DATA EVALUATION AND METHODS RESEARCH

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Reporting Health Events in Household Interviews:

Effects of an Extensive Questionnaire and a Diary Procedure

A methodological study designed to test the effectiveness of certain questionnaire designs and procedures used in the collection of data on health events in a household health interview.

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FOREWORD

This study, conducted by contractual arrangement with the Survey Research Center, Institute for Social Research, The University of Michigan, is the second in a series of three studies designed to investigate the effects of some experimental interviewing techniques on the amount and quality of information obtained during a health interview. (The first study is described in Series 2, Number 41.) The plan for this series was motivated by the findings of an earlier study on interviewer-respondent behavior also completed by the Survey Research Center. The basic study, which is described in Vital and Health Statistics, Series 2, Number 26, indicated that reporting in an interview can be more effectively improved by increasing the behavioral interaction of the respondent and the interviewer during the interview than by changing the basic attitudes of the respondent or increasing his levels of information.

In view of this finding, it seemed that improved reporting might be obtained by the introduction of techniques by the interviewer to encourage respondent reaction during the interview which would stimulate maximum recall. This approach, however, varied substantially from the usual practice of training interviewers to behave in a standardized manner during an interview. The standardized manner, which was restricted to asking questions and recording responses, was an attempt to reduce the known biasing influence on survey data that has been attributed to interviewer performance.

The design of this series of studies has taken advantage of the fact that interviewers and forms of question can influence respondents, and it has attempted to bring the potentially biasing behavior and question cues under control—in effect, to incorporate them as a part of the "standardized" interview. Through the interaction between the interviewer and the respondent and by varying the way in which the question is asked, it was expected that the activity level of the respondent could be changed, thereby increasing the amount and quality of reported health information.

Because of the complex relationship between methods of interviewing, the performance of interviewers, and the reporting of respondents, the problem of obtaining accurate data in a household interview is not a simple one. The findings from this investigation of experimental interviewing techniques indicate that verbal "reinforcement" of the respondent (i.e., appreciative comments by the interviewer following fruitful recall efforts by the respondent), question length, direct memory probing, an intensive interview, and a diary procedure can have important effects on survey interview data. More investigation is needed to determine the appropriateness of specific techniques for the collection of certain types of health information and to evaluate their effectiveness in terms of the validity, reliability, and amount of data reported.

Elijah L. White, Director
Division of Health Interview Statistics

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SYMBOLS

Data not available----------	---
Category not applicable----------	...
Quantity zero----------	-
Quantity more than 0 but less than 0.05-----	0.0
Figure does not meet standards of reliability or precision----------	*

REPORTING HEALTH EVENTS IN HOUSEHOLD INTERVIEWS

EFFECTS OF AN EXTENSIVE QUESTIONNAIRE AND A DIARY PROCEDURE

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INTRODUCTION

This report is the result of a study designed to improve the reporting of health information in the Health Interview Survey of the National Center for Health Statistics. This is one of a series of studies done over the past several years on problems of response bias, its magnitude, the sources of the bias, and some procedures to change respondent reporting behavior.

Empirical Background

Previous research has demonstrated a clear pattern of underreporting of hospitalizations, visits to doctors, and chronic conditions in data collected by the interview method. For hospitalizations and doctor visits this pattern of underreporting increases substantially with the lapse of time between the occurrence of the event and the interview. The curve of underreporting of hospitalizations,[1] based on a sample of over 1,800 episodes, increases fairly steadily from 2 percent in the 5 weeks nearest the interview time to 22 percent for 40 weeks prior to the interview, and then to 43 percent for the 52d week. The same pattern was replicated in another study of hospitalization reporting.[2] Research comparing respondent reports of doctors' visits with records from the physicians showed an underreporting rate of 15 percent for the first week prior to the interview and of 30 percent for the previous week.[3]

Previous studies have also demonstrated that the lapse of time is not the only determinant of the health information underreporting. The nature of the event and its importance or impact for the respondent are also related to the likelihood of report. The rate of underreporting for hospitalizations of under 5 days' duration is about twice the rate of those over 5 days' duration.[4] Similarly, episodes involving surgery are more accurately reported than nonsurgical cases.[5] Both length of stay and nature of the episode interact with the passage of time. Another study showed that chronic conditions of high recent impact are better reported than conditions of low impact.[6]

Methodological results from some of these studies plus others suggest that the nonreported material is not repressed or deeply suppressed but is to a large extent simply not elicited by standard interviewing procedures. These results have indicated that the use of different sets of questions and different techniques by different interviewers can decrease underreporting significantly. For example, over half the hospitalizations not reported in a first interview were reported in a second interview.[4] An experimental procedure which included a few extra questions, more explanation of purpose to respondents, and a mail followup also resulted in a significant increase in reporting known hospitalizations.[2] The addition of probes to major questions regarding doctors' visits reduced the

underreporting by 7 percentage points (30 percent to 23 percent).[3] Finally, another study indicates that the utilization of checklists also seemed to reduce the underreporting of chronic conditions.[7]

These earlier works point up the fact that underreporting of health information in household interviews represents a major problem affecting the accuracy of data collected. They also show that this underreporting is similar to typical memory loss and thus can be treated, to a certain extent, as a problem of recall. Finally, they indicate that some improvement in reporting can be obtained by devising questionnaire techniques which would facilitate and stimulate the recall process. While respondents tolerate a survey interview, it is presumed that their motivation to participate and their willingness to work hard to search out the information asked for cannot be expected to be spontaneous. Attempts to achieve more respondent involvement by sending letters and brochures or giving a fuller explanation of the purpose of the research do not seem to have any significant effect. It appears that two possible methods can lead to better role performance. One can develop techniques to increase the respondent's motivation to work harder at his role as reporter, or one can develop techniques to simplify his task and make his role easier. The present study will focus explicitly on the latter alternative. The overall strategy will be to facilitate the recall and reporting processes through the use of cognitive devices, but there is the possibility that a strictly cognitive approach can also indirectly increase the respondent's motivational level.

Theoretical Framework

Theories relating to memory and recall developed by psychologists are consistent with the empirical background presented above. The purpose here is not to review the literature in this area,[a] but only to indicate some of the issues relevant to this study.

[a]A condensed review of the literature on memory can be found on pages 18-34 of reference 8.

One tends to think of forgetting as a loss over time of once known information. The suggestion is that information has a "half-life" and that loss occurs at different rates. Modern theories indicate that forgetting is an active rather than a passive process. When discussing forgetfulness interference becomes an important concept. Interference theories state that forgetting is not a result of the mere passage of time, but is determined mainly by those actions or events preceding and following the initial memorization. Most laboratory experiments in this area focus on the negative effects of interference upon retention, as measured by subsequent recall. For instance, it is probably harder to recall the names of persons introduced if an immediately preceding or a subsequent meeting has also required the learning of new names. Interference is advanced as a major explanation for forgetting. While this interpretation has been largely substantiated through classical laboratory experiments dealing with nonsense syllables, its direct transposition to real life situations remains somewhat questionable. Indeed, if interfering events can be reasonably looked upon as competitors in the memorization and recall process, they can also be tentatively considered as possible reinforcers of the material to be recalled. For example, one is probably more likely to recall an illness which needed several medical procedures for diagnosis, required a great deal of care to be cured, and caused pain or disability than an illness that was not associated with any of these events. Under these circumstances the interfering events appear as reinforcers in the recall process because they provide the illness with more meaning or more impact. As meaningful material is easier to learn, the likelihood of retention will increase, all other factors being equal. Furthermore, the interfering events may constitute available cues to help elicit the central material.

Other theories put emphasis on the relationship between forgetting and organization. Manis[8] writes, "One important determinant of forgetting is the degree of organization within the content to be remembered; material that is well structured and tightly organized will generally be recalled far more successfully than that which

does not possess a meaningful structure." As Bartlett[9] stated it, the memory process becomes an active "effort after meaning." People reconstruct and schematize events to make them fit with past experience. Finally, consistent or not with these viewpoints, some laboratory experiments suggest that recognition of learned material yields higher scores of retention than free recall.[10]

Regardless of specific theories, the main idea growing out of the aforementioned various approaches is that recall is not a simple process of reproduction, but an active reconstructive process in which stored items interact according to some meaningful patterns. This interaction may either block or facilitate recall and will result in some distortion. Standard questioning procedures assume that to a certain extent the material stored in memory is directly available under its initial experienced form. But a more reasonable assumption is that an experienced event is integrated into one or several constellations of other events according to some meaningful organization. Then interviewing can be designed to stimulate recall through questions which would "sample" these organized clusters or frames of reference.

Primary Ideas and Objectives

Empirical background and theoretical framework thus converge, producing a tentative understanding of underreporting of health information and possible strategies to reduce the magnitude of this problem. Previous research and theory suggest that the following material is not very likely to be reported in interviews: nonrecent events, events of lower impact (either because they are buried under other competitor events or because they are not sufficiently reinforced by related behaviors), and events poorly organized in memory or badly distorted by the organization taking place. These events are not elicited by standard questioning; they are not cued or recognized. The primary objective of this study becomes one of trying to ascertain the cogency of this cognitive interpretation of underreporting. Using these premises, questionnaire techniques were developed, aimed at a reduction of underreporting.

Different procedures of questionnaire construction will attempt to bring about this objective: use of a large number of questions sampling the anticipated clustering of events in memory, providing the respondent with multiple and overlapping frames of reference and cues; additional probes and direct recognition of items; minimization of the lapse of time between the event and its requested recall; and sensitization toward the material to be recalled.

THE RESEARCH DESIGN

The general background presented above directed the research toward a design involving three experimental data collection procedures: (1) an extensive interview, (2) a diary with followup interview, and (3) a control interview. The effectiveness of these procedures was then compared in terms of quantity and nature of information. Three comparable groups of respondents were assigned to each procedure to determine the differential effects of the experimental treatment on two main dependent variables—the number of health conditions reported and the impact level of these conditions. Copies of the forms used in the three procedures are reproduced in appendix II.

Experimental Procedures

Extensive interview.—The main objective underlying the conception of an extensive interview was to facilitate and stimulate the recall process by using a multistimuli approach which would anticipate the organization of events in memory. The operating strategy provided the respondent with multiple cognitive frames of reference, multiple cues, additional probes, and recognition of items through a questionnaire asking a large number of questions.

A major assumption in the construction of the questionnaire was that it is easier for a respondent to recall a health condition through some specific behavior implications (e. g., symptomatic manifestations, restriction of activity, medicines, diet, visits to doctors) than through a conceptual or general framework. One illustration is that physicians often contend their patients usually report only major surgery when

asked about previous "operations," whereas patients would report both major and minor surgery in answer to a question about "stitches." Therefore, the questionnaire was designed in such a way that medical information was asked within a conceptual framework as well as in the language of the layman, through standard questioning as well as through multiple behavioral cues. Other frames of reference and cues used the time dimension as another assumed principle of organization or clustering of events in memory. For example, the respondent was asked for a medical history via queries related to childhood, adulthood, 6 or 12 months back, last week, week before last. Furthermore, attempts were made to spell out as much as possible the items to be recalled by asking for specific information within larger general categories and by supplementing general questions with additional cue-giving probes or direct recognition of items. In the extensive interview an effort was made to anticipate the organization of events by providing stimuli likely to reach this organization and also to anticipate the perceptual and conceptual distortions of events through giving stimuli likely to be identified as inviting the relevant health information.

Tape-recorded field pretests of the extensive questionnaire were carried out to evaluate its feasibility and format. Tape recordings of these interviews helped the researchers to understand the problems involved, a preinterview enabled a specific appointment for the pretesting of the questionnaire to be made, and an additional incentive was given to the respondents by paying them.

The pretest interviews ranged from 50 minutes to 2 hours, the average being about 70 minutes. Most of the respondents seemed to enjoy talking about their health at length and in detail, and the extended nature of the questionnaire appeared to be no barrier to its feasibility. The special appointment procedure seemed to be no more necessary than under standard interviewing conditions.

The format of the questionnaire was rewritten several times according to interviewers' reactions to its use. There was some evidence from the pretest data that the extensive interview had elicited a large amount of health information.

The final questionnaire contained the following main sections:

1. A review of aches and pains in various parts of the body (qq. 1a-1i).
2. Symptoms inventory, containing 28 questions about common and uncommon, embarrassing and not embarrassing, major and minor symptoms (qq. 2-29).
3. Medical history (qq. 30-53):
   Problems of childhood and adolescence.
   Problems as an adult.
   Disabilities and impairments.
   Diet, food sensitivity, and restrictions.
4. Recent health events[b] and hospitalizations (qq. 54-69):
   Illnesses and injuries.
   Restrictions of activity.
   Medications taken.
   Doctor visits.
   Hospitalizations during past year.
5. Recognition lists of 41 chronic conditions (qq. 70-71).

Sections 1 and 2 contain a long series of symptom recognition questions. Every time the respondent gave a "yes" answer, the interviewer used the probe "Do you have any idea what causes it?" in an attempt to obtain the report of the underlying condition. Most of the questions in section 3 refer to a large or indefinite period of time, e.g., "Have you ever been on a diet?" Probes were provided to elicit the causative conditions. When past illnesses or injuries were mentioned, other probes elicited the present effects, if any. Section 4 contains standard questions, referred to as "primary questions." These primary questions are immediately followed by additional questions, which rephrase the concepts used in the primary questions and provide specific cues and recognition items. Section 5 contains two recognition lists of chronic conditions: 27 items asked with reference to the past 12 months and 14 items worded "Have you ever had...?"

Throughout the entire questionnaire, nondirective probes were introduced whenever a question had been answered positively. Tran-

[b] A calendar was used to help the respondent locate the past 14 days' reference period. This period had been circled in red by the interviewer prior to the interview. The same procedure was used in the control interview.

sitions between sections and introductory statements were also used to bring some relief in the questioning style and to instill a deliberately relaxed pace in the interviewing.

Diary procedure.—Two major ideas were put into operation in the design of the diary procedure. The first was to facilitate the respondent's task of remembering, by minimizing the period of time between the event and its solicited recall. This was accomplished by a health record kept daily by the respondent. The second idea was to consider this daily recording activity as a sensitization device for health thinking and reporting, which could result in increasing the reporting level in a followup interview.

Mooney's previous research[11] concerning a health diary left for a month showed that only 5 percent of the respondents scheduled to keep the diary did not provide the information. Noncompliance was due to simple refusals or moving from the household. A study by Wilcox[12] on the same topic indicated that 10 percent of the information reported in a diary was inadequate to some degree because of respondents' failure to complete the records. He suggested the possibility of reviewing the diary with the respondent. His study also showed a decrease in participation among respondents after the first week. These findings were used to shape the pretest experiments. The following alternatives were tried: diary left for 1 week or for 2 weeks followed by a regular interview either preceding or after diary use. The 1-week procedure immediately followed by a regular interview appeared to be the most promising. This treatment obtained a larger relative amount of information, more participation, and more positive attitudes on the part of these respondents. The desirable format seemed to be the simplest, easiest, and fastest form to fill out. Some difficulties arose in collecting the diaries and acquiring a followup interview. This led to the design of an appointment procedure for the second contact.

The final procedure included four main steps:

1. Interviewer introduced and left the diary.
2. Respondent kept the diary for a week.
3. Interviewer returned a week later and reviewed the diary with respondent.
4. Interviewer conducted the followup interview.

The diary is a printed eight-page booklet in which each page covers 1 day. Seven simple questions are printed on each page inquiring about daily health events: checklists describing general state of health and activity, sicknesses, injuries, medication, and use of health services. During the first contact, the interviewer explained the two procedures to be used—a diary to be kept for a week and an interview to take place at the end of that week. The respondent was told that the researchers were interested in any kind of ailment, symptom, or sickness, no matter how minor or unimportant it seemed. Then the interviewer specifically introduced the diary, giving any appropriate instructions on filling out the form. The first page, which was excluded from the analysis, was used for practice with reference to the day before. Starting on page 2 the interviewer wrote the date and day of the week at the top of each page. She began with the day following the interview. The respondent was asked to fill out the diary every day, reporting those items occurring on the day and night before. A pencil was provided each respondent. Finally, an appointment was made to retrieve the diary and conduct the followup interview on the day following the completion of the last diary page, or as soon as possible thereafter.

The first purpose of the second contact with the respondent was to review the diary with the respondent. This review involved several operations conducted question-by-question for all 7 days: the interviewer checked to see that all questions had been answered for all days; whenever a question had not been answered, she asked it with reference to the appropriate day; clarification of answers was sought whenever needed; whenever there was any doubt, the interviewer ascertained whether a condition was the same as one reported on a previous day; and when a symptom was reported, she probed in an attempt to obtain the report of the underlying condition. All new entries on the diary were made solely by the interviewer and were identified as post hoc additions. After reviewing each diary question for the entire week, she used a standard clean-up probe provided in the followup questionnaire (qq. 1-5). In addition, a short follow-

up questionnaire was administered. It included as major questions the two recognition lists of chronic conditions (qq. 6 and 7) identical to the ones used in the extensive interview, plus a few questions about present effects of accidents, injuries, hospitalizations, and visits to the dentist (qq. 9-11).

Control interview.—This served as a control procedure for the two experimental collection devices described above. It is a short standard form questionnaire, not identical to the current HIS questionnaire but one requesting the same major items of information and using the same major questions.

The questionnaire for the control group contains the following main sections:

1. A list of 19 symptoms (q. 2) designed only to sensitize the respondent, not to collect data.
2. A series of questions on recent sicknesses, restriction of activity, medication, and injuries (qq. 3-7) and a question on present effects of past injuries or illnesses (q. 8).
3. The two standard recognition lists of chronic conditions mentioned above (qq. 9 and 10).
4. Recent visits to the doctor; hospitalizations and dentist visits in the past year (qq. 12-14).

Identical questionnaire sections in the three experimental procedures.—Several health questions are identically worded within the three procedures to allow some question-to-question comparisons: those relating to chronic conditions, hospitalizations, and dentist visits. Other questions, or parts of them, are identical within two procedures; e.g., most of the health-related behavior questions are contained in both the extensive and the control questionnaires. Furthermore, all three procedures include an identical final section consisting of a standard condition table (see appendix II) to be filled out at the end of the interview for each eligible condition previously reported in the questionnaires. Finally, at the very end of all interviews, three standard questions on general health rating, education, and family income were asked.

The purpose of the condition table was to gather specific and comparable impact information about the health conditions reported in the different procedures. The justification for this standard procedure was to allow a comparative evaluation of the three experimental collection methods through an analysis of the impact nature of the information reported. This was designed to test the idea that attempts to facilitate recall could accomplish their mission by eliciting lower impact information that is commonly underreported.

A standard "condition table" to be used in all procedures was designed to collect the needed impact information. The detailed standards of a condition's eligibility for inclusion in this table were defined through several field experiments. The dual complexity of this task was to determine reliable criteria of eligibility which could be handled by the interviewers during the course of the interview and to structure the questions so that a single standard table would be applicable to any kind of eligible health condition.

Briefly stated, the first time any health problem was mentioned by the respondent, it was to be entered at the top of a condition table, provided that it was not a symptom. When the symptoms shown in the extended list in appendix II were reported, the respondent was asked about their underlying cause, and the underlying health problem was entered in the condition table only if it was a nonsymptom. Only those symptoms with unknown causes or a cause external to health became eligible for the table. Precise and sometimes complicated rules were needed to take care of special cases, possible redundancies, and complex relationships between conditions. These rules of eligibility are given in detail in appendix II.

When all the health questions on the questionnaire had been asked, each potentially eligible condition was represented by a table. Then the interviewer filled out these tables in the same chronological order as the conditions were given in the interview, asking the provided table questions about each condition. Screening questions ascertained the eligibility and classification of ill-defined conditions. Finally, only the con-

ditions answering the following requirements were retained as eligible:

Chronic condition from recognition lists.

Condition contained on an extended chronic conditions list (see appendix II).

Condition present during the past 12 months for a period of 3 months or more.

Older long-lasting condition (3 months' or more duration) having required medication, treatment, or special diet during the past 12 months.

Condition present since birth.
Present effect of illness, injury, or accident.

Illness or injury during the past 14 days.

All other conditions were dropped out of the table and were not considered eligible for any data analysis. For each condition selected because of its eligibility, the following series of impact questions were asked:

Presence of the condition in last 7 days, 7 days before, or both periods (q. 4 for acute conditions only).

Medical attendance (qq. 5-5c).

Medicine, treatment, special diet in past 14 days (q. 6).

Disability days in past 14 days (q. 6a).

Bed days in past 14 days (q. 6b).

Pain or discomfort in past 14 days (q. 7).

Recency of onset (q. 8).

In addition, the following items of information were requested for the chronic conditions selected through a screening question (q. 8):

Disability days in past 12 months (q. 9a).

Bed days in past 12 months (q. 9b).

Three psychological impact items (qq. 10-12).

Dependent Variables

The effects of the three experimental collection methods described above are evaluated in two main categories of dependent variables: reporting level of health information and impact level of health information reported.

The analysis of the reporting level of health information attempts a quantitative evaluation of the collection methods by comparing the number of various health items obtained in each of the techniques. A central dependent variable in this analysis is the eligible health condition whose operational definition can be stated as any health condition to be legitimately included in the table. Any eligible condition was classified as belonging to one of the five following categories:

1. Chronic conditions appearing on recognition lists of the questionnaires, whether or not reported there;
2. "Other chronic conditions," that is, conditions not appearing on the recognition lists but classified as chronic for their presence on an extended chronic conditions list (see appendix II) or for their own characteristics: duration of 3 months or more during the past 12 months, or an older long-lasting condition having required treatment in the past 12 months;
3. Illness during the last 14 days, that is, recent acute illness not classified in the two previous categories;
4. Injury during the last 14 days, that is, recent injury not classified in the three previous categories;
5. "Other unclassified," that is, any condition which could not be classified in the four previous categories, as a consequence of missing information.[c]

When there was overlap, the classification priority order was the serial order of the above list-

[c]This missing information is due to interviewer's failure in entering an eligible condition on the table. These conditions were "edited in."

ing: a chronic condition appearing on the recognition lists was always classified as such; a longer period (code 2) took precedence over a shorter one (code 3 or 4).

Eligible conditions were also classified according to their dates of onset (noticed less than 3 months ago or 3 months ago or more) and according to their report as symptoms or nonsymptoms. More specific information on these categories will be given in the relevant sections.

Finally, although the techniques developed did focus primarily on the report of health conditions, some health-related behaviors were used as other dependent variables. These are days in bed and other disability days in the last 2 weeks, medications taken and doctor contacts in the last 2 weeks, and dentist visits and hospitalizations in the last 12 months. Definitions of these variables are given in appendix II.

The analysis of the impact level of health information reported attempts a qualitative evaluation of the treatments by comparing the impact of the conditions obtained in each of the techniques. The dependent variable is the condition's impact as measured by an impact index built upon the information obtained in the condition tables. A condition is referred to as having lower or higher impact according to its lower or higher degree of conjunction with medical care, restriction of activity, and psychological concern. A precise description of this dependent variable, as well as a discussion of its utilization in ascertaining the treatments' effects, will be provided in the relevant section.

Hypotheses

The major hypotheses that were tested in this study can be stated as follows:

1. The extensive interview, by providing a broad aid to memory through the use of frames of reference, cues, additional probes, and recognition of items, was expected to increase the overall reporting level of health information (eligible conditions and health-related behaviors) compared with the level obtained in the control interview. Since older events of lower impact were more likely to be underreported, a significant increase was expected in the reporting of chronic conditions of lower impact within the extensive interview. It was anticipated that conditions of higher impact would be reported with the same frequency in the extensive and control interviews.
2. By minimizing the interval between the event and its solicited report, the diary was expected to increase the number of recent acute conditions of lower impact reported in comparison to the control procedure.
3. By sensitizing the respondent for a week to health thinking and reporting, the diary procedure was also expected to increase the number of chronic conditions of lower impact reported in a followup interview.

In summary, the overall reporting level is expected to be the highest in the extensive procedure and higher in the diary than in the control procedure; the extensive interview would specialize in chronic conditions and the diary in acute conditions. The overall impact level of the reported conditions is anticipated to be the lowest in the extensive procedure and lower in the diary than in the control procedure. Again the extensive technique would specialize in chronic conditions and the diary in acute conditions.

These hypotheses are constructed upon the assumption that underreporting represents a major problem in household interviewing. Thus, another working assumption built into the design of this study is that the more information reported, the better. This design does not allow for any comment on the validity state of the data nor for any evaluation of overreporting. The research deals only with comparisons of amount and impact of information reported in an attempt to gain greater understanding and control of the underreporting problem.

STUDY PROCEDURE

Sample Design

This study was designed to test three techniques of obtaining information of health variables. Since the goal was experimental, it was deemed desirable that the sample population be homogeneous. Thus, variance due to factors other than those purposely introduced by the experimental design would be decreased. The population sampled was a restricted segment of persons residing in the city of Detroit—low-middle and middle socioeconomic groups, English-speaking, native-born, white females between 18 and 65 years of age. It was left to the interviewer to further exclude persons who were deaf, were mentally retarded, or had other incapacities which would make interviewing virtually impossible.

The original sample of blocks was selected from all tracts in the city which 1960 census data showed to have less than 18 percent of the women over 65 years of age and less than 15 percent foreign born; those blocks with women other than white were eliminated. This yielded 16 tracts from which 110 blocks or parts of blocks were selected with probability proportionate to size. From each block two clusters of three dwelling units were chosen at random. Within each cluster the three collection procedures were assigned to addresses by chance.

When the interviewer called at the dwelling, she first determined whether or not an eligible respondent lived there. Only one person within a dwelling was interviewed. In households where more than one person was eligible, the first choice was the wife of the head of the household. If there was no wife or if the wife failed to meet any of the criteria stated above, the youngest female to meet the criteria was selected. The original sample consisted of 462 occupied dwelling units. Of these, 106 contained no eligible respondents. The sample thus contained 356 dwellings with eligible respondents.

Interviewers were assigned sections of the city which were convenient for them to work in. The assignment of the collection procedure to households was random in each of the clusters within the sample blocks. Thus, while the assignment of blocks to interviewers was not random throughout the sample, the assignment of a particular procedure was random within each sample block. This controls to a large extent interviewer variation for comparisons between treatments. Table 1 shows the distribution of interviews among interviewers by procedure.

The sampling errors used throughout this report are based on an assumption of simple

Table 1. Frequency distribution of number of interviews performed per interviewer and by collection procedure

Collection procedure	Total	Interviewer					
		1	2	3	4	5	6
Total	305	64	58	42	65	61	[1]15
Extensive	105	21	21	14	23	24	2
Control	99	23	16	16	21	18	5
Diary	101	20	21	12	21	19	8

[1] Interviewer 6 had to quit early for personal reasons.

random sampling. A previous study[13] in this series using the same area and the same design showed an average design effect of 1.03 times random sampling.[d]

Training and Field Operation

The six interviewers employed in this study were female. They belonged to the field staff of the Survey Research Center (SRC). Two of them were experienced interviewers; the others had limited interviewing experience. Particular emphasis was given to training because of the complexity involved in handling correctly the health conditions reported. The training lasted for 2 full weeks and included role-playing, practice interviews in the classroom and in the field, and feedback sessions. The first sample interviews were carefully checked as soon as they were returned and individual critiques were given to each interviewer. The entire interviewing operation, including diary distribution and return, extended over a period of 10 weeks from late April to late June 1968.

Editing and Coding

A team of three persons on the coding staff of the SRC was trained for 3 days on the special editing and coding operations. Multiple editing and coding were performed on practice interviews up to a satisfactory reliability level. Then 18 percent of the interviews were independently edited twice and 11 percent were coded twice. Through this procedure the error level for editing and coding was kept to a very low figure. The editing was crucial in insuring the quality of the data, and a great deal of time was devoted to it. The editor performed two major, critical operations. The first one consisted of editing the health conditions reported in each questionnaire. This involved reading thoroughly each protocol, identifying all eligible conditions, classifying them as "first mentioned" or "already mentioned," listing them on two forms according to this classification, and recording their source in the questionnaire by question number. The second step consisted of editing the condition tables, checking the legitimacy of the existing tables, eliminating the irrelevant ones, and editing new ones when needed, according to the information collected in step one above. The purpose of this operation was to bring the data to a state of optimum validity for the eligibility and classification of the tabled conditions. This was an important objective since the tabled condition was to be used first as a major dependent variable and then as the unit of impact analysis.

[d]The design effect of a proportion (P) = $\frac{\text{Variance of } P}{\text{Simple random variance of } P} = 1.03$

SOME DESCRIPTIVE ASPECTS OF THE STUDY

Field Interviewing Characteristics

A total of 305 completed interviews was obtained: 105 extensive, 99 control, and 101 diaries with their followups. The overall response rate was 88 percent, not including the diary followup interview. Table 2 shows that the response rate was quite similar in each of the three procedures. Among those respondents who were given a diary, the response rate for the followup interview was 93 percent. More detailed information about the selection of eligible respondents from the original sample is provided in appendix table I.

Figures on the duration of the interviews are given in table 3. The extended ranges of length of the interviews may be viewed partially as a consequence of the use of the condition tables at the end of the interview. The duration of the interviews is associated with the number of eligible conditions reported and then entered in tables. Within the three interviewing procedures, a significant positive correlation exists between the number of conditions reported and interview length. All are greater than .50.

Demographic Characteristics of the Samples

The three experimental groups were compared for demographic characteristics of age, education, family income, family size, and relationship to head of household. Tables 4 and 5 summarize the demographic composition of the

Table 2. Response information, by collection procedure

Collection procedure	Eligible respondents	Refusals	"No one at home"	Completed interviews	Refusal rate	Not-at-home rate	Response rate
	Number				Percent distribution		
Extensive	121	10	6	105	8	5	87
Control	114	10	5	99	9	4	87
Diary introduction	121	9	4	108	8	3	89
Diary followup	108	5	2	101	5	2	93

Table 3. Duration of interviews in minutes, by collection procedure

Collection procedure	Average duration	Standard deviation	Range	Number of interviews
	Number of minutes			
Extensive	74	33	15-180	97
Control	44	19	15-95	96
Diary introduction	16	8	5-40	[1]71
Diary followup	40	25	10-155	100

[1]For 30 cases the duration was not ascertained due to a misunderstanding in time-recording procedure for this introduction sequence.

samples. The demographic characteristics appear roughly similar in the three samples. However, one may notice some slight differences among groups on the education variable. The number of years of formal education is somewhat higher in the diary group (11.6 years) than in the others, with the extensive group being appreciably lower (10.7 years). One possible explanation of this difference may be that the diary respondents were asked to perform a "pencil-and-paper" activity, which is more likely to be accepted and completed by those more highly educated. Those with less education might reject or not perform when "writing" was an issue, but accept a solely conversational task. This appears plausible when one looks at the distributions in each treatment. Table 6 shows that the educational level of those in the diary sample was higher than that of persons included in the extensive and control samples. To evaluate any difference resulting from this discrepancy and to allow comparisons across all treatments, special attention was given to the possible influence of the education variable on the data. Correlations were computed within all treatments between the education variable and the main dependent variables used in the study. None of these correlations appeared to be statistically significant.

Table 4. Average values of some demographic characteristics, by collection procedure

Demographic characteristics	Collection procedure								
	Extensive	Control	Diary	Extensive	Control	Diary	Extensive	Control	Diary
	Average value			Standard deviation			Number of persons		
Respondent's years of education	10.7	11.0	11.6	2.5	2.0	2.4	103	98	99
Respondent's age	43.9	42.6	42.0	13.2	14.0	12.3	105	99	101
Respondent's family size	3.4	3.2	3.0	1.8	1.8	1.5	104	99	101

NOTE: Median family income bracket for each of the three groups is $7,500-$9,999.

Table 5. Percent distribution of respondent's relationship to head of household, by collection procedure

Collection procedure	Total	Respondent's relationship to head of household				Number of persons
		Head	Wife of head	Other	Not ascertained	
	Percent distribution					
Extensive	100.0	15.2	80.0	1.9	2.9	105
Control	100.0	17.2	78.8	3.0	1.0	99
Diary	100.0	15.8	81.2	3.0	0.0	101

Table 6. Percent distribution of respondent's years of education, by collection procedure

Collection procedure	Total	Less than 8 years	8-12 years	More than 12 years	Years not ascertained
	Percent distribution				
Extensive	100.0	7.6	81.9	8.6	1.9
Control	100.0	5.0	85.9	8.1	1.0
Diary	100.0	2.0	79.2	16.8	2.0

Effectiveness of the Appointment Procedure in the Diary Technique

As mentioned earlier, an appointment procedure was used in the diary technique in an attempt to maximize the return rate of the diaries. The interviewers were supposed to make an appointment with the respondents for a week later, both to retrieve the diary and to conduct the followup interview. The feasibility and the efficiency of such a procedure present some interest from a methodological point of view. As shown in table 2, 93 percent of the diaries given were returned. However, one cannot tell how much of this high return rate is attributable to the appointment procedure.

Table 7 gives some more specific figures about the effectiveness of the appointment procedure. It shows that it is feasible for some kind of appointment to be made in almost all cases. Moreover, in terms of efficiency, it appears that whenever an appointment within a 1-hour range was made (55 percent of the cases), it was kept by both parties within half an hour of the time for which the appointment was made (80 percent of the cases).

Completeness of the Diary Booklet

A primary question raised by the daily health record was the extent to which a respondent would perform and complete her job of filling out the form. As indicated in table 2, out of 108 respondents who were given a diary, only five would not participate at all and two could not be contacted. The total loss rate was, therefore, less than 7 percent.

Table 7. Percent distribution of results of appointment procedure for the diary followup interview

A precise[1] appointment was made	55%
A general[2] appointment was made	39
No appointment made—convenient times listed	3
Not ascertained	3
(Number of cases = 101)	100%

When precise appointment was made:

Appointment was kept within ½ hour	80%
Appointment was not kept within ½ hour	20
(Number of cases = 56)	100%

[1]Exact time up to and including a range of an hour.
[2]Range of time specified of more than an hour.

Table 8. Return and completeness rates of diary booklets

Units	Distributed	Returned	Completed	Overall return rate	Completeness, rate of units returned	Overall completeness rate
	Number of units			Percent distribution		
Diaries	108	101	97	94	96	90
Day-pages	756	707	699	94	99	92

As for the completeness of the job, out of 101 collected diaries, 97 were fully completed, two respondents missed a page for 1 day, one missed pages for 2 days, and one missed pages for 4 days. In other words only eight day-pages were missing compared with 699 completed day-pages. Global figures on return and completeness are given in table 8.

Data are not available to determine whether respondents filled out the forms one day at a time, as they were asked to, or several days at a time. However, one may reasonably assume that both situations existed.

COMPARATIVE ANALYSIS OF THE REPORTING LEVEL IN THE THREE PROCEDURES

The main objective of this study is to determine the relative effectiveness of three experimental data collection techniques in obtaining health information. Considering underreporting as a major problem, the effectiveness of the techniques is evaluated on the basis of the amount of reported information.

This section will present a comparative analysis of the reporting level obtained in each of the three experimental procedures. The first dependent variable to be considered will be the total number of eligible health conditions reported per person. Then, this reporting variable will be considered separately by types of conditions and by their dates of onset. Finally, the report of other health-related behaviors such as restriction of activity, medicines taken, and health services used will be presented.

The statistical analysis of the data is based upon a comparison between means. The Student t test is used to evaluate the significance of the differences between means.

Report of All Eligible Health Conditions

Table 9 presents the mean number (or average) of all eligible health conditions reported per person in each of the three experimental procedures. The mean number of eligible conditions reported per person in the extensive interview (7.88) was significantly larger (at the 1-percent level) than that reported in the control interview (4.42) or in the diary (5.08). The diary elicited more eligible conditions than the control interview, and this difference is statistically significant at approximately the 10-percent level of confidence.

The hypothesis that the extensive interview, a multistimuli approach, would elicit a larger report is clearly verified. The extensive interview increased significantly the reporting level of health conditions compared with the level obtained in the control interview. The hypothesis that a diary would improve reporting tends toward verification. The use of the diary procedure (the booklet and followup interview) appeared to increase the overall number of conditions reported in comparison to the control interview; however, the difference is not significant at the 5-percent level. So far there is no evidence that

Table 9. Mean number of eligible health conditions reported per person, by collection procedure

Reporting variable	Collection procedure		
	Extensive	Control	Diary
Number of persons interviewed[1]	105	99	101
Mean number of eligible conditions reported[2]	7.88	4.42	5.08

[1]The number of persons given in this row is used as the base for all tables of this section unless otherwise specified.
[2]Differences between the means of extensive-control and extensive-diary are significant at the 1-percent level. The means of diary-control are not significantly different.

Table 10. Frequency distribution of number of persons by number of eligible conditions reported and by collection procedure

Number of eligible conditions reported	Collection procedure		
	Extensive	Control	Diary
	Number of persons		
Total	105	99	101
0	0	5	5
1-2	8	20	17
3-4	18	30	26
5-6	25	23	26
7-8	18	14	14
9-10	14	6	6
11-12	5	0	4
13-14	5	1	2
15-16	5	0	0
17 and over	7	0	1
Total number of eligible conditions reported	827	438	513

the diary procedure heightens the reporting level because of the diary booklet by itself or because of the sensitization effect of keeping a diary upon the reporting level in a followup interview. Only the overall figure of the procedure's effectiveness is available at this time.

Table 10 shows the frequency distribution of persons with a given number of eligible conditions in each of the three procedures. One notices first that only the extensive group does not include any person with no condition at all. Then, when comparing the extensive group with the control one, it appears that the former is less weighted with respondents who report few conditions (four or less) and more weighted with respondents who report many conditions (five or more) than is the latter. The same trend, although weaker, may be observed by comparing the diary distribution with the control one.

Reporting Level by Type of Conditions Reported

Knowing the overall pattern of relative effectiveness of the three experimental treatments, it is interesting to discover the specificity of their effectiveness. Thus, given an increase in the total number of health conditions reported, especially in the extensive interview and to a lesser extent in the diary, what is this increase due to? Which categories of conditions are affected and to what degree are they affected?

All eligible conditions reported were classified as belonging to one of the five following categories.[e]

1. Chronic conditions appearing on recognition lists (whether or not reported on the recognition lists).
2. Other chronic conditions.
3. Illness during the last 14 days.
4. Injury during the last 14 days.
5. Other unclassified conditions.

Table 11 gives the mean number of conditions reported per person within each of these categories for the three procedures.

The first observation is that the extensive interview is superior overall to the control interview. All the means for all categories of conditions are larger in the former than in the

[e]A precise definition of each category is given in the section "Dependent Variables."

latter. They are significantly larger (at the 1-percent level) in four of the five categories: other chronic conditions, illnesses in last 14 days, injuries in last 14 days, and other unclassified conditions. As for chronic conditions on the recognition lists, the extensive interview still presents a higher reporting level (3.54) than the control interview (3.25), but the difference is not statistically significant. The same global observation can be made in comparing the extensive with the diary except for the two categories of acute conditions where the diary is producing a larger report for a 7-day period than the extensive interview produces for a 14-day period.

A comparison between the diary and control procedures allows an analysis of the specific strengths of the diary procedure. There are no significant differences between diary and control in the reporting level obtained on the two categories of chronic conditions and on the other unclassified conditions. As a matter of fact, adding the mean number of conditions reported in these three categories obtains the exact same figure (4.09) for both the diary and the control techniques. On the other hand, as expected, the diary is collecting a significantly larger number (at the 1-percent level) of illnesses and injuries for a 7-day period (0.99, or an average of one per interview) than the control is for a 14-day period (0.33 per interview).

The above analysis first verifies to a considerable extent the effectiveness of the multistimuli approach hypothesis. The extensive interview does not restrict to particular types of health conditions its ability to increase significantly the level of reporting. Acute as well as chronic types of conditions are reported with greater frequency in the extensive interview than in the control interview. However, it is interesting to note that whenever the control questionnaire uses an extensive recognition type of approach, such as the recognition lists of chronic

Table 11. Mean number of conditions reported per person, by type of condition and collection procedure

Reporting variable	Collection procedure					
	Extensive	Control	Diary	Extensive-control	Diary-control	Extensive-diary
	Mean number of conditions per person			Difference between means		
Total	7.88	4.42	5.08	[a]3.46	0.66	[a]2.80
Chronic conditions on recognition lists	3.54	3.25	3.29	0.29	0.04	0.25
Other chronic conditions	2.75	0.74	0.58	[a]2.01	-0.16	[a]2.17
Illnesses in last 14 days	0.58	0.28	[1]0.69	[a]0.30	[a]0.41	-0.11
Injuries in last 14 days	0.24	0.05	[1]0.30	[a]0.19	[a]0.25	-0.06
Other unclassified conditions	0.76	0.10	0.22	[a]0.66	0.12	[a]0.54

[a] $p \leq .01$.

[1] These figures in diary technique refer only to the last 7-day period, a restriction which enhances the observed differences between diary and the other techniques.

conditions, a reduction of the gap between the two techniques can be observed. An increase in the amount of information reported still exists in the extensive technique but is no longer statistically significant. In this situation the control procedure closely approximates the process found in the extensive procedure. The items recognition procedure appears more effective than the free recall one. The greatest increases in reporting obtained by the extensive interview are in those areas where underreporting is traditionally high.

Furthermore, this analysis verifies and stipulates limits of the hypothesis concerning the effectiveness of the diary. The diary procedure does heighten the reporting level of health information, particularly in the specific, limited area of recent acute conditions—those illnesses and injuries occurring within the last 7 days. The reporting of chronic conditions does not seem to be affected by the diary procedure. A sensitization activity, such as keeping a health diary for a week, is only effective within its own primary objectives of producing a report of health conditions acutely present during the diary week. It is apparently not effective in increasing the reporting level of other health conditions on a followup interview.

As mentioned earlier, the comparisons between the report of acute conditions in the diary and in the two other procedures were not based upon the same time reference period: extensive and control interviews requested information about the past 14 days, while the diary requested the same information on an everyday basis for only 7 days. Given the fact of procedural differences in the request of information, an attempt has been made in the analysis to improve the comparability of the acute conditions figures. The information given in the condition tables for all procedures permitted, in most of the cases, the selection of those acute conditions which were present only during the last 7 days. Table 12 presents the mean number of these conditions reported under each procedure. These results show clearly the superiority of the diary (0.82) over the two other procedures in obtaining a report of recent acute conditions. The results also confirm the superiority of the extensive interview (0.34) over the control interview (0.11). The differences persist when the recent acute conditions are divided between illnesses and injuries.

Table 12. Mean number of acute conditions per person which were present only in last 7 days, by type of acute condition and by collection procedure[1]

Type of acute condition	Collection procedure		
	Extensive	Control	Diary[2]
	Mean number of acute conditions		
All acute conditions present only in last 7 days	0.34	0.11	0.82
Illnesses present only in last 7 days	0.22	0.09	0.59
Injuries present only in last 7 days	0.12	0.02	0.23

[1]Acute conditions not ascertained as for their onset and their medical attendance are excluded from these data. They represent the following numbers of acute conditions in each procedure: extensive=11, control=6, diary=4. Adjusted estimated figures would enhance the differences observed between the diary and the other two procedures as the probability for an acute condition to have its onset during the last 7 days is much higher in the diary than in the other two.

[2]Contrary to extensive and control where the initial question asks about a 14-day period, the diary asks on an everyday basis during 7-day period.

In order to determine the nature of the recent acute conditions that were reported in the diary but not in the standard interview, a further analysis of the data presented in table 12 has been performed. On the basis of information coming from the condition tables, it has been possible to select from the acute conditions present only in the last 7 days those which have been treated by or discussed with a physician or which have caused any restriction of activity. Respondents reported the following average number of these conditions: 0.20 in the diary procedure, 0.10 in the extensive interview, and 0.03 in the control group. The differences between diary and control are significant at the 1-percent level, significant at a lower level of confidence (10-percent level)

Table 13. Mean number of conditions reported per person as symptoms and nonsymptoms, by collection procedure

Condition reported as	Collection procedure					
	Extensive	Control	Diary	Extensive-control	Diary-control	Extensive-diary
	Mean number of conditions per person			Difference between means		
Total	7.88	4.42	5.08	[a]3.46	0.66	[a]2.80
Symptoms	2.84	0.65	0.94	[a]2.19	[a]0.29	[a]1.90
Nonsymptoms	5.04	3.77	4.14	[a]1.27	0.37	[b]0.90

[a] $p \leq .01$.
[b] $p \leq .05$.

between extensive and control, and almost significant at this same level between diary and extensive. In other words, while it is quite possible that many of the recent acute conditions reported under a diary procedure are events of minor importance, it remains that a substantial number, which are not likely to be reported in a standard-type interview, are important in terms of their public health implications. Each procedure elicits a roughly similar percentage of major and minor acute conditions, as defined by their public health implications. In other words, the three experimental procedures do not seem, in a first analysis, to provide different types of information but, rather, different amounts of the same type of information.

Another way of looking at the nature of the conditions reported under each procedure is to consider their status as symptom or nonsymptom. In this study a symptom is defined as any reported health event which is contained on the extended list of symptoms for which the respondent is unable to report the causal underlying condition.

Table 13 presents the mean number of conditions per person reported as symptoms and nonsymptoms in each procedure. As expressed by the significance of the differences between means obtained under each procedure, it appears that the superiority of the extensive interview over the control and the diary procedures still holds for both categories of symptoms and nonsymptoms. The diary procedure also remains more productive than the control procedure for both categories, although the superiority is statistically significant only for those conditions reported as symptoms. These results indicate that the overall effectiveness of the extensive interview is relevant for the reporting of both symptoms and nonsymptoms. The effectiveness of the diary procedure is also relevant for both categories with more emphasis on symptoms.

Reporting Level by Recency of Conditions Reported

Previous studies have shown that aside from the type or nature of the event, the more recent its occurrence, the more likely it is to be reported. The onset date for most of the eligible conditions reported was available from the condition tables. This information permitted the establishment of two new categories: conditions first noticed less than 3 months ago and con-

Table 14. Mean number of conditions reported per person, by reported date of onset and collection procedure

Reported date of onset	Collection procedure					
	Extensive	Control	Diary	Extensive-control	Diary-control	Extensive-diary
	Mean number of conditions per person			Difference between means		
Total	7.88	4.42	5.08	[a]3.46	0.66	[a]2.80
Conditions first noticed less than 3 months ago	0.78	0.40	1.02	[a]0.38	[a]0.62	-0.24
Conditions first noticed 3 months ago or more	5.66	3.67	3.50	[a]1.99	-0.17	[a]2.16
Onset not ascertained[1]	1.44	0.35	0.56	...	...	...

[a] $p \leq .01$.

[1] Conditions for which onset was not ascertained represent the following percents of all conditions in each procedure: extensive=18 percent, control=8 percent, diary=11 percent.

ditions first noticed 3 months ago or more. The procedure effects on these two categories of conditions are presented in table 14.

The differences between mean number of conditions reported in the extensive and control interviews show the same high level of significance for recent and older conditions: both recent and older conditions are likely to be reported in larger number in an extensive than in a standard-type interview.

A comparison between the extensive and diary procedures shows the same highly significant advantage of the extensive interview for the reporting of conditions of long duration. On the other hand, the figures are reversed for the conditions noticed less than 3 months ago—the diary elicits a larger average number of these conditions (1.02) than the extensive interview (0.78). However, the difference is not statistically significant.

When comparing the diary and the control procedures, the diary shows a highly significant advantage over the control interview for the report of recent conditions. There is no significant difference for the conditions of longer duration.

As can be expected, these results follow the same pattern as those related to acute and chronic conditions. Indeed, recent conditions are more likely to be acute and older conditions to be chronic.

The extensive interview once again demonstrates an overall effectiveness in inducing the report of conditions having either recent or older onset. The diary procedure concentrates its effects on conditions of recent onset.

Report of Other Health-Related Events

Although this study primarily evaluates the reporting of health conditions, data are also available to evaluate some effects of the experimental treatments upon other health-related reporting variables. Data were collected on restrictions of activity, medications taken, and doctor contacts during the 7 and 14 days prior to the interview and on dentist visits and hospitalizations in the last 12 months. However, several problems of comparability hinder the analysis of the data. For example, no direct comparison could be made between the diary and the other techniques on days of restricted activity because of the difference in the wording

of questions in the diary. Moreover, most of the data available for the diary technique concern only a 7-day period.

In addition, it must be emphasized that the major aim which shaped the conception and the construction of the experimental questionnaires has been the facilitation of the reporting of health conditions rather than other related events. For instance, the questions on the number of days of restricted activity have been kept strictly standardized in the extensive and control interviews to ascertain the presence of any "carryover effect" of the experimental procedures upon the answers to identical questions. This same procedure has been used for the primary questions about medications, doctor contacts, and hospitalizations in the extensive interview. Whenever a special device has been developed by introducing specific cues or additional questions (medications and doctor contacts questions in extensive interview), this effort still has been mainly oriented toward a utilization of these devices as stimulants for a more complete report of health conditions.

Table 15 presents the figures that offer some guarantee of sound comparability. This table presents for each procedure the mean number of reported health-related items. The items are arranged in the same serial order as they have been requested in the questionnaires, with the exception of the last two items (dentist visits and hospitalizations) whose request order was reversed in the control and diary procedures. For the extensive procedure there are two columns: "Standard questions plus probes" and "Standard questions only." Whenever figures are given in both columns, the first one is the total average number of items obtained from primary and additional questions ("standard questions plus probes") and the second one is the average number of items obtained only on the primary questions which are similar to the questions used in the other procedures ("standard questions").

The "carryover effect" of the extensive procedure on reporting variables not directly molded by the experimental design can be evaluated by comparing the average number of items reported in standard questions in the extensive and control interviews. Although none of the differences between the two interviews is statistically significant, one can see a clear tendency for the extensive interview to obtain a larger average number of items reported from standard questions on number of days in bed, other disability days, all disability days, and medications taken. This observation holds in all cases for the three time reference periods presented: last week, week before last, and both weeks together. Questions used within the framework of the extensive interview appear more productive than similar ones used within the framework of the control interview.

While this pattern continues albeit weaker with the question on doctor contacts during the last week, it is then reversed for the remaining items (other doctor contacts, dentist visits, and hospitalization). Then the control interview appears more productive than the extensive interview.

As found in other studies of this series,[13] a suppression of the experimental effect occurs on the doctor visits question. This suppression continues on other health service questions, dentist visits, and hospitalizations, which are reported in greater number in the control interview. These questions, requesting information about the use of health services, might involve some still unknown factor blocking any attempt made to increase reporting.

Accepting this possible evolutionary and reversible "carryover effect," a clear tendency remains within the extensive interview to elicit a larger report of health-related behaviors through questions similar to those used in the control interview insofar as health services are not concerned. This is particularly clear for all disability data and to much less an extent for the medications data. However, the reasons why this "carryover effect" occurs are still unclear. One may hypothesize that the respondent has been taught her role of reporter by the devices used throughout the interview in a way efficient enough to keep her performing at a high level even though the specific devices are discontinued.

The effectiveness of the additional cue questions in the extensive interview is expressed partially by the figures given in the column labeled "standard questions plus probes" in table 15. Some of these figures show a statistically significant increase in the average number of items obtained by the extensive interview, in

comparison with the corresponding number obtained by the control interview. That is the case for the average number of medications taken during the past week (1.74 in extensive, 1.28 in control) and during the past 2 weeks (1.90 versus 1.38). All other figures present a consistent tendency toward an increase of information reported within the extensive technique. The effectiveness of the additional questions in the extensive interview will be discussed in greater detail later in this report.

The few comparable data provided by the diary procedure show approximately equal status with the control interview for dentist visits and hospitalizations, a slight increase for medications reported in the diary booklet, and a confounding result for doctor contacts. When requesting the information on an everyday basis, which has been proved effective for a report such as acute conditions, the diary procedure fails to increase and, in fact, slightly decreases the average number of doctor contacts reported for a week.

Table 15. Mean number of items reported per person for health-related items other than illness conditions in the three collection procedures

Health-related item	Collection procedure						
	Extensive		Control	Diary	Extensive	Control	Diary
	Standard questions plus probes	Standard questions only	Standard questions	Standard questions			
	Mean number of items reported				Number of persons		
Days in bed:							
Last week	...	0.51	0.25	...	105	99	...
Week before last	...	0.32	0.24	...	105	98	...
In last 2 weeks	...	0.84	0.48	...	105	98	...
Other disability days:							
Last week	...	0.42	0.27	...	96	97	...
In week before last	...	0.22	0.16	...	96	97	...
In last 2 weeks	...	0.64	0.43	...	96	97	...
Total disability days in last 2 weeks	...	1.55	0.98	...	96	97	...
Medications taken:							
Last week	[1]1.74	1.45	1.28	1.44	104	98	101
In week before last	1.35	1.14	1.12	...	104	98	...
Different (nonredundant) in last 2 weeks	[2]1.90	1.56	1.38	...	104	98	...
Doctor contacts:							
Last week	0.31	0.27	0.22	0.17	105	98	101
In week before last	0.19	0.15	0.33	...	105	97	...
In last 2 weeks	0.50	0.42	0.53	...	105	96	...
Dentist visits in last 12 months	...	1.49	1.67	1.74	91	97	100
Hospitalizations in last 12 months	0.18	0.17	0.29	0.25	104	98	100

[1]Difference with mean in control interview statistically significant at the 5-percent level of confidence.
[2]Difference with mean in control interview statistically significant at the 1-percent level of confidence.

Another feature of possible interest may be observed in table 15. For four items (days in bed, other disability days, medicines, doctor visits) the table presents results divided between 2 weeks for the extensive and control procedures. As expected from theory, lapses of memory appear in the data: the average reporting level is distinctly lower for the most remote week (week before last) than for the closest one (last week). The only exception is again the average number of doctor contacts reported in the control interview, which is distinctly higher for the week before last (0.33) than for last week (0.22). Since it is a short, standard-type interview, neither fatigue nor the experimental treatment effect can serve as possible explanations for this anomaly. Besides, a marked calendar was used to help the respondent locate the appropriate dates in an attempt to avoid any cognitive distortion. The inconsistency of the data on doctor visits cannot be explained on the basis of findings in this study.

Finally, if, as it seemingly appears in table 15, the extensive interview facilitates recall, it could be reasonably assumed that this effect would operate to reduce the gap caused by memory lapse between reporting levels for last week and the week before. But, in fact, although the figures for the extensive interview in the table are generally larger than in the control interview for each of these 2 weeks, there is a tendency for the relative gap between the 2 weeks to be larger within the extensive than within the control interview.

In other words, even though the extensive interview is successful in obtaining an overall increase in the reporting level, this procedure still does not decrease the effect of memory lapse on recent events. To some extent, it even increases this effect. This finding is understandable in light of previous studies showing that lapse of memory affects most the less salient events. If, as expected, the extensive interview increases the report of less salient events, then it is not surprising that, within its operation, the effect of memory loss becomes more apparent on this sensitive material reported.

ANALYSIS OF THE CONDITIONS-REPORTING PROCESS IN THE THREE PROCEDURES

This section presents an analysis of the productivity of the three questionnaires. The analysis is designed to evaluate the effectiveness of different kinds of questions and to assess the productivity of various sections of the questionnaires. To do this, an overall picture of the three questionnaires is formed by dividing them into the major sections or groups of questions.

Figure 1 shows on a cumulative percentage scale the distribution of the reporting of eligible conditions by the series of questions eliciting the response in each collection procedure. It can be seen from this figure that the extensive questionnaire is the most effective technique for eliciting a report of chronic and acute conditions prior to the use of the item recognition list (chronic conditions lists). The addition of the item recognition list produced only 16 percent of the new condition reports. In the control procedure, on the other hand, the item recognition section yielded 57 percent of first reports of all eligible conditions, and in the diary technique 49 percent of first reports. The high figures in the list of the last two procedures confirm the effectiveness of a recognition list as a technique for eliciting information in a standard interview. The fact that the extensive procedure in its recognition list section yielded only 16 percent of conditions first reported establishes the effectiveness of the probes or cue-giving devices used in the earlier sections of the questionnaire—over 80 percent of the eligible conditions had already been reported before the recognition list was used.

The Importance of Probes and Cue-Giving Devices

In survey research three kinds of probes are often used: (1) the probe that seeks additional role performance simply by urging the respondent to report more information; (2)a probe question designed to help the respondent define a concept and to ensure that the interviewer and the respondent share the same concept definition; (3) a probe that acts as a cue to stimulate the

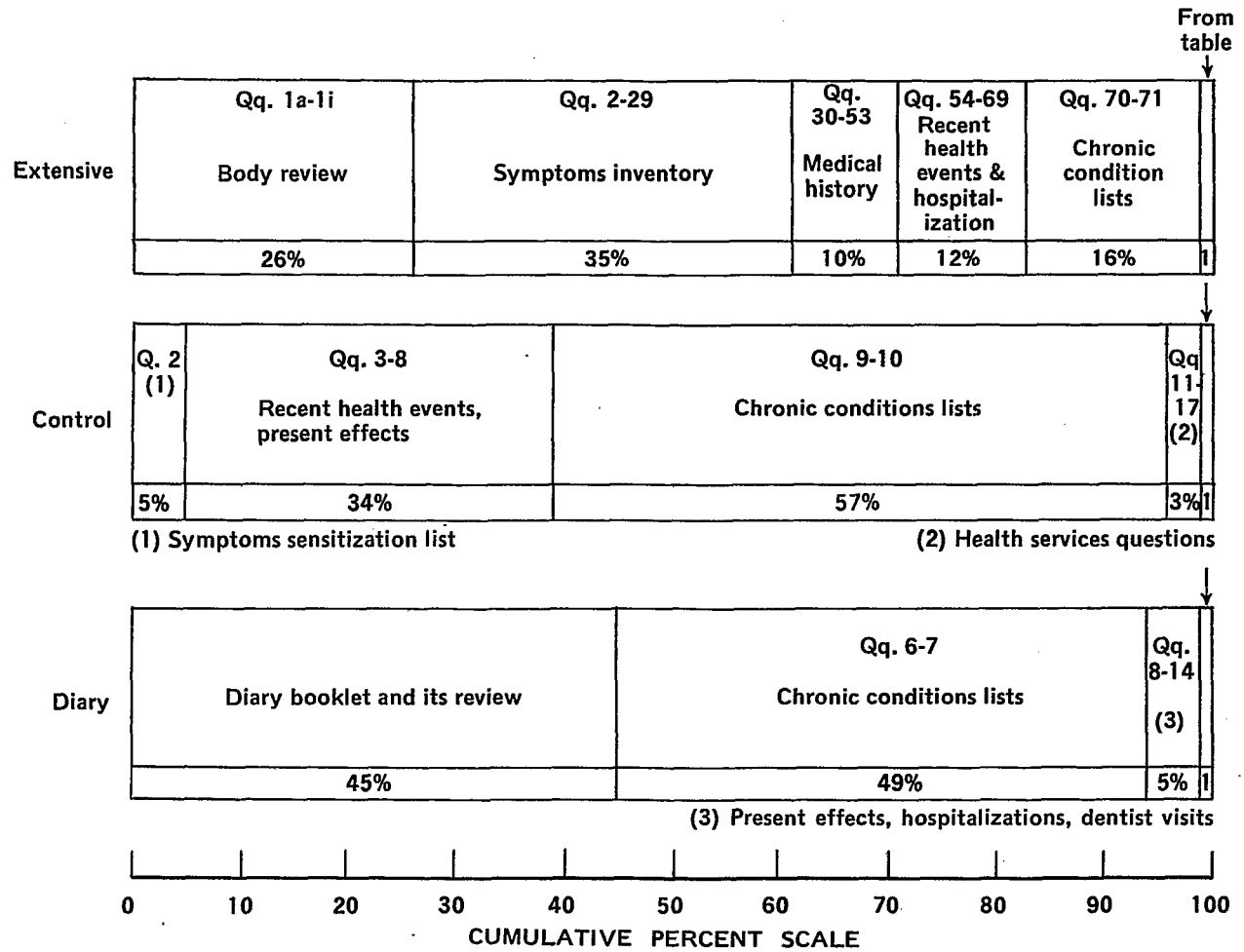

Figure 1. Percent distribution of eligible conditions by series of questions eliciting the conditions according to the collection procedure.

respondent's memory by suggesting different topics that may prompt the respondent to retrieve information using a new frame of reference. The first kind of probe is used in this study, but the main focus of the analysis is on the second and, especially in the extensive questionnaire, on the third, or cue-giving probe.

In certain parts of the extensive procedure a specific pattern of questioning is used, beginning with a primary question such as the question (Q.60): "Did you take any medicine or treatment for any condition during the last 14 days?" This is followed by additional questions or cues to prompt the respondent's memory: "During the last 14 days did you take any of the following: pain relievers such as aspirin? laxatives? tranquilizers? etc.?" Thus, immediately following the primary question are probes to define further the initial question or to pinpoint items considered relevant to the question which may lead to reporting of additional information.

The questions that were designed in this way in the extensive questionnaire are those related to illnesses, injuries, medications, and doctor contacts. A comparison between the number of conditions first reported in four of the primary questions and four probes or cue-giving questions shows that, for all 105 respondents, 47 conditions were reported from the primary questions and 48 from the additional ones. The additional cue-giving questions were highly effective, actually eliciting more new conditions than the primary ones.

Since the primary questions include a probe for more information, it seems that the high productivity of the additional questions comes from the specific nature of the cue-giving rather than from a standard probing effect alone. This is also borne out by the fact that the effectiveness of the cues was particularly strong with less well-defined concepts such as illnesses and injuries, but less so with more specific ones such as medications and doctor contacts.

COMPARATIVE ANALYSIS OF THE IMPACT LEVEL OF CONDITIONS REPORTED IN THE THREE PROCEDURES

As previous studies on the recall of information have shown, underreporting of health events is more common for those that have low impact on the respondents. The impact level is the importance or salience of that event for the respondent. The relationship between underreporting and impact level is discussed in this section of the report.

Construction of a Condition Impact Index

The information on the Condition Table (see appendix II) was used to build an impact index of the reported conditions. The questions and the overall distribution of the answers used as impact items are shown in appendix table II.

Of the various indexes which were constructed, only impact index A (all conditions, general impact) is included in this analysis because of its commonality to all conditions, its comprehensiveness in included impact items, its discriminative power, and its fairly high correlation with all other indexes. The items of impact index A are used to evaluate behaviors associated with a condition—doctor visits, any treatment, pain, etc.—during the most recent 14 days. The impact level of a condition is based on the assumption that it represents a valid rating of the impact of the condition to the respondent.

General Impact for All Health Conditions

The primary idea leading to the impact analysis was the finding from previous studies that the rate of underreporting is higher for low impact than for high impact events. It was hypothesized that any increase in the reporting level of health conditions through an extensive or diary procedure would be accomplished by an increase in reporting of conditions having lower impact with the frequency of higher impact conditions remaining more or less constant. Thus a lower average level of impact in the extensive and diary techniques than in the control technique was predicted. To test this hypothesis, an impact value was calculated for every eligible condition reported.

Table 16. Mean level of impact (score on index A) per condition reported, by collection procedure

Reporting variable	Collection procedure		
	Extensive	Control	Diary
Number of eligible conditions[1]	661	399	443
Mean level of impact per condition[2]	2.03	2.64	2.23

[1]Excludes conditions with missing data on impact.

[2]Differences between the means of extensive-control and diary-control are significant at the 1-percent level. The means of extensive-diary procedures are not significantly different.

The total number of eligible conditions reported, with their mean level of impact in each procedure, shown in table 16, bears out the prediction: the mean level of impact is significantly lower for the extensive and diary procedures than for the control questionnaire, the lowest level of impact being in the extensive questionnaire.

The distribution of the reported conditions is shown in table 17, by impact and by procedure, to supplement the information given by the mean values. For all the lower impact values (0-4), both the extensive and the diary procedures show a higher frequency of conditions reported than does the control questionnaire. This trend is particularly important in the extensive questionnaire. Conditions with impact value 0 are considered minimal, but those with an impact

Table 17. Frequency and percent distributions of conditions reported by condition impact value, according to collection procedure

Condition impact value	Collection procedure					
	Extensive		Control		Diary	
	Number of conditions	Percent	Number of conditions	Percent	Number of conditions	Percent
Total	661	100	399	100	443	100
Minor—0	80	12	31	8	44	10
Low impact—1	274	42	144	36	163	37
Low impact—2	125	19	74	19	97	22
Low impact—3	89	13	47	12	56	13
Low impact—4	37	6	31	8	35	8
High impact—5	13	2	26	7	20	5
High impact—6	15	2	17	4	6	1
High impact—7	6	1	5	1	8	2
High impact—8	6	1	8	2	4	1
High impact—9	5	1	5	1	2	(1)
High impact—10	9	1	6	1	7	1
High impact—11-14	2	(1)	5	1	1	(1)
0-4	605	92	327	83	395	90
5-14	56	8	72	17	48	10
Mean level of impact per condition	2.03		2.64		2.23	

[1]More than 0 but less than 0.5 percent.

value from 1 to 4 are likely to be conditions that have been medically attended, have caused a recent visit to a doctor, have produced pain, or have in some way demanded recent action. Further analysis shows not only that the increased reporting in the extensive procedure is found for minor illnesses but also that both minor and serious conditions are reported more completely. The increase in reporting is therefore meaningful in terms of its public health implications.

Impact Level by Type of Conditions Reported

The mean impact level per condition, by type of condition and by collection procedure, is shown in table 18. For all categories presented in table 18 the highest mean impact is found in the control procedure. Chronic conditions on recognition lists and other chronic conditions have lowest impact scores in the extensive technique. Recent illnesses and injuries have their lowest impact in the diary procedure.

Chronic conditions and acute illnesses.—The average impact value for chronic conditions shown in table 19 confirms that the extensive interview elicits more low-impact chronic conditions than the control procedure.

The impact levels for illnesses and illnesses plus injuries in the last 7 days show that the diary induces the reporting of more recent acute conditions with low impact than does the control procedure. Considering illnesses only,

Table 18. Mean level of impact per condition reported, by type of condition and by collection procedure

Reporting variable	Collection procedure					
	Extensive	Control	Diary	Extensive-control	Diary-control	Extensive-diary
	Mean level of impact per condition			Difference between means		
Chronic conditions on recognition lists	2.02 (325)	2.32 (301)	2.23 (304)	[c]-0.30	-0.09	-0.21
Other chronic conditions	1.69 (258)	3.09 (69)	1.74 (54)	[a]-1.40	[a]-1.35	-0.05
Illnesses and injuries in last 14 days	3.34 (73)	4.93 (29)	2.57 (84)	[b]-1.59	[a]-2.36	[c]0.77
Other unclassified	*	-	*	*	*	*
Total	2.03	2.64	2.23	[a]-0.61	[a]-0.41	-0.20

[a] $p \leq .01$.
[b] $p \leq .05$.
[c] $p \leq .10$.

NOTE: Figures in parentheses are the numbers of conditions whose impact is analyzed.

the average impact is considerably lower in the diary than in the extensive procedure, but when injuries are added, the difference is less apparent. On a 7-day basis, the impact in the extensive procedure is lower than in the control, but the difference is not statistically significant.

The last item of table 19 shows the rank order of impact unchanged, but the levels of significance are somewhat modified. The exclusion of recent (i.e., present in week before last) acute illnesses from the extensive and control data tends to lower their average impact levels as these conditions have high average impact levels, and this also explains the modifications mentioned above in the levels of statistical significance. The gap in impact is slightly decreased between the diary and control procedures, but is increased between the extensive interview and the diary, by the exclusion in the last item.

Impact Level by Recency of Conditions Reported

The previous findings in relation to acute and chronic conditions are supported by the findings in table 20, which shows the impact levels by reported date of onset and collection procedure. Recent conditions (with onset less than 3 months ago) have their lowest impact and their highest reporting frequency in the diary procedure. Conditions with onset 3 months ago or more have their lowest impact and their highest reporting frequency in the extensive procedure. These were the patterns predicted for both techniques; the statistical significances are shown in the table.

The reporting level of all conditions is consistently higher in the extensive than in the control procedure, while it is higher in the diary only

Table 19. Mean level of impact per condition reported for chronic and acute conditions, by collection procedure

Reporting variable	Collection procedure					
	Extensive	Control	Diary	Extensive-control	Diary-control	Extensive-diary
	Mean level of impact per condition			Difference between means		
All chronic conditions----	1.87 (583)	2.46 (370)	2.16 (358)	[a]-0.59	[c]-0.30	[b]-0.29
Illnesses in last 7 days--	3.84 (45)	4.79 (20)	2.87 (66)	-0.95	[b]-1.92	[c]-0.97
Illnesses and injuries in last 7 days----------	3.22 (60)	4.38 (21)	2.57 (84)	-1.16	[b]-1.81	0.65
All conditions excluding acute conditions present only in week before last[1]-	2.00 (648)	2.56 (391)	2.23 (443)	[a]-0.56	[b]-0.33	[b]-0.23

[a] $p \leq .01$.
[b] $p \leq .05$.
[c] $p \leq .10$.

[1] These figures are computed to take into account the fact that the diary technique did not contain any direct question inquiring about acute conditions present only in week before last.

NOTE: Figures in parentheses show the number of conditions per procedure.

for recent acute conditions. The average impact of all conditions is lower in both the extensive and the diary procedures compared with the control procedure.

Impact Level and Location of Conditions' Report in the Questionnaires

The impact score tends to be higher for conditions reported earlier in the interview than for conditions reported later. Lower impact items, being harder for the respondent to retrieve from memory, require more probing. It seems likely that one of the major reasons for underreporting in the usual interview is the respondent's failure to report lower impact events. The fault may be with the survey interviewer if he fails to provide the respondent with appropriate help to report these events. The extensive interview may have overcome these difficulties by providing the respondent with more frames of reference, more cues, and more time to recall and report. These techniques resulted in increased reporting not only for the events easiest to recall, but also for less salient events.

The reporting of chronic conditions on the list provides an illustration of the relationship between the impact of a condition and whether it was reported early or late in the questionnaire.

The impact level for the chronic conditions reported on the recognition lists at the end of the interview is lower than that for the chronic conditions reported earlier in the interview (table 21). The higher impact material is reported first,

Table 20. Mean level of impact per condition, by reported date of onset and by collection procedure

Reported date of onset	Collection procedure					
	Extensive	Control	Diary	Extensive-control	Diary-control	Extensive-diary
	Mean level of impact per condition			Difference between means		
Condition first noticed less than 3 months ago---	3.33 (79)	4.85 (39)	2.71 (96)	[b]-1.52	[a]-2.14	0.62
Condition first noticed 3 months ago or more-------	1.86 (581)	2.40 (345)	2.10 (359)	[a]-0.54	[c]-0.30	[b]-0.24
Onset not ascertained-----	*	*	*	*	*	*
Total----------	2.03 (661)	2.64 (399)	2.23 (443)	[a]-0.61	[a]-0.41	[a]-0.20

[a] $p \leq .01$.
[b] $p \leq .05$.
[c] $p \leq .10$.

NOTE: Figures in parentheses show the number of conditions per procedure.

and the lower impact material at the end needs a strong stimulus to induce its reporting. An analysis of reporting in the three procedures shows that in each the higher impact material is reported first; the lower impact material is reported later and usually in response to a specific cue. Table 22 shows the figures for the average impact levels of both primary and additional cue-giving questions in the extensive procedure.

Interviewer effect.—The data show that in the extensive interview the overall number of eligible conditions shows the importance of the interviewer's effect. The variance due to interviewer-respondent interaction is larger when this more demanding interviewing technique is used. This suggests a need for greater standardization of interviewer behavior, both through training and through technical improvement of the procedure.

The average reported impact for all eligible conditions shows more interviewer variation in the control interview than in the extensive interview and more variation in the extensive than in the diary interview. This may suggest the presence of a learning effect in the techniques: the more explicit the instructions, as in the diary technique, the more homogeneous and the less sensitive to interviewer variation is the report. This possible bias raises many questions for further research in interviewer-respondent interaction.

CONCLUSIONS

Summary of Reporting Levels in Experimental Techniques

The multistimuli approach used in the extensive interview was expected to increase the reporting level of all health conditions by increasing the probability of the respondent's recalling lower impact conditions. The results have confirmed this prediction for overall morbidity reporting, as well as for reporting of chronic and acute conditions and recent and less recent conditions. In

spite of their lower impact, most of the newly reported conditions were shown to be medically important in their public health implications. The source of the increased reporting has been shown to be mainly from the various cue-giving devices. Other health-related events were reported with higher frequency in the extensive interview regardless of whether cue-giving questions were used, except for items such as doctor visits, dentist visits, and hospitalizations, which were reported with lower frequency in the extensive than in the control interview.

The daily recording technique of the diary procedure was expected to increase the reporting level of acute conditions by increasing the reporting of episodes of low impact, and this was substantiated by the results. The increase was particularly significant, in terms of public

Table 21. Mean impact level of listed chronic conditions by type of questions eliciting the response in the three questionnaire procedures

Section of questionnaire in which listed chronic conditions were first reported	Number of listed chronic conditions	Impact	
		Mean	Standard deviation
Extensive procedures			
All sections	325	2.02	1.67
Qq. 1a-1i Body review	102	2.58	2.01
Qq. 2-29 Symptoms inventory	86	1.98	1.33
Qq. 30-53 Medical history	10	1.70	1.16
Qq. 54-69 Recent health events and hospitalizations	20	2.40	1.14
Qq. 70-71 Chronic conditions lists	107	1.48	1.53
Control procedure			
All sections	301	2.32	2.15
Qq. 2-8 Symptoms lists, recent health events, present effects	77	4.36	2.61
Qq. 9-10 Chronic conditions lists	224	1.61	1.40
Diary procedure			
All sections	304	2.23	2.02
Diary booklet and its review	82	3.98	2.32
Followup interview:			
Qq. 6-7 Chronic conditions lists	222	1.59	1.44

NOTE: Extensive: $F=6.43$ $(p \leq .01)$.
Control: $F=135.87$ $(p \leq .01)$.
Diary: $F=116.09$ $(p \leq .01)$.

Table 22. Mean impact level of conditions reported in primary and additional questions of extensive questionnaire

Series of questions in which the condition was first reported	Number of conditions	Impact	
		Mean	Standard deviation
Both types of questions----------	68	2.91	2.36
Qq. 54, 56, 60, 62 Primary questions---------	32	3.66	2.65
Qq. 55, 57, 61, 63 Additional questions------	36	2.25	1.87

NOTE: F=6.50 ($p \leq .05$).

health, for acute conditions as many of these illnesses were not minor ones. A tendency for higher reporting frequency of medicines and treatment used was shown, but the reporting of doctor contacts was a consistent exception. Although records in the diary were on an every-day basis, slightly fewer doctor contacts were reported in the diary than in the control interview.

It had been hypothesized that the diary technique would sensitize the respondent to report more chronic conditions on a followup interview, but this hypothesis has not been supported by the experiment. The diary was effective only within its primary objective of increasing the reporting of acute conditions. Sensitization did, however, affect the impact level of low-impact chronic conditions. Within the role learned by the respondent, the type of information reported (low impact) seemed to rely on the initial teaching, whereas the performance level (number reported) depended more on the specific stimuli, such as cues. Diary respondents were given appropriate cues to perform at a high level for recent acute conditions, but their performance level for chronic conditions was not increased since no more cues were used. This implies that one can successfully teach the respondent the kind of information needed, but the memory must be activated by appropriate cues to increase the performance level within the learned role.

General Summing-Up

The experimental extensive interview represents a promising way to facilitate recall and to improve health reporting through household interviews. More experimentation might improve its practicality by simplifying and shortening the procedure. The experimental diary procedure appears to be particularly powerful in increasing the reporting of acute conditions. A combination of the two techniques, consisting of a revised extensive interview immediately followed by a diary kept for 1 week, might result in better reporting by utilizing the advantages of both techniques.

Several questions still remain. The validity of the additional information collected in the experimental techniques has to be ascertained by a study that would check the respondent's report against reliable medical records and evaluate the quality of the information. The amount of overreporting obtained in the two experimental techniques should be evaluated and compared with the amount from a control technique.

The results on the theoretical side seem to be in agreement with the general understanding of memory and recall processes, but it is not possible to infer any valid explanatory statement from these data. The relationship and interaction between cognition and motivation are not controlled in this study. Whether increases

in reporting have been obtained through direct cognitive facilitation, indirect motivational stimulus, or a combination of both remains an open question. The major outcome is a pragmatic one: techniques designed in a cognitive framework to facilitate recall have proved effective in raising the reporting level of health information.

It is interesting to note that most of the knowledge about the memory process has been developed by manipulating the input (learning conditions) and by evaluating the resulting output (recall). Previous studies in this area have been mainly concerned with the psychology of learning rather than with the psychology of recall. The present study departs from this trend; it assumes that the learning conditions, or input, are the same for the three experimental groups. Recall is no longer considered an end result of learning after memory processing, but is considered as an intervening process in itself and likely to determine the response. By focusing on how information is retrieved under different conditions of recall, rather than under different conditions of learning, this approach may bring some new understanding of cognitive processes and suggest avenues for further research.

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APPENDIX I

TABLES

I. Response rates, by collection procedure

Item	Total	Extensive	Control	Diary
I. Addresses in original sample (including additional samples)	523	173	177	173
A. Original sample addresses (including additional samples)	508	169	170	169
B. Additional dwelling units at sample addresses	15	4	7	4
II. Addresses eliminated from samples	167	52	63	52
A. Address not a dwelling	37	14	9	14
B. No eligible respondent	106	35	40	31
C. House vacant	13	3	7	3
D. No such address, moved	11	0	7	4
III. Dwelling units with eligible respondents (item I minus item II)	356	121	114	121
IV. Noninterviews	51	16	15	20
A. Respondent not at home	17	6	5	6
B. Refusals	34	10	10	14
V. Total interviews obtained (item III minus item IV)	305	105	99	101
VI. Response rate in percent[1] (item V divided by item III)	85.7%	86.8%	86.8%	
Diary introduction	...	...	...	89.3%
Diary followup	...	...	...	93.5%

[1]For the diary procedure, the figures were adjusted to establish rates for the first visit (introducing diary) and the second visit (picking up diary and interviewing).
Of the respondents not at home, four were on first visit, two on second. Of the refusals, nine were on first visit, five on second.
Adjusted response rates were computed on the following basis:
First visit (108/121).
Second visit (101/108).

Table II. Construction of impact indexes

All conditions general impact

Item number	Table question number	Impact=0	Percent of conditions	Impact=1	Percent of conditions	Impact=2	Percent of conditions	Total percent of conditions
1	5	Has never talked to doctor about condition	30	Has talked to doctor about condition	70			100
2	5-b	Has not talked to a doctor about it in last 14 days	91			Has talked to doctor once or more in last 14 days	9	100
3	6-1	No medicine for it in last 14 days	67	Took medicine for it in last 14 days	33			100
4	6-2	No other treatment for it in last 14 days	91			Took other treatment for it in last 14 days	9	100
5	6-3	No diet for it in last 14 days	96			On a diet for it in last 14 days	4	100
6	6-a	No day cut down in last 14 days	92			One day or more cut down in last 14 days	8	100
7	6-b	No day in bed in last 14 days	95			One day or more in bed in last 14 days	5	100
8	7	Almost no pain in last 14 days	55	Some pain in last 14 days	32	Much or very much pain in last 14 days	13	100
9	9-a	0-7 days cut down in last year	88	8-14 days cut down in last year	5	15-365 days cut down in last year	7	100
10	9-b	No day in bed in last year	88	1-7 days in bed in last year	6	8-365 days in bed in last year	6	100
11	10	Bothered almost never or sometimes last year	75	Bothered often last year	15	Bothered very often last year	10	100
12	11	Thinks about it almost never or sometimes	79	Thinks often about it	12	Thinks very often about it	9	100

Table III. Impact indexes construction—contents of indexes

Impact indexes	Table item number	Table question number	Total	Number of conditions		
				Extensive	Control	Diary
Index A-All conditions general impact	1-8	5-7	1,503	661	399	443
Index B-All conditions 14 days' disability impact	6-7	6-a, 6-b	1,530	671	404	455
Index C-All conditions 14 days' psychological impact	8	7	1,547	683	404	460
Index D-Chronic conditions general impact	1-12	5-11	1,276	565	361	350
Index E-Chronic conditions 12 months' disability impact	9-10	9-a, 9-b	1,305	579	368	358
Index F-Chronic conditions 12 months' psychological impact	11-12	10-11	1,325	589	373	363

Table IV. Mean level of impact per condition reported by impact index and collection procedure

Impact indexes	Collection procedure		
	Extensive	Control	Diary
	Mean level of impact		
Index A—All conditions general impact	[1]2.03	2.64	[1]2.23
Index B—All conditions 14 days' disability impact	0.22	0.29	0.25
Index C—All conditions 14 days' psychological impact	0.55	0.60	0.60
Index D—Chronic conditions general impact	[1]2.56	3.56	3.18
Index E—Chronic conditions 12 months' disability impact	[1]0.25	0.42	0.41
Index F—Chronic conditions 12 months' psychological impact	[2]0.58	0.72	0.69

[1]Mean level of impact significantly lower than in control procedure ($p \leq .01$).
[2]Mean level of impact significantly lower than in control procedure ($p \leq .10$).

Table V. Matrices of intercorrelations between all impact indexes for every condition by collection procedure

Index	Index					Index					Index				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Index B---	.73					.72					.67				
Index C---	.64	.38				.63	.39				.61	.32			
Index D---	.85	.55	.58			.89	.65	.58			.86	.66	.53		
Index E---	.34	.46	.09	.59		.35	.46	.15	.63		.40	.49	.15	.71	
Index F---	.37	.20	.45	.70	.19	.43	.27	.43	.71	.31	.30	.25	.32	.67	.40
	Extensive $N \geq 565$ conditions in all cases					Control $N \geq 361$ conditions in all cases					Diary $N \geq 350$ conditions in all cases				

APPENDIX II

DOCUMENTS

STANDARD CONDITION TABLE

CONDITION: INTERVIEWER INITIALS: INT.NO. [ ]

NO. OF Q. WHERE COND. FIRST MENTIONED: _____

INTERVIEWER CHECK ONE:

- ☐ From chronic conditions lists . . . GO TO 5
- ☐ Illness, injury, or accident in past 14 days . . . . . GO TO 4
- ☐ Present effects of illness, injury, or accident . . . . . GO TO 5
- ☐ Condition present since birth . GO TO 5 AND CROSS OUT Q's 6,8,9
- ☐ Other . . . . . ASK 1

1. Did you have ... (Was your ... present) during the past 14 days? ☐ Yes GO TO 4 ☐ No ASK 2

2. Did you have it during the past 12 months? ☐ Yes GO TO 3 ☐ No ASK 2a

2a. During the past 12 months, did you take or use any medicine or treatment for ...? ☐ Yes GO TO 3 ☐ No ASK 2b

2b. Did you cut down on any of your usual activities or stay in bed because of ... at any time during the 12 months? ☐ Yes GO TO 3 ☐ No ASK 2c

2c. Did you go on a special diet within the 12 months because of it? ☐ Yes ASK 3 ☐ No STOP QUESTIONS HERE

3. For how long have you had this condition? ☐ 3 months or more GO TO 5 ☐ Less than 3 months ALSO CHECK NEXT LINE:
☐ On c.c. lists GO TO 5 ☐ Not on c.c. lists STOP QUESTIONS HERE

4. Did you have ... during the last 7 days, the 7 days before that, or during both periods? ☐ Last 7 days ☐ 7 days bef. ☐ Both periods

5. Did you ever talk to a doctor about ...? ☐ Yes ASK 5a ☐ No GO TO 6

5a. What did the doctor say it was--did he give it a medical name?
Name: ☐ No

5b. Have you talked to a doctor about it in the past 14 days? ☐ Yes ASK 5c ☐ No GO TO 6

5c. How many times? No. times:

6. During the past 14 days, have you done any of these things because of ...:
--Taken any medicine or pills? ☐ Yes ☐ No
--Any other treatment? ☐ Yes ☐ No
--Been on a special diet? ☐ Yes ☐ No

6a. During the past 14 days, how many days, if any, did you have to cut down on the things you usually do because of ...?
☐ None GO TO 7 No. days: _____ ASK 6b

6b. During the past 14 days, how many days, if any, did you have to stay in bed part or all of the day because of ...?
☐ None No. days: _____

7. During the past 14 days, at its worst how much pain or discomfort has it caused you: very much, much, some, or almost none?
☐ Very much ☐ Much ☐ Some ☐ Almost none

8. When did you (first notice/get) ...?
☐ 3 mo. ago or more ASK 9a ☐ Less than 3 mo. ago ALSO CHECK NEXT LINE:
☐ On c.c. lists ASK 9a ☐ Not on c.c. lists STOP QUESTIONS HERE

9a. During the past 12 months, how many days, if any, did you have to cut down on your usual activities because of ...?
☐ None GO TO 10 No. days: _____ ASK 9b

9b. How many days, if any, did you have to stay in bed all or part of the day at any time during the past 12 months because of ...?
☐ None No. days: _____

10. During the past year, how often has it bothered or affected you--very often, often, sometimes, or almost never?
☐ Very often ☐ Often ☐ Sometimes ☐ Almost never

11. How often do you think about ...: very often, often, sometimes, or almost never?
☐ Very often ☐ Often ☐ Sometimes ☐ Almost never

STOP HERE IF THE CONDITION IS ONE OF THESE:
--MISSING OR DEFORMED PART OF BODY
--SYMPTOM
--PRESENT EFFECT EXPRESSED AS A SYMPTOM

12. How would you describe ... at present--would you say it is active, under control, or are you completely cured?
☐ Active ☐ Under control ☐ Cured

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INSTRUCTIONS FOR ENTERING HEALTH PROBLEMS ON THE TABLE

With the exceptions noted below, PUT EVERY HEALTH PROBLEM MENTIONED BY THE RESPONDENT ON A SEPARATE TABLE.

EVERY "YES" ANSWER GIVEN BY THE RESPONDENT represents a potential health problem.

If the health problem is not clearly stated (e.g., I have to try avoid catching colds), PROBE for the NAME of the health problem (e.g., "Is this because of some existing health problem?").

"Yes" answers to some questions may not produce health problems: having tonsils or appendix removed to prevent illness, etc.; cutting down on smoking to prevent development of lung cancer, etc.

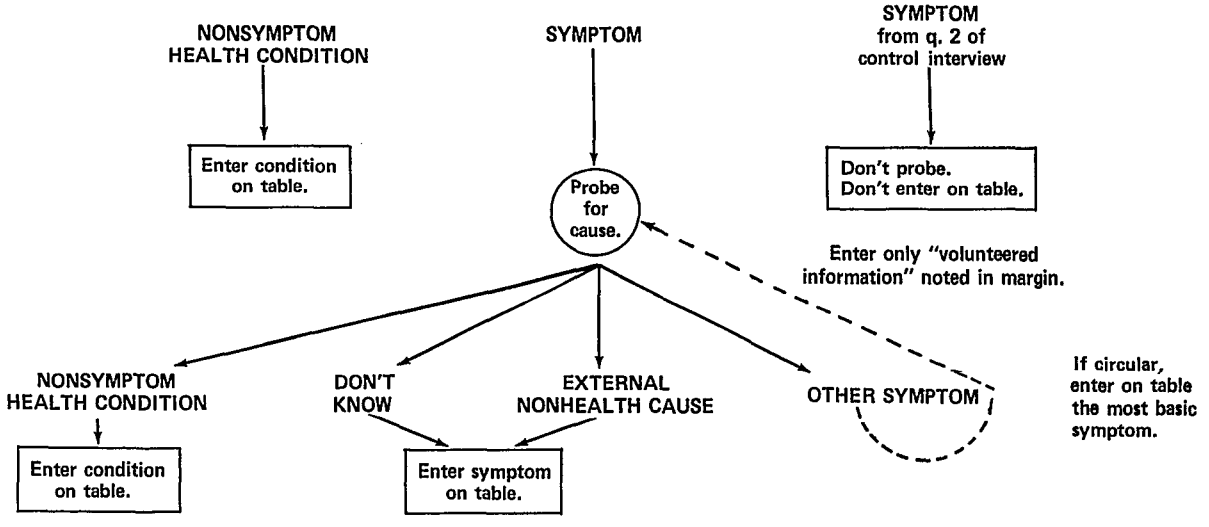
When this happens, make sure that it is clear what is being prevented. Make sure the respondent is saying this is to prevent a new condition from developing rather than to prevent a flareup of an old condition. If it is the latter, enter the old condition or, if the respondent protests, enter "susceptibility to (old condition)."

There are only a few health problems which should NOT be put on the table:

1. DO NOT ENTER SYMPTOMS CAUSED BY A NONSYMPTOM.
   For example, headaches due to flu, pain due to cancer, sneezing due to hay fever (enter flu, cancer, hay fever).
   IMPORTANT: Nonsymptoms "caused by" nonsymptoms are always put on separate tables. NEVER omit a nonsymptom from the tables, because the respondent says it is "caused by" or "due to" something else.
2. DO NOT ENTER REDUNDANT HEALTH PROBLEMS.
   If the respondent says two health problems which were previously given different names (e.g., arthritis and stiff joints, or heart trouble and arteriosclerotic health disease) are really THE SAME condition, make out only one table and enter only one of the names on the table. Note that the respondent MUST SAY they are THE SAME CONDITION, not that one is caused by the other, and not that they "are connected."
3. DO NOT ENTER CERTAIN "PROBLEMS":
   a. Use of glasses due only to near- or far-sightedness. If due to an "abnormal" condition (cataracts, etc.), we do want that condition.
   b. Normal pregnancy, childbirth.
   c. Normal menstruation or menopause.
   d. If you probe for a present effect and find there is none, do not enter the problem on the table. (Note: you are not required to probe for present effects except when the probe is included on the questionnaire.)

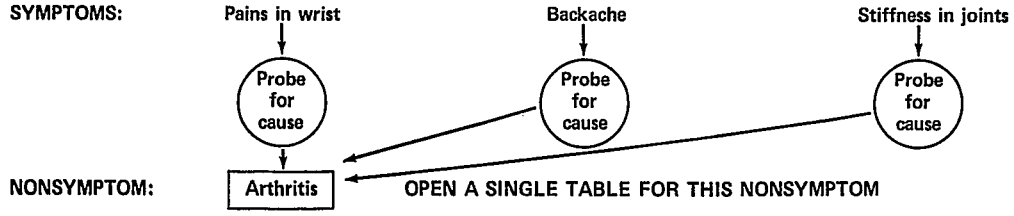
SUMMARY
1. Try to get a clear health problem from every "yes" answer.
2. Enter everything but:
   a. Symptoms caused by nonsymptoms.
   b. Redundant health problems.
   c. Near- or far-sightedness causing respondent to wear glasses.
   d. Normal pregnancy, childbirth, menstruation, menopause.
   e. A cured condition with no present effects (if you know this).

HOW TO TREAT HEALTH ITEMS REPORTED

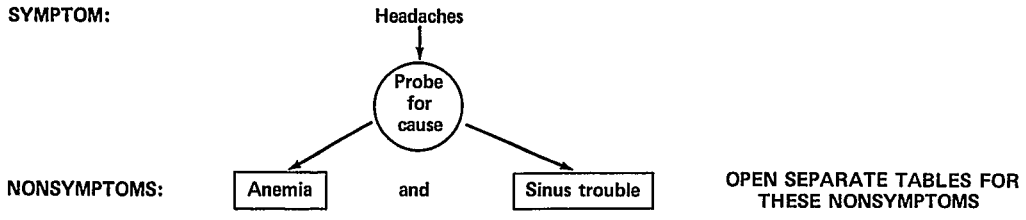


SPECIAL CASES

1. Several symptoms may be reported as caused by the same nonsymptoms.



2. The same symptom may be reported as caused by several nonsymptoms.



3. Several "nonsymptoms" may be reported as "related," "tied together," "caused by each other," etc.

NONSYMPTOMS: [Varicose veins] due to [Hypertension] — OPEN SEPARATE TABLE FOR THESE NONSYMPTOMS

4. Several "nonsymptoms" may be reported as "the same."

NONSYMPTOMS: [Back trouble] "same" as [Rheumatism] — OPEN A SINGLE TABLE FOR THE BROADER CONCEPT USED BY RESPONDENT.

DEFINITIONS OF HEALTH-RELATED VARIABLES

"Days in bed" in last 2 weeks are defined as any days in which the person spent at least 2 hours more than usual in bed because of one or more present health problems. Taking a nap on "general principles" is not relevant to the concept.

"Other disability days" in last 2 weeks are any days in which the respondent had to cut down on the activities she usually does (keeping house, shopping, working, etc.) because of health, excluding those days previously counted as "days in bed."

"Medications taken" in last 2 weeks refers to a broad class of items that can be taken in connection with a health problem, such as pills, ointments, syrups, injections, etc., and a broad class of actions such as physical therapy, exercise, traction, etc. Medicines taken to prevent an illness from starting or to avoid pregnancy or for general well-being, such as vitamins, are not counted.

"Doctor contacts" in last 2 weeks includes any visit to or by a physician or a technician or nurse acting under a physician's supervision and related to respondent's health. Telephone consultations are included.

"Dentist visits" refers to the number of times the respondent has visited dentists for treatment for herself over the last 12 months.

"Hospitalizations" in the last 12 months refers to the number of times the respondent has been hospitalized at least overnight as an inpatient for some illness, for childbirth, or for an operation. Stays in nursing homes, rest homes, or similar places such as sanitariums are included.

EXTENSIVE QUESTIONNAIRE

Survey Research Center
The University of Michigan
Project 45970

April 1968

CONFIDENTIAL - All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any other purposes.

Interviewer Name or Label

Your Interview Number _____

Tract _____ Block _____ Address _____

Call Number	1	2	3	4	5
Time of Day	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.
Date					
Results					

TIME INTERVIEW STARTED ____ a.m. / p.m.

1a. What is the name of the head of this household? (RECORD FIRST & LAST NAMES BELOW)
1b. What are the names of all other persons who live here? (LIST ALL PERSONS)
1c. I have listed ...(READ NAMES). Is there anyone else staying here now? -- Such as friends, relatives, or roomers?
1d. Do any of the people in this household have a home anywhere else?
1e. How is ... related to (HEAD)?
1f. How old was ... on his last birthday?

Line	Name	Relation to Head	Sex	Age
1				
2				
3				
4				
5				
6				

We are interested in finding out about sicknesses, accidents and other health problems you have now or have had in the past. Many of these things may be hard to remember and you may have to think hard on a lot of the questions. For this research to be of greatest value, the research people need to get as full and accurate answers as possible.

A. Symptoms

1. All of us have aches or pains or something wrong with us at some time. What are some of the things that bother you or give you trouble?

1a.	Do you have aches, pains, or other symptoms around head or neck?	☐ Yes	☐ No
1b.	How about the hands, arms, and shoulders?	☐ Yes	☐ No
1c.	How about the chest, Do you have any trouble with your cheat?	☐ Yes	☐ No
1d.	How about the stomach?	☐ Yes	☐ No
1e.	Do you have pains or symptoms in the abdomen?	☐ Yes	☐ No
1f.	How about the back?	☐ Yes	☐ No
1g.	How about the hips or thighs? Do you have any problems or symptoms?	☐ Yes	☐ No
1h.	How about the legs, ankles, feet?	☐ Yes	☐ No
1i.	Is there anything in any other part of your body that gives you trouble?	☐ Yes	☐ No

FOR EACH YES ASK:

What is the trouble?
Do you have any idea what causes it?
Any other trouble with ...?

FOR EACH "YES" NUMBER THE QUESTION AND WRITE THE RESPONSES IN THE SPACE BELOW

2. Most of us have headaches. About how often would you say you have a headache; usually every few days or less often?

☐ Has headaches ☐ Does not have headaches

(IF HAS HEADACHES) 2a. Do you have any idea what causes your headaches?

3. Have you had nosebleeds? ☐ Yes ☐ No

(IF YES) 3a. Do you have any idea what causes your nosebleeds?

4. Have you noticed ringing in your ears or have you been bothered by other funny noises in your ears? ☐ Yes ☐ No

(IF YES) 4a. Do you have any idea what causes this?

5. Have you had any pains or soreness in your joints? ☐ Yes ☐ No

(IF YES) 5a. Do you have any idea what causes these pains?

6. Have you had stiffness in your joints in the morning when you get up? ☐ Yes ☐ No

(IF YES) 6a. Do you have any idea what causes this stiffness?

7. How about swelling of the joints? Have you noticed anything like that?

☐ Yes ☐ No

(IF YES) 7a. Do you have any idea what causes this swelling?

8. Have you had backaches or pains in your back or spine?

☐ Yes ☐ No

(IF YES) 8a. Do you have any idea what causes these pains?

9. Have you had any pains in your chest? ☐ Yes ☐ No

(IF YES) 9a. Do you have any idea what causes these pains?

10. How about in or around your heart? Have you had any pains or trouble there?

☐ Yes ☐ No

(IF YES) 10a. Do you have any idea what causes these pains?

11. Sometimes our hearts "act funny" like missing a beat, or beating real fast, or seem to turn over. Have you ever noticed your heart do anything like that?

☐ Yes ☐ No

(IF YES) 11a. Do you have any idea what causes this?

12. Have you had anything wrong with your lungs? ☐ Yes ☐ No

(IF YES) 12a. What was it?

13. Have you had trouble breathing? ☐ Yes ☐ No

(IF YES) 13a. Do you have any idea what causes you to have trouble breathing?

14. Have you had trouble with coughing or wheezing and things like that? ☐ Yes ☐ No

(IF YES) 14a. Do you have any idea what causes that?

15. Have you coughed up blood? ☐ Yes ☐ No

(IF YES) 15a. Do you have any idea what causes that?

16. Have you had any abnormal bleeding? ☐ Yes ☐ No

(IF YES) 16a. Do you have any idea what causes it?

17. Have you had times when your skin itched or you had a rash?

☐ Yes ☐ No

(IF YES) 17a. Do you have any idea what causes this?

18. Have there been times when you noticed a bright reddish or brownish color in your urine (when you pass water)?

☐ Yes ☐ No

(IF YES) 18a. Do you have any idea what causes that?

19. Have you had any trouble with your eyes? ☐ Yes ☐ No

(IF YES) 19a. What kind of trouble?

(IF GLASSES MENTIONED) 19b. Aside from glasses, have you had any trouble with your eyes?

20. Have you had any trouble with your ears or trouble hearing?

☐ Yes ☐ No

(IF YES) 20a. What kind of trouble?

21. Have your ears ever drained? ☐ Yes ☐ No

(IF YES) 21a. Do you have any idea what causes that?

22. Have you gained or lost weight when you didn't want to? ☐ Yes ☐ No

(IF YES) 22a. Do you have any idea what causes that?

23. Have you become dizzy or light-headed? ☐ Yes ☐ No

(IF YES) 23a. Do you have any idea what causes that?

24. Do you have any trouble with nervous tension? ☐ Yes ☐ No

(IF YES) 24a. Do you have any idea what causes that?

25. Have you had stomach cramps? ☐ Yes ☐ No

(IF YES) 25a. Do you have any idea what causes that?

26. Have you had indigestion? ☐ Yes ☐ No

(IF YES) 26a. Do you have any idea what causes that?

_____

_____

_____

27. Have you been troubled with vomiting? ☐ Yes ☐ No

(IF YES) 27a. Do you have any idea what causes that?

_____

_____

_____

28. Have you had frequent fevers? ☐ Yes ☐ No

(IF YES) 28a. Do you have any idea what causes that?

_____

_____

_____

29. Have you had times when you had no appetite? ☐ Yes ☐ No

(IF YES) 29a. Do you have any idea what causes that?

_____

_____

_____

B. Problems while growing up --

30. Now I want to ask you about things you had while you were growing up. Most people have some diseases and sicknesses at some time during their lives. Thinking back to when you were growing up, what sicknesses or diseases do you remember having?

_____

_____

(IF SOMETHING) (MENTIONED) 30a. Did you have any other sicknesses when growing up?

_____

_____

(IF SOMETHING MENTIONED IN EITHER 30 OR 30a, GO TO 30b)
(IF NOTHING MENTIONED, GO TO 31)

(IF SOMETHING MENTIONED
(IN 30 or 30a) 30b. Do you still have any effects from (it)(any of these)?

☐ Yes ☐ No

(IF YES) 30c. What effects?

_____

_____

_____

_____

31. What accidents or injuries do you remember having while you were growing up?

_____

_____

(IF SOMETHING)
(MENTIONED) 31a. Did you have any other accidents or injuries when growing up?

_____

_____

(IF SOMETHING MENTIONED
(IN either 31 or 31a)

31b. Do you still have any effects from (it)(any of these)?

☐ Yes ☐ No

(IF YES) 31c. What effects?

_____

_____

_____

_____

32. Now, how about operations. Did you ever have an operation of any kind while you were growing up?

☐ Yes ☐ No

(IF YES) 32a. What was the operation for?

_____

_____

32b. Any other operations?

_____

_____

32c. Do you still have any effects from either the operation(s) or the condition(s)?

☐ Yes ☐ No

(IF YES) 32d. What effects? _____

C. Problems as an adult --

33. Now, since you have been grown up -- What do you consider to be the most serious illnesses you have had?

(IF SOMETHING) (MENTIONED) 33a. What other serious illnesses have you had?

(IF SOMETHING MENTIONED) (IN EITHER 33 OR 33a)

33b. Do you still have any effects from (it)(any of these)?

☐ Yes ☐ No

(IF YES) 33c. What effects?

34. What accidents and injuries have you had since growing up?

(IF SOMETHING) (MENTIONED) 34a. Have you had any other accidents or injuries since growing up?

(IF SOMETHING MENTIONED) (IN EITHER 34 OR 34a)

34b. Do you still have any effects from (it)(any of these)?

☐ Yes ☐ No

(IF YES) 34c. What effects?

35. Have you ever had a broken bone such as a broken finger, toe, arm or leg? ☐ Yes ☐ No

(IF YES) 35a. Do you still have any effects from (it)(any of these)? ☐ Yes ☐ No

(IF YES) 35b. What effects?

36. Have you had any operations since growing up? ☐ Yes ☐ No

(IF YES) 36a. What was the operation for?

36b. Any other operations?

36c. Do you have any effects from the operation or the condition? ☐ Yes ☐ No

(IF YES) 36d. What effects?

37. Have you had any stitches? ☐ Yes ☐ No

(IF YES) 37a. What were they for?

37b. Do you still have any effects from this? ☐ Yes ☐ No

(IF YES) 37c. What effects?

D. Disabilities and impairments --

38. Were you born with any physical handicaps or anything wrong with you? ☐ Yes ☐ No

(IF YES) 38a. What were they?

39. As a result of any diseases or illnesses, do you have any handicaps or any other problems with your health? ☐ Yes ☐ No

(IF YES) 39a. What are they?

40. As a result of any accidents or injuries, do you have any handicaps, such as missing fingers or toes, or joints that are permanently stiff, or things like that? ☐ Yes ☐ No

(IF YES) 40a. What are they?

41. Have you had to use a wheel chair, crutches, a special bed, or anything like that? ☐ Yes ☐ No

(IF YES) 41a. For what reason?

42. Do you remember times during the past year when you had to stay in bed or were not able to do the things you usually do? ☐ Yes ☐ No

(IF YES) 42a. What was the trouble?

E. Diet, food sensitivity and restrictions --

Here are some other things people sometimes do.

43. Have you ever been on a diet? ☐ Yes ☐ No

(IF YES) 43a. What was the reason for the diet?

44. Has a doctor ever told you not to eat some kinds of foods? ☐ Yes ☐ No

(IF YES) 44a. Why was this?

45. Are there any foods you can't eat because they make you sick or to which you have an allergic reaction? ☐ Yes ☐ No

(IF YES) 45a. Tell me about it.

46. Have you ever smoked? ☐ Yes ☐ No

(IF YES) 46a. Has a doctor ever suggested that you cut down or stop smoking? ☐ Yes ☐ No

(IF YES) 46b. For what reason?

47. How about cutting down or not using beer or alcohol? Has a doctor ever suggested that? ☐ Yes ☐ No

(IF YES) 47a. For what reason?

48. Has a doctor suggested that you should take more exercise?

☐ Yes ☐ No

(IF YES) 48a. For what reason?

49. How about engaging in sports or other activities like that, has a doctor ever told you you should not do some things?

☐ Yes ☐ No

(IF YES) 49a. For what reason?

50. Are there any other things that you were told you should cut down on or not do?

☐ Yes ☐ No

(IF YES) 50a. For what reason?

51. Have you been told you should get more rest or more sleep?

☐ Yes ☐ No

(IF YES) 51a. For what reason?

52. Are you restricted in any way as to the kind or amount of work you can do?

☐ Yes ☐ No

(IF YES) 52a. For what reason?

53. Are you restricted in any way in the kind of climate you can live in?

☐ Yes ☐ No

(IF YES) 53a. For what reason?

F. Illnesses in past two weeks --

54. We have talked about various conditions. Now I want to ask you about recent illnesses. Were you sick at any time during the last 2 weeks -- that is, during the 14 days ending last night marked on this calendar? (HAND CALENDAR)

☐ Yes ☐ No

(IF YES) 54a. What was the matter?

54b. Did you have any other sicknesses during the last 2 weeks?

☐ Yes ☐ No

(IF YES) 54c. What was the matter?

(REPEAT 54b and 54c UNTIL A "NO" ANSWER IS OBTAINED)

55. Many times a person is not really sick but just doesn't feel as well as usual. Were there any (other) times last week or the week before when you didn't feel as well as usual?

☐ Yes ☐ No

(IF YES) 55a. What was the matter?

55b. Were there any other days that you didn't feel well?

☐ Yes ☐ No

(IF YES) 55c. What was the matter?

56. Within the last 14 days, did you have any accidents or injuries?

☐ Yes ☐ No

(IF YES) 56a. What were they?

_____

_____

_____

56b. Did you have any other accidents or injuries during the past 14 days?

☐ Yes ☐ No

(IF YES) 56c. What were they?

_____

_____

_____

(REPEAT 56b and 56c UNTIL A "NO" ANSWER IS OBTAINED)

57. During the last 14 days, did you have any (other) injuries like cuts, bruises, sprains or anything like that?

☐ Yes ☐ No

(IF YES) 57a. What were they?

_____

_____

_____

G. Disability days --

58. During the past 14 days, did you stay in bed, all or part of any day, because of any illness or injury?

☐ Yes ☐ No

(IF YES) 58a. How many days did you stay in bed all or part of the day during the last 7 days?

_____ days

58b. How many days during the 7 days before that? _____ days

59. (Besides the days in bed) Were there any (other) days during the last 14 days that you had to cut down on the things you usually do because of health?

☐ Yes ☐ No

(IF YES) 59a. (Not counting the days in bed) How many (other) days did you have to cut down for as much as a day during the last 7 days?

_____days

(CONTINUED)

59b. How many days during the 7 days before that?

_____ days

H. Medication --

We have talked about some illnesses and health problems and now I'd like to find out about the pills and medicines you take.

60. Did you take any medicine or treatment for any condition during the last 14 days? (SHOW CALENDAR)

☐ Yes (ASK Qs 60a-c) ☐ No (GO TO Q61)

60a. For what conditions?
60b. (ASK FOR EACH MEDICINE OR TREATMENT) Did you take it within the last 7 days, the 7 days before that, or during both periods?
60c. Did you take any medicine or treatment for any other condition during that same 2 weeks?

☐ Yes (ASK Qs 60d-e) ☐ No (GO TO Q61)

60d. For what conditions?
60e. (ASK FOR EACH MEDICINE OR TREATMENT) Did you take it within the last 7 days, the 7 days before that, or during both periods?

(REPEAT 60c-e UNTIL A "NO" ANSWER IS OBTAINED)

NAME OF MEDICINE OR TREATMENT (IF GIVEN)	FOR WHAT CONDITION?	WHEN TAKEN?		
		LAST 7	7 BEFORE	BOTH

61. There are some medicines that I'd like to ask you about specifically. (Besides what you have already told me). During the last 14 days did you take any of the following?

	NO	YES	FOR WHAT CONDITION?	WHEN TAKEN?		
				LAST 7	7 BEFORE	BOTH
a. Pain relievers such as aspirin?						
b. Laxatives?			////////////////////			
c. Tranquilizers, sedatives, or pills to help you sleep?						
d. Ointments or salves?						
e. Cough medicines or remedies for a cold?						
f. Pills or remedies for your stomach?						
g. Anything for the heart or blood pressure?						
h. Anything to clear up infection?						
i. Anything else that a doctor suggested you take? (ENTER NAME)						

FOR EACH "YES" ASK - For what condition?
- Did you take it within the last 7 days, the 7 days before that, or during both periods?

I. Doctors' visits, diagnostic procedures --

62. During the last 14 days did you talk to a doctor about your health or go to a doctor's office or clinic for yourself? ☐ Yes ☐ No

(IF YES) 62a. How many times did you see or talk to a doctor within the last 7 days?

_____ times

62b. For what condition?

_____

_____

_____

62c. How many times did you see or talk to a doctor within the 7 days before that?

_____times

62d. For what condition?

_____

_____

_____

63. (In addition to what you have already told me about) During the last 14 days did you --

	NO	YES	FOR WHAT CONDITION?	WHEN?	
				LAST 7	7 BEFORE
a. ..see a nurse or technician for shots, X-rays or treatment?					
b. ..see a doctor in a hospital emergency room or outpatient department?					
c. ..consult a doctor over the telephone?					
d. ..talk to a doctor at your home?					
e. ..talk to a doctor in a company or industrial clinic?					
f. Did anyone else talk to a doctor for you or about your health?					
g. During the last 14 days did you have a blood test, urine test or any other tests?					
h. Did you have a general medical or physical examination?					

FOR EACH "YES" ASK:	- For what condition? - How many times during the last 7 days? - How many times during the 7 days before that?

64. (ADD THE NUMBER OF VISITS REPORTED IN BOTH QUESTIONS 62 & 63)

I have _____ contacts listed in the past 14 days. Is this right?
number of visits

☐ Yes ☐ No

(IF NO) COMMENTS: _____

_____

_____

65. Have you been to a dentist in the past 12 months?

☐ Yes ☐ No

(IF YES) 65a. How many times? _____ times

J. Hospitalization --

66. Here are some questions about hospitalization.
Were you in a hospital or nursing home at any time since _____
INSERT YESTERDAY'S DATE
a year ago?

☐ Yes ☐ No

(IF YES) 66a. How many different times were you in a hospital overnight or longer during the past 12 months?

_____ times

(IF ONE TIME) 66b. What was it for?

_____

_____

(IF SEVERAL TIMES) 66c. When was the last time?

_____month _____year

66e. What was it for?

_____

_____

(CONTINUE ASKING DATE AND REASON FOR ALL STAYS IN THE PAST 12 MONTHS, IF APPROPRIATE)

67. (Besides what you have already mentioned) I'd like to ask you some specific questions about hospitalizations.

(IF MARRIED) Have you ever been in a hospital to have a baby or for a miscarriage?

☐ Yes ☐ No

(IF YES) 67a. When was the last time? _____

(IF IN LAST YEAR) 67b. What month did you go into the hospital? _____

68. Were you ever in a hospital overnight or longer for treatment of an illness?

☐ Yes ☐ No

(IF YES) 68a. When was the last time? _____

(PROBE FOR ALL DURING PAST YEAR - FOR EACH ASK:)

68b. When did you go into the hospital? _____

68c. What was the illness?

_____

_____

_____

69. How about for tests or observation? Were you ever in a hospital for that?

☐ Yes ☐ No

(IF YES) 69a. When was the last time? _____

(PROBE FOR ALL DURING PAST YEAR - FOR EACH ASK:)

69b. When did you go into the hospital? _____

69c. What were the tests for?

_____

_____

_____

J. Chronic conditions --

70. We have talked about sicknesses. The research people are interested in some specific conditions that some people have. What long-standing illnesses or health problems do you have?

_____

_____

_____

70a. Here are some conditions the research people want to find out about. Some of these you may have told me about but I'd like to ask you about them again to be sure I have all the information correctly. These questions ask about things you may have had at any time during the past year even though they may not bother you now. Have you had any of these conditions during the past 12 months?

	Yes	No
Asthma		
Chronic or repeated bronchitis		
Hay fever		
Repeated sinus trouble		
Any allergy		
Stomach (peptic) ulcer		
Other repeated stomach trouble		
Thyroid trouble or goiter		
Chronic or repeated bladder trouble		
Repeated trouble with the gall bladder or liver		
Kidney stones or repeated kidney trouble		
Hernia or rupture		
Paralysis of any kind		
Tumor, cyst or growth		
Repeated menstrual trouble		
Menopausal trouble		
Trouble with the female organs		
Anemia		
Athlete's foot		
Corns, callouses or other repeated foot trouble		
Diseases of the breast		
Repeated skin trouble		
Palsy		
Hemorrhoids or piles		
Varicose veins		
Repeated trouble with the back or spine		
Repeated nervous trouble		

71. Here are some other things. I'd like to know whether you have ever had any of them, even though you may not still have it, or it may not bother you? Please tell me if you have ever had any of these conditions:

	Yes	No
Arthritis or rheumatism		
Hypertension or high blood pressure		
Rheumatic fever		
Heart disease or any kind of heart trouble		
Diabetes		
Stroke		
Tuberculosis or consumption		
Epilepsy		
Mental illness		
Cancer		
Emphysema		
Hardening of the arteries		
Missing fingers, hand or arm, toes, foot, or leg		
Permanent stiffness or any deformity of the foot, leg, fingers, arm or back		

72. Do you get any insurance or workman's compensation benefits or payments for any injuries or illnesses? ☐ Yes ☐ No

(IF YES) 72a. For what?

_____

_____

73. Any social security or insurance payments for illnesses or accidents? ☐ Yes ☐ No

(IF YES) 73a. For what?

_____

_____

We've mentioned several diseases and disorders people sometimes have. There are many other things that bother people that we haven't asked about.

74. Do you have other problems with your health that we haven't talked about?

☐ Yes ☐ No

(IF YES) 74a. What are they?

_____

_____

_____

74b. Any other problems? _____

_____

75. Now I'd like to find out a little more about some of the things you mentioned earlier. (ASK ABOUT ITEMS ENTERED ON TABLE)

76. USE BEST RESPONDENT SUPPLEMENT

77. In general, would you say your health is excellent, good, fair, or poor?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

78. What was the highest grade you attended in school? _____

78a. Did you complete that grade?

☐ Yes ☐ No

79. Which of these income groups represents your total combined family income for the past twelve months; that is, yours, your --'s, your --'s, etc. (HAND CARD)

Include income from all sources such as wages, salaries, social security or retirement benefits, help from relatives, rents from property, and so forth.

Income Group _____

TIME NOW (INTERVIEW ENDED): _____am. _____pm.

CONTROL QUESTIONNAIRE

'Survey Research Center
The University of Michigan
Project 45970

April 1968

CONFIDENTIAL - All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any other purposes.

Interviewer Name or Label

Your Interview Number _____

Tract _____ Block _____ Address _____

Call Number	1	2	3	4	5
Time of Day	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.
Date					
Results					

TIME INTERVIEW STARTED a.m. / p.m.

1a. What is the name of the head of this household? (RECORD FIRST & LAST NAMES BELOW)
1b. What are the names of all other persons who live here? (LIST ALL PERSONS)
1c. I have listed ...(READ NAMES). Is there anyone else staying here now? -- Such as friends, relatives, or roomers?
1d. Do any of the people in this household have a home anywhere else?
1e. How is ... related to (HEAD)?
1f. How old was ... on his last birthday?

Line	Name	Relation to Head	Sex	Age
1				
2				
3				
4				
5				
6				

2. Now, I'd like to ask you some questions about your own health. Please tell me if you have ever had any of these health conditions. (DO NOT ENTER SYMPTOMS ON TABLE)

(AFTER EACH "YES" ANSWER or IF FIVE CONSECUTIVE "NO" ANSWERS ARE GIVEN, SAY: "Have you ever had ..." ON NEXT ITEM)

	YES	NO
a. Bad headaches?		
b. Coughed up blood?		
c. Fainting or blackout spells?		
d. Bad sore throats?		
e. Shortness of breath?		
f. Serious backaches?		
g. Felt your heart beating hard or acting funny?		
h. Pain in or around your heart or chest?		
i. Gas in your stomach?		
j. Bad stomach cramps?		
k. Loose bowels?		
l. Pain or soreness in the female organs?		
m. Pain or burning when you go to the bathroom?		
n. Swollen or painful joints?		
o. Broken bones?		
p. Itching skin?		
q. Nervous trouble?		
r. Venereal disease?		
s. Trouble sleeping?		

3a. Were you sick at any time during the last two weeks? -- that is, during the 14 days ending last night which are marked on this calendar? (HAND CALENDAR) (ENTER ALL ILLNESSES AND CONDITIONS IN TABLE)

☐ No (SKIP TO Q4a) ☐ Yes

3b. What was the matter?

3c. Did you have any other sicknesses during the last two weeks?

☐ No (SKIP TO Q4a) ☐ Yes

3d. What was the matter?

(REPEAT 3c & 3d UNTIL A "NO" ANSWER IS OBTAINED)

4a. During the past 14 days, did you stay in bed, all or part of any day, because of any illness or injury?

☐ No (SKIP TO Q5a) ☐ Yes - 4b. How many days did you stay in bed all or part of the day during the last 7 days?

_____days

4c. How many days during the 7 days before that?

_____days

5a. (Besides the days in bed) Were there any (other) days during the last 14 days that you had to cut down on the things you usually do because of health?

☐ No (SKIP TO Q6a) ☐ Yes - 5b. (Not counting the days in bed) How many (other) days did you have to cut down for as much as a day during the last 7 days?

_____days

5c. How many days during the 7 days before that?

_____days

6a. Did you take any medicine or treatment for any condition during the last 14 days? (ENTER ALL ILLNESSES & CONDITIONS ON TABLE)

☐ No (SKIP TO Q7a) ☐ Yes - (ASK Qs 6b-d)

6b. For what conditions?
6c. (ASK FOR EACH MEDICINE OR TREATMENT) Did you take it within the last 7 days, the 7 days before that, or during both periods?
6d. Did you take any medicine or treatment for any other condition during that same 2 weeks? ☐ No (SKIP TO Q7a) ☐ Yes - (ASK Qs 6e-f)
6e. For what conditions?
6f. (ASK FOR EACH MEDICINE OR TREATMENT) Did you take it within the last 7 days, the 7 days before that, or during both periods?

(REPEAT 6d-f UNTIL A "NO" ANSWER IS OBTAINED)

NAME OF MEDICINE OR TREATMENT (IF GIVEN)	(PROBE FOR CAUSE OF SYMPTOM) FOR WHAT CONDITION?	WHEN TAKEN?		
		LAST 7	7 BEFORE	BOTH

7a. Within the last 14 days, did you have any accidents or injuries? (ENTER ON TABLE)

☐ No (SKIP TO Q8a) ☐ Yes - 7b. What were they?

7c. Did you have any other accidents or injuries during the past 14 days?

☐ No (SKIP TO Q8a) ☐ Yes

7d. What were they?

(REPEAT 7c & 7d UNTIL A "NO" ANSWER IS OBTAINED)

8a. Did you ever have any (other) accidents, injuries, or illnesses that still bother or affect you in any way? (ENTER PRESENT EFFECTS ON TABLE)

☐ No (SKIP TO Q9a) ☐ Yes - 8b. In what ways does it still bother you?

8c. Have you had any other accidents, injuries, or illnesses that still bother or affect you in any way?

☐ No (SKIP TO Q9a) ☐ Yes

8d. In what ways does it still bother you?

(REPEAT 8c & 8d UNTIL A "NO" ANSWER IS OBTAINED)

Now I'd like to ask you some additional questions.

6. I'm going to read a list of health conditions. We would like to know if you have had any of these conditions during the past 12 months?
(ENTER CONDITIONS ON TABLE)

	Yes	No
Asthma		
Chronic or repeated bronchitis		
Hay Fever		
Repeated sinus trouble		
Any allergy		
Stomach (peptic) ulcer		
Other repeated stomach trouble		
Thyroid trouble or goiter		
Chronic or repeated bladder trouble		
Repeated trouble with the gall bladder or liver		
Kidney stones or repeated kidney trouble		
Hernia or rupture		
Paralysis of any kind		
Tumor, cyst, or growth		
Repeated menstrual trouble		
Menopausal trouble		
Trouble with the female organs		
Anemia		
Athlete's foot		
Corns, callouses or other repeated foot trouble		
Diseases of the breast		
Repeated skin trouble		
Palsy		
Hemorrhoids or piles		
Varicose veins		
Repeated trouble with the back or spine		
Repeated nervous trouble		

7. Please tell me if you have ever had any of these conditions:
(ENTER CONDITIONS ON TABLE)

	Yes	No
Arthritis or rheumatism		
Hypertension or high blood pressure		
Rheumatic fever		
Heart disease or any kind of heart trouble		
Diabetes		
Stroke		
Tuberculosis or consumption		
Epilepsy		
Mental illness		
Cancer		
Emphysema		
Hardening of the arteries		
Missing fingers, hand or arm, toes, foot, or leg		
Permanent stiffness or any deformity of the foot, leg, fingers, arm or back		

11. In order to make the information we collect useful, it's important that we know about all of the health problems a person has. Would you tell me what other ailments, conditions, or problems, if any, that you have with your health? (ENTER CONDITIONS ON TABLE ALSO)

PROBE: Do you have any other ailments, conditions, or problems with your health?

12. During the last 14 days, did you talk to a doctor about your health, or go to a doctor's office or clinic for yourself?

☐ No (SKIP TO Q13) ☐ - 12a. How many times did you see or talk to a doctor within the last 7 days?

_____ times

12b. How many times did you seek or talk to a doctor within the 7 days before that?

_____ times

13a. Were you in a hospital or nursing home at any time since _____ a year ago? (INSERT YESTERDAY'S DATE)

☐ No (SKIP TO Q14) ☐ Yes - 13b. How many different times were you in a hospital overnight or longer during the past 12 months?

_____ times

14a. Have you been to a dentist during the past twelve months?

☐ No (SKIP TO Q15) ☐ Yes - 14b. How many times? _____ times

15. Now I'd like to find out a little more about some of the things you mentioned earlier. (ASK ABOUT ITEMS ENTERED ON TABLE)

16. (USE BEST RESPONDENT SUPPLEMENT)

17. In general, would you say your health is excellent, good, fair, or poor?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

18. What was the highest grade you attended in school? _____

18a. Did you complete that grade? ☐ Yes ☐ No

19. Which of these income groups represents your total combined family income for the past twelve months; that is, yours, your --'s, your --'s, etc. (HAND CARD)

Include income from all sources such as wages, salaries, social security or retirement benefits, help from relatives, rents from property, and so forth.

Income Group _____

TIME NOW (INTERVIEW ENDED): ____am ____pm

DIARY QUESTIONNAIRE

D

Survey Research Center
The University of Michigan
Project 45970

April 1968

CONFIDENTIAL - All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any other purposes.

Interviewer Name or Label

Your Interview Number _____

Tract _____ Block _____ Address _____

Call Number	1	2	3	4	5
Time of Day	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.
Date					
Results					

TIME INTERVIEW STARTED _____ a.m. / p.m.

1a. What is the name of the head of this household? (RECORD FIRST & LAST NAMES BELOW)
1b. What are the names of all other persons who live here? (LIST ALL PERSONS)
1c. I have listed ...(READ NAMES). Is there anyone else staying here now? -- Such as friends, relatives, or roomers?
1d. Do any of the people in this household have a home anywhere else?
1e. How is ... related to (HEAD)?
1f. How old was ... on his last birthday?

Line	Name	Relation to Head	Sex	Age
1				
2				
3				
4				
5				
6				

☐ An appointment was scheduled to pick up the diary

on [ ] at [ ]
DATE TIME

☐ No appointment was scheduled but the more convenient times are [ ]

Interviewer Comments: _____

_____

_____

TIME INTERVIEW ENDED [ ] a.m. / p.m.

(PHASE 2 - REVIEW OF DIARY AND FOLLOW-UP INTERVIEW)

Call Number	1	2	3	4	5
Time of Day	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.	a.m. / p.m.
Date					
Results					

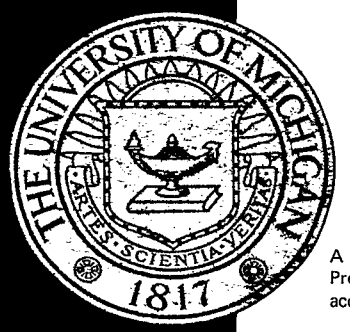
daily health record

interview number

your interviewer will return on at

This medical research study is designed to get a clear picture of the day-by-day health of the population. In this diary we ask you to report your sicknesses in detail, each day for a week, no matter how unimportant they may seem. Even things like headaches and taking aspirin should be written in. Please help by filling out this health record each day, reporting whatever occurred the day and night before.

We appreciate your cooperation.



SURVEY RESEARCH CENTER
THE UNIVERSITY OF MICHIGAN

A healthy people is perhaps a nation's greatest resource. Protecting this resource and planning for the future require accurate knowledge of the present health of the people.

DATE: **DAY OF WEEK:**

1. *How would you describe your health today?*

- ☐ Better than usual
- ☐ About the same as usual
- ☐ Somewhat poorer than usual
- ☐ Much poorer than usual

2. *What did you do today?*

- ☐ Carried on my usual activities
- ☐ Wasn't able to do as well as usual
- ☐ Had to stay home but not in bed
- ☐ Had to stay at home in bed.
- ☐ Stayed in a hospital

3. *List any ailments, sicknesses, or other health problems you had last night or today:*

☐ None

4. *List any accidents or injuries, including cuts or bruises:*

☐ None

5. *List any pills, medicine, or treatments used:*

☐ None

IF USED ANY, For what conditions?

6. *List any x-rays, tests, or examinations:*

☐ None

IF HAD ANY, For what reasons?

7. *Did you see or talk to a doctor today about your health?*

- ☐ Yes
- ☐ No

IF YES, For what conditions?

TIME STARTED: _____a.m. _____p.m.

REVIEW THE DIARY WITH THE RESPONDENT

> To be sure we get all accurate and complete information, and to be sure we correctly understand your entries, I'd like to review this diary with you and to ask you á few additional questions.

REVIEW ALL ENTRIES ON DIARY, BY QUESTIONS (OMITTING FIRST PAGE)

---CHECKING THAT ALL QUESTIONS WERE ANSWERED,
---CLARIFYING ANSWERS WHEN NEEDED, BY ADDING YOUR COMMENTS,
---ASKING THE FOLLOWING QUESTION EVERY TIME ANY SYMPTOM (SEE SYMPTOM LIST) IS REPORTED (EITHER UNDER QUESTION 3, 5, 6, OR 7):

> Do you have any idea what causes that?

EVERY NEW ENTRY ON THE DIARY SHOULD BE DONE BY THE INTERVIEWER USING A RED PENCIL.

ASCERTAIN WHETHER CONDITIONS ARE SAME AS REPORTED FOR PREVIOUS DAYS.

ASK THE FOLLOWING QUESTIONS AFTER THE REVIEW OF EACH QUESTION FOR THE WHOLE WEEK:

(AFTER REVIEW OF QUESTION 3) -

1. Are there any (other) sicknesses you had during the week that you didn't report here?

☐ No (BEGIN REVIEW DIARY Q4)

☐ Yes - 1a. What was the matter?

_____

_____

(ENTER ON TABLE AND PROBE FOR MORE)

(AFTER REVIEW OF QUESTION 4) -

2. Did you have any (other) accidents or injuries during the week that you didn't mention here?

☐ No (BEGIN REVIEW DIARY Q5)

☐ Yes - 2a. What was it?

_____

_____

(ENTER ON TABLE AND PROBE FOR MORE)

(AFTER REVIEW OF QUESTION 5) -

3. Did you take any (other) medicine or treatment not reported here?

☐ No (BEGIN REVIEW DIARY Q6) ☐ Yes - 3a. What did you take?

_____

_____

3b. For what condition?

_____

_____

(ENTER ON TABLE AND PROBE FOR MORE)

(AFTER REVIEW OF QUESTION 6) -

4. Did you have any (other) X-ray, test, or examination not mentioned here?

☐ No (BEGIN REVIEW DIARY Q7) ☐ Yes - 4a. For what condition?

_____

_____

(ENTER ON TABLE AND PROBE FOR MORE)

(AFTER REVIEW OF QUESTION 7) -

5. Did you have any (other) doctor's consultation not reported here?

☐ No ☐ Yes - 5a. For what condition?

_____

_____

(ENTER ON TABLE AND PROBE FOR MORE)

AFTER A COMPLETE REVIEW OF THE DIARY, ENTER ON TABLE ALL CONDITIONS REPORTED SO FAR -- ITEMS FROM DIARY AND ADDITIONAL ITEMS.

Now I'd like to ask you some additional questions.

6. I'm going to read a list of health conditions. We would like to know if you have had any of these conditions during the past 12 months?
(ENTER CONDITIONS ON TABLE)

	Yes	No
Asthma		
Chronic or repeated bronchitis		
Hay Fever		
Repeated sinus trouble		
Any allergy		
Stomach (peptic) ulcer		
Other repeated stomach trouble		
Thyroid trouble or goiter		
Chronic or repeated bladder trouble		
Repeated trouble with the gall bladder or liver		
Kidney stones or repeated kidney trouble		
Hernia or rupture		
Paralysis of any kind		
Tumor, cyst, or growth		
Repeated menstrual trouble		
Menopausal trouble		
Trouble with the female organs		
Anemia		
Athlete's foot		
Corns, callouses or other repeated foot trouble		
Diseases of the breast		
Repeated skin trouble		
Palsy		
Hemorrhoids or piles		
Varicose veins		
Repeated trouble with the back or spine		
Repeated nervous trouble		

7. Please tell me if you have ever had any of these conditions:
(ENTER CONDITIONS ON TABLE)

	Yes	No
Arthritis or rheumatism		
Hypertension or high blood pressure		
Rheumatic fever		
Heart disease or any kind of heart trouble		
Diabetes		
Stroke		
Tuberculosis or consumption		
Epilepsy		
Mental illness		
Cancer		
Emphysema		
Hardening of the arteries		
Missing fingers, hand or arm, toes, foot, or leg		
Permanent stiffness or any deformity of the foot, leg, fingers, arm or back		

8. In order to make the information we collect useful, it's important that we know about all of the health problems a person has. Would you tell me what other ailments, conditions, or problems, if any, that you have with your health? (ENTER CONDITIONS ON TABLE ALSO)

PROBE: Do you have any other ailments, conditions, or problems with your health?

9. Did you ever have any accidents, injuries or (other) illnesses that still bother or affect you in any way?

☐ No (SKIP TO Q10) ☐ Yes - 9a. In what ways does it still bother you?

_____

_____

(ENTER PRESENT EFFECTS ON TABLE)

9b. Have you had any other accidents, injuries, or illnesses that still bother or affect you in any way?

☐ No (SKIP TO Q10) ☐ Yes -

9c. In what way does it still bother you?

_____

_____

(ENTER PRESENT EFFECT ON TABLE)

(REPEAT 9b and 9c UNTIL A "NO" ANSWER IS OBTAINED)

10. Were you in a hospital or nursing home at any time since _____ a year ago?
(INSERT YESTERDAY'S DATE)

☐ No (SKIP TO Q11) ☐ Yes - 10a. How many different times were you in a hospital overnight or longer during the past 12 months?

_____ times

11. Have you been to a dentist during the past twelve months?

☐ No (SKIP TO Q12) ☐ Yes - 11a. How many times? _____ times

12. Now I'd like to find out a little more about some of the things you just mentioned.
(ASK ABOUT ITEMS ENTERED ON TABLE)

13. (USE BEST RESPONDENT SUPPLEMENT)

14. In general, would you say your health is excellent, good, fair, or poor?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

15. What was the highest grade you attended in school? _____

15a. Did you complete that grade?

☐ Yes ☐ No

16. Which of these income groups represents your total combined family income for the past twelve months; that is, yours, your --'s, your --'s, etc. (HAND CARD)

Include income from all sources such as wages, salaries, social security or retirement benefits, help from relatives, rents from property, and so forth.

Income Group _____

TIME NOW (INTERVIEW ENDED): _____am _____pm

SURVEY
RESEARCH
CENTER

June 1968

Dear Resident:

Very shortly an interviewer from The University of Michigan's Survey Research Center will call at your address for an interview. The University of Michigan conducts periodic surveys throughout the nation on various topics of public interest. These studies are based on personal interviews taken with people from homes selected scientifically.

Our interviewer can tell you more about the study at that time. We are sure you will enjoy the interview.

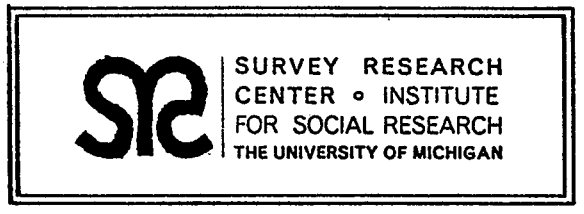
Sincerely,

Angus Campbell

Angus Campbell
Director

AC:bk
P45970

INSTITUTE FOR
SOCIAL RESEARCH
THE UNIVERSITY
OF MICHIGAN
ANN ARBOR,
MICHIGAN 48106



Income Card

A. Under $2000

B. $2000 - 2999

C. $3000 - 3999

D. $4000 - 4999

E. $5000 - 5999

F. $6000 - 7499

G. $7500 - 9999

H. $10,000 - 14,999

I. $15,000 - 24,999

J. $25,000 AND OVER

Ache, any part of body
Albumen in urine
Blackout spells
Bleeding, any part of body
Blood in urine
"Burning" sensation
Can't sleep
Chills
Colic
Coma
Convulsions
Cough
Cramps, except menstrual
"Crick," any part of body
Dehydrated
Delirium
Diarrhea
Dizziness
Dropsy
Enlarged; any part of body
Enlarged glands or internal organs
Fainting
Fever
Frequent urination
Gas on stomach or intestines
Gas pains
Headache
Heart beats fast, or pounds
Heart murmur
Hemorrhage, any part of body
Hoarseness
Incontinence of urine
Indigestion
Insomnia
Itching of skin
Jaundice
Jerking, any part of body
Loss of appetite
Loss of weight
Low blood count
Low blood pressure
Low or high metabolism
Misery, any part of body
Nausea
Nerves—any mention of
Night sweats, excessive sweating
Nosebleeds
Numbness
Overweight
Pain, any part of body
Poor circulation
Pus in urine
Rash, but not "pimples" or "acne"
Retention of urine (can't pass water)
Ringing in ears
Shortness of breath
Soreness, any part of body
Spitting of blood
Spots in front of eyes
Spasms, any part of body
Staggers; staggering gait
Stiffness
Swelling, any part of body
Swollen glands
Tic
"Tingling" sensations
Tiredness
Toothache
Upset stomach
Underweight
Urine abnormality (any kind)
Vertigo
Vomiting (including vomiting blood)
Weakness
Wheezing
Worn out

CHRONIC CONDITIONS

Allergy
Anemia
[1]Arthritis
Asthma
Athlete's foot
Back or spine trouble, repeated
Bladder trouble, chronic or repeated
Breast diseases
Bronchitis, chronic or repeated
[1]Cancer
Corns, callouses, or other repeated foot trouble
Cyst
[1]Deformity
[1]Diabetes
[1]Emphysema
[1]Epilepsy
Female organs trouble
Gallbladder trouble, repeated
Growth
[1]Hardening of the arteries
Hay fever
[1]Heart disease or any kind of heart trouble
Hemorrhoids or piles
Hernia or rupture
[1]Hypertension or high blood pressure
Kidney stones or repeated kidney trouble
Liver trouble, repeated
Menopausal trouble
Menstrual trouble, repeated
[1]Mental illness
[1]Missing appendages
Nervous trouble, repeated
Palsy
Paralysis of any kind
[1]Rheumatic fever
[1]Rheumatism
Sinus trouble, repeated
Skin trouble, repeated
[1]Stiffness of appendages, permanent
Stomach trouble, repeated (other than ulcer)
Stomach (peptic) ulcer
[1]Stroke
Thyroid trouble or goiter
[1]Tuberculosis or consumption
Tumor
Varicose veins

[1] If ever had condition; other items refer to past 12 months.

* U. S. GOVERNMENT PRINTING OFFICE : 1972 482-006/31

VITAL AND HEALTH STATISTICS PUBLICATION SERIES

Formerly Public Health Service Publication No. 1000

Series 1. Programs and collection procedures.—Reports which describe the general programs of the National Center for Health Statistics and its offices and divisions, data collection methods used, definitions, and other material necessary for understanding the data.

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