

CLEAR Exam Review

Volume XIX, Number 2
Summer 2008

A Journal

CLEAR Exam Review

VOLUME XIX, NUMBER 2

SUMMER 2008

CLEAR Exam Review is a journal, published twice a year, reviewing issues affecting testing and credentialing. CER is published by the Council on Licensure, Enforcement, and Regulation, 403 Marquis Ave., Suite 200, Lexington, KY 40502.

Editing and composition of this journal have been written by Prometric, which specializes in the design, development, and full-service operation of high-quality licensing, certification and other adult examination programs.

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Addressing Nonresponse in Surveys

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Introduction

Many countries use surveys to measure characteristics of their population such as socioeconomic status or health. While the use of surveys may have worked well in the past, more recently there has been a decline in survey response rates (Groves, Dillman, Eltinge, Little, 2002). A decrease in response rates can affect the ability of the survey statistics to accurately reflect the characteristics of the population which would indicate nonresponse bias. However, it should be noted that the lower response rates do not necessarily indicate nonresponse bias and higher response rates do not necessarily indicate no nonresponse bias. Regardless of the response rate, if the nonresponders are very different in the characteristics that the survey is measuring from the responders, there is bias (Groves, Fowler, Couper, Lepkowski, Singer, Tourangeau, 2004).

When conducting a survey, it is often impractical to survey the entire universe of potential respondents. When the universe is very large, it is preferable to randomly sample the population to get a smaller group that can be examined in great detail. For this to be successful, the sample has to be adequately large to produce results with a useful degree of precision and the sample has to be generally representative of the population. Despite a well-crafted sampling design, a sample of surveys can be dramatically influenced by systematic non-response bias. This occurs when there is a characteristic among the potential respondents that makes them less likely to respond and that characteristic is relevant to the topic that the survey is addressing (unit level nonresponse behavior). An additional nonresponse issue for researchers to consider is when respondents do not complete the entire survey or complete only selected questions (item level nonresponse). Item level nonresponse will not be addressed in this article, however, readers are referred to the references provided hereafter for more information on this issue.

Using a practice analysis survey of nurses, we can examine the issue of individual non-response further. If most hospitals required their nurses to sign agreements that prohibited the nurse from saying anything about the nature of the work that they perform in the hospital, then the nursing activities that are specific to working in a hospital could be dramatically underrepresented in the survey results. Given that hospitals are one of the most common work-settings; this could have a substantial impact on how well the practice analysis results would reflect the practice of nursing in the United States. This would be an example of systematic response bias.

On the other hand, respondents that are not working in the profession may be less likely to respond because they believe, and correctly so, that their responses are not relevant to the purpose of the survey. Similarly, those people who do not check their e-

mail, misplace their regular mail, or are just very busy also might not respond. Yet, if their reason for not responding is not systematically related to an important aspect of the survey, then it doesn't introduce any systematic bias into the results. Without surveying the entire population, it is impossible to know with 100% certainty if any systematic bias has been introduced, but in the absence of a logical rationale for such a bias, such biases are considered to be trivial or nonexistent. Of course, one could be less than rigorous in attempting to find such a logical rationale for a bias and could erroneously conclude that no bias existed. In order to determine if there is a nonresponse bias for recent practice analyses of nurses, the National Council of State Boards of Nursing (NCSBN) began conducting non-responder studies. These nonresponder studies address the issue of individual or unit nonresponse behavior but not the issue of item nonresponse when respondents do not answer all of the survey questions.

Background

In 2006, NCSBN began a web-based continuous RN practice analysis of newly licensed registered nurses (NCSBN, 2008). At the conclusion of the first year of data collection from July 2006 through June 2007, 116,985 nurses were asked to complete a practice analysis survey. There were 13,763 surveys "returned" due to incorrect or invalid e-mail addresses. Of the 103,249 invitations that reached recipients, 23,253 respondents submitted surveys for a return rate of 22.5%. In order to determine if there was systematic nonresponse bias, the nurses who did not respond were contacted by telephone.

Methodology

A random selection of 494 nonresponders was drawn from the sample of nurses who were emailed the survey during the previous six months. The information on the 494 nonresponders included the telephone number they listed when registering for the NCLEX examination. Interviewers then attempted to contact the nonresponders. There were 66 disconnected numbers; of the remaining 428 numbers dialed by the interviewers, 50 of them led to direct contact and participation in the survey. Once telephone contact was obtained, the nonresponders were asked a series of questions beginning with their reason for not responding and their length of time in practice. Once that nonresponders were engaged, the interviewers asked them to rate 10 activity statements from the *Report of the Finding of the 2006-2007 Continuous RN Practice Analysis Survey* using the same scale as the practice analysis survey

(NCSBN, 2008). The 10 activity statements were selected by subject matter experts to represent those activities most likely to be performed by newly licensed nurses and those activities least likely to be performed such as those activities performed in a specialized area of nursing practice.

Results

Nonresponse Reasons

Nonrespondents were asked the reason for not responding to the survey that was e-mailed to them. They were asked to choose from a list of prepared options. This list of options was based on initial phone interviews conducted during previous nonresponder studies where participants were asked for a reason for not answering the survey. These answers were combined and a list of the most frequent responses was created. This list includes:

1. Too Busy
2. Did not care
3. Do not like/trust surveys
4. Did not receive it
5. Other

As seen in Figure 1, 52% (26 of 50) of non-respondents stated that they never received the initial e-mail survey while 42% (21 of 50) chose the option of "other". Some of the reasons noted under "Other" include, "My husband threw it away," "I just forgot" and "It was too long." The remaining 6% (3 of 50) either did not like/mistrusted surveys or were too busy to answer the initial survey.

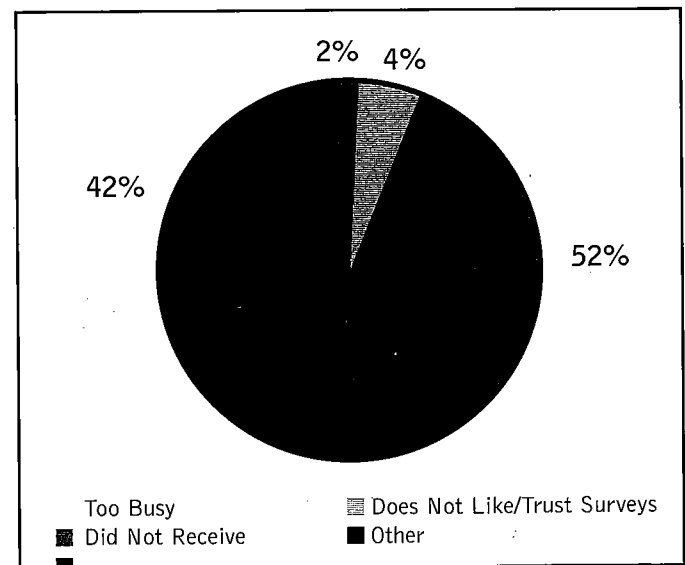


FIGURE 1. Reasons for Not Responding

Table 1. Importance of Activity Performance – Nonresponders vs. Responders

Apply Principles of infection control (e.g. hand hygiene, room assignment, isolation, aseptic/sterile technique, universal/standard precautions)		
	Importance	N
Nonrespondents	3.96	50
Respondents	3.94	17653
Administer and document medications given by common routes (e.g. oral, topical)		
	Importance	N
Nonrespondents	3.84	50
Respondents	3.83	17292
Participate in performance improvement/quality assurance process (formally collect data or participate on a team)		
	Importance	N
Nonrespondents	3.60	47
Respondents	2.94	3135
Perform emergency care procedures (e.g. cardio-pulmonary resuscitation, abdominal thrusts, respiratory support, automated external defibrillator)		
	Importance	N
Nonrespondents	3.57	44
Respondents	3.74	14025
Assess psychosocial, spiritual, cultural and occupational factors affecting care		
	Importance	N
Nonrespondents	3.76	49
Respondents	3.18	16581
Provide end of life care to clients and families		
	Importance	N
Nonrespondents	3.19	42
Respondents	3.38	3538
Supervise care provided by others (e.g. LPN/VN, assistive personnel, other RNs)		
	Importance	N
Nonrespondents	3.48	44
Respondents	3.23	16645
Serve as a resource person to other staff		
	Importance	N
Nonrespondents	3.61	41
Respondents	3.21	4144
Plan and/or participate in the education of individuals in the community (e.g. health fairs, school education, drug education, sexually transmitted diseases)		
	Importance	N
Nonrespondents	2.89	37
Respondents	2.71	11079
Teach clients and families about the safe use of equipment needed for healthcare		
	Importance	N
Nonrespondents	3.68	44
Respondents	3.35	4094

Average Months Working as an RN

Nonrespondents had been working an average of 13 months as an RN. Due to the time span between the initial survey and the nonresponder survey, participants in this study had been working longer than original respondents who had worked an average of five months.

Activity Statement Ratings

For each of the 10 activities, nonrespondents were asked to rate the overall importance of the activity considering client safety, and/or threat of complications or distress. They were asked to use the following scale: 1=Not Important, 2=Somewhat Important, 3=Important, and 4=Extremely Important. Table 1 shows the nonresponder importance ratings for each of the activity statements compared to the total group importance ratings of the survey respondents. As can be seen, importance ratings by nonrespondents were very similar to ratings by the original respondents. All ratings were within one point of one another.

Summary

Fifty nonrespondents from the 2006-2007 RN Continuous Practice Analysis Survey were called by interviewers. The majority of non-respondents did not remember receiving the initial survey. Nonrespondents had been working an average of 13 months as an RN as compared to the survey respondents who had been working an average of five months. Both cohorts generally agreed with regard to importance ratings of the activity statements. Using this data, it would appear that there may be no system-

atic differences in the responders versus nonresponders and the researcher could conclude that the statistics from the sample could generalize to the target population.

Survey researchers are often concerned about the nonresponse bias (Groves, Fowler, Couper, Lepkowski, 2004). The use of a nonresponder study can assist researchers to address the issue of nonresponse. NCSBN began using the methodology in 2006 and has been refining and enhancing the methodology to include additional nonresponders and additional activities in the telephone interviews.

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