American Journal of Community Psychology, Vol. 16, No. 1, 1988

Feasibility of Validating Survey Self-Reports of Mental Health Service Use[1]

Jacqueline M. Golding[2] and Patricia Gongla
Department of Psychiatry and Biobehavioral Sciences, University of California, Los Angeles

Arlene Brownell
Indiana State University

Survey respondents may inaccurately report mental health service utilization for motivational and cognitive reasons. There is little evidence on accuracy of self-reports of mental health service use, and this evidence suggests that respondents tend to underreport inpatient utilization. This study addressed the question of self-report accuracy by comparing survey data from a large probability sample to data from computerized records of publicly funded mental health services. Few inaccuracies in self-reporting were detected. However, despite the use of data bases that were unusually appropriate for verifying self-reports, several problems limited the feasibility of validation. Suggestions are offered for increasing the feasibility of validation in future studies.

[1]This research was supported by PHS grant #1001 35865 and the Epidemiologic Catchment Area Program (ECA). The ECA is a series of five epidemiologic research studies performed by independent research teams in collaboration with staff of the division of Biometry and Epidemiology (DBE) of the National Institute of Mental Health (NIMH). The NIMH Principal Collaborators are Darrel A. Regier, Ben Z. Locke, and Jack D. Burke, Jr.; the NIMH Project Officer is William J. Huber. The Principal Investigators and Co-Investigators from the five sites are (Yale University, U01 MH 34224) Jerome K. Myers, Myrna M. Weissman, and Gary L. Tischler; (Johns Hopkins University, U01 MH 33870) Morton Kramer and Sam Shapiro; (Washington University, St. Louis, U01 MH 33883) Lee N. Robins and John E. Helzer; (Duke University, U01 MH 35386) Dan Blazer and Linda George; (University of California, Los Angeles, U01 MH 35865) Marvin Karno, Richard L. Hough, Javier I. Escobar, M. Audrey Burnam, and Dianne M. Timbers. A portion of Jacqueline Golding's and Arlene Brownell's work occurred while they were postdoctoral fellows on an NIMH psychiatric epidemiology training grant; Michael S. Goldstein, Director, School of Public Health, at the University of California, Los Angeles. We thank Richard Hough for helpful comments on an earlier draft of this paper.

[2]All correspondence should be sent to Jacqueline M. Golding, School of Public Health, University of California, Los Angeles, Los Angeles, California 90024.

0091-0562/88/0200-0039$06.00/0

Epidemiologic surveys of mental health service utilization must typically rely on respondents' self-reports. However, for several reasons, it is questionable whether respondents report utilization accurately. The present study assesses the consistency of survey respondents' self-reports of mental health service utilization with a centralized provider record of publicly funded service use. It also provides data on some potential barriers to accurate reporting.

Respondents' motivational and cognitive states may affect the validity of survey data in general (Cannell, Fisher, & Bakker, 1965; Cannell, Miller, & Oskenberg, 1981), and each has implications for research on mental health service utilization. Respondents may be motivated to distort self-reports for reasons involving social undesirability, threat or embarrassment, and self-presentation. Bradburn, Sudman, Blair, and Stocking (1978) noted that respondents are likely to underreport socially undesirable behavior. To the extent that mental health service utilization is socially undesirable (Goffman, 1963), we would expect respondents to underreport it. Embarrassing or threatening survey topics are also associated with underreporting (Bradburn et al., 1978; Cannell et al., 1965, 1981; Cannell, Marquis, & Laurent, 1977; Sudman & Bradburn, 1974). In one study, the investigators rated the amount of threat associated with various reasons for hospitalization, and found that "the most seriously underreported episodes were mental and personality disorders" (Cannell et al., 1965, p. 24). Another motivational issue that may affect reporting accuracy is self-presentation. Respondents may face a conflict between socially desirable self-presentation, as discussed above, and self-presentation as a "good respondent" who gives complete, honest answers (Sudman & Bradburn, 1974).

There are also potential cognitive barriers to accurate reporting. One of these is memory (Cannell et al., 1981). Research has shown that underreporting of health events increases as the elapsed time between the event and the interview increases, presumably because respondents are more likely to forget events in the more distant past (Cannell et al., 1965, 1977, 1981). Memory may be particularly problematic in studies of mental health service utilization, since psychological disorganization that leads to utilization may also lead to difficulties with memory. Cannell et al. (1981) also note that, for accurate reporting, the respondent must have the cognitive capacity to understand what the interviewer wants. This understanding may be impaired for similar reasons.

Research on the Accuracy of Self-Reports of Health Service Use

Mental Health Services. We have been able to locate only two studies that specifically address the validity of self-report data on mental health

service utilization. In one study (Spector & Bedell, 1982), persons admitted to a state hospital retrospectively reported previous hospitalizations. The investigators followed them for 18 months after discharge and recorded their prospective reports of rehospitalization after the index episode. Although there were significant correlations between respondents' self-reports and hospital records of the number of previous hospitalizations, total length of previous hospitalizations, and number of hospitalizations at follow-up, hospital records explained only one-fourth to one-half of the variability in self-reports. Retrospective data revealed a 65% underreporting rate, a 22% overreporting rate, and a 13% rate of accurate reports. In general, this study showed psychiatric hospitalization to be underreported. The second study (Cannell et al., 1965) was based on interviews of 1,505 people who had been discharged from hospitals within a year. Of the 25 episodes in which a "mental or personality disorder" was the reason for hospitalization, 32% were unreported in the interview. This rate contrasted with a median rate of 13% for nonpsychiatric medical problems. Underreporting rates for nonpsychiatric medical problems ranged from 0% (for arthritis and gallbladder diseases) to 23% (for benign and unspecified neoplasms, pre- and postnatal conditions, and miscellaneous conditions). There are difficulties in generalizing the results of these studies to epidemiologic data because they concerned only inpatient utilization. It is plausible that persons using inpatient services tend to have more severe disorders than persons using outpatient services. To the extent that reporting accuracy decreases as severity of psychological disorder increases (as a result of the cognitive barriers mentioned earlier), outpatient utilizers might report more accurately on the average. Because epidemiologic studies focus on general populations, their respondents, which include nonutilizers and outpatient utilizers, may tend to report more accurately. On the other hand, there is evidence that relatively serious episodes of illness (Cannell et al., 1965) and health events having a high degree of personal importance or significance to the respondent (Cannell et al., 1977) are less likely to be underreported than their less serious or significant counterparts. To the extent that, for both these reasons, psychiatric hospitalization has a greater impact on the respondent than use of outpatient services, inpatient utilization should be underreported less frequently than outpatient utilization.

Medical Services. Validation research has focused more on utilization of medical services than on use of mental health services. Several studies validated respondents' self-reports of hospital episodes against hospital records. One study showed net overreporting of medical hospitalization (Andersen, 1975; Andersen, Kasper, Frankel, Banks, & Daughety, 1979). The author noted, however, that the study was "not optimally designed" to detect underreporting, and thus may have underestimated it. Other studies (Cannell

et al., 1965; Cannell & Fowler, 1965), including one study that used reinterviews as the validity criterion (Koons, 1973) and a metastudy (Sudman & Bradburn, 1974), found that between 9 and 17% of hospitalizations were underreported. In an additional study, 4% of hospitalizations were underreported and 4% were overreported (Barlow, Morgan, & Wirick, 1960). A study of elderly persons' self-reports found 91% accuracy, but did not specify the direction of inaccuracies (Green, Kaufert, Corkhill, Creese, & Dunt, 1979). Researchers have also addressed the validity of self-reports of physician visits. Four studies found overreporting (Andersen, Lion, & Anderson, 1976; Andersen et al., 1979; Tessler, Mechanic, & Dimond, 1976; Turkat, 1982). The extent of overreporting is difficult to determine because the reported rates are not comparable across the three studies. Sudman and Bradburn's (1974) metastudy concluded that there is an underreporting rate of 11–36%. Other studies reported rates of overall match between self-reports and medical records without stating the direction of nonmatching reports. For example, Green et al. (1979) reported a rate of 80–91% accuracy over the various types of medical visits they studied.

Social Services. Two studies addressed the validity of elderly persons' self-reports of utilization of social services such as homemaking services, recreational activities, and meals-on-wheels. In one study, the correlations between self-reports and agency reports ranged from .885 to 1.00 with specific rates of under- and overreporting unspecified (Coulton & Frost, 1982). In the other study, respondents reported their use of meals-on-wheels services over the past week with 100% accuracy, and agreed with records 87% of the time about the frequency with which they received home help services (Green et al., 1979).

The Present Study

There are a priori reasons to question the accuracy of self-reports of mental health service utilization above and beyond reasons for questioning self-reports of health or social service utilization in general. Both motivational and cognitive factors may be particularly detrimental to accurate reports of mental health service utilization. Little empirical study has addressed this question, but extant studies suggest that inpatient mental health service utilization, at least, is underreported to a greater degree than is utilization of other social and medical services. The present study explores the accuracy of self-report inpatient and outpatient mental health service utilization in a large-scale epidemiologic survey. We assess overreporting by examining provider records of persons stating in the survey that they utilized services. To assess underreporting, we examine provider records of persons who did not report mental health service utilization.

METHOD

The methodology is based upon a comparison of utilization data from two sources: self-report data from the Los Angeles Epidemiologic Catchment Area (LA-ECA) survey and service provider data from the Los Angeles County Department of Mental Health's computerized management information system (County MIS). A brief description of each of these sources is given before presenting the details of the specific methods for this study.

Self-Report Data from the LA-ECA

The LA-ECA project is one of five studies of the National Institute of Mental Health's collaborative ECA program to estimate rates of prevalence and incidence of specific DSM-III disorders and to examine mental health care utilization patterns. Descriptions of the ECA design are available elsewhere (Eaton et al., 1984; Eaton, Regier, Locke, & Taube, 1981; Hough, Karno, Burnam, Escobar, & Timbers, 1983; Regier et al., 1984). Respondents were selected randomly to represent persons 18 years of age and older in two community mental health catchment areas. One catchment area is 63% non-Hispanic white and the other is 83% Hispanic. At the time of the ECA survey, respondents gave informed consent both for the interview and for examination of their Los Angeles County mental health records.

Provider Records from the County MIS

The County MIS is a computerized system for recording and tracking all publicly funded mental health services provided in Los Angeles County. All state and county agencies are included in the system, as well as private providers, such as community mental health centers and hospital clinical services, that have contracts with the County to provide services for Short–Doyle funds. Short–Doyle funds are the major block of public funds for mental health services. Informed judgment is that a majority of all mental health services in the County are provided by Short–Doyle-funded agencies.

For each client, the County MIS gives data on diagnosis, agency used, units of service, and type of service, as wll as identifying information such as address, alternate names, and birth dates. On-line in the system is a 2-year history of service use. The system is updated daily.

Respondents

Respondents for this validation study were drawn from the 1,141 cases in the larger LA-ECA sample that were available for analysis at the time

of the study. Three selection procedures were used, based on the respondent's report of mental health service utilization. Respondents were first asked whether they had ever sought help for "problems with emotions, nerves, drugs, alcohol, or their mental health" from 18 enumerated types of providers. Those whose responses were affirmative were then asked: "You mentioned that you went to (provider) for problems with your emotions, mental health, drugs, or alcohol. Have you been to or talked with (any of them/this person or place) in the last 6 months? (if yes,) What was the name of the person or place you went to most often?" The interviewer coded the response into one of the 18 provider categories shown in Table I.

The first sampling procedure involved selecting every respondent who indicated having used any service within the previous 6 months that was likely to be a Short-Doyle provider; that is, mental health specialist, health plan, or clinic (03), medical doctor, health plan, clinic (05), mental health center (06), psychiatric outpatient in general hospital (07), outpatient clinic in psychiatric hospital (08), drug clinic (10), alcohol clinic (11), hospital emergency room (12), family or social service (13), or crisis center or hotline (15). Fifty-two respondents met this criterion. The second selection procedure involved drawing every respondent who did not report using these mental health services and who met criteria for any of the DSM-III diagnoses included within the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981), except for diagnoses of tobacco dependence or sexual dysfunction; 258 respondents were selected by this second criterion. The third procedure involved drawing a 10% random sample, stratified by gender and ethnicity, of respondents who did not report using mental health services and who did not meet criteria for any DIS/DSM-III diagnosis (n = 90).

Table I. Provider Categories in LA-ECA Survey

Type of provider	Category
Friend (A)	01
Religious person (B)	02
Mental health specialist, health plan, or clinic (C)	03
Mental health specialist, private practice (D)	04
Medical doctor, health plan, clinic (E)	05
Mental health center (F)	06
Psychiatric outpatient in general hospital (G)	07
Outpatient clinic in psychiatric hospital (H)	08
Outpatient clinic at VA hospital (I)	09
Drug clinic (J)	10
Alcohol clinic (K)	11
Hospital emergency room (L)	12
Family or social service (M)	13
Self-help group (N)	14
Crisis center, hotline (O)	15
Natural therapist, etc. (P)	16
Curandero etc. (Q)	17
Other (Specify: _____) (R)	18
Nowhere	96

Of the 1,141 available records in the larger ECA sample, 48% (n = 544) were male and 52% (n = 596) were female. The mean age of the sample was 41.31 years. Sixty-one percent of the sample (n = 688) were Hispanic, 28% (n = 323) were non-Hispanic white, and 11% (n = 124) belonged to other ethnic groups. Forty-nine percent (n = 566) were married, 24% (n = 265) were formerly married, and 27% (n = 307) were never married. Respondents had completed a mean of 10.38 grades of school, with a range of 0 to 20 or more years. Fifty-six percent (n = 622) were currently employed; 46% (n = 513) reported family incomes under $15,000, 45% ($n$ = 505) reported higher family incomes, and 9% (n = 102) did not respond to the question about their income. In nearly half the cases (47%, n = 523) this income supported one or two people, with incomes over $15,000 more likely to support two people and lower incomes more likely to support one person.

RESULTS

We assessed overreporting by inspecting County MIS records of LA-ECA respondents who reported using services that may have been Short–Doyle-funded. We assessed underreporting by inspecting County MIS records of a subsample of LA-ECA respondents who reported not using these services. Table II shows the relationship between self-report of utilization in the LA-ECA survey and County MIS records of utilization.

Overreporting

Fifty-two respondents reported utilizing outpatient mental health services in the last 6 months that may have been Short–Doyle-funded. No respondents reported utilizing inpatient services in this category in the last 12 months. Of these 52 cases, 8 had corresponding records in the County MIS. Inspection of the interview instruments indicated that an additional 23 of the 52

Table II. Relationship Between Self-Report and County MIS Record of Mental Health Service Utilization

	County MIS record on utilization			
ECA self-report on utilization	Yes	No	Not verifiable	Total
Yes	8	44[a]		52
No[b]	1-14[c]	318	16	348

[a]23 of these cases were clearly not overreports and 13 were ambiguous, and 8 were potential overreports (see text).

[b]Of these 348 cases, 258 received at least one DIS/DSM-III diagnosis in the LA-ECA survey.

[c]One case clearly belongs in this cell. The remaining 13 may belong in this cell or the lower right cell (see text).

respondents had reported utilizing services that were clearly not supported by Short–Doyle funds: 19 had used private providers and 4 had used out-of-state providers. Thus, 8 respondents had reported accurately and an additional 23 had reported accurately as far as we could tell.

Of the 52 cases, 13 were ambiguous; for example, the respondent reported only a provider's name, reported an unnamed provider or facility, or reported not knowing the provider's name. If these respondents were referring to Short–Doyle providers they would have been overreporting, since there were no records of their names in the County MIS.

In the remaining eight cases, respondents reported utilizing facilities that had contracts to provide Short–Doyle services, but also provided privately funded services. These respondents' names did not appear in the County MIS. We were unable to determine whether these respondents were referring to publicly or privately funded services in their responses. These cases may represent overreporting of publicly funded services or simply may be accurate reports of privately funded services not contained in the MIS system.

It is possible, therefore, that no overreporting occurred. If the eight respondents who reported utilizing facilities that have Short–Doyle contracts were overreporting, the overreporting rate would be 15.4%. This figure appears to be an appropriate upper limit on overreporting of publicly funded services.

Underreporting

We assessed underreporting in a sample of 348 respondents who described themselves as not having utilized services that were likely to include Short–Doyle-funded facilities. Of these, 258 received at least one DIS/DSM-III diagnosis in the ECA survey, and 90 received no diagnosis. Of these 348 cases, 318 had no matching records in the County MIS. Sixteen could not be checked because respondent names were unavailable at the time of the study. One respondent, who was from the diagnosable subsample, had a record in the County MIS. The remaining 13 were cases in which it was unclear whether an ECA interview and a County MIS record referred to the same person. Therefore, there was an underreporting rate of at least 0.3%, considering the one clear underreport. An appropriate upper limit, considering this case and the 13 with unclear matches in the County MIS, is 4.0%.

Respondents' Understanding of Interview Questions

A necessary condition for accurate reporting is that the respondent understand the interviewer's question (Cannell et al., 1981). In the present con-

text, the respondent must understand that the interviewer is asking about services actually received, rather than services sought but not received; for example, respondents who make, but do not keep, an appointment in a mental health clinic, or who request services but are told that they are ineligible to receive them at that facility.

We assessed the extent to which respondents understood the ECA utilization questions by using County MIS records with the notation, "client has no episode." These refer to persons who contacted a facility but did not receive services; for example, persons who request services but are told they are ineligible to receive them. If persons with this notation report utilizing services, it is plausible that they used an overly inclusive definition of utilization. Of the eight respondents who reported utilization of facilities with Short-Doyle contracts, as verified by the interview instrument, two had County MIS records with the no-episode notation.

Conversely, if persons with the no-episode notation reported not utilizing services, their definition of utilization was consistent with that of the investigators. This occurred with 7 of the 348 respondents who reported not utilizing likely Short-Doyle services. Four of these seven respondents received DIS/DSM-III diagnoses in the ECA survey. In summary, in the nine cases in which we were able to assess the respondents' understanding using this procedure, 22% ($n = 2$) appeared to misunderstand the question and 78% ($n = 7$) appeared to understand the question correctly.

Temporal Variables in Recall of Episodes

One hypothesized reason for inaccurate reporting is that people may not remember correctly when an episode occurred. If an interviewer asks about episodes over the past 6 months, and an episode occurred 7 months ealier, the respondent may believe it happened within 6 months and report it incorrectly. Alternatively, if the episode occurred 5 months earlier, the respondent may believe it occurred more than 6 months ago and incorrectly fail to report it (Cannell et al., 1965). We assessed the extent of this problem by inspecting cases in which, in the ECA survey, the respondent reported not utilizing services within the past 6 months, and a County MIS record existed for that respondent. This occurred in two cases: One was the underreport mentioned earlier; and in the other, the respondent correctly did not report an episode that had occurred prior to the 6 months preceding the interview. Clearly, this test is not as extensive as would be ideal. An additional limitation of these data with respect to allowing inferences about temporal accuracy is that according to the County MIS, the second respondent's episode occurred not close to the border of the 6-month period to which the interview referred but 27 months before the interview (21 months before the beginning of the period in question). In an additional case, a respondent

reported utilizing services within the past 6 months, whereas the County MIS showed the last date of service as 8 months before the interview. In summary, in the two cases that permitted assessment of temporal errors in self-report, it appeared that correct reporting occurred in one case and incorrect reporting in the other.

DISCUSSION

The present study assessed the accuracy of self-reports of mental health service utilization in a large community survey by comparing these to provider records of utilization of publicly funded services. Few definite inaccuracies were detected, but several problems arose in the validation process.

Accuracy of Survey Self-Reports

There were few clear cases of inaccurate reporting. The rate of overreporting ranged from 0 to 15.4%, and the rate of underreporting ranged from 0.3 to 4.0%, depending on the stringency of the criteria by which respondents were identified in the two samples. This overreporting rate is less than the 22% rate reported in Spector and Bedell's (1982) study of inpatients. Underreporting in the present study is also much less frequent than in inpatient studies (32% in Cannell et al., 1965; 65% in Spector & Bedell, 1982). Sampling differences (community vs. patients), content differences (outpatient vs. inpatient use), and provider record differences (County MIS vs. individual hospital records) all may contribute to these differences in findings.

The data provide limited information about respondents' understanding of interview questions and about the effect of temporal variables on reporting. The majority of respondents appeared to understand the survey question in the way that interviewers meant it. Results on accuracy of reporting utilization during the correct time period were mixed and were based on too few cases to allow valid inferences.

Feasibility of Validation

Several problems compromise the feasibility of validating LA-ECA self-reports using County MIS records. One problem is difficulty in ascertaining whether an LA-ECA response referred to a Short-Doyle provider. For example, respondents who reported using providers who have Short-Doyle contracts may or may not have used Short-Doyle services within that facility. A related problem in verification is that inspection of responses indicating

potential use of Short–Doyle-funded providers (e.g., mental health specialist) often revealed that the respondent had used a private provider. These responses could not be verified through the County MIS. A third problem is that some interview responses were incomplete. For example, respondents reported only a provider's name, reported an unnamed provider or facility, or reported not knowing the provider's name. In some cases, respondents' names were unavailable. None of these responses could be verified. A fourth problem is associated with occasional incompleteness in County MIS records. For example, an MIS record for a person with a common name might lack a birth date or address by which an LA-ECA respondent might be identified. As Andersen et al. (1979, p. 129) noted, "a ... qualification is that we are generally accepting the reporting of hospitals, physicians, and insurers as the validity criteria. To the extent those reports are incomplete or inaccurate, our conclusions can be misleading."

CONCLUSIONS

The coexistence of the LA-ECA survey data and the County MIS utilization records provided an unusual opportunity to assess the validity of self-reports of mental health service use. Few inaccuracies in self-reports were detected. However, despite the use of two data sets that were unusually appropriate for validation purposes, several problems occurred that severely limited thorough assessment of the accuracy of self-reports. In addition, the present study does not provide an empirical basis for generalization to populations differing from this sample in ethnicity, geographic location, or other demographic characteristics. Future studies need to address the extent of the present findings' generalizability. Until future research has resolved these problems, it is important to interpret the present findings cautiously.

The likelihood of having data bases like the County MIS available for comparison with self-report data is increasing (V. Duval, personal communication, March 21, 1986). Validation of self-reports is, therefore, likely to be more feasible in the future. Future research on validating self-reports of mental health service use might attempt to match self-report data even more closely to the provider record than was possible in the present study. For example, survey response categories could be designed to reflect providers that would be recorded in the provider record. Respondents might be asked about the provider's funding status directly or about payment procedures to determine whether they used publicly funded services. Increased efforts with respect to completeness of self-report data might also facilitate validation. For example, when self-report responses are unclear, interviewers could probe concerning major publicly funded providers. Although researchers can-

not change the accuracy or completeness of provider records, procedures like these might improve validation.

Studies that address the issues raised here have the potential to improve the quality of both research and practice in community psychology. Validation of survey self-reports of mental health service use would allow community psychology researchers to estimate any biases present and to adjust for them. This adjustment would improve the accuracy of research findings concerning the prevalence and correlates of use of these resources. To the extent that biases are minimal or nonexistent, data on validation would increase researchers' confidence in unadjusted survey findings. Similarly, estimation of biases in self-report would be useful to practitioners of community psychology for planning facilities and evaluating programs.

REFERENCES

Andersen, R. (1975). The effect of measurement error on differences in the use of health services. In R. Andersen, J. Kravits, & O. W. Anderson (Eds.), *Equity in health services: Empirical analyses in social policy.* Cambridge, MA: Ballinger.

Andersen, R., Kasper, J., Frankel, M. R., Banks, M. J., & Daughety, V. S. (1979). *Total survey error.* San Francisco: Jossey-Bass.

Andersen, R., Lion, J., & Anderson, O. W. (1976). *Two decades of health services: Social survey trends in use and expenditure.* Cambridge, MA: Ballinger.

Barlow, R., Morgan, J., & Wirick, G. (1960). A study of validity in reporting medical care in Michigan. *Proceedings of the American Statistical Association, Social Statistics Section,* 54-65.

Bradburn, N. M., Sudman, S., Blair, E., & Stocking C. (1978). Question threat and response bias. *Public Opinion Quarterly, 42,* 221-234.

Cannell, C. F., Fisher, G., & Bakker, T. (1965). *Reporting of hospitalization in the Health Interview Survey.* U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 2, No. 6, Washington, DC: U.S. Government Printing Office.

Cannell, C. F., & Fowler, F. (1965). *Comparison of hospitalization reporting in three survey procedures.* U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 2, No. 8. Washington, DC: U.S. Government Printing Office.

Cannell, C. F., Marquis, K. H., & Laurent, A. (1977). *A summary of studies of interviewing methodology.* U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 2, No. 69. Washington, DC: U.S. Government Printing Office.

Cannell, C. F. Miller, P. V., & Oskenberg, L. (1981). Research on interviewing techniques. *Sociological Methodology, 11,* 389-437.

Coulton, C., & Frost, A. K. (1982). Use of social and health services by the elderly. *Journal of Health and Social Behavior, 23,* 330-339.

Eaton, W. W., Holzer, C. E., Von Korff, M., Anthony, J. C., Helzer, J. G., George, L., Burnam, M. A., Boyd, J. H., Kessler, L. G., & Locke, B. Z. (1984). The design of the Epidemiologic Catchment Area surveys. *Archives of General Psychiatry, 41,* 942-948.

Eaton, W. W., Regier, D. A., Locke, B. Z., & Taube, C. A. (1981). The Epidemiologic Catchment Area program of the National Institute of Mental Health. *Public Health Reports, 96,* 319-325.

Goffman, E. (1963). *Stigma.* Englewood Cliffs, NJ: Prentice-Hall.

Green, S., Kaufert, J., Corkhill, R., Creese, A., & Dunt, D. (1979). The collection of service utilization data: A research note on validity. *Social Science and Medicine, 13A,* 231-234.

Hough, R., Karno, M., Burnam, M. A., Escobar, J., & Timbers, D. M. (1983). The Los Angeles Epidemiologic Catchment Area research program and the epidemiology of psychiatric disorders among Mexican Americans. *Journal of Operational Psychiatry, 14,* 42-51.

Koons, D. A. (1973). *Quality control and measurement of nonsampling error in the Health Interview Survey.* U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Series 2, No. 54. Washington, DC: U.S. Government Printing Office.

Regier, D. A., Myers, J. K., Kramer, M., Robins, L. N., Blazer, D. G., Hough, R. L., Eaton, W. W., & Locke, B. Z. (1984). The NIMH Epidemiologic Catchment Area program. *Archives of General Psychiatry, 41,* 934-941.

Robins, L. N., Helzer, J. E., Croughan, J., & Ratcliff, K. S. (1981). National Institute of Mental Health Diagnostic Interview Schedule: Its history, characteristics, and validity. *Archives of General Psychiatry, 38,* 381-389.

Spector, P. E., & Bedell, J. R. (1982). Measuring program effectiveness: Self-report versus objective indicators of recidivism. *American Journal of Community Psychology, 10,* 613-616.

Sudman, S., & Bradburn, N. M. (1974). *Response effects in surveys.* Chicago: Aldine.

Tessler, R., Mechanic, D., & Dimond, M. (1976). The effect of psychological distress on physician utilization: A prospective study. *Journal of Health and Social Behavior, 17,* 353-364.

Turkat, I. D. (1982). Diabetics' self-report of medical utilization: A test of validity. *Psychological Reports, 50,* 1160-1162.