

Table of Contents

3	QUESTIONNAIRE METHODOLOGY	3-1
3.1	QUESTIONNAIRE DEVELOPMENT	3-1
3.1.1	Baseline Questionnaire	3-1
3.1.2	Interval Questionnaire	3-2
3.2	INTERVIEWER TRAINING	3-3
3.3	DATA COLLECTION	3-3
	REFERENCES	3-5

3 QUESTIONNAIRE METHODOLOGY

This chapter describes the development and implementation of the two participant questionnaires used in the 1997 follow-up to the Air Force Health Study (AFHS): the 1997-98 Health Interval Questionnaire and the 1997-98 Study Subject Baseline Questionnaire. Both questionnaires were formatted and administered by the National Opinion Research Center (NORC), a social science research center at the University of Chicago.

The two 1997 questionnaires were comparable to those used in the baseline study and the 1985, 1987, and 1992 follow-up efforts. In the 1982 baseline study, interviews were conducted in the participants' homes. In the 1985, 1987, and 1992 studies, the follow-up interviews were conducted in person at the physical examination site. The latter method proved to be more efficient and subject to better quality control (QC). In all the examinations before 1997, the questionnaires were administered in hard copy, which was later edited and key-entered into the final SAS^{®1} data set. For the 1997 follow-up, the interview responses were recorded electronically on laptop computers using a computer-assisted personal interviewing (CAPI) system. This method afforded an added measure of QC.

The baseline questionnaire was administered to any participant who had not previously completed that questionnaire. With the exception of the translation into the CAPI format, the baseline questionnaire has not changed since 1982. The interval questionnaire was designed to capture the participant's health history in the interval since participation in previous follow-up examinations. In addition, the interval questionnaire elicited general health measures needed by the debriefing physicians.

3.1 QUESTIONNAIRE DEVELOPMENT

An objective of questionnaire development in each follow-up year has been to maintain, to the maximum extent possible, the question wording, context, and procedures used in the 1982 baseline study. In addition, the interval questionnaire was often augmented to obtain data on new areas of inquiry. The central task of questionnaire development has been to obtain interval histories on questionnaire items, thereby updating the information provided in previous follow-up studies. For instance, if a study subject participated in the 1992 follow-up, the 1997-98 Health Interval Questionnaire elicited an interval history for the period from 1992 to 1997; however, if the subject last participated in the baseline study or the 1985 follow-up, the 1997-98 Health Interval Questionnaire elicited an interval history from those dates until 1997.

3.1.1 Baseline Questionnaire

The baseline questionnaire used during the 1997 examination was developed in 1982 and has never been changed. The 1982 Study Subject Baseline Questionnaire obtained information on demographics, education, occupation, medical history, study compliance, toxic exposures, and reproductive history. In general, responses to histories and other questions where the response does not change over time were obtained in the baseline questionnaire. Each participant completed the baseline questionnaire the first time he participated in the study. In the 1997 follow-up study, no changes were made to the content of the baseline questionnaire.

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3.1.2 Interval Questionnaire

All participants were asked questions to update their history from previous interviews. These data were obtained in the interval questionnaire. For the 1985 follow-up, new questions on risk factors for skin cancer and personality type were added. Enhancements were added to the data collection procedures to include birth defects and drinking habits, and questions were included to obtain a more detailed smoking history. The interval questionnaire was expanded in 1987 to include detailed drinking history and sleep disorder questions. Because some of the study subjects did not participate in the 1985 follow-up, the 1987-88 Health Interval Questionnaire was structured to include one-time questions added in 1985, such as ethnic background and smoking history, for “rejoining” participants (i.e., those who completed a previous questionnaire but did not participate in all examinations).

The 1992-93 Health Interval Questionnaire added questions concerning occupational exposure to heavy metals and vibrating power tools, family health history (with particular reference to diabetes, heart trouble, and heart disease), further participant health inquiries (in particular, questions about diabetes, hepatitis B, intermittent claudication, and vascular insufficiency), and the participant’s normal level of physical activity. In addition, the 1992 participants completed a Diet Assessment Questionnaire developed by Walter Willett at Harvard University (1).

With the exception of the diet assessment, which was discontinued for the 1997 follow-up, the 1997-98 Health Interval Questionnaire contained all of the questions in the 1992-93 Health Interval Questionnaire, the Interval Supplement Recording Book, and AFHS Forms 1, 1B, 2A, and 8 (the “self-administered” forms). The 1997-98 Health Interval Questionnaire also added the two following questions on herbicide exposure:

- What percentage of the missions that you flew as part of the aircrew during the Ranch Hand operation were herbicide spraying missions?
- It has been reported that some Vietnam veterans have intentionally drunk herbicides. Have you ever intentionally drunk herbicides?

Copies of the 1992-93 Health Interval Questionnaire and the Interval Supplement Recording Book are provided in Appendix B of the 1992 Final Report (2). AFHS Forms 1, 1B, 2A, and 8 are provided in Appendix C of the same report.

The goals in developing the CAPI Interval Questionnaire for the 1997 follow-up survey included the following:

1. To create one questionnaire encompassing the interval questionnaires and the “self-administered” forms. Questions from the additional forms were inserted throughout the questionnaire into sections covering similar subjects.
2. To print health history responses, previously available from the self-administered forms, onsite after the interview for use in participant debriefing.
3. To eliminate item nonresponse.
4. To use “bounded recall” techniques to improve participants’ abilities to recall information. A longitudinal questionnaire is dependent on the respondent’s ability to remember events and to place those events in time. Even when given a precise starting date, respondents frequently repeat information given earlier, neglect to report new information because they thought they had previously reported it, and otherwise misplace events in time or forget them completely. One

method of preventing such errors is through the use of “bounded recall,” in which the respondent is reminded of information that he has already reported and asked to provide new information. For the 1992 interview, interviewers worked from a hard-copy information sheet containing summaries of key responses from the previous examination. These responses included date of birth, highest educational degree, military status at the last interview, marital status at the last interview, name of spouse or partner at the last interview, and a cumulative list of all children reported during previous interviews. This practice was replicated online for the 1997 questionnaire.

5. To minimize redundancies of items asked of participants and to avoid reminders of previously reported sensitive family history items during their interview. These goals were accomplished by including the items from the self-administered forms in the CAPI questionnaire and by programming the CAPI questionnaire to skip any sensitive family history items, such as parents or children previously reported as deceased.
6. To replicate, to the maximum extent possible, the 1992 variables, names, labels, and formats in the final SAS[®] data set.
7. To lessen the time burden on the participant for the administration of the questionnaires. By combining the self-administered forms with the interval questionnaire and reducing the redundancy of questions, the participants were able to complete this portion of their examinations in a timelier manner.

3.2 INTERVIEWER TRAINING

In April 1997, NORC’s Chicago office staff trained eight interviewers and one field manager to administer the 1997-98 Health Interval and Study Subject Baseline Questionnaires. One interviewer and the Field Manager had administered questionnaires previously in the 1992 follow-up examination. The interviewers reported to the Field Manager, who in turn reported to the Data Collection Task Leader in Chicago. The Field Manager observed interviews by each interviewer and presented summaries of these assessments each quarter. The NORC Project Director made quarterly visits to the interviewing site. As part of the training process, the NORC interviewing staff was not informed of the exposure status of any study participant either before or after questionnaire completion.

3.3 DATA COLLECTION

Upon arrival at Scripps Clinic, the participant received a schedule that included the time and place for the interval interview (and, if appropriate, the baseline interview) and was assigned an interviewer. In all of the personal interviews conducted for the AFHS, interviewers were required to ask questions exactly as written, were not allowed to interpret questions or interject personal commentary, and were instructed to probe “Don’t Know” responses at least once. As an added QC measure, the CAPI system did not permit them to skip around among sections of the questionnaire.

During the interview, participants signed both informed consent and medical records release forms. If a participant did not have all of the information with him to complete the medical release form during the interview, he was given blank medical records release forms and instructed to mail the completed forms to the Air Force. If the medical records required pertained to his now-adult children and required their signature, he was again given blank medical records release forms and instructed to mail the completed forms to the Air Force. During the course of the data collection, the interviewing procedures were amended so that medical release forms were not signed if the participant informed the interviewer that he

had brought the relevant records with him, that the records had already been submitted to the AFHS, or that the condition had been diagnosed at Scripps Clinic.

After each interview, interviewers used an onsite printing program that was built into the CAPI system to produce a six-page form containing items from the questionnaire that were needed for the participant debriefings. These forms were transferred to the participants' folders each day. Each evening, the completed interviews were uploaded via modem to the NORC home office in Chicago. At that time, new participant data and refinements to the questionnaire software also could be downloaded to the interviewing site.

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