

25/8/88

Principal Investigator Diana R. Silimperi K.M.A. Aziz
 Trainee Investigator (if any) K.Z. Hassan/Khodeza Khat
Barbara Parker

Application No. 88-023

Supporting Agency (if Non-ICDDR,B)

Title of Study Maternal Education and
Child Care: A study on mechanisms of

Project Status:

Impact in urban and rural areas.

(/) New Study

() Continuation with change

() No change (do not fill out rest of form)

Circle the appropriate answer to each of the following (If Not Applicable write NA).

1. Source of Population:

(a) ill subjects Yes (No)

(b) Non-ill subjects (Yes) No

(c) Minors or persons under guardianship Yes (No)

2. Does the study involve:

(a) Physical risks to the subjects Yes (No)

(b) Social Risks Yes (No)

(c) Psychological risks to subjects Yes (No)

(d) Discomfort to subjects Yes (No)

(e) Invasion of privacy (Yes) No

(f) Disclosure of information damaging to subject or others Yes (No)

3. Does the study involve:

(a) Use of records, (hospital, medical, death, birth or other) Yes (No)

(b) Use of fetal tissue or abortus Yes (No)

(c) Use of organs or body fluids Yes (No)

4. Are subjects clearly informed about:

(a) Nature and purposes of study (Yes) No

(b) Procedures to be followed including alternatives used (Yes) No

(c) Physical risks Yes (No)

(d) Sensitive questions (Yes) No

(e) Benefits to be derived (Yes) No

(f) Right to refuse to participate or to withdraw from study (Yes) No

(g) Confidential handling of data (Yes) No

(h) Compensation &/or treatment where there are risks or privacy is involved in any particular procedure Yes No NA

5. Will signed (consent) form be required:

(a) From subjects (Yes) No

(b) From parent or guardian (if subjects are minors) Yes (No)

6. Will precautions be taken to protect anonymity of subjects (Yes) No

7. Check documents being submitted herewith to Committee:

Umbrella proposal - Initially submit an overview (all other requirements will be submitted with individual studies).

Protocol (Required)

Abstract Summary (Required)

Statement given or read to subjects on nature of study, risks, types of questions to be asked, and right to refuse to participate or withdraw (Required)

Informed consent form for subjects

Informed consent form for parent or guardian

Procedure for maintaining confidentiality

Questionnaire or interview schedule

If the final instrument is not completed prior to review, the following information should be included in the abstract summary:

1. A description of the areas to be covered in the questionnaire or interview which could be considered either sensitive or which would constitute an invasion of privacy.
2. Examples of the type of specific questions to be asked in the sensitive areas.
3. An indication as to when the questionnaire will be presented to the Cttee. for review.

(PTO)

I agree to obtain approval of the Ethical Review Committee for any changes involving the rights and welfare of subjects before making such change.

Principal Investigator

Trainee

AUG 29 1988

REF
WA 310. JB2
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1988

88-023

25/8/88

SECTION 1: RESEARCH PROTOCOL

1. Title : Maternal Education and Child Care: A Study on Mechanisms of Impact in Urban and Rural Areas"
2. Principal Investigators : Diana R. Silimperi
R.M.A. Aziz
- Co-Investigators : R.Z. Hassan
Khodeza Khatun
Barbara Parker
3. Starting Date : September, 1988 (as soon as approval and funding available)
4. Completion Date : 6 months after initiation
5. Total Costs : US\$ 34,572.00
6. Scientific Division Head:

This protocol has been approved by the Community Health Division.

Signature of Acting Division Head, CHD

Date 22nd August 88

7. Abstract Summary:

The goals of this study are to identify the ways in which maternal education influences child survival, to provide data on concepts and vocabulary used by educated and non-educated mothers to describe health relevant matters, to statistically compare the health knowledge levels and health-related practices of educated and uneducated mothers, and to identify the sources of health information which guide the behavior of each. Research will take place in low income areas of the Dhaka metropolitan area and in ICDDR,B's non-intervention areas of Mirzapur Upazila.

Abstract Summary (Contd.)

Methodology will be consist of (1) tape-recorded focus discussion groups, (2) a questionnaire survey, and (3) direct observation of health-related domestic behavior. Both the discussion guidelines and questionnaire will be pre-tested and refined where necessary. Analysis of the focus group results will be qualitative, and the questionnaire and observation data will be analyzed through univariate and bivariate comparisons of uneducated and educated mothers within each study area. This research is part of a larger multi-national project which aims to identify the specific mechanisms underlying the association between maternal education and improved child survival in order to design interventions that can improve the survival of children in Bangladesh and throughout the developing world.

8. Reviews:

- a) Ethical Review Committee: _____
- b) Research Review Committee: _____
- c) Director: _____

SECTION II: RESEARCH PLAN

INTRODUCTION

General Objectives of Multi-national Study

This research is one component of Phase I of a 3-phase multi-national study, the general objectives of which are:

1. To identify specific mechanisms by which increased maternal education increases child survival a: by the informational content of education and its influence on maternal behavior, b: by the effects of maternal education on society's attitude towards educated mothers, and c: by the effects of maternal education on maternal receptivity to new ideas and practices.
2. To utilize the clarification of the mechanisms of impact of maternal education, to strengthen the recognition of the need for increased female educational opportunities in general, and particularly those opportunities which are shown to directly impact child survival.
3. To identify, and ultimately to strengthen, the impact of the the predeterminant variables that lead to the increase in maternal education; and to identify the mechanisms by which those variables may directly influence child survival independent of education per se.
4. Based upon these identified predeterminants, to determine whether there are feasible interventions, in addition to improved educational opportunities, which could improve child survival when universal female education is not imminently available.

Protocol Objectives

1. To compare health knowledge, attitudes, and selected behaviors (domestic feeding, hygiene and sanitation behaviors) of educated and uneducated mothers in rural and urban Bangladesh in order to assess the extent to which these differ according to the presence or absence of previous primary school experience.
2. To identify the sources of health information which guide the health behaviors of educated and uneducated mothers.
3. To identify specific health protective behaviors or attitudes which can be utilized to create improved community health teaching strategies for uneducated mothers.

Background

While a great body of evidence exists regarding the improved survivorship rates of children of educated mothers [1-22], little is useful for the design of extra-educational interventions. Most existing studies have focused upon assessment of the role of confounding variables, such as socio-economic differentials and demographic factors (birth spacing, birth order and maternal age) in the maternal education and child survivorship relationship. For example, it has been proposed that maternal education may be merely one measure of socio-economic advantage. In a 15-country comparative analysis, however, the U.N. [21] found that, when statistical controls are instituted, economic advantage accounts for only about half the effect of mother's education.

Although existing studies have eliminated the commonly cited confounding variables as explanations of the maternal education - child survival relationship, the actual mechanisms through which education determines survivorship have yet to be identified. The identification of these mechanisms is the goal of Phases I and II of this multi-national project; while Phase III will be concerned with the design of feasible interventions based on this information.

A number of strands in the statistical evidence lead to the general hypothesis that differences between educated and uneducated mothers in the domestic care of children account for the enhanced survivorship of offspring of the educated. The fact that a stronger relationship is observed in childhood than in infancy [17-20] suggests that educated mothers are able to provide better preventive or curative care than their less educated counterparts; particularly when the shield of lactation weakens.

The evidence, however, does not clearly reveal precisely how maternal education influences the level and quality of childcare. It is not known exactly which of the educated mother's beliefs or behaviors fosters improved child survival. The most obvious possibility is that knowledge derived from formal education about disease prevention and cures, and of the nutritional requirements of children, is the agent responsible. An anthropological study in Bangladesh, however, reveals an absence of any permanent effect of primary schooling on health knowledge (Lindenbaum et al, [16]). Among both educated and uneducated mothers, there was general agreement that illness resulted from spirit attacks or bodily imbalances.

There is reason to believe, then, that factors other than maternal health knowledge may be responsible for the child survivorship differential. Because education of women has social and psychological consequences, these consequences must be considered as possible factors. Education gives women a wider social network, new reference groups, and a greater identification with the modern world and its technologies. The educated woman may also respond more positively to new information. Additionally, Caldwell [2 - 4] has proposed that educated mothers have greater autonomy within the family as a result of the prestige attached to education. Consequently, they may be allowed greater autonomy in decision-making with regard to their children's diet and medical regimen.

Autonomous decision-making may also allow the educated mother to respond immediately to episodes of illness without obtaining approval from other family members. The requirement of seeking permission to act may, conversely, prevent uneducated mothers from obtaining medical assistance during the critical period immediately following disease onset. What is more, the educated mother may be more comfortable seeking treatment at impersonal medical institutions by virtue of having interacted with teachers and other non-kin individuals in the school setting. Thus, the extra-instructional impact of schooling may permit educated mothers to take more rapid, as well as more appropriate, action in response to childhood illnesses.

Rationale

In addition to the research agenda proposed here, two related protocols are planned for execution in Bangladesh. One investigates health seeking behavior in relation to maternal education, and the other (now underway) is an ethnographic study in urban (Dhaka) and rural (Chandpur) areas, concerning breastfeeding, weaning, and the decision-making process among educated and uneducated mothers. Insights gained from the ethnographic study will contribute to refinement of the survey instrument for the research proposed here.

All of these Bangladeshi studies, in turn, are part of Phase I of a larger international project on maternal education and child survival. Phase I seeks to identify a set of influential variables, which will be tested in Phase II by means of a broad survey administered simultaneously in several nations. It is planned that the results from Phase II will be utilized in Phase III for the development of a series of interventions.

The research proposed here will utilize two formats: focus group discussions and questionnaire interviews supplemented by formal observation. The purpose of the focus groups is to reveal the ways in which mothers conceptualize and express themselves concerning health matters. This initial exploratory research will act as an adjunct to, and check on, specific hypotheses regarding the maternal education-child mortality relationship which have been derived from the research literature. Since informants will be encouraged to speak freely in a relatively unstructured context, they may reveal previously unsuspected patterns of belief and behavior that more structured questionnaire interviews would fail to uncover.

A survey questionnaire will be administered subsequently to educated and uneducated mothers; and domestic health behaviors of a sub-sample from each category will be observed directly. The purpose of this component will be to test the assumptions that (1) educated mothers possess superior knowledge of nutrition, sanitation, etc., as a result of having attended school, and (2) that this knowledge is expressed in improved domestic feeding and hygiene practices.

Data gathered through both of these formats will help narrow the gaps in existing information on this topic which were described in the previous section. By contributing to an identification of the specific beliefs, behaviors, attitudes, and family and social roles which underly the improved survival rates of the children of educated mothers, this information can be used to assist uneducated mothers to develop the same survival-enhancing attributes. For example, the knowledge gained through this study will be tested and used in the Urban Volunteer Program's preventive health model for illiterate slum mothers. It can also be of significant value in targeting those aspects of education which should be emphasized for maximal impact on child mortality.

This project will test the hypothesis that psycho-social factors, in addition to health knowledge, are critical determinants of the improved survivorship of educated mothers' children. Social environments, however, are not uniform across rural and urban areas. The project's rural-urban comparison, therefore, is a necessary test of the assumption that, in

comparison with rural women, urban women experience greater exposure to new ideas, roles and health messages through the mass media and through more extensive social networks; and that this exposure will modify the impact of maternal education upon the domestic care of children.

SPECIFIC AIMS

- (a) To further examine the hypothesis that maternal education improves child survival through social and family role factors as well as through changes in knowledge and belief.
- (b) To examine the suggestion that educated and uneducated parents hold previously unsuspected health attitudes or engage in previously unknown health behaviors that require the addition of new hypotheses about the maternal education - child survivorship relationship.
- (c) To assess the effect of primary schooling on the health knowledge and belief of mothers by comparing the responses of educated and uneducated mothers to questions concerning health, nutrition, sanitation, and family roles and priorities.
- (d) To identify ways in which health knowledge and beliefs are reflected in observable hygiene, dietary and cure-seeking behaviors in the domestic setting.
- (e) To discover the sources of health knowledge which are named by educated and uneducated mothers.
- (f) To identify any differences in knowledge, belief and observed behavior between educated and uneducated mothers which could be utilized in the design of preventive health messages for uneducated mothers.

METHODS AND PROCEDURES

Sampling and Selection Procedures

The urban component of the research will be carried out in 70 research clusters in low-income urban areas of the Dhaka greater metropolitan area. These are clusters of about 50 households each which, while not specifically chosen as probability samples, are typical Dhaka slum communities. Although data on these clusters is not yet complete, preliminary studies indicate that, in terms of health status indicators and educational levels, these low-income squatters resemble rural populations more than higher-income urbanites. Respondents will be selected from household records held at the Urban Volunteer Program.

The parallel rural study will take place in ICDDR,B's non-intervention areas of the Mirzapur Upazila. The non-intervention areas are control villages which have not benefited from the ICDDR,B interventions implemented in adjacent villages. Rural respondents will be selected from household census records held at ICDDR,B. These records (like the UVP research cluster records) include demographic and economic background data on each household in the area.

In the selection of focus group discussion participants, married educated and uneducated mothers between the ages of 18 and 35 will be matched with regard to economic status as defined by house type, ownership of luxury goods, access to sanitary facilities (latrines), and occupation of the primary wage-earner. The youngest and the oldest mothers have been excluded to mitigate age bias related to changes in women's educational access in recent decades.

Maternal education is defined as basic literacy, which should be attained in the upper primary grades. Literacy will be tested, however, by asking prospective respondents with 3 or more years of schooling to read aloud one page from a primary school reader in Bengali. Mothers with secondary school education will be eliminated from the study because they are likely to be members of atypically prosperous families. Six participants will be selected for each discussion. Sessions are planned as follows:

Category	Number of Sessions
1. Primary school (class 3-5) mothers with 1+ living children aged 0-5 yrs.	urban - 4 rural - 4
2. Uneducated mothers with 1+ living children aged 0-5 yrs.	urban - 4 rural - 4

The sampling universe for the urban component of the questionnaire survey will be women with less than secondary schooling who have at least one living child aged less than five years, and who live in one of UVP's 70 research clusters. Uneducated respondents will be chosen by random sampling procedures, but urban slum mothers with primary schooling fitting the study's criteria are so few (estimated at about 250 in the research clusters) that an effort will be made to interview them all. Urban volunteers will, however, be eliminated from the sample because they have received training as health workers from ICDDR,B.

For the rural sample, educated and uneducated mothers with at least one living child under five years of age will be selected from household records in all three villages of Mirzapur. All available educated mothers will be contacted, but

it is estimated that only about 75 educated mothers will be found in these villages. Compensation will be made for the discrepancies between the urban and rural sample sizes by weighting during statistical analysis. The proposed sample size and composition is as follows:

Respondent Category	Sample Size	
	rural	urban
No primary schooling or only Madrasha	75	200
Primary schooling (grades 3-5)	75	200

From among these respondents, random samples (20 each of educated and uneducated mothers in the urban area, and 10 from each group in the rural area) will be selected for validation of questionnaire data through direct observation of daily hygienic and feeding practices in the home.

Research Methods

Each focus group will be conducted by a moderator. An observer will take notes, and each session will be tape recorded. Each discussion will last two to three hours. A detailed guide (appended) has been constructed to provide a structure to the discussion, but it will be modified for different categories of respondent and in response to pilot results. One pilot discussion group, composed of uneducated rural mothers, will be convened in one of the target areas as a pre-test of the appended discussion guidelines. This category of respondent has been chosen for the pilot because it is anticipated that uneducated rural subjects will have the least experience with, and hence the greatest difficulty in, responding to questions presented to them by individuals who are strangers to their communities.

The mothers' survey will utilize an interview schedule (appended) which will be perfected on the basis of information obtained in the focus groups, the ongoing ethnographic study, and pretests of the questionnaire in both rural and urban settings. The finalized questionnaires will be administered by teams of trained female interviewers. The field work of every five interviewers will be supervised by masters level field research officers, and appropriate field accuracy and monitoring techniques will be employed. The same questionnaire will be used in both urban and rural settings.

To guard against interviewer bias, interviewers will not know the respondents' educational status in advance, and will not inquire about it until the end of the interview. Similarly, observers will not be aware of the educational status of the mothers whom they are to observe. The questionnaire itself will contain a mixture of open-ended and precoded questions (see preliminary questionnaire in appendix). The goal of many of the questions will be to obtain responses that can be classified in the following ways: 1) responses indicative of either medical-scientific or traditional-supernatural beliefs, and 2) responses indicative of either conservative or innovative attitudes toward new practices and new information. Other questions will investigate respondents' sources of information concerning sanitation, disease etiology, disease treatment, and correct diet. These question categories will permit testing of the hypotheses that educated mothers hold beliefs and attitudes that differ from those of the uneducated, and that their opinions were learned in school.

Questionnaire data will be supplemented by direct observation of the domestic feeding and sanitation practices of a subsample of the educated and uneducated mothers. The interviewers will observe each mother for twelve hours initially. The following behaviors will be noted: children's toilet practices; mothers' food preparation, food serving, hand-washing, cleaning of kitchenware, dishes, and clothing; and cleaning by any family members of the home/courtyard area. These behaviors will be noted on a form designed for recording purposes.

A subsequent observation of maternal behavior in response to an acute episode of child diarrhoea will also take place. Diarrhoea episodes in the urban area will be detected by the research volunteers on their routine rounds of these communities, whereupon a worker will be dispatched to conduct the observation. In the rural areas, workers will be assigned to make periodic house-to-house checks for episodes of diarrhoeal disease. The objective of both observation periods will be to determine whether health beliefs identified by questionnaire are reflected in practice. (Although none of the interviewers are trained in medical interventions per their usual practices, ill-looking children are referred to appropriate health facilities.)

Analysis

The method of analysis applied to the focus group data will be qualitative. Transcription of tapes will be performed by an independent team. From these transcriptions, the investigators will identify patterns of collective belief and reported behavior that may have an impact upon child health and survival. These findings will be summarized in a final report. This report, together with the results of the ethnographic study, will be the basis for revision of the survey questionnaire.

The mode of analysis employed in the mothers' health survey will be univariate and bivariate comparisons of uneducated and educated mothers within each study area and between study areas. The size of each sample is fixed or limited by the number of educated mothers present in each study area. As noted, attempts will be made to include every educated mother in both the rural and urban settings. Because of the fixed sample sizes and the difficulty in knowing the proportion of educated or uneducated mothers answering a certain way for each question investigated, tables are attached depicting the power achieved for various alternative proportions for each sample size. With the smaller sample of 75, adequate power ($>.80$) is only achieved when differences between educated and uneducated (or rural/urban) are large ($>.20$) in many cases. When the sample is increased to 200 (urban), power is above .80 in all cases where the differences fall $\geq .10$ or $\leq -.15$. (Tables 1&2: pages 40 - 42). Finally, in order to increase the power of the former rural group, 2 uneducated women will be included for every 1 educated. (Table 3: page 43)

Note : Because the respondents in both urban and rural samples are or have been involved in ICDDR,B service projects, and given the benign nature of this investigation, it is anticipated that all available uneducated mothers will participate in the study and there will be little or no drop out.

SIGNIFICANCE

By revealing the ways in which health concerns are conceptualized and verbalized, the focus group data can contribute to the formulation and presentation of effective and comprehensible health-related communications for uneducated mothers throughout Bangladesh. By examining both urban and rural views regarding value of female education, it may provide information relevant to interventions aimed at spurring the development of educational incentives.

The mothers' health survey component, by identifying specific behaviors and beliefs which improve the survival of children of the educated, may suggest ways in which educational programs might be redesigned to strengthen those components of schooling which have been found to make a direct contribution to child survival. It may also suggest ways in which health programs can be designed to give the uneducated mother access to the same behavioral advantages that promote the survival of the children of the educated. This project, therefore, will have the broadest policy implications for health programs in Bangladesh.

FACILITIES REQUIRED

The urban component of this research will be administered from the Urban Volunteer Program headquarters of ICDDR,B in Mohakhali, Dhaka. Data analysis and write-up of results from both components of the study will take place there.

COLLABORATIVE ARRANGEMENTS

As described above, this study is part of a three-phase multinational research project which aims to identify the causal mechanisms whereby maternal education improves child survival, and to develop interventions based on the results. The Bangladesh research includes an ethnographic study by Dr. Sushila Zeitlyn on infant feeding, household family structure and decision-making procedures among educated and uneducated mothers. The investigators for this study have collaborated with Dr. Zeitlyn during project design and conceptualization, and this collaboration will continue during the data gathering, data analysis and reporting phase of the study. Information gathered by Dr. Zeitlyn will be reviewed and utilized in the clarification and refinement of data collection instruments, analysis procedures, and interpretation of the results of this study.

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Discussion Groups Timeline *

Discussion Guidelines Finalization	Pre-Test Discussions	Guidelines Revision	Begin Discussions
Sept 1	Sept. 4	Sept. 8	Sept. 11
Transcription Begins	Write-up Begins	Report Finalized	
Oct. 1	Oct. 9	Oct. 20	

Educated/Uneducated Mothers Comparison - Timeline

Questionnaire Finalization	Pretest	Questionnaire Revision	Educated Mothers Interviews Begin
Oct. 3	Oct. 6	Oct. 13	Oct. 20
Observation of Educated Mothers	Uneducated Mothers Interviews Begin	Observation of Uneducated Mothers	
Nov. 4	Nov 11	Nov 25	
Coding Completed	Statistical Analysis Begins	Write-up Begins	Report Finalized
Dec. 3	Dec. 4	Dec. 11	Dec. 23

* Timeline may be shifted forward by 1-2 months depending upon the date formal protocol approval obtained.

SECTION III: DETAILED BUDGET

B. URBAN COMPONENT**

1. Personnel Costs:

Designation	Level	Rate/ Month	Man Month	Total Costs
Principal Investigator*	-	-	-	-
Co-Investigator*	-	-	-	-
Anthropologist (1)	P3	3600	2	\$ 7,200
Moderator (1)	NOA	650	1.5	975
Translator (1)	GS-6	426	2	852
Programmer*	-	-	-	-
Secretarial Assistant (1)	GS-4	286	4	1,144
Interviewer*	-	-	-	-
Coding Assistant (2)	GS-3	196	6	1,176
Data Entry Technician (1)	GS-3	196	3	588
Local Vol. Supervisor (1)	-	35	1	35

Sub-total: 11,970

2. Local Travel and Transportation	600
3. Office Space	-
4. Xerox, Mimeo & Printing	500
5. Office Supplies & Materials	1,000
6. Others	300

Total Costs: 14,370
15% Indirect Costs: 2,156

Grand Total: \$16,526
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* Most of the UVP staff utilized will not require additional funding. Only additional staff will be charged to this protocol.

** Urban budget reflects combined costs for rural and urban components in areas of secretarial work and data processing.

B. RURAL COMPONENT

1. Personnel Cost:

Designation		Level	Rate/ month	Man Month	Total costs
Principal Investigator		NOD	1250	2	\$ 2,500
Co-Investigator		NOB	800	2	1,600
Moderator	(1)	NOA	650	1.5	975
Translator	(1)	GS-6	426	1	426
Transcriber	(1)	GS-6	426	1	426
Field Res. Officer	(1)	GS-5	310	04	1,240
Interviewer (H.A)	(4)	GS-3	196	12	2,352
Daily Wager	(2)	-	70	12	840

Sub-Total 10,359

2. Local Travel and Transportation	3,000
3. Office Space (for 4 months)	333
4. Xerox, Mimeo & Printing	500
5. Office Supplies & Materials	1,000
6. Others	500

Total Costs: 15,692
15% Indirect Costs: 2,354

Grand Total: \$18,046

Statement to Informants -- Discussion Groups

We at the Urban Volunteer Program are trying to find out why women who have gone to school lose fewer children than those who have not. One of the ways we will do this is by asking you to talk together about health, sickness, and the upbringing of children.

You do not have to take part in the discussion. If any of our questions embarrass you or make you uncomfortable you may refuse to answer or you may simply remain silent and wait for the next question. If you want to leave the group at any time, you may do so.

If you do take part in the study, you do not have to worry about anyone else finding out what was said by you or any of the other members of the group. No records will be kept of your names, and no photos will be taken. You will be known to the Urban Volunteer Program's employees only by a number that gives no clue to your identity.

Thank you.

Statement to Subjects -- Questionnaire Interview

We at the Urban Volunteer Program are trying to find out why women who have gone to school lose fewer children than women who have not. One way we will do this is by asking educated and uneducated mothers the same questions to see whether or not they give the same kinds of answers. Therefore, we would be grateful if you would answer some questions. Most of the questions will be about health, sickness, and feeding children, but a few questions will be about your education, your family history, and your opinions about boy children and girl children.

You do not have to take part in the project or answer any questions at all if you would rather not. If you choose to begin the interview, you can refuse to answer any questions that make you uncomfortable, or you can stop the interview at any time. If you do take part in the study, however, you will not have to worry about other people finding out what answers you gave. No record will be kept of your name, and no photos will be taken. You will only be known to the Urban Volunteer Program employees by a number that gives no clue to your identity.

Thank you.

Statement to Informants -- Observation

We at the Urban Volunteer Program are trying to find out why women who have gone to school lose fewer children than women who have not. One of the ways we will do this is by watching educated and uneducated mothers for a few hours to see whether they do their daily work in the same way. Therefore, we would be grateful if you would allow me to sit in your home for part of the day. I will not waste your time or prevent you from doing your normal work.

You do not have to allow me to come into your home if you would rather not. If you do agree to let me come in, you can ask me to leave at any time that my presence begins to make you uncomfortable. If you do choose to take part in the study, however, you do not have to worry about anyone else learning anything about you and your family. No record will be kept of your name, and no photos will be taken. You will be known to the Urban Volunteer Program employees only by a number that gives no clue to your identity.

Thank you.

Discussion Group Guidelines

Discussion Group Leaders: Begin by asking the general questions in categories A-H. If the questions are not understood, or if the discussion breaks down, prompt the discussants by asking the specific questions.

A. Decision-Making

General Questions

1. What makes a good mother?
2. Should anyone help a mother to take care of her child? Who should help most?

Specific Questions

3. When the child is sick, who should decide what to do?
4. Who should decide what the child will eat? Who should give him/her food?
5. Who should bathe the child? Who should watch him/her? With whom should the child sleep?
6. Should a mother-in-law ever take care of your child? What should she do for her grandchild?
7. Should a child's father ever take care of him/her? What should he do for his child?
8. Should older children take care of their younger brothers and sisters? What should they do for them?
9. Should anyone outside the family ever take care of your children?

B. Nutrition and Diet

General Questions

1. Do all family members need the same kinds of foods? If not, what are the differences in their food needs? Who needs more or less food?
2. Is breast or bottle-feeding best for infants? Why?

Specific Questions

3. When do babies begin to need foods other than milk? Is this the same for all children (boys and girls)? When should breastfeeding end?
4. Who eats together in your home? If you do not all eat together, who should eat first? When should the children eat?
5. Are there any purchased foods that are necessary to your child's health? Which ones? Who should decide what foods should be bought?

C. Household Hygiene

General Questions

1. From where should you get your drinking water? Washing water? What water is bad to drink?
2. Your baby has just finished defecating. What should you do now?
3. Where should household trash and food scraps be placed?

Specific Questions

4. In what kind of containers should water be stored? How should these containers be cared for?
5. In what kind of containers should cooked food be stored? How long may it be stored safely?
6. Have you ever discarded food? Why?
7. Does food ever become too unclean for eating? How does this happen? How can it be prevented?
8. Are there any foods that should not be fed to your children? What foods? Why?
9. Are there any food preparation practices you avoid? What?

D. Disease Classification

General Questions

1. What causes children to die? How can child deaths best be prevented?

Specific Questions

2. What illnesses do the children in your community suffer from most often?
3. What are the signs that tell you they have become sick with these diseases?
4. What causes a child to become sick with (the diseases named)?
5. What would the older persons of the community (such as your mother) say were the causes of these diseases?
6. What can be done to prevent children from becoming sick with (the diseases named)? Are there times when you are unable to do these things? When and why?

E. Domestic Reactions

General Question

1. When your child is sick (from the diseases named), what is the first thing you should do?

Specific Questions

2. Do sick children need more, less or the same amount of food as well children? Are there any special foods sick children need?
3. Are there foods sick children should avoid?

F. Health-Seeking Behaviors

General Questions

1. What kinds of treatment for children's illnesses can be found in or near your community? Which is the best kind of treatment for (the diseases named)? Which do you use?

2. Are there additional kinds of treatment found outside your living area? If so, do people from your community use them? Who should take a sick child there?

3. Does purdah prevent a woman from visiting any of these sources of treatment?

G. Attitudes Concerning Children

General Questions

1. Is it better to have many children or few? Why?

2. At what age can your boy child begin to help the family? When can your girl child begin to help the family?

Specific Questions

3. What is the first work a boy child can do? A girl child?

4. At what age does a child become of greater benefit than cost to a family? Is this the same for boys and girls?

5. Would you like your daughter's life to be different from your own? If so, in what ways?

H. Education

General Questions

1. What are the qualities you will look for in your daughter-in-law?

2. Does education improve a boy child's contribution to the family?

3. Does education improve a girl child's contribution to the family?

4. Does education improve a boy's opportunities after he becomes an adult?

5. Does education improve a girl child's opportunities after she becomes an adult?

6. Some people believe that educated mothers lose fewer children to illness than uneducated mothers do. Do you believe this is true? If so, what do you think that educated mothers do differently?

Mother's Background Sheet

Coders: Fill in the answers from household census records.

1. What is respondent's age?

3. What was her father's occupation? _____

4. How many brothers and sisters did she have? _____

4A. How many of them died in childhood? _____

5. How many people eat from her household hearth? _____

6. Is her husband:

1 = living and present in the home

2 = living but absent or divorced

3 = dead

If 1, ask question 6A

If 2 or 3, go to question 7

6A. What is his occupation? _____

7. How long did her husband go to school? _____ years

8. Does she work outside the home for pay?

1 = no

2 = yes

9. What type of roof does her home have?

1 = thatch or bamboo mat

2 = tin

10. What type of walls does her house have?

1 = mud

2 = bamboo mat

3 = tin

11. Does she (or her husband or guardian) own or rent land?

1 = no

2 = rent land

3 = own land

12. Does her household own any of the following things?:

1 = beds

2 = hurricane lamp

3 = radio

4 = watches

13. Does her household own any of the following animals?

1 = chickens or ducks

2 = goats or sheep

3 = cattle or water buffalo

14. How many children have been born to respondent _____

15. How many of her children are living now? _____

16. What age and sex	(1) _____	(6) _____
are they?	(2) _____	(7) _____
(write b. or g.	(3) _____	(8) _____
and age of each	(4) _____	(9) _____
child)	(5) _____	(10) _____

17. Which ones attend school? (ages) _____

Mother's Health Knowledge Survey Questionnaire

Interviewer: Circle the number of the answer given by respondent or write the answer in the blank space.

1. In what month should foods other than milk first be given to:
boy babies _____
girl babies _____

2. At what age do babies begin to eat "everything" (a full adult diet)?

1 = 6-12 months old

2 = 12-18 months old

3 = older than 18 months

4 = when all teeth have come in

3. What are the first foods given to babies? _____

4. Do boys and girls need the same or different amounts of food?

1 = the same

2 = different

If 1, go to question 5

If 2, ask question 4A

4A. Why do some children need more?

1 = boys need more - bigger than girls

2 = boys need more - more active than girls; work harder

3 = boys need more - more valuable to family

4 = girls need more (why?) _____

5. Should your entire family eat together?

1 = no

2 = yes

If no, ask questions 5A and 5B

If yes, go to question 6.

5A. Who should eat first? _____

5B. Who should eat last? _____

6. What foods make children strong?

1 = meat, fish, eggs, milk, beans/dal

2 = vegetables, fruit

3 = rice, suji, chapatti

4 = mishti, candy, sweets

5 = other _____

7. What foods are good for children's eyes?

- 1 = meat, fish, eggs, milk, beans/dal
- 2 = vegetables, fruit
- 3 = rice, suji, chapatti
- 4 = mishti, candy, sweets
- 5 = other

8. Are there any foods a pregnant woman should avoid?

1 = no

2 = yes

If no, go to question 9

If yes, ask question 8A

8A. Which foods?

- 1 = meat, fish, eggs, milk, beans/dal
- 2 = vegetables (mishti kumra), fruits
- 3 = rice, suji, chapatti
- 4 = mishti, sweets
- 5 = food that is too cold, hot, sour, wet etc
- 6 = should eat very little
- 7 = other

9. Are there any foods a nursing mother should avoid?

1 = no

2 = yes

If no, go to question 10

If yes, ask question 9A

9A. Which foods?

- 1 = meat, fish, eggs, milk, beans/dal
- 2 = vegetables, fruits
- 3 = rice, suji, chapatti
- 4 = mishti, sweets
- 5 = food that is too cold, hot, sour, wet, etc.
- 6 = other

10. What should a pregnant woman eat?

11. How can a mother be sure her milk is plentiful and good?

1 = good nutrition, eating a lot of foods

2 = avoiding supernatural dangers

3 = avoiding certain kinds of foods

4 = avoiding immoral behavior

5 = other

12. Can breast milk ever harm a baby?

1 = no

2 = yes

If no, go to question 13.

If yes, ask question 12A

12A. When is breast milk harmful

- 1 = colostrum is present
- 2 = mother is attacked by supernatural power
- 3 = mother is eating wrong foods
- 4 = child has diarrhoea, other illness
- 5 = other

13. Should a mother offer any food or drink to a child who is sick from diarrhoea?

- 1 = no
- 2 = yes

If no, go to question 14.

If yes, ask question 13A

13A. What should she offer?

14. Where did you learn about what foods are best for children to eat?

- 1 = relatives or friends
- 2 = school
- 3 = media - radio, book, newspaper etc.
- 4 = traditional healer
- 5 = other

15. How do you know that water is good to drink?

- 1 = tubewell, boiled or treated water
- 2 = flowing water source
- 3 = other

16. Where should adults defecate?

- 1 = latrine
- 2 = specified location other than body of water
- 3 = pond, river, lake
- 4 = private place/anywhere/no opinion

17. Where should children defecate?

- 1 = latrine
- 2 = specified location other than body of water
- 3 = pond, river, lake
- 4 = private place/anywhere/no opinion

18. What should you do after defecation?

- 1 = wash hands
- 2 = cover feces
- 3 = nothing/don't know
- 4 = other

19. When do you wash your hands? (circle all that are mentioned)

- 1 = after defecation
- 2 = before preparing meals
- 3 = before serving food
- 4 = before eating
- 5 = after eating
- 6 = other _____

20. How often do you wash your children's bodies?

- 1 = each day
- 2 = 2-3 times per week
- 3 = once a week or less

21. With what do you wash your children's clothes?

- 1 = soap
- 2 = no mention of soap

22. Where does your family put its scraps or garbage?

- 1 = location outside the barl courtyard
- 2 = specified location in barl
- 3 = don't know/ no opinion

23. Where did you learn about what you should do to keep your family and your house clean and sanitary?

- 1 = family, relatives
- 2 = school
- 3 = media - radio, television, newspapers, magazines
- 4 = local healer
- 5 = other _____

24. What are the main illnesses affecting children in your community? (1) _____

(2) _____

25. What are the signs that children have:

illness (1) _____

illness (2) _____

26. Where did you first learn the names and signs of these diseases?

- 1 = family, relatives, neighbors
- 2 = school
- 3 = doctor, pharmacist
- 4 = traditional healer
- 5 = media - radio, television, newspaper, magazines
- 6 = other _____

27. Why do some children have these illnesses more than others? (1) _____

(2) _____

28. What things are dangerous to children?

- 1 = unsanitary food/water
- 2 = mosquito or animal bites
- 3 = accidental injuries, traffic
- 4 = supernatural beings
- 5 = mother's bad behavior
- 6 = other _____

29. Can some foods cause illness?

- 1 = no
- 2 = yes

If no, go to question 30

If yes, ask questions 29A

29A. How do they cause illness?

- 1 = dirty, unhygienic
- 2 = too hot/cold/sour
- 3 = improperly prepared
- 4 = ritually impure or sinful
- 5 = supernatural influence

30. Can people make other people sick?

- 1 = no
- 2 = yes

If no, go to question 31

If yes, ask question 30A

30A. How can people make others sick?

- 1 = contagion
- 2 = carelessness in contaminating foods, etc.
- 3 = immoral behavior
- 4 = supernatural power
- 5 = other _____

31. How can you protect your child against illness?

- 1 = proper diet
- 2 = sanitation
- 3 = religious piety
- 4 = supernatural protection
- 5 = other _____

32. Where did you learn about ways to keep children from becoming ill?

- 1 = family or friends
- 2 = school
- 3 = doctor, pharmacist
- 4 = traditional healer
- 5 = media - radio, newspaper, magazine
- 6 = other _____

33. Where is the best place to take a sick child for treatment?
1 = medical doctor or hospital
2 = pharmacy
3 = traditional healer
4 = religious leader or saint
5 = other

34. Who in the family usually notices that children are sick?
1 = mother
2 = mother-in-law
3 = father
4 = sibling or other

35. Who should a mother ask for advice about a sick child?
1 = relative, family member, neighbor
2 = doctor/pharmacist
3 = traditional healer
4 = religious leader or saint
5 = schoolteacher or government health/f.p. worker
6 = other

36. If the first healer does not succeed in curing a sick child, what should the family do next?

37. Which healers are:
(1) most expensive
(2) most friendly
(3) nearest your home
(4) most likely to cure the disease

38. Who taught you about the kinds of treatment for disease that are best for children?
1 = family, relatives, neighbor
2 = school
3 = doctor, pharmacist
4 = traditional healer
5 = media - radio, television, newspapers, magazines
6 = other

39. Does purdah prevent you from visiting any of these sources of treatment for your child?

1 = no
2 = yes

40. Do you have to ask anyone's permission before visiting any of these sources of treatment?

1 = no
2 = yes

41. Is it better to have many children or a few?

- 1 = many
- 2 = few

42. Is education a good thing for a woman to have?

- 1 = no
- 2 = yes

If no, why not? _____

If yes, ask question 42A

42A. Why is education good for a woman?

- 1 = her job opportunities are better
- 2 = she knows how to take better care of her children
- 3 = she can get a rich/educated husband
- 4 = her marriage is more stable
- 5 = she knows more about health, diet
- 6 = she can manage her house, keep accounts better
- 7 = other _____

43. Do you have any daughters between the ages of six and thirteen who are not attending school?

- 1 = no
- 2 = yes

44. How much schooling have you had? _____ years

Observation

Date _____
 Hour Arrived _____
 Hour Depart _____

Community _____
 House No. _____
 Observer _____

1. Episodes of Defecation by Children

	Child 1	Child 2	Child 3
Defecation Site			
Hands Washed?			
Solvent Used			
Time before removal			
Occurrences before removal			
Mechanism of removal			

2. Mothers' Hygienic Practice

Hands washed before serving food?			
Hands washed after defecation?			
Solvent used			
Sari uses			
Dishes washed each meal			
Solvent used			
Clothing washed?			
Solvent used			
Garbage disposal site			

3. Dietary Practice -- Child Feedings

	Feeding 1	Feeding 2	Feeding 3
Hot/Cold food	_____	_____	_____
Meat, Eggs, Fish or Milk	_____	_____	_____
Beta-carotene source	_____	_____	_____
Other fruit, vegetable	_____	_____	_____
Pulses, beans	_____	_____	_____
Rice, Chappati, Suji	_____	_____	_____
Oil, Butter, Ghee	_____	_____	_____
Sweets, Mishti	_____	_____	_____

4. Illness Episode

Illness	_____	_____	_____
Who is ill	_____	_____	_____
No. of times water given	_____	_____	_____
No. of times milk/breastmilk given	_____	_____	_____
Types of food given	_____	_____	_____
Patient lying prone?	_____	_____	_____
Patient covered?	_____	_____	_____
Pharmaceuticals given	_____	_____	_____
Home remedy/herbs given	_____	_____	_____
Clinic/pharmacist visited	_____	_____	_____
Kabiraj consulted	_____	_____	_____

Observation Instructions and Codes

Please write the appropriate code numbers, selected from the list below, in the blank spaces on your observation schedule. Each section of blank line on the schedule (_ _ _) represents one "episode" of the type of behavior you are observing.

1. Episodes of Diarrhoea in Children

Defecation site codes: 0 = none
1 = compound ground
2 = house floor
3 = kitchen floor
4 = ground outside house/compound
5 = pit latrine
6 = pacca latrine
7 = hanging latrine

Handwashing code
1 = yes
2 = no

Solvent code
0 = none
1 = soap
2 = ash
3 = mud
4 = other solvent

Removal of faeces
0 = not removed
1 = removed immediately
2 = removed after 10-30 minutes
3 = removed after 30-60 minutes
4 = removed after one hour

Occurrences before removal code
0 = untouched
1 = stepped in by human feet
2 = rubbed in by feet
3 = stepped in by animals
4 = played in by children
5 = eaten by dogs
6 = spread in other ways
7 = covered with ash or dirt

Mechanism of removal code
0 = not removed
1 = hand removed
2 = hand, covered with leaves, etc.
3 = scoop
4 = broom
5 = dog called specifically

2. Mothers Hygienic Practices

Hands washed before
serving food

- 0 = no food served or given
- 1 = yes
- 2 = no

Hands washed after
defecation

- 0 = no defecation episode
- 1 = yes
- 2 = no

Solvent code

(see above)

Clothing washed

- 1 = yes
- 2 = no

Sari uses codes

- 1 = wipe sick eye
- 2 = dry clean hands
- 3 = dry dirty hands
- 4 = dry clean body
- 5 = wipe dirty body
- 6 = wipe child's anus - not washed
- 7 = wipe child's anus - washed
- 8 = cover cough
- 9 = wipe nose
- 10 = wipe eating utensils

Dishes washed
(each meal)

- 0 = no meals served
- 1 = yes
- 2 = left unwashed

Solvent

(see above)

Clothing washed

- 1 = yes
- 2 = no clothing washed during observation

Garbage site codes

- 0 = nothing discarded during observation
- 1 = left on kitchen floor
- 2 = left on other house floor
- 3 = fed to dog, animals
- 4 = thrown on ground inside compound
- 5 = thrown on ground outside compound

3. Dietary Practices -- Child Feedings

Hot/Cold Food 0 = no food served or given
 1 = food served hot from cooking
 2 = leftover food served unheated
 3 = uncooked food (fruit, etc) served
 4 = manufactured food (biscuit, etc) served

Food Categories: 1 = yes
 2 = no

4. Illness Episode

Illness codes 0 = unknown
 1 = fever
 2 = diarrhoea
 3 = cough, cold
 4 = tetanus
 5 = measles
 6 = other illness

Who is ill codes 1 = boy child under three years
 2 = boy child three to five years
 3 = boy child six to twelve years
 4 = adolescent or adult male
 5 = girl child under three years
 6 = girl child three to five years
 7 = girl child six to twelve years
 8 = adolescent or adult female
 9 = elderly person

No. of times water given (make check mark each time water is given)

No. of times milk given (make check mark each time given)

Types of food given 0 = no food given
 1 = meat, fish, eggs, milk
 2 = beta-carotene source
 3 = other fruit or vegetable
 4 = pulses, beans
 5 = rice, chapattis, suji
 6 = oil, butter, ghee
 7 = sweets, mishti
 8 = other

Patient lying
prone 1 = yes
2 = no

Patient covered 1 = yes
2 = no

Pharmaceuticals
given 1 = yes
2 = no

Home remedy given 1 = yes
2 = no

Clinic/ pharmacy
visited 1 = yes
2 = no

Kabiraj visited 1 = yes
2 = no

Table 1 & 2: Explanation of Power Based on Sample Sizes of 75 and 200

N=75 Power against the alternative = δ

H_1	CV	-.30	-.25	-.20	-.15	-.10	-.05	.05	.10	.15	.20	.25	.30
.1	.096					.54	.15	.20	.53	.81	.95	1.00	1.00
.2	.128			.94	.66	.31	.11	.13	.34	.62	.84	.95	.99
.3	.147	1.00	.96	.80	.52	.25	.10	.11	.27	.52	.75	.91	.98
.4	.157	.98	.91	.72	.46	.23	.09	.10	.24	.47	.71	.88	.97
.5	.160	.97	.88	.70	.45	.23	.09	.09	.23	.45	.70	.88	.97

N=200 Power against the alternative = δ

H_1	CV	-.30	-.25	-.20	-.15	-.10	-.05	.05	.10	.15	.20	.25	.30
.1	.059					.97	.37	.39	.88	.99	1.00	1.00	1.00
.2	.078			1.00	.99	.73	.23	.25	.69	.95	1.00	1.00	1.00
.3	.090	1.00	1.00	1.00	.93	.59	.19	.20	.59	.90	.99	1.00	1.00
.4	.096	1.00	1.00	.99	.88	.53	.17	.18	.53	.86	.98	1.00	1.00
.5	.098	1.00	1.00	.98	.86	.52	.17	.17	.52	.86	.98	1.00	1.00

For N=75, we have good power (>.80) only when the differences are large (>.20) in many cases. This is ok for a small pilot study, but it must be remembered that some differences will not be detectable with the sample sizes we have here.

When N=200, the power is be much greater. The table above shows that the power is above .8 in all cases where $\delta \geq .10$ or $\delta \geq .15$

What does power=.90 mean when $H_1=.3$ and the alternative is $\delta=.15$?

If this alternative is true (so that $\pi_2=.45$), we have a 90% chance of concluding the uneducated and the educated have different proportions who answer "yes" to the particular question.

Tables 1 & 2: Power Based on Sample Sizes of 75 and 200

Assume: in the population of all women

π_1 is the proportion positive among uneducated women

π_2 is the proportion positive among educated women

$\delta = \pi_1 - \pi_2$ = the difference between the proportion positive among the uneducated and the educated women

we choose a sample from this population

N is the sample size for each group (eg. $N=75 \rightarrow$ 75 uneducated and 75 educated women were interviewed)

p_1 is the proportion positive among uneducated women who are in our sample

p_2 is the proportion positive among educated women who are in our sample

d $p_1 - p_2$ = the observed difference between the proportion positive among the uneducated and the educated women in our sample

The null hypothesis usual is that there is no difference, i.e. that $d=0$; the alternative hypothesis is that d does not = 0.

The choose a statistical test, we first must decide how willing we are to reject the null hypothesis when it is true. This is known as the probability of a Type I error and is usually denoted by α . The standard value chosen is $\alpha=.05$, which means we are willing to accept a 5% chance of saying there is a difference between the two groups when in fact none exists.

If we know π_1 , α , and N, we can find the Critical Value (CV) for our test. This is the value against which we compare our observed difference.

$$d = p_1 - p_2.$$

If $d > CV$ or $d < -CV$, we reject our null hypothesis and conclude the proportions positive in the two groups is not the same in the population.

To find the CV: remember that the ratio

$$\frac{d}{sed}$$

is normally distributed. Therefore, the probability that this ratio is greater than 1.96 or less than -1.96 is .05. We need to find the value of d such that the ratio is 1.96.

Therefore, we need the value of sed . If the null hypothesis is true, then this is given by

$$\sqrt{2\pi_1(1-\pi_1)/N} = se$$

Thus, for a particular value of π_1 , the CV = 1.96 se .

Next question: if the true value of π_2 is $\pi_1 + \delta$, how likely are we to reject the null hypothesis (which is actually false)? The probability of rejecting the null hypothesis when this alternative is true is called the power of our test against a particular alternative.

Table 3: Statistical Calculations for Power of Tests When Sample Sizes are Unequal in the Two Groups

Let the number in first group = 75 and number in second = 200

		Power against the alternative =												
	CV	-.30	-.25	-.20	-.15	-.10	-.05	.05	.10	.15	.20	.25	.30	
1	.0796					.72	.78	.25	.68	.94	.99	1.00	1.00	
2	.1062			.98	.82	.45	.14	.15	.46	.78	.95	.99	1.00	
3	.1216	1.00	.99	.92	.68	.36	.12	.13	.37	.67	.89	.98	1.00	
4	.1300	1.00	.97	.87	.62	.32	.11	.12	.33	.62	.86	.97	1.00	
5	.1327	1.00	.96	.85	.60	.32	.11	.11	.32	.60	.85	.96	1.00	