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INVALID PATIENT SURVEYS: NOT A BARGAIN AT ANY PRICE

What concerns me is not the way things are, but rather the way people think things are.

—Epictetus

Low response rates to mail surveys and the attendant possibility of nonrepresentative or invalid study results have caused distress to researchers for more than 150 years (Goodstadt et al. 1977; Scott 1961). This distress is well founded.

Much research indicates that nonrespondents in sample surveys differ markedly from respondents on social, cultural, economic, and demographic variables as well as in their interest and involvement in the subject of the investigation (DeMaio 1980; Donald 1960; Filion 1976a; Kivlin 1965; Larson and Catton 1959; McMillan and Rosenbaum 1986; Norman 1948; Parten 1966; Suchman and McCandless 1940).

Press and Ganey speciously minimize the problem of non-response in mailout self-administered questionnaires. They state, "When questionnaires are sent randomly to at least half the patients, a 30% return yields absolutely statistically valid results."

What concerns me is not that Press and Ganey choose to ignore the large body of literature on nonresponse bias, but rather that their empirically unsupported and untenable assertion could provide a false and potentially costly sense of security to the very people they indicate desire to assist: "... the health care administrator who must balance the need for valid patient satisfaction data with the very practical necessity of meeting a limited budget."

Jack Gallagher

The key concept here is "valid patient satisfaction data." Invalid information from patient studies is not a bargain at any price. In fact, such information could lead to costly mistakes.

If the health care administrator were to believe Press and Ganey, he or she could be confident of obtaining "statistically valid" results from a single mailing of patient questionnaires even though information was not provided by seven of the 10 selected patients. Both common sense and the research literature indicate that such confidence is not warranted.

The fact is that Press and Ganey have no basis for assuring "statistically valid" results under such circumstances. One need not be an empirical genius to see the absurdity of assuring "statistically valid" results when the nonresponse rate is 70% or more. Like a lamppost without a light, such assurance may provide needed support for someone who needs something to lean against, but it does little to illuminate.

To help understand this, it may be useful to examine what is meant by valid patient study results. According to Alreck and Settle (1985), validity is the degree to which the survey data or results are free from both *random error* and *systematic bias*. To obtain "statistically valid" results, therefore, patient study results would have to be free of both random error and systematic bias.

Given the fact that there are no absolutes when it comes to patient perception, let us examine how much relative validity a single mailing of a patient questionnaire (even a well-designed and appropriately positioned one) is likely to have with a 70% nonresponse rate.

The extent to which the first requirement of validity (minimizing random error) is met depends on the number of completed questionnaires *obtained*, not the number sent out. Consequently, the health care organization needs only to estimate the response rate and send out enough questionnaires to yield the appropriate number of responses required for an

acceptable sampling error (Alreck and Settle 1985). An acceptable sampling error should not be confused with "statistical validity."

The extent to which the second requirement of validity (minimizing systematic error) is met depends on the degree to which the opinions about hospital services and attributes of persons who respond are representative of those who do not. A growing body of literature indicates that the *opinions* of some segments of a study population are overrepresented and those of others are underrepresented when there is a high rate of nonresponse (Ellis, Endo, and Armer 1970; Filion 1976b; Mayer and Pratt 1966; Walters and Ferrante-Wallace 1985).

This point can be illustrated with a simple example. Assume you have responsibility for assessing income levels of residents in your community and further assume that you decide to do this by mail questionnaire. How accurate (valid) is the information collected likely to be?

We know that not everyone is equally likely to respond to or to respond accurately to a question about their income (Skelton 1963). For example, many people in high income brackets will not respond to questions about their income. Hence your returned questionnaires will understate the actual income levels in your community. Furthermore, the higher the percentage of upper income families in your community, the less accurate or valid you would expect the results of your study to be. The picture would become even more cloudy if you were comparing the results from your community with the results from others.

One reason for Press and Ganey's assertion that single-mailing, low-response-rate questionnaire patient studies are valid is that "... experience with numerous hospitals over a period of several years reveals solid consistency in questionnaire data over time." Such consistency is not an indication of validity. It may mean that certain patient opinions, perceptions, and characteristics are *consistently* overreported or underreported. Sudman et al. (1987) warn against using consistency of results (even in panel studies) as an indication of validity.

Another reason given by Press and Ganey in support of the validity of low-response-rate questionnaire results is sample demographic representativeness. They note that their experience indicates that "... questionnaire respondents can be *very* representative of the hospital population as a whole." Such sociodemographic comparability is a rarity in the research literature (Filion 1976a). Even if respondents are demographically similar to the total patient population, important subsegments (i.e., surgical patients, obstetrical patients, etc.) may not be demographically similar.

Nonresponse, whether in a mailed-questionnaire study or a telephone study, can have a significant impact on study validity and management decisions. The costly impact of ignoring nonresponse bias was illustrated dramatically by the experience of a hospital in Cincinnati (Walters and Ferrante-Wallace 1985). The hospital contracted with a reputable market research firm to conduct a large consumer study. Unbeknownst to the hospital, the research firm made no attempt to convert refusals or to minimize nonresponse. The result was a refusal rate of approximately 50%. After reviewing the results, hospital managers were reportedly very upset with the hospital's image and were considering an expensive advertising campaign. Fortunately, they learned of the nonresponse problem in time. They required the research firm to attempt contact with a representative sample of the nonrespondents. When the opinions of nonrespondents were included in the study results, the hospital found that the expensive advertising campaign was not needed.

Though not a patient satisfaction study, the preceding example does demonstrate the potentially disastrous effects of nonresponse bias, even though the response rate was 20% higher than Press and Ganey's 30% criterion.

The implication of the studies cited and numerous others is obvious. Intensive and vigorous followup is required in any study in which the level of nonresponse is high. It can be accomplished by (1) taking steps to increase the response rate and thus reduce nonresponse and (2) attempting to assess and adjust for the effects of nonresponse bias (Alwin 1987).

Repeated mailings have been shown to yield exceptionally high response rates. Heberlein and Baumgartner (1978) found that two followups yielded an average 81% return rate for 25 studies. Such followups can be used effectively by hospitals. In some instances, following up second mailings with additional telephone contacts is desirable.

Press and Ganey advise against repeated mailings. They note the added expense of blanket second mailings to the whole sample. Fortunately, blanket second mailings can be avoided by identifying nonrespondents through numbered questionnaires. Press and Ganey argue that this procedure destroys anonymity and thus can be intimidating to certain respondents. However, the intimidation issue may not be as significant as Press and Ganey would have us believe. Our experience with patient studies conducted by telephone reveals very few refusals, little item nonresponse, and few instances of respondent hesitancy to answer questions posed. The problem can be avoided altogether in mail surveys if a return card is included in the first mailing. This card, which is returned separately, enables the respondent to indicate that the questionnaire was completed and mailed without revealing his or her identity on the questionnaire.

Press and Ganey contend that followup is either unnecessary, too costly, or not practical for the typical hospital. The truth is that the typical hospital cannot afford to expend resources for data of unknown accuracy. It is much better and more cost effective to conduct fewer and more valid studies than to repeat the same errors continually on a more frequent basis.

It is true that adjusting statistically for nonresponse bias is a highly technical endeavor and one that is beyond the capabilities of most health care organizations. However, it should not be beyond the capabilities of a competent research firm. Health care administrators should insist that their research professional use appropriate procedures for assessing the direction and magnitude of nonresponse and that indicated adjustments be made where appropriate.

The economic advantage of using mail questionnaires for patient studies begins to disappear as the efforts to eliminate or correct for nonresponse increase. Nevertheless, these efforts are necessary if the mail questionnaire method is to be employed.

One final comment on the Press and Ganey article is warranted. They encourage the avoidance of poor or simplistic analytical procedures and software to analyze survey responses. This is certainly vital. However, Lehman (1963) warns that a mathematical probability sample is required for the use of such procedures. Blalock (1960) previously stated: "Thus, even though pains may have been taken initially to obtain a probability sample, certain individuals actually have no probability of being included in the ultimate sample because they have selected themselves out by refusing to answer."

In conclusion, it should be clear to the budget-conscious administrator that the validity of single-mailing questionnaire patient studies cannot be assumed. Hotels, financial institutions, and other service organizations have long realized that obtaining valid feedback from customers is not a simple and inexpensive process but one that is indispensable. Accurate customer (patient) feedback is just as indispensable for the health care organization. The cheapest alternative may not only be the least satisfying, but may also be the most costly in the long run.

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