CHAPTER 2

DEVELOPMENT OF THE SAFE MOTHERHOOD SURVEY QUESTIONNAIRE

The Safe Motherhood Survey (SMS) instrument was developed for use in the Philippines, with an eye toward having a questionnaire that could then be adapted for use in other settings. The process of developing the questionnaire was a collaborative effort involving several phases and methods of data collection. (A schedule of activities is given in Appendix B.) Initially, existing population-based studies on women's reproductive health were reviewed, including subjects covered, methods used, data results, and instruments employed. Other researchers working in this area were extremely helpful at this stage in providing sample questionnaires.

A draft questionnaire was then developed with input from an expert committee whose members had both experience and interest in issues of women's health. This draft was then taken to the Philippines for discussion and review. An informal data needs assessment was conducted at that time to determine what desired information could be collected through the SMS. Revisions to the first draft were made based on input received from professionals and advisors in the Department of Health, the National Statistics Office, the University of the Philippines Population Institute, and interested donors and funding agencies.

Early on it was decided that the only non-interview data that would be collected in this first SMS were anthropometric measurements of height, weight, and mid-upper arm circumference. This decision helped to focus the survey on issues of how to assess major obstetric complications in the context of a national sample survey. After input from various institutions in the Philippines was obtained and incorporated, two preliminary studies, one quantitative and one qualitative, were conducted to further refine the questionnaire.

2.1 Validation Study

The quantitative study, a hospital-based validation study, was conducted to validate interview data on obstetric complications by comparing women's responses with data abstracted from their medical records. This exercise involved work by two separate teams: one reviewed hospital charts of women admitted to the Philippine General Hospital in Manila up to four years prior to the study; a second team, blinded to the hospital diagnosis, then attempted to locate the same women within the community for follow-up interview about their experiences related to that delivery. This was done to quantify the sensitivity and specificity of various questions and question combinations and to investigate women's recall of complications experienced in past deliveries in order to aid in development of the SMS questionnaire.

This study focused on severe obstetric complications, specifically, hemorrhage, dystocia, eclampsia, and puerperal infection or sepsis. This focus was chosen for several reasons, in particular, 1) constraints of time and money, which mandated concentration on a few specific outcomes, 2) the importance of these problems as causes of maternal mortality, 3) the lack of data on accuracy of reporting for such complications, and 4) the availability of existing data on the accuracy of reporting of other reproductive morbidities such as reproductive tract infections and complications of unsafe abortion (see for example, Figa-Talamanca et al., 1986).

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1 Sensitivity is defined as the true positives divided by the true positives plus the false negatives. Specificity is defined as the true negatives divided by true negatives plus false positives (Lilienfeld and Lilienfeld, 1980).
The validation study was conducted as a collaborative effort between Macro International and the Clinical Epidemiology Unit of the Philippine General Hospital. Findings were used to revise the SMS questionnaire prior to pretesting. A more detailed description of the methods and results of this study are presented elsewhere (Stewart and Festin, 1994), but the main lessons learned for the SMS are summarized as follows.

### 2.2 Major Findings of the Validation Study

In general, the findings suggest that some complications, such as dystocia and hemorrhage, can be detected through retrospective interview with acceptable levels of over- and underreporting. Conclusions on sepsis and eclampsia, however, were limited by the smaller number of cases available for analysis.

Reporting for individual signs and symptoms on interview confirmed that no single question accurately detects and differentiates specific complications. On the other hand, a combination of questions can provide a better picture of events.

Even with the best combination of questions in the validation interview, women were more likely to underreport than to overreport dystocia when compared to their hospital record. Sensitivity of reporting was 69 percent compared with specificity of 97 percent. However, duration of labor was more accurately reported in the validation study among women with dystocia. This may be due to the fact that the adverse event itself was better remembered. These findings indicate that dystocia and prolonged labor can best be detected through a combination of questions. The best set of questions include: whether or not the woman experienced labor, whether it lasted longer than a normal duration cut-off, whether or not she had a caesarean section delivery, and if so, why. The definition for dystocia actually identifies women with surgical deliveries due to dystocia, since asking about dystocia in the absence of such intervention would be extremely problematic.

Detection of hemorrhage in the validation study was best achieved by asking a combination of two questions. The optimal set of questions was whether or not the woman bled a lot around the time of labor and delivery, and whether or not the placenta had to be manually removed. It is important to specify in detail what is meant by manual extraction through a description of the process. That is, "did someone have to put their hand up through your vagina into your womb to try to pull out the placenta?" Asking about symptoms of hemorrhage, such as dizziness and weakness was not useful in the validation study because of the number of false positives picked up with these questions.

Women reporting high fever or very foul smelling vaginal discharge had the best balance of over- and underreporting for sepsis when comparing their interview responses with their hospital data. Relatively few women interviewed in the validation study reported a foul smelling discharge. This sign was not overreported in the validation; the findings suggest that this is an appropriate sign to inquire about on a survey interview. However, it is important to note again that there were only nine sepsis cases interviewed in the validation study, which makes it difficult to draw definite conclusions on reporting for this diagnosis.

Eclampsia was chosen as a condition of interest because of the assumption that convulsions are among the more memorable events one might experience during pregnancy. Even though the woman herself may not remember her experience, her recognition retrospectively is most likely influenced by the descriptions she received from others who were present at the time. Though pre-eclampsia is a very important problem, it is difficult to detect through interview alone since hypertension is usually asymptomatic. In addition, associated symptoms such as headache and edema, which may occur, are also common among women without disease and are thus quite nonspecific.
While the validation study results on eclampsia were inconclusive due to small numbers, it was noted several times in field observations of validation interviews that women mistakenly reported shakes and trembling associated with fever when asked about convulsions. These anecdotal observations are in agreement with data collected separately through qualitative research on women’s perceptions of disease (described below). These findings led to recommending revisions in the SMS questionnaire to ask instead about "convulsions not caused by fever."

The results on duration of recall indicated that reporting did not become less accurate over the four-year period covered by the study. This is not surprising, given the focus on the more serious, memorable obstetric complications. These findings indicate that women’s reporting of these events is reasonably accurate on retrospective interview up to four years after the event.

The results of the validation study were used to revise the questionnaire to focus on the combinations of questions most useful in identifying those women who may have had the complications of interest in this study. In addition, these results shed some light on the meaning of the results obtained from the SMS.

2.3 Qualitative Study

After the fieldwork for the validation study was underway, a qualitative study was undertaken in Cagayan de Oro, Northern Mindanao. The purpose of the qualitative component was to gain an emic, or insider’s, perspective of the women’s health problems covered by the SMS and to develop a list of descriptive terminology for use in the SMS questionnaire. This study was conducted in cooperation with the Research Institute for Mindanao Culture at Xavier University in Cagayan de Oro.

The research followed an iterative sequence of ethnographic interviewing and systematic data collection. The process began with open-ended interviewing of women hospitalized with one of the obstetric morbidities of interest. From the initial interviews with women who had suffered problems, the researchers branched out to interview the traditional birth attendants (locally called mananabangs) or relatives who were in attendance at the birth and witnessed the problem.

Similar open-ended interviews were conducted with women who had given birth, but were not known to have had a specific problem, and with mananabangs. These interviews focused not on specific events, but on the realm of pregnancy and pregnancy-related problems, and on women’s health concerns in general. Sampling for the ethnographic interviews was entirely purposive and opportunistic. Informants came from several sources: two area hospitals provided patient records from which women with the morbidities of interest were selected. Women and mananabangs for the general interviews were selected opportunistically.

After several weeks of ethnographic interviewing, researchers had lists of the morbidities recognized by their informants, lists of signs and symptoms associated with the morbidities, and some indications of cause and treatment. This information was used to devise a systematic data collection instrument which was then used in the qualitative study to correlate morbidities with signs and symptoms and to assess quantitatively the degree of cultural saliency and coherence of these morbidities.

Based on the results of the qualitative component, the specific recommended changes to the SMS questionnaire were revisions in phrasing, the addition of clarification statements to some of the questions, and several new answer codes. Other recommendations addressed the order of the sections and the structure of the induced abortion question series.

One of the objectives of the qualitative component was to maximize the likelihood that women would understand the questions asked in the SMS questionnaire. We wanted to learn how to express the concepts
of interest to assure a concurrence between the question asked and the answer given. The underlying concern is the problem of under- or overreporting.

2.4 Major Findings of the Qualitative Study

Women were highly cognizant of a range of health problems throughout pregnancy. The problems they described were of several types: problems of blood, problems of air, problems of size, and problems of the supernatural. The data collected in the study point toward a preliminary sketch of the ethnophysiology of pregnancy held by the women of Cagayan de Oro. The unifying feature of this model was a perception of fetal development in which the pregnancy is "just blood" until the third or fourth month.

The results of the qualitative research suggest that women who have had the obstetric morbidities of interest will recognize them as they are described in the revised questionnaire. The use of clarifying statements like "Did you bleed so much that you were afraid you might die?" to describe hemorrhage came from the experiential descriptions that women known to have suffered hemorrhage gave us. While a woman might not know the term "hemorrhage," it seems unlikely that a woman who had experienced massive bleeding would not recognize such a vivid description.

The problem of overreporting is more problematic. While most of the interviews in the ethnographic study were with women who had suffered problems during at least one pregnancy, many of the women had other, trouble-free pregnancies. They themselves drew sharp distinctions between normal problems or ailments and the serious and dramatic problems. For example, women who had not hemorrhaged did not talk about "bleeding so much I was afraid I would lose my life." Women with normal pregnancies do not seem to overdramatize their experiences. From these findings, there was no reason to expect that women would overreport in the SMS. Further details from the qualitative research conducted in Cagayan de Oro are described elsewhere (Jacobson, 1993).

2.5 Content of the SMS Questionnaire

After analyzing the findings from both the validation and qualitative studies, the questionnaire was again revised. The SMS collected information on the following:

Section 1  Respondent's background: education and marital status
Section 2  Pregnancy history and maternal morbidity in any pregnancy
Section 3-4  Maternal morbidity: detailed information about all pregnancies in the past three years
Section 5  Other morbidities: general health, reproductive morbidities, abortion
Section 6  Women's position; domestic violence, sexual behavior
Section 7  Weight, height, and mid-upper arm circumference measurements

2.6 Questionnaire Translation

The revised questionnaire was then translated into six dialects: Tagalog, Cebuano, Ilocano, Hiligaynon, Bicol, and Waray. The validation and qualitative studies were conducted in Tagalog and Cebuano, respectively, the two most commonly spoken dialects. (Sixty-four percent of the respondents in the SMS identified one of these two dialects as their local tongue.)

After translation, each of the six versions of the questionnaire was translated back into English by an independent translator. These back-translations were then reviewed and revisions were subsequently made in the original translations.
2.7 Pretest of the SMS Questionnaire

In August 1993, the translated questionnaire was pretested in a one-month exercise which included two weeks of interviewer training, one week of field interviews, and one week of analysis and questionnaire revision.

Fieldwork for the pretest was conducted in six different regions, each selected as indigenous to one of the six dialects. Selection of respondents for the pretest interviews was not random because of the need to assess how difficult it would be to locate NDS respondents for reinterview in the main SMS survey. Rather, NDS clusters were selected in the areas to be pretested, and lists of all ever-pregnant NDS respondents in each of those clusters were made.

A total of 189 women were sought for interview in the pretest. Ninety-five percent of the women sought were either living in the same place as during the NDS or could be traced to another address, whether or not the interview was actually completed. Five percent of the women were no longer at the same address and had either left no forwarding address or had moved too far to be traced. The actual response rate in the pretest was 83.5 percent.

Each stage of the pretest provided useful input on changes needed in the questionnaire. During the training of interviewers, their input was obtained on the translations, the skip patterns, and what did and did not "make sense." Mock interviews, field practice, and actual interviews revealed inconsistencies, questions, and skip patterns needing further clarification. Observation of interviews also provided feedback from respondents and from interviewers about the questionnaire.

Analysis of the pretest included tabulations of selected responses; calculation of response rates, average length of interview, distribution of pregnancies and women with pregnancies since January 1990; review of observations and interviewer comments from the field; and a comparison of NDS and SMS responses to the pregnancy history.

Following review of the findings from the pretest, the SMS questionnaire was revised a last time and printed for the main survey.