

# Validity and Reliability of Responses of the Aged to Surveys and Questionnaires

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Information gathered from the aged through interviews and questionnaires is important to the family physician. The practicing family physician may derive much of the patient data base from self-administered health questionnaires. The family physician who is investigating the problems of old people may base research endeavors on survey data. Thus the quality of the data derived from interviews and questionnaires should concern the family physician. Because traditional, though disputed, gerontological theory states that cognitive abilities decline as people age, the information derived from surveys may be questioned. To answer this concern, this paper describes major studies from various fields dealing with the validity and reliability of old people's responses.

## Literature Review

Studies of survey reliability and validity have been reported in different topic areas including census reports, demographics, voting behavior, income reports, and health services. As used by the authors of these studies, reliability means test-retest correspondence. Typically, a researcher correlates the responses on an item of initial survey

with answers to the same items on a subsequent survey two weeks to one year later. For example, investigators measure the reliability of the United States census by an intensive reinterview in a random sample of households. In the accuracy studies, validity is estimated on the basis of a comparison of the subject's response with an outside criterion assumed to be correct. For example, the subject's medical records, social security files, and bank records serve as validating criteria standards.

Four major studies in the last decade have reported the reliability of the responses of older subjects compared with younger respondents. Two US census studies have revealed that there are no significant age differences in reporting ethnic origin or extent of vocational training.<sup>1,2</sup> Ridley<sup>3</sup> found that both young-old (aged 65 to 75 years) women and old-old (over 75 years) women have good recall and reliable response on reproductive history topics. Although Hochstin and Renne<sup>4</sup> stated that the elderly give less reliable responses in a health interview questionnaire, the investigators did not present the data in the report. Thus, older subjects generally have been found to respond as reliably as younger subjects.

Many studies exist ascertaining the effect of age on response validity. In a major study comparing questionnaire responses with public records, Calahan<sup>5</sup> found that the oldest age group he studied (over 60 years) was more accurate on certain questions such as reporting contributions to public charities but less accurate in reporting voting behavior. A major study of personal financial activities also found variable results concerning the effects of age on the validity of responses.<sup>6</sup>

Two studies comparing interview responses

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with Social Security files reported conflicting conclusions. Haber<sup>7</sup> stated that the oldest age group in his study (over age 73) gave more accurate demographic information, whereas Ono et al<sup>8</sup> reported the oldest group (over 72 years) to be the least accurate. Five studies of responses on health interview questionnaires reveal that the oldest groups tend to underreport hospitalizations but to be more accurate in reporting chronic medical conditions.<sup>8-13</sup> Thus, no consistent age effect on response validity can be found in a review of the literature.

### Comment

The studies cited reveal that the aged demonstrate no marked trend to respond less reliably or accurately to questionnaires or interviews; indeed, on certain survey items this age group may be more reliable or accurate.

This conclusion is consistent with the finding of two major studies in the survey response literature. Sudman and Bradburn,<sup>14</sup> after analyzing the literature up to 1973, reported that age does not contribute to major response effects. Cannell et al,<sup>15</sup> after reviewing the studies sponsored by the National Center for Health Statistics, stated that old age contributes only small, albeit statistically significant, effects on response reliability and validity. However, both authors conclude that the characteristics of the survey question, the condition of the interview, and interviewer attributes far outweigh the age of the respondent in determining answer consistency and accuracy. The magnitude of the variation in response reliability and validity due to survey characteristics overwhelms variation across age groups. Stanley<sup>16</sup> and Sudman and Bradburn<sup>14</sup> present charts detailing survey characteristics that may contribute to unreliability and inaccuracy; these charts may be helpful to investigators.

There are limitations in the cited studies that may weaken the conclusion that no consistent age effect on reliability and validity exists. The elderly population is a diverse, heterogeneous group. The response characteristics of the old-old (over 75 years) and the institutionalized aged may be markedly different. Unfortunately, the old-old and the institutionalized aged are underrepresented or excluded in these studies. Because the studies often use household surveys, they exclude the institu-

tionalized elderly population. Impaired aged, especially in the demented, would be underrepresented because of institutionalization. Including the cognitively impaired could markedly alter the overall response discrepancy of the aged group. Much research needs to be done on the response characteristics of the old-old and the institutionalized populations.

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