johnston, & Wong, 2002; Mavis & Brocato, 1998; Puleo et al., 2002; Rimm, Stempffer, Colditz, Giovannucci, & Willett, 1990; Schleyer & Forrest, 2000).

Aside from the study population, the method of survey distribution and follow-up are known to affect response rates. Access to electronic media and the Internet, whether by e-mail or the World Wide Web, provides an increasingly attractive approach to survey research because of significant cost reductions, multiple formatting features, and ease of use. However, use of electronic media poses new and different issues regarding strategy, design, and dissemination of a survey (Dillman, 2000). To date, relatively few studies have evaluated the determinants of response to Internet-based surveys as compared to more traditional means.

Using the experience obtained from a large survey of health professionals in Texas, we examined determinants that influence study participant choice of survey response method.

Method

Survey Population

In 2004, we conducted a large, federally funded cross-sectional group-comparison survey of asthma in a representative sample of four groups of health professionals in Texas: physicians, nurses, respiratory therapists, and occupational therapists. The sampling frame was defined as all members of each group, with a current Texas mailing address, listed on the rosters of their respective licensing boards as of September 2003. From these, a random sample of 1,400 individuals from each of the four groups ($N = 5,600$) were selected to receive the survey instrument.

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Survey Instrument

The purpose of the survey was to gather self-reported data on asthma diagnosis, symptoms, and risk factors as part of an epidemiological study of asthma in health care professionals. Development and validation of the survey instrument was carried out by a multidisciplinary team of survey design experts, epidemiologists, industrial hygienists, and physicians, as previously described (Delclos et al., 2006). In brief, the initial draft questionnaire consisted of four sections: (a) asthma-related items, (b) occupational exposures, (c) nonoccupational asthma risk factors, and (d) sociodemographics. Validation was conducted in a convenience sample of 118 currently employed health care workers from the Houston, Texas, metropolitan area. Time to completion of the questionnaire ranged from 13 to 25 min. Test-retest reliability ranged from .75 to .94; internal consistency was excellent (Cronbach's $\alpha \geq .86$). Depending on the gold standard used, the percentage of asthmatics "correctly classified" by the questionnaire ranged from 70% to 94%. Agreement between self-reported occupational exposures and industrial hygienist review was moderate ($\kappa = .45$), similar to previous studies. When compared to a panel of serum IgE antibodies against aeroallergens common in the southwestern United States, questionnaire items on asthma risk factors (allergies) had a sensitivity of 68% and specificity of 85%.

After revisions, the final validated survey instrument was formatted in two versions. A hard-copy booklet was designed to be used in conjunction with the Cardiff Teleform software (Cardiff Software, Inc., Vista, CA), which allowed direct optical scanning of completed data entry forms into a database. In addition, a Web-based version of the questionnaire was prepared using Active Server Pages (ASP). Questionnaire items, skip patterns, and general appearance of the questions were identical in both versions except that, depending on their answers, online responders may have seen fewer items overall (i.e., skip patterns allowed the viewing of fewer screens). Completion of the online version of the survey led to direct data entry. A copy of the final hard-copy survey instrument can be obtained from the authors by request.

Following the approach of Salant and Dillman (1994) and Dillman (2000), a total of five contacts were planned to potential study participants. Contacts were stopped when a participant returned the completed questionnaire or indicated that he or she declined participation. The initial contact was a "warm letter." This was followed 1 week later by a hard-copy questionnaire (via mail), with an explanatory cover letter, a US\$1 token

financial incentive, and a business reply envelope. This mailing included information on how the study participant could complete the survey online rather than completing the hard-copy survey. The participant was provided with the secure Web site address, along with an individual passcode. This same information was repeated in each of the subsequent contacts. One week later a follow-up postcard was sent thanking those who had returned the survey and politely requesting a response from nonresponders. Three weeks after the first questionnaire mailing, a new personalized letter along with a replacement hard copy of the questionnaire and business reply envelope was sent to all nonresponders; a final letter was sent 2 weeks after the replacement questionnaire mailing.

Study Variables

The main dependent variable was method of survey completion (mail vs. Internet), tracked on a daily basis. The independent variables, obtained from either the questionnaire responses or from the licensing board data, were age, gender, race and/or ethnicity, geographic area of residence (urban vs. rural), education, professional group, years as a health professional, number of hours worked per week, and primary practice setting (hospital vs. nonhospital). In addition, responses to other questionnaire variables were examined for distribution of missing items, specifically smoking, BMI (calculated based on the self-reported height and weight), a prior asthma diagnosis, and a history of wheezing in the previous 12 months.

Statistical Analysis

After examining the distribution of the various dependent and independent variables, individual associations between each independent variable and the main dependent variable were examined, using two-sided *t* tests for continuous variables, chi-square statistics for categorical variables, and univariate logistic regression analysis. The distribution of proportions of missing responses for selected substantive questionnaire items (age, gender, race and/or ethnicity, BMI, smoking, prior asthma diagnosis, and wheezing), by method of survey response, was also assessed through chi-square statistics.

Variables with a *p* value of $< .25$ in the univariate analysis were then entered into an unconditional multiple logistic regression model with completion of the online version of the survey as the binary dependent variable. Final results were expressed as the adjusted logistic odds ratio (OR) and

95% confidence interval (95% CI). Model fit was assessed by the Hosmer-Lemeshow goodness-of-fit test. All statistical analyses were performed using STATA/SE v.9.2.

Results

The initial mailing consisted of 5,600 questionnaires; 213 participants were excluded because of death and bad addresses ($n = 7$ and 206, respectively), leaving a final eligible population of 5,387. Completed surveys were received from 3,529 participants (941 nurses, 968 occupational therapists, 741 physicians, and 879 respiratory therapists) for an overall response rate of 65.5%. Group response rates were highest for occupational therapists (73%) and nurses (70%), and lowest for physicians (54%) and respiratory therapists (65%). Responses over the Internet were received from 328 participants (9.3% of the total number of responses received); by group these were 8.5% for nurses, 8.6% for occupational therapists, 7.8% for physicians, and 12.2% for respiratory therapists.

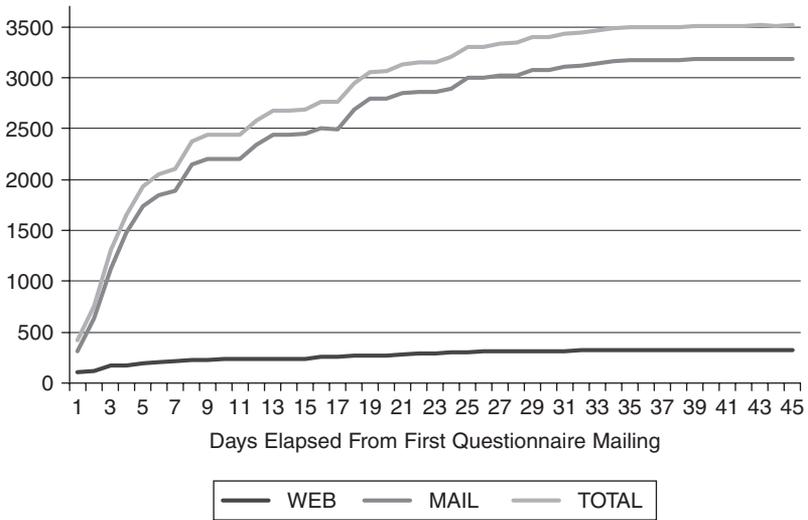
Figure 1 summarizes the response rate trend, by method of survey response, for the study period. Overall, Web-based responses represented a consistent 9% to 10% of the total responses from the day of receipt of the first completed surveys and did not appear to be affected by any of the subsequent contacts. This effect was maintained for each of the four professional groups.

Table 1 summarizes the distribution of results, by method of survey response, for each of the main independent variables. Internet respondents were younger ($p < .001$), had worked fewer years as a health professional ($p < .001$), were more likely to be male ($p < .001$), and to work in a hospital setting ($p = .007$). Physicians were the least likely to reply via the Web (58 of 741, or 7.8%), whereas respiratory therapists responded more often electronically (107 of 879, or 12.2%).

The proportion of missing questionnaire items was significantly higher among Web responders with regard to self-reported age, sex, race, BMI, and smoking (all $ps < .001$) (Table 2). There were no differences with respect to self-reported Hispanic ethnicity, prior asthma diagnosis, or history of recent wheezing.

Based on a threshold of $p < .25$ in the univariate analysis, the following variables were selected for inclusion in the final multiple logistic regression model: age quartiles, gender, Hispanic ethnicity, professional group, level of education (dichotomized as graduate level vs. lower), and practice

Figure 1
Survey Response Trends, by Method of Response:
Mail Versus Internet. Survey of Texas Health
Care Professionals, 2004



setting (hospital based vs. nonhospital based). Although years of work as a health professional was also significantly associated with mode of response in the univariate analysis, it was excluded from the model because of strong collinearity with age (Pearson's correlation coefficient $> .70$).

Table 3 presents the final multiple logistic regression model, which allowed assessment of the effects of each independent variable while simultaneously controlling for the effect of the remaining variables. In the final model, only male gender (adjusted OR 2.09, 95% CI 1.56 to 2.81) and age remained significantly associated with a greater likelihood of responding via the Internet. With each increase in age quartile, the likelihood of response via the Internet decreased consistently and was statistically significant for the two highest quartiles (adjusted OR .56, 95% CI .40 to 0.78, and adjusted OR .35, 95% CI .24 to .52, respectively).

Table 1
Comparison of Mail Versus Internet-Based Survey Response, by
Main Independent Variables (*N* = 3529). Survey
of Texas Health Care Professionals, 2004

Independent Variable	Mail (<i>n</i> = 3201) (%)	Internet (<i>n</i> = 328) (%)	<i>p</i> Value ^a
Age (years) (<i>M</i> ± <i>SD</i>)	45.5 ± 11.9	41.2 ± 10.2	< .001
Gender			
Male	945 (29.8)	122 (40.5)	< .001
Female	2224 (70.2)	179 (59.5)	
Race			
White	2457 (76.8)	254 (77.4)	.56
Black	209 (6.5)	17 (5.2)	
Asian	255 (8.0)	23 (7.0)	
Other	280 (8.8)	34 (10.4)	
Hispanic	427 (13.9)	53 (16.8)	
Area of residence ^b			
Urban	2775 (86.9)	283 (86.3)	.75
Rural	418 (13.1)	45 (13.7)	
Education level			
No college degree	7 (.2)	0 (0)	.24
2-year college degree	927 (29.3)	91 (30.2)	
4-year college degree	1135 (35.9)	121 (40.2)	
≥ Graduate degree	1097 (34.7)	89 (29.6)	
Professional group			
Physician	683 (21.3)	58 (17.7)	.008
Occupational therapist	885 (27.7)	83 (25.3)	
Nurse	861 (26.9)	80 (24.4)	
Respiratory therapist	772 (24.1)	107 (32.6)	
Years as a health professional (<i>M</i> ± <i>SD</i>)	19.1 ± 11.9	16.7 ± 10.2	< .001
Hours worked per week (<i>M</i> ± <i>SD</i>)	43.1 ± 15.2	43.6 ± 14.9	.71
Primary practice setting			
Hospital based	1639 (51.5)	192 (59.4)	.007
Nonhospital based ^c	1543 (48.5)	131 (40.6)	

a. Based on two-sided *t* tests for continuous variables and chi-square tests for categorical variables.

b. Urban = counties with population ≥ 50,000. Rural = counties with population < 50,000.

c. Includes academia, home health, private practice, outpatient clinic, nursing home, health department, public school, health insurance agency, research, medical sales, and other.

Table 2
Comparison of Proportion of Missing Values by Method of
Survey Response (mail vs. Internet based) (*N* = 3529).
Survey of Texas Health Care Professionals, 2004

Variable	Missing Items – Mail Responders (% missing per item)	Missing Items – Internet Responders (% missing per item)	<i>p</i> Value ^a
Age	57 (1.8)	27 (8.2)	< .001
Gender	32 (1.0)	27 (8.2)	< .001
Race	64 (2.0)	27 (8.2)	< .001
Hispanic	128 (4.0)	13 (4.0)	.98
Body mass index ^b	67 (2.1)	28 (8.5)	< .001
Ever smoker	22 (.7)	27 (8.2)	< .001
Have you ever had asthma?	44 (1.4)	1 (.3)	.10
Wheezing in the past 12 months	56 (1.8)	2 (.6)	.12

a. Based on two-sided *t* tests for continuous variables and chi-square tests for categorical variables.

b. Body mass index calculated based on self-reported height and weight.

Discussion

Enhancement of response rates in surveys of health professionals has been extensively addressed in the literature because of the uniqueness of this professional population in terms of the type of information sought and historically low response rates. Achievement of an adequate response rate is essential to the value of survey research for several reasons. Higher response rates provide greater statistical power, decrease survey error, and should be more representative of the target population; hence, results are more generalizable because of better external validity (Gore-Felton et al., 2002). In different surveys of health professionals, typical response rates over the years have varied widely, from less than 20% to more than 90% (Del Valle, Morgenstern, Rogstad, Albright, & Vickrey, 1997; Donaldson et al., 1999; Everett, Price, Bedell, & Telljohann, 1997; Field et al., 2002; Gore-Felton et al., 2002; Harrison et al., 2002; Kasprzyk et al., 2001; Lensing et al., 2000; Leung et al., 2002; Mavis & Brocato, 1998; Puleo et al., 2002; Rimm et al., 1990; Schleyer & Forrest, 2000). These studies also varied in terms of the specific subpopulation of health care professionals

Table 3
Multivariate Logistic Regression Analysis of Main Determinants
of Survey Response Method (*N* = 3529). Final model.
Survey of Texas Health Care Professionals, 2004.
Dependent Variable: Internet-Based Survey Response

Variable	Adjusted Odds Ratio	95% Confidence Interval
Age		
First quartile	1.00	—
Second quartile	.75	.55 – 1.02
Third quartile	.56	.40 – .78
Fourth quartile	.35	.24 – .52
Gender		
Female	1.00	—
Male	2.09	1.56 – 2.81
Hispanic	1.15	.83 – 1.61
Professional group		
Physicians	1.00	—
Occupational therapists	1.30	.79 – 2.15
Nurses	1.45	.83 – 2.50
Respiratory therapists	1.50	.88 – 2.56
Graduate school education	.97	.66 – 1.43
Hospital-based practice setting	1.16	.87 – 1.53

Note: Hosmer-Lemeshow Goodness-of-Fit, $p > .05$.

targeted (e.g., physicians, psychologists, primary care providers, etc.), study purpose (e.g., professional practice patterns, adherence to standard of care guidelines, etc.), and/or modes of survey administration (certified mail, e-mail, Internet, phone, multiple contact waves, use of financial incentives, etc). The best response rates have tended to involve mixed modes of survey delivery and response methods. In a study on adoption and implementation of gynecological cancer screening guidelines conducted among primary care providers in health maintenance organizations, a phenomenal 91% response rate was achieved over four contact phases (Puleo et al., 2002). The authors combined questionnaire brevity, strategic questionnaire layout, first-class mailing with prepaid return envelopes, and a \$3 gift coupon token incentive in their mailings. Two initial mailings were performed. After this, nonrespondents were contacted by local “champions,” either by phone or e-mail to encourage response. Remaining nonrespondents were recontacted, in a fourth and final phase, using computer-assisted

phone interviews performed by a survey research firm. Response rate after the first two mailings was 64%; thus, the subsequent two rounds of telephone contacts were critical in maximizing return. However, as the authors acknowledged, this multifaceted approach can be resource intensive and costly. In addition, this study was conducted prior to implementation of the federal "Do Not Call Registry" in 2003, which greatly limited the number of unsolicited phone calls to residences. Although survey research is exempted from this registry, it is still unclear how this measure has affected telephone contacts as a mode of survey administration for academic research.

Use of the Internet could provide an attractive, lower cost, and possibly less obtrusive alternative; however, much remains unanswered as to its effectiveness and effect on response bias, particularly in the very specific population of health care professionals. In 2003, Braithwaite and colleagues conducted a systematic review of Internet-based surveys of health professionals to examine external validity. A total of 17 studies were retrieved, with response rates varying from 9% to 94% (Braithwaite, Emery, De Lusignan, & Sutton, 2003). In contrast to the current study, none of the studies identified drew their samples from comprehensive health professional populations; instead, specific subgroups (e.g., urologists, primary care physicians, dental practitioners) were usually targeted. Overall, Internet-based surveys were associated with low response rates. Exceptions to this, with response rates more than 80%, included one study directed at trainees in academic public health (i.e., a young population) and another, with a 94% response rate, limited to "Web-using doctors." Response rates could not be calculated for several of the retrieved studies because of the absence of a known denominator population.

In the current study, mail and Internet-based survey completion provided a useful means for gathering survey data. The study design allowed the comparison of two methods of responding to a survey within the same study and used a large sample size ($N = 3529$). Differences in number of mailings, survey instrument, study population, and research question were controlled, which allowed choice of response to be directly assessed. This is in contrast to most previous studies where mode of response was either randomized among subsamples of the study population (i.e., choice, other than nonresponse, is not an option) or the survey was designed to be entirely Web-based from the outset. In the latter case, the Web feature was usually one of several elements of the survey strategy, such as repeated contacts or use of token incentives, and therefore it was difficult to tease out the effect of administering the survey electronically.

A second strength in contrast to many Web-originated surveys was that we were able to calculate very accurate response rates. The target population was clearly definable (professionals with an active license in 2003), allowing the definition of accurate denominators. Furthermore, there were no specific subsets selected within the four large professional groups of physicians, nurses, respiratory therapists, and occupational therapists, allowing us to examine the study question in the total professional group and provide response rates that are representative of the whole. In contrast, most previous studies target selected subgroups, which limits accurate calculation of denominator populations and comparability of response rates across more general categories.

Overall, when given a choice, we found that respondents overwhelmingly continued to prefer mail as a method of return, accounting for approximately 90% of the responses. This is consistent with the consensus of a recent advisory panel on Internet-based research (Kraut et al., 2004). In the Braithwaite systematic review, studies that compared electronic versus mail responses among health care workers found that Internet surveys had low response rates in comparison to paper surveys (Braithwaite et al., 2003). In 1998, researchers from Michigan State University compared response rates of a survey distributed to 200 subscribers of an Internet listserv (Mavis & Brocato, 1998). One half of the sample received surveys via the Internet ($n = 100$), the other one half by postal service ($n = 100$). Response rates were significantly higher for response by mail (77%) than by electronic means (56%). However, electronic responses were received earlier. Jones and Pitt (1999) estimated response rates of a three-question health survey conducted in a convenience sample of 500 university staff, comparing e-mail with a www link to the survey, or a postal questionnaire. Postal surveys had the highest response rate (72%) compared to 34% for e-mail and 17% for the www-linked survey. Although the higher response rate justified the continued use of postal surveys, the authors concluded that the rapid societal changes in computer use justified reassessment of the method in the future. Both of these studies had smaller sample sizes and shorter questionnaires than the current study, which also found a greater number of responses via postal return of a completed hard-copy questionnaire. In contrast to the current study, however, which controlled for a number of elements, respondents in these two prior studies were not given a choice of method of survey return. This did not allow the authors to profile and contrast respondent characteristics by preference. However, the general preference for mail can be affected by participant age and degree of access to the Internet. In a study of alcohol and other substance

abuse among 7,000 undergraduate students at a single university, participants were randomized to either completion of a survey via the Web or through U.S. mail (McCabe, Boyd, Couper, Crawford, & D'Arcy, 2002). Response rates for the Web group were significantly higher than for the U.S. mail mode (63% vs. 40%). However, this was a much younger population than in the current study, and the authors estimated that 98% of these campus-based students had access to the Internet.

In the current study, the profiles of respondents to one or the other form of survey completion differed in key demographic aspects. Among health care professionals, Internet respondents were more likely to be male and of younger age. There was also a clear inverse association between increasing age and decreasing likelihood of response over the Internet. It is interesting to note that after adjustment for other covariates, practice-related variables, including professional title, years of practice, educational level, or primary practice setting, did not remain as important determinants of response mode. In the study by McCabe and colleagues, although women undergraduates were more likely overall to respond to the survey, the proportion of males responding via the Web was higher than by mail (44% vs. 38%) (McCabe et al., 2002). Web responders were also less likely to be Black, yet neither race nor Hispanic ethnicity were determinants of mode of response in the current study. In the Braithwaite study, though there was little information provided in the reviewed studies on demographic determinants for responding to an Internet-based survey, Internet responders reviewed were also more likely to be male (Braithwaite et al., 2003).

Although we did not specifically address individual access to the Internet, living in a rural setting (a possible surrogate for Internet access) was not found to be a limiting factor. However, health care professionals may not be representative of general rural residents in terms of possibly having greater access to the Internet. On the other hand, recent reports indicate that the percentage of U.S. rural households with access to broadband Internet, though still lagging behind that in urban areas, is increasing dramatically, from approximately 9% in 2003 to 25% in 2006. Growth of Internet access in rural areas between 2005 and 2006 alone was 39% (Pew Internet & American Life Project, 2006).

We also observed that the proportion of responses via the Internet (i.e., approximately 10% of all returned surveys), as compared to responses by mail, tended to be relatively constant and unaffected by consecutive contact waves (Figure 1). Initially, this may seem to contrast with the review by Braithwaite et al. (2003), where use of follow-up reminders was reported to

have resulted in large increases in response rates. Overall, in the current study, each of the contacts did result in an important increase in response rates; however, the magnitude of this increase was not greater for one mode versus the other. Thus, it appears that the demographic differences between Web and mail responders, present at the outset, were not greatly affected by subsequent survey implementation measures to enhance response.

Internet respondents were also more likely to skip or not answer certain questions on demographics or lifestyle habits, yet no differences were noted with respect to the primary outcome variable for the parent study (asthma). The reason for this is unclear. All of the demographic and lifestyle questions were on the last page of the questionnaire, so one possibility could be that, on the Web version, the program stalled on this page for these few respondents. Thus, all of the information collected prior to this page would have been retained; however, the participant would have been unable to complete the final portion. In contrast, the questions on asthma and wheezing, for which no significant differences were noted between the two groups, were located at the beginning of the questionnaire. A higher proportion of incomplete questionnaires among Web responders were also found by McCabe et al. (2002), who attributed this to breaks in the flow of electronic information. However, in the current study, although it is true that all of the sociodemographic items were on the last page and that, for several of the nonresponse items, the number of Web nonresponders was identical ($n = 27$, Table 2), this was not uniform. Specifically, the item on Hispanic ethnicity was on the same page, located between the questions on gender and race, and yet there were only 13 nonresponses, with no significant differences between the Web and mail responders. Thus, the possibility that there is a differential nonresponse for potentially sensitive questions between Web and mail responders should not be entirely ruled out. When taken together with a priori knowledge of the demographic and professional profile of a study population, these findings can be useful in planning and implementation of surveys among health care workers. For example, if one were conducting a survey among health care professional groups dominated by one or other gender (e.g., nurses and occupational therapists, where ~90% in Texas are female) or younger age groups (e.g., surveys conducted in medical or nursing schools), our findings could help guide choice of method of response. In addition, knowing that certain substantive questionnaire items (e.g., sex, age, smoking) might be more susceptible to not being answered via the Web could lead to choice of traditional mail surveys and/or use of a different approach to measurement of these variables to increase the likelihood of item response.

There are also limitations to the current study. Because the research targeted health care professionals, results may not be generalizable to surveys of nonhealth care professionals. Future studies should also incorporate some means of accounting for differences in access to technology when contrasting newer versus more traditional means of conducting surveys. In addition, we were not able to assess whether an initial contact via electronic means would have influenced the method of response, mail or Internet. It is not clear if individuals naturally respond using the same method in which the survey is received. All notices were received by mail, so the results could simply reflect a behavioral tendency to respond using the same method by which participants were initially contacted. Furthermore, for certain types of surveys, there are good reasons to prefer more traditional methods. For example, choosing mail over Internet allows researchers to avoid problems associated with frequent changes of electronic address in the absence of a standardized method to capture forwarding information such as has been established by the U.S. Postal Service. Another consideration that may limit generalizability of findings to other surveys conducted in health professionals is that the primary purpose of the current study focused on asthma as a personal health issue among these professionals. This contrasts with the majority of surveys of health professionals, which tend to address aspects related to these professionals' practices. Finally, it would be wise to remember that profiles of Internet users and familiarity with its use as an everyday tool are rapidly changing, so our findings may need to be reassessed in the future, in light of these changing trends.

In summary, we found that respondents choosing Internet over mail as a method for completing and responding to a survey request differ in terms of basic demographic, but not professional, characteristics. Given the paucity of studies in health professionals comparing the merit of Internet-based surveys to a more traditional method (mail), the findings add to our understanding of the effectiveness of using Internet-based surveys and help profile differences in the type of respondent while controlling for other survey techniques such as multiple mailings and incentives. Studies of this kind should prove useful for survey design and implementation, aiding survey researchers in their decision to choose Internet-based data collection methods over, or as a complement to, traditional methods.

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