HEALTH CARE USE PATTERNS OF NON-SLUM RESIDENTS IN DHAKA CITY, BANGLADESH

MARTINUS DESMET
AND OTHERS

Attachment 1.
(FACE SHEET)

Date 4 APRIL 1995

ETHICAL REVIEW COMMITTEE, ICDDR,B.

Principal Investigator M. DESMET

Trainee Investigator (if any) NO

Application No. 95-007

Supporting Agency (if Non-ICDDR,B) BADC (Partially) DHAKA COMMUNITY HEALTH PROJECT (Partially)

Title of Study HEALTH CARE USE PATTERNS OF NON-SLUM RESIDENTS IN DHAKA CITY, BANGLADESH

Project status:
(X) 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: N/A
   (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 N/A Yes No
   (c) Physical risks N/A 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)
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:
   - N/A 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.

We 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

1. PRINCIPAL INVESTIGATORS Martinus DESMET
Mizan SIDDIQI

2. OTHER INVESTIGATORS Nazmul SOHEL
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3. TITLE OF PROJECT "Health Care Use Patterns of the Non-Slum Population in Dhaka-City, Bangladesh"

4. EXPECTED STARTING DATE May, 1995

5. EXPECTED DATE OF COMPLETION April, 1997

6. TOTAL BUDGET REQUESTED US$ 127,302

7. FUNDING SOURCES ...
Belgian Administration for Development Cooperation
Dhaka Urban Community Health Project

8. HEAD OF PROGRAMME Dr KMA Aziz

This protocol has been approved by the Community Health Division

Signature of the Acting Division Head, CHD

Date March 15, 1995

HEALTH CARE USE PATTERNS OF NON-SLUM RESIDENTS IN DHAKA-CITY, BANGLADESH

Abstract

Health care seeking behaviour is known to be complex and multifactorial. There are thus far few studies which approach this issue in a comprehensive way for urban settings in Bangladesh. An investigation on health care use patterns of the slum population in Dhaka-City has already been initiated by some of the authors of this study proposal. The present study is proposed to be community-based and to combine quantitative and qualitative research techniques. In Dhaka-City a variety of health care alternatives are available, such as modern private and public care, traditional care, and self-care. Currently, the issue of sharing health care costs has become a high priority issue in the health policy debate. Therefore, special attention will be paid in this study to investigate health care user costs.

The *aim* of the study is to contribute to a more appropriate urban health policy by providing policy-makers with findings on health care use of the non-slum population of Dhaka-City.
The *specific objectives* are firstly, to identify and study the components of health care decision making processes, i.e. health care alternatives available to the study population, and the criteria and constraints that operate in choices made among these alternatives, secondly, to study direct and indirect health care user costs, thirdly, to determine and investigate indicators of patient's satisfaction, and finally, to investigate explanatory variables that contribute to health care choice making.

Expected outcomes of the study are to contribute to a better understanding of health care seeking in the non-slum population of Dhaka-City, and to provide an insight in health care expenditure by the study population. With this, it is expected that policy-makers may adjust where required existing health care strategies.

Research methods
The proposed study consists of three consecutive phases.
The first phase will generate descriptive data on the components of health care decision making through interviews with about 30 individuals of the study population.
During the second phase - a 6-months longitudinal survey in 1,050 households (or about 5,775 individuals) -, data will be collected on all new illness episodes through fortnightly visits. Simultaneously, selected socio-economic and demographic variables will be followed up on a monthly basis. A stratified 2-stage sampling technique will be used for the selection of the sample.
The third phase of the study will consist of a series of about 200 case studies on specific illness and health care seeking experiences reported during the longitudinal survey.

Considering the nature of the study, a mixed team of junior and senior public health physicians and anthropologists will be in charge of the study.

9. AIMS AND OBJECTIVES

A. GENERAL AIM

to improve health care delivery through the assessment of baseline data on the use of health care, helpful for an appropriate health policy formulation, identification and implementation.

B. SPECIFIC OBJECTIVES

1) to identify the *components of decision making processes in health care* in the study population : these are (a) the health care alternatives that the study population perceives to be available, (b) the criteria considered in choices among these alternatives and operating constraints, (c) the individuals intervening as decision-makers.

2) to determine and investigate indicators of *patient's satisfaction.*

3) to determine and investigate *direct* and *indirect health care user costs.*

4) to determine the *explanatory variables* that contribute to health care choice making, and investigate their relative importance with emphasis on their economic significance.

C. SIGNIFICANCE

Bangladesh has one of the lowest per capita incomes of the world. More than half the population lives below the poverty line and literacy rates are low. General health indicators demonstrate the poor health and nutrition status of its population : morbidity and mortality are high, life expectancy low and economic performance poor. The World Bank[1] points further out that three-quarters of the population (mainly women and children) are continuously ill and severely malnourished. Similarly, the health and nutrition status of adult males is also very poor.

In order to escape this vicious circle of poverty and ill health, interventions should be focused on improving the socio-economic well-being of broad sections of the population and on the **availability of appropriate** health care.

Research on use and provision patterns of health care has become one of the cornerstones of ICDDR,B's scientific agenda. This may be illustrated by the following statement from the section on 'Health Services and Policy Research' of the new Strategic Plan of ICDDR,B, entitled

"To The Year 2000"[2] :

> 'The application of health ... technology ... is not straightforward, and ICDDR,B has been in the forefront of developing the methodology for investigating this issue through the utilisation of health services and policy research...'

and further in the same section :

> 'No major increases in resources or dramatic breakthroughs in technology are foreseen in the near future. Therefore, improvements in community health status will be possible mainly through increased utilisation and effectiveness of existing infrastructure and manpower,...'

In Dhaka, the capital of Bangladesh, a wide range of health care resources are available. They range from modern to traditional, from public to private services, from formal to informal care, and from hetero-treatment to self-care.

An Urban PHC Project has been set up and sponsored by the Ministry of Health and Family Welfare in the 4 main cities of Bangladesh (Dhaka, Chittagong, Khulna, Rajshahi). These cities will gradually be covered with a "ward-based PHC system". Implementing and funding agencies of the project include the Directorate General Health Services of the Ministry, the Dhaka Urban Community Health Project (including the Aga Khan Community Health Project, and UNICEF-Dhaka. The first phase of the project has started beginning 1994.
The overall operational goal of the project is to strengthen the collaboration between NGOs, the Private Sector, the City Corporations and the Ministry to meet the mid-decade goals set by the government. Both health care users and providers are encouraged to establish ward-wise forums where they can exchange ideas. For the providers, this is the Consortium of Health Care Providers, and, for the users the Citizens Group led by the Ward Commissioner. Finally, a dialogue is initiated between the citizens group and the consortium to identify the problems that both users and providers face towards establishing health care that better meets the health needs of the population. The project has started in 15 out of the about 90 wards in Dhaka-City.

The underlying concept in this project is that people should take up more responsibility for their own life, including ill-health and the ways in which the latter can be obtained or preserved. User expenditure for health care is closely related to a variety of factors relating to the sick person and his/her family, to the characteristics of the illness as perceived by them, and of the health care resources that are available to the population. These health care user costs are in short related to the overall health care seeking pattern of the study population.
The managers of the project mentioned above are interested in having data on this issue with the aim to feed the findings into the dialogue process that is taking place between the users and the providers of health care. This process will ultimately serve as a model for replication in other parts of Dhaka-City, as well as in the other cities.

Health care seeking behaviour of the slum population of Dhaka-City has been investigated in a comprehensive longitudinal community-based study, conducted in 1993 by some of the authors of this study proposal.[3] The purpose of the present study is to investigate the same

research issues but now in the non-slum population of Dhaka-City, living in the 15 wards where the Urban PHC project operates.

When considering the urban population as a whole, the present study on the non-slum population of Dhaka-City may be considered as an indispensable complement to the study conducted on its slum population. Indeed, issues such as cross-subsidisation, the specific role of public health services, the influence of newer life styles on health care seeking behaviour, can only be fully understood and relevant policy recommendations made, if health care seeking of all sections of the urban population are studied.

Finally, the combined results of both the studies on health care use in Dhaka-City may be relevant for other megacities in the Indian subcontinent, and more generally in the world, with similar socio-economic and/or cultural characteristics.

10. ETHICAL IMPLICATIONS

This study proposal will be submitted to the Ethical Review Commission of ICDDR,B for approval. Furthermore consent will be sought from the head of the household after a brief explanation of the purpose of the study by the interviewer at her/his first passage. Afterwards, consent will be sought from each interviewee to participate in the study and in the case of the children, from the head of the household. Data gathered from the households under investigation will be kept confidential (see Annex 1, consent form and procedure for maintaining confidentiality).

No invasive techniques or interventions will be used in the study. In cases of serious illness episodes referrals will be made by a physician on request for appropriate facilities of the patient's choice.

11. BACKGROUND INFORMATION, RESEARCH PLAN

A. BACKGROUND INFORMATION

1. Conceptual basis of the study.

There exists a conceptual framework for the type of studies as the one proposed here.

Understanding the needs of a given community is based on an insight in people's suffering. It is a dynamic concept in place and time taking a holistic view on human needs in all possible development domains : education, housing, agriculture, health care, sociocultural, economic and political development.

The level of relief of these needs is locally bound and depends on people's preoccupations and the efforts they deploy to solve their problems, on the input of resources, and on the availability and correct functioning of services or facilities in the different development domains. In the field, needs are only partially covered by people's expressed demand for relief : this is the so-called rational demand (the rest of this demand being irrational). In practice, action for relief, as eg health care, usually covers also only partly the expressed demand as well as only part of the needs. The ultimate goal of action in the health domain is that health care delivery meets the demand of the people and that in turn this demand meets technically defined needs. All demand thus becomes then rational.

The proposed study limits its scope to the interaction between the expressed demand of people for and the availability of health care. It does not intend to assess needs or to investigate the relationship of the latter with people's actual demands or the availability of health care.

2. Research methods for the purpose of the study.

In the literature a variety of strategies are described for exploring the variables influencing health care use and detecting the most important ones. They can grossly be subdivided into two groups, related to their methodological features:
- a *decision making approach* : it focuses on the components of health care decision processes, i.e. on what people take into account when they face an illness treatment decision, how available alternatives are considered and what relevant constraints operate. It uses mainly qualitative research techniques based on interviews of a small group of informants.[4,5] The degree of validity of these components of decision processes may then subsequently be tested.
- a *correlational or statistical approach* where one investigates how explanatory variables contribute in the choice of health care. These variables can be classified into three groups according to the characteristics (1) of the demander of health care and of the household to which

he belongs, (2) of the disorders as perceived by the sick person and his/her environment, and (3) factors referring to the health care system(s).[5]

Both strategies should be utilised together because their findings are complementary and both have specific methodological limitations.[5] Furthermore, no single approach can illuminate the wide range of issues of potential relevance for understanding health seeking behaviour.

3. Background information on the subject for Bangladesh.

In spite of a considerable number of studies on health care use in rural Bangladesh, the urban populations have received less attention. Furthermore, there are relatively few community-based studies on aspects of the demand for health care in Dhaka or other urban areas in Bangladesh.

Overall major determinants in the decision process for health care in Bangladesh are socio-economic such as income, education level of the parents and the gender of the sick subject.[6,7] Amongst others, the latter may contribute to the influence of gender on mortality in children's age groups.[8] Non-utilisation of health care resources however has been shown to be influenced by factors such as payment of a fee, timing of services and behaviour of the healer.

Rahman et al considered health care resource specific use rates for the urban population broken down by some indicators of the users and by type of illness. They pointed that about one fifth of the sick people did not have any treatment.[9] The literature further reveals the importance of the private modern health care sector and of traditional healers, and the extensive use of large hospitals.[10,11]
Two-thirds of urban pregnant women seek antenatal care, 30% of them after the fifth month of pregnancy. About 60% of them have four or more check-up visits. About two-thirds of urban women (and less than 25% of rural women) with pregnancy related complications visit government health centres or non-government clinics. But one out of ten of these women visits homeopaths, and a same proportion spiritual healers. Half of the deliveries occur at the own house of the woman, and only one fourth at a clinic. Birth attendants are TBA's or ordinary dais for 40% of the deliveries, MBBS doctors for about one third, and relations or neighbours for about one fourth of the deliveries.[8] These data apply to the whole of the urban female population and are thus not specific for the non-slum population.

In an interesting paper of F Nessa, S Rahman, and S Banu[12] the importance of the "wait-and-see" attitude and "self-care" were highlighted as initial steps related to treatment of diseases in rural Bangladesh. Additionally, there might be a sequence of steps taken from the wait-and-see attitude to self-care and to doctor/hospital care. When the latter in turn does not help, an equal choice for the three mentioned options is observed. In the case of self care, the type of treatment seemed to be specific for the type of disease.

An important study for rural and urban settings on health expenditure and finance

patterns, health status and health care use issues at the household level is the Bangladesh Health Finance and Expenditure Study[13] of 1988. Many economic variables in health care were considered in this study, such as user treatment and travel costs and indirect costs due to loss of income, the structure of average direct costs, break-downs of the latter for different types of health care provision, and aspects of the relation between health care costs and overall household expenditure. Additionally, use rates were explored, including reasons for use and non-use for different types of health care (such as curative (current sicknesses and one month prior to death), preventive care, family planning, delivery practices) and health care providers.

One interesting economic finding was the much lower overall average user health care costs in rural compared to urban areas, reflecting the epidemiologic transition in the latter. Some other salient findings of this extensive study for the rural areas were the positive association between expenditure on health and household expenditure, the use of relatives/neighbours and ordinary dai for delivery in more than 80% of delivery cases, use of qualified allopath doctors in about 35% of current sicknesses compared to less than 1% use of self-care, and a per capita annual medical expenditure of US$ 3.30. This last figure is for instance more than double of what is spent on public health care facilities which stands at about US$ 1.50 per capita per year.

B. RESEARCH PLAN

1. Choice of study population

The study population is composed of the non-slum residents in the 15 wards in Dhaka-City considered by the Urban Ward-based PHC Project. They are concentrated in the south and south-eastern part of the City. Please see Annex 2 for a map of Dhaka-City and location of the study area.

Although access to basic supplies such as water, gas, sanitation and electricity may be similar, other socio-economic indicators, such as income and education levels may be different among the study population. The non-slum population of Dhaka-City further comprises a variety of occupational and professional groups, and of social and cultural organisations.

2. Choice of research strategy

As pointed out above, there are many research methods to explore the complexity of health-seeking in a community, no one of which is clearly superior.

Therefore the study strategy will be built up with the following elements, which also represent the consecutive phases of the study :

2.1. Focus group discussions and in-depth interviews of a limited number of respondents will generate descriptive data on the *components of health care decision processes* and disease classification. This **cognitively-oriented study** will address questions on :

(1) the components of health care decision making :

(a) the major *health care alternatives* that the study population perceives to be available,

(b) the *criteria* considered in choices among these alternatives and operating *constraints*,

(c) the role of household and community members as *decision-makers*.

Data on those components will be collected on a number of recent illness episodes from an opportunistic sample of households. In households where recent cases of illness are found, in-depth second and, if necessary third open-ended interviewing will be pursued, to get very full information concerning details of decision-making. The exploration will attempt to get from the informant a narrative of the health care-seeking process.

(2) Attempts will be made to refine these findings for different health problems or groups of health problems. Therefore (and also for the design of the questionnaire to be used in the longitudinal survey) a list of *'tracer conditions'* will be constructed requiring a sound knowledge of the local disease pattern and of symptoms descriptions.

Patterns of symptoms, particularly synonyms and descriptive phrases will be explored.

With the findings of the cognitive study, non-exhaustive lists will be constructed on health care alternatives, criteria and constraints and possible decision-makers in health seeking, and on perceived illness. These lists will be used by the interviewers during the longitudinal survey.

It is expected that this part of the investigation will take one to two months.

2.2. Subsequently, a prospective **longitudinal survey** will be conducted comprising two concurrent surveillance systems :
(1) a surveillance system on all occurring *illness episodes* in the households under investigation. Data will be collected on all health care resources used during each illness episode, including for each health care resource used criteria for use and constraints in health care choice, indicators for patient satisfaction and direct and indirect user costs.
(2) a surveillance of the households under investigation for selected *socio-economic and demographic variables*. It will be preceded by a more extensive baseline survey.

This design has been chosen to test the dynamics of health seeking behaviour (i.e. testing the relative importance of the criteria (including constraints) and of different 'decision makers' in health care decision processes as developed in the first stage of the investigation.
Secondly, this design is appropriate to investigate 'healer shopping', more specifically sequential healer use, and to follow up the influence on health care choice of crisis situations (economic and social) occurring in the household.
It also allows concurrent collection of data on a series of explanatory variables which may co-vary with specific health care. Specific questionnaires will be used in each of the two surveillance systems.

The proposed duration of the longitudinal survey is six months and covers parts of the major seasons because some household and illness characteristics tend to vary by time of the year (eg irregular household income and availability of cash, major expenses for clothing etc in the period before important religious events, changes in household composition, seasonal variation in the incidence of illnesses).

Interviews will be conducted on a fortnightly basis for all illness episodes and on a monthly basis for the selected demographic and socio-economic variables. Specific questionnaires for each of the surveillance systems will be addressed.

2.3. The final phase of the study will comprise a series of **case studies**. They will address cases with particular illness and/or health care seeking behaviour experiences. The cases will be selected according to the findings of the longitudinal survey (the data of the survey will be analyzed simultaneously with the progress of the survey). About half of the case studies will be reserved to develop and test a decision-making model for 3 to 4 specific illness categories (2 childhood illnesses such as diarrhoea and acute respiratory diseases, and 1 to 2 adult illnesses), that have been found to be the most frequent ones. The other half of the case studies will concentrate on a number of areas of special interest for the study. These areas are delivery practices (particularly dystocias), hospitalisation cases and chronic illness cases.

Considering the nature of the study a steam of public physicians and anthropologists will be in charge of the study.

3. Aspects of sampling

3.1. Cognitively-oriented study

Two groups (females and males) will be interviewed, each comprised of about 15 informants from the study population. They will be selected by the anthropologists of the investigation team on the basis of their communication skills and assumed knowledge relevant to the subject of this study. They will be selected from the three thanas where the study population is located. This study will include collection of data on the components of decision-making on 25 to 30 illness episodes from an opportunistic sample of households.

3.2. Longitudinal survey

3.2.1. Sampling methods and procedure

The non-slum population of the 15 wards of Dhaka-City identified for this study has been recorded by the Dhaka Urban Community Health Project. The total number of recorded people is about 619,012, out of which there are 545,847 non-slum residents. These population data have been collected ward-wise : the data on the non-slum population comes from the national Population Census of 1991. The 15 wards have been mapped with location of roads, religious and social centres, health care facilities and slum areas. The mappers also determined areas of different population density of the non-slum population.

Although the study population is clustered in one area of the City, the presence of different types of health care resources is far from being homogeneous. As use of health care is known to be substantially influenced by geographic accessibility, we propose to use a stratified 2-stage sampling technique with the "wards" as strata, "blocks" of comprising 80 to 120 households as primary sampling unit and "household" as secondary stage unit. Please see Annex 3.1. for further details.

3.2.2. Sample size calculation

1) The unit of analysis for this part of the study is 'illness episode'. The formula for determining the *required sample size* is related to one of the analysis methods that will be used, namely statistical analysis of proportions for the different explanatory variables involved in health care choice.

Assuming
- proportions of for instance 0.4 (p1) and 0.6 (p2) (eg difference in proportions of males (p1) and females (p2) using modern health care versus traditional health care statistically significant when greater than 20%),
- and P=(p1+p2)/2,
- a power of 90%,
- a confidence level of 95%,

then the sample size is, applying the formula

$n = 2P(1-P)x10.5/(p1-p2)^2 = 2 \times 0.5 \times 0.5 \times 10.5/0.2^2 = 131.25$ in each group.
Allowing for 20% non-responders and drop-out in each group (eg. about 3 to 5% of the households migrate out, they will not be replaced), the total in each group becomes [131.25 + (131.25x0.2)] =117.5, or in total 117.5x2=**315 cases** for each health problem under investigation.

In order to determine the number of individuals to be followed, we have calculated in the table of Annex 3.2 the estimated illness episode incidences for different numbers of populations for common and less common illnesses within a period of 6 months, the proposed duration of the longitudinal survey.

A particular group of health problems are the pregnancy-related illnesses. The minimum required number of pregnant women to be followed up for getting 315 illness episodes, namely 525, has been calculated separately in the same Annex 3.2.

The figures in this Annex indicate that the minimum sample of individuals for the survey is 5,000 individuals or 909 households, assuming an average of 5.5 individuals per household. According to the minimum number of 525 pregnant women to be followed up, 525 households will have to comprise a pregnant women. For operational reasons of sampling, we propose a total sample size of **1,050 households or 5,775 individuals**, out of which, 525 households will purposively comprise a pregnant woman.

2) The *minimum number of households to be screened* in order to detect the 525 pregnant women mentioned above, has been calculated in Annex 3.2. This minimum number is **12,353 households**.

3.3. Case studies

It is suggested to conduct a total of about 200 case studies. This is because of budgetary limitations and to avoid to 'stretch out' in time the data collection process' with loss of recall. About 100 cases will be used to develop decision-making models for selected illness categories as mentioned on p.10 in the section on the case studies. The other 100 cases will be subdivided over the areas of special interest as outlined on p.10 in the section on case studies.

4. Methods of data collection

4.1. Cognitive study

The interviews with the informants will involve a range of methods and techniques such as the posing of hypothetical situations, ranking tasks, and informal open ended discussions on respondent's own past health care decisions as well as their more general observations on health and health seeking behaviour in their communities. The interviews will gather information on decision making processes and the constraints people face in actual health seeking situations as well as concepts of ideal behaviour and disease taxonomy. Free listing and pile sorting of illnesses will be used in an exploratory manner to get data on groupings and causes of illnesses, perceived illness severity, and expected treatments, including home remedies. Interviews will be conducted with individuals and groups. Please see Annex 4 for the guidelines for these interviews.

4.2. Longitudinal survey

4.2.1. Special forms will be used for the *screening phase* of the study. Please see Annex 5.1. for the Screening Forms.

4.2.2. The questionnaires that will be addressed for both the illness episodes and the socio-economic and demographic update will contain pre-coded and open-ended questions.[14]

(1) For the *illness episode surveillance,* two questionnaires will be used : the first one in an illness episode will address illness characteristics and data on use of the first health care resource during the episode. The second one will contains questions on the use of any subsequent use of health care resources. It will address the same questions on health care use as those contained in the first questionnaire. 'Tracer conditions' will be used for detecting the complaints of the respondents. Please, see Annex 5.2. for an outline of questionnaire 1, and Annex 5.3. for questionnaire 2.

Interviews on any new occurring illness episode will be taken every two weeks during six months from every household member who is (has been) ill. For illness episodes of children proxy-reporting by a close family member will be used. Each illness episode will be updated until its resolution (death or recovery) during every subsequent visit to the household and information will be collected on subsequent/synchronic use of any health care resource.

Re-visits will be necessary because of the difficulty of finding respondents at home during day time hours, or when the patient is hospitalised. In the latter case interviews will be conducted when the patient is back home. An interview with questionnaire is expected to take about 30 minutes.

For all these reasons 10 interviews with questionnaire have been planned per day.

(2) The *baseline socio-economic and demographic survey* as well as the *monthly update of the selected socio-economic and demographic variables* will be conducted with the help of

special forms. Please see Annex 5.4. for an outline of the Baseline Survey form, and Annex 5.5. of the Socio-economic and demographic update form.

Interviewers will be recruited and trained in the use of all the forms and questionnaires. Outlined instructions will be available for this purpose.
The questionnaires will be field tested.

4.3. In-depth interviews specific to the *case studies* technique will be carried out. Guidelines will be elaborated relating to each area of interest for the case studies. A number of the interviewers who will have working well in the longitudinal survey will be requested to stay on for conducting the case studies. They will be especially trained for the purpose of this phase of the study.

5. Sources of bias

There may be a selection bias in taking purposively households with pregnant women into the sample of this study. Variables such as socio-economic status, women's age, household size and marital status may indeed be different between the subsample of households with pregnant women and the one without pregnant women. Data on these variables will be tested after the screening phase (for SES a proxy variable will be taken, namely 'type of housing'). If significant differences arise, then the total study sample will be randomly selected. In that case it is expected to have in the sample only 10% households with a pregnant woman. As a result it will be impossible to investigate thoroughly the health problem group of 'pregnancy related complications'.

An inappropriate recall period may have considerable respondent bias. The reasons for the choice of two weeks as recall period are :

- a shorter recall period (and thus a more frequent submission to questions about the actions interviewees take for illness episodes) could induce compliance of the interviewees, and even a real change in their health care seeking behaviour ;
- with a longer recall period, problems may arise of selection of only the more severe episodes and more generally of recall by the interviewee of the illness events about the occurred illness episodes.

Bridges-Webb[15] points out that a two-week recall for illness reporting has mostly been adopted as 'a compromise between obtaining enough information about current illnesses and loss of accuracy due to the vagaries of memory'.

A potential bias may be induced by both interviewers and respondents in over emphasizing the more severe illness episodes and thus decreasing the quality and quantity of the data gathered for the trivial illness episodes. In the literature there are different views about the validity of health interviews. [16,17,18] However, the use of a list of 'tracer conditions' in the questionnaire 'has been shown the most sensitive instrument for measuring perception of ill health'[19], especially of minor and chronic conditions.

A similar type of interviewer bias may arise when taking medically trained people (either in modern or traditional practices) as interviewers. Non-medical women will be selected as interviewers as women are considered the caretakers in the households and therefore better accepted in the slums as interviewers. On the other hand, it may be expected that female interviewer face problems to collect accurate data on economic variables of the household, such as income and expenditure patterns. Due attention will therefore be given to this during the training of the interviewers.

Proxy-reporting may introduce a potential respondent bias. Most authors agree, nonetheless, that this technique - particularly when parents report for children - is appropriate for investigation on individual's problem, especially where group management of illness cases prevails in the community.[20]

Selective reporting related to the gender, especially of children, has been observed.[21] Therefore, special attention will be given to the reporting of illness episodes of the female members of the households.

6. Arrangements for data handling and analysis

Data from the interviews with the informants will be used qualitatively for the identification of the components of health care decision processes and the list of tracer conditions.

Fox-Pro software will be used for the computerised design of the questionnaires to be addressed in the longitudinal survey.
SAS will be used for the (univariate and multivariate) analysis of the data on the co-variables monitored during the longitudinal survey. Data will be analyzed at illness episode level, individual household member level, and at household level.
Data related to the testing of the criteria and constraints in health care decision processes will be analysed quantitatively using the analytical method suggested by JC Young[4]. (see also Annex 6 : outline of data analysis and expected outcome)

The case studies will be entered into the computer and analysed qualitatively according to the areas specific to the interest of this part of the study.

12. PUBLICATIONS OF PRINCIPAL INVESTIGATORS

Desmet M (1991) Evaluation of community participation. An example of Kasongo, Zaire. Summer dissertation, Master of Science Course, London School of Hygiene and Tropical Medicine

Desmet M (1994) Can all slum people equally afford health care ? Abstract First Canadian Conference on International Health, Ottawa, Canada

Siddiqi SM (1987) Effect of high calory intake on blood pressure. Master of Science thesis, London University

Bilqis AH, Sack RB, Siddiqi SM (1993) Environmental health and the 1991 Bangladesh Cyclone. Disasters Vol 17 No2, June

Wilson RG, Molla AM, Siddiqi SM, Murphy H, Bari A (1993) Cereal-based ORT. Global learning for Health. National Council for International Health. Washington, DC

Siddiqi SM (1991) Targeted intervention to prevent malnutrition in urban slum children, Dhaka. Journal of Tropical Paediatrics

Siddiqi SM (1991) Risk factors for breast feeding cessation in Dhaka Urban Slums. Abstract First International Scientific Conference, Bangladesh College of Physicians and Surgeons

Siddiqi SM (1991) Determinants of knowledge of ORS use in mothers and their use of ORS in Dhaka. Abstract 5th Commonwealth Conference on Diarrhoeal Diseases and Malnutrition, Delhi, India

Siddiqi SM (1991) Prevalence of hyertension in Urban Poor in Dhaka City. Report of an International conference on Primary Health Care. Colombo, Sri Lanka

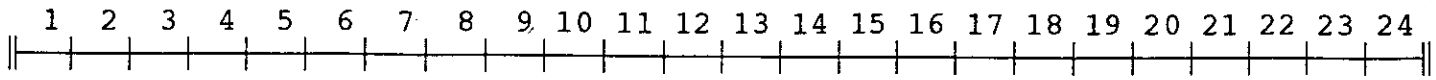
Siddiqi SM (1993) Hypertension among Urban Poor in Dhaka City. Report of an International Conference on Primary Health Care, Kathmandu, Nepal

Siddiqi SM (1994) Mental illness among Urban Poor in Bangladesh. (unpublished)

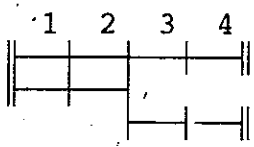
Siddiqi SM (1995) Mothers' perception of colour and growth curves to interpret childrens' Nutritional Status (manuscript in process)

13. FLOW CHART

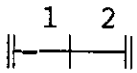
Total duration of study



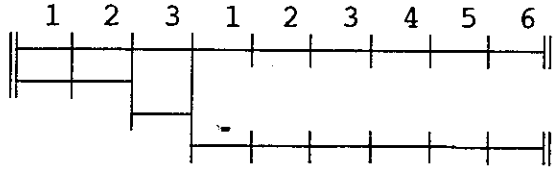
1. Sampling procedure
   - -mapping
   - -screening



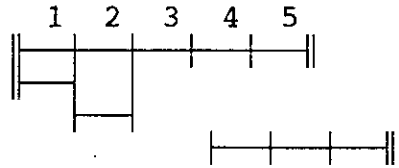
2. Cognitive Study



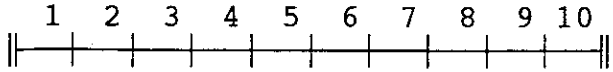
3. Longitudinal Survey
   - -training & field test
   - -baseline survey
   - -survey



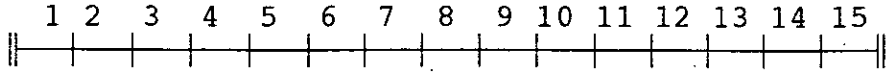
4. Case Studies
   - -training
   - -elaborate guidelines
   - -field work



5. Data Coding & Entry



6. Data Analysis & Reporting



14. ITEMIZED SPECIFIC TASKS FOR EACH LISTED INVESTIGATOR

As mentioned earlier, the research team is composed of anthropologists and public health physicians. The teams include :

Principal investigators : M DESMET, M SIDDIQI
- -overall responsibility for the study
- -develop and finalize protocol
- -finalize outline for key informant interviews
- -develop and finalize questionnaires
- -select and train interviewers (mainly use of questionnaires)
- -participate in quality control of their work in the field
- -analyze data from questionnaires, interpretation of findings and reporting
- -writing up of final report

Co-investigator : anthropologist : F JAHAN
- -finalize and translate outline for key informant interviews
- -training of interviewers (mainly communication skills)
- -participate in key informant interviews, analyze data and reporting
- -participate in in depth interviews.
- -code questionnaires longitudinal survey
- -quality control of in depth interviews, participate in data analysis and reporting

Co-investigators : public health physicians : I BASHIR, N HAQUE
- -finalize and translate questionnaires
- -training of interviewers (mainly communication skills)
- -quality control of their work in the field
- -code questionnaires longitudinal survey
- -participate in interpretation of analysis findings and reporting
- -ensure appropriate patient referral when requested by interviewee.

Research Officer : N SOHEL

-training of interviewers (mainly socio-economic aspects of questionnaires)
-quality control of the interviewers' work in the field
-quality control of data entry process
-follow-up of the computer programmatic aspects of field data collection
-participate in interpretation of analysis findings and reporting

15. BUDGET

Introduction

For the purposes of this study, it is suggested to establish a consortium of three funding sources, namely the Dhaka Urban Community Health Project, the Belgian Administration of Development Cooperation, and third donors, amongst whom the International Development Research Centre of Canada..

		Total budget	Proposed to be covered by 3rd party		Proposed to be covered by BADC	Proposed to be covered by AKCHP
			managed by ICDDRB	managed by AKCHP		
SALARIES						
Pr Investigators (20%)						
-M Desmet					*	
-M Siddiqi						*
-A Bhuiya	*					
Co-Investigators						
-N Sohel (full-time)	USD 500 x 24	12,000			12,000	
-I Bashir(full-time)	USD 800 x 24	19,200			19,200	
-N Haque (half-time)	USD 300 x 24	7,200		6,000		1,200
-Fatima Jahan (full)	USD 200 x 24	4,800		4,800		
Mapper	USD 150 x 2 x 2	600				600
Field Supervisor						
-screening	USD 300 x 2	600		600		
-longitudinal survey	USD 300 x 9	2,700		2,700		
Interviewers						
-screening	USD 200 x 2 x 10	4,000		4,000		
-longitudinal survey	USD 200 x 9 x 10	18,000		18,000		
-case studies	USD 200 x 5 x 4	4,000		4,000		
Data Entry Techn						
-sampling	USD 200 x 3 x 2	1,200				1,200
-longitudinal survey	USD 200 x 10 x 2	4,000		2,000		2,000
Data Mgt Asst						
-sampling	USD 300 x 3	900			900	
-longitudinal survey	USD 300 x 10	3,000	1,500		1,500	
Secretary						
-total duration study	USD 300 x 24	7,200				7,200
Accountant (15%)						
-total duration study	USD 100 x 24	2,400	2,400			

TRANSPORT						
Interviewers				1,000		
-screening	USD 50 x 2 x 10	1,000		4,500		
-longitudinal survey	USD 50 x 9 x 10	4,500		1,000		
-case studies	USD 50 x 5 x 4	1,000				
Field supervisor				100		
-screening	USD 50 x 2	100		450		
-longitudinal survey	USD 50 x 9	450				
Co-investigators						
-total duration study	USD 50 x 24 x 4	4,800	2,400	2,400		
Princ investigators						
-total duration study	USD 50 x 24 x 2	2,400	1,200	1,200		
OFFICE SUPPLIES						
Questionnaires	USD .0625x(25200+7350)	2,034	2,034			
Small office supplies	USD 3500	3,500	1,500		1,000	1,000
CAPITAL EQUIPMENT						
Tape recorders	USD 70 x 4	280		280		
Hardware						4,000
-computer 486+printer	USD 4000	4,000			3,750	
-notebook IBM-compat	USD 3750	3,750				
TOTALS		119,614	11,034	53,030		
OVERHEAD (12%)**		7,688	1,324	6,364		
GRAND TOTALS		127,302	71,752		38,350	17,200

*covered by respective organisations

**only on third party contribution

S. Moi
3/4/95

16. JUSTIFICATION OF BUDGET

1. Requirements in personnel

The principal investigators will put 20% of their time-load into the study. The input of the other investigators required for the study is estimated at 100% for three of them, and at 50% for the fourth one.

It is suggested to recruit one secretary for the total duration of the study.

1.1. Sampling procedure

1) **Mappers** will map in the field in each ward the estimated number of blocks, totaling 1,000 blocks. It is estimated that one mapper can map 10 blocks a day. This means 1,000/10 = 100 mapper-working days or 100/24 = 4 mapper-working months. The required number of mappers is thus 2 during 2 months.

2) During the **screening phase,** 12,353 households or 124 blocks have to be screened. Assuming that about 50 households or half a block can be screened a day, this gives 124/0.50 = 248 working days. It is proposed to recruit 10 interviewers for the longitudinal survey (please see under 7.1.3.), who will also be conducting the screening. So the screening phase will take 25 working days, or about 1.5 working months.
A training specific for the screening purposes will be provided, and the screening forms will be field tested. Training and field test are expected to take 0.5 month.

The data entry process for the sampling procedure will be supervised by a data management assistant.

1.2. Cognitive study

The cognitive study will be conducted by the anthropologist in the investigator team. It is expected that the cognitive study will take 2 months. It will be conducted simultaneously with the sampling procedure.

1.3. Longitudinal survey

As mentioned above, the duration of the longitudinal study is proposed to be 6 months, excluding one month of baseline survey. Training of the interviewers in the use of the questionnaires may take 4 weeks. Field testing of the latter may involve another 2 weeks.

It is assumed that there is one new illness to be recorded per household under investigation and per fortnightly visit. This means a month 2 x 1,050 = 2,100 new illnesses to be followed up. As said earlier, it is expected that one interviewer may be able to conduct 10 interviews a day. This means 2,100/10 = 210 person-working days per month, or 210/24 days =

10 interviewers to be recruited.
Using the same assumptions, the 10 interviewers are able to conduct the baseline survey in 2 to 3 weeks time.
The supervision in the field of those 10 interviewers will be ensured by one Field Supervisor and by the Junior Investigators.

Selection and training of interviewers and field supervisors

As mentioned above, young women will be selected. The required educational level is BSc Bachelor in Science or BA Bachelor of Art, with two to three years of field experience in interviewing.
As said earlier, a 4-week training course is proposed in the use of the questionnaires, in communication skills and qualitative interviewing techniques.

1.4. Case studies

The total proposed number of case studies is 200. It is estimated that one interviewer can conduct and transcribe about 13 case studies interviews a month. This means 200/13 = 15 interviewer-months. It is proposed to complete the case studies into 3 months time. So, 15/3 = 4 interviewers will be selected for this purpose out of the 10 who will have collaborated with the longitudinal survey.
A 2-weeks training course is proposed to introduce the interviewers into the specific methodology for conducting case studies. The interviewers will further need about 4 weeks to prepare the guidelines for each of the areas of interest of the case studies.
The conduct of these case studies will be supervised by the Junior Investigators.

1.5. Data entry and analysis, report writing

1) The secretary that will be recruited for the total duration of the study will be in charge of typing into the computer the findings of the **cognitive study**.

2) Two data entry technicians will be required to enter the data of both the socio-economic/demographic and the illness surveillance systems of the **longitudinal survey**. One will be in charge of entering the data of the socio-economic/demographic surveillance, the other one of the illness surveillance. They will also be responsible of the sorting process of all the questionnaires. The total duration of the data entry process is expected to be 10 months, starting from the month of the baseline survey.
The data management assistant mentioned under 7.1.1. will supervise the data entry process.

3) The translation work for the **case studies** will be contracted out to professional translators of the Dhaka University. Typing into the computer of the translated copies is proposed to be done by a short term secretary. It is expected that on average 3 case studies can be typed and checked a day. This means 200/3 = 67 secretary-working days, or duty for 1 secretary during (67/24=) 3 months.

As mentioned under 7.1.4., transcription of the case studies from the cassettes will be done by the interviewers themselves.

4) Data analysis and report writing will be performed by the team of investigators, with the help of the secretary of the study. They will also write all the required programmes for data entry.

2. Requirements in supplies

Minor office supplies such as paper, pens, editing materials, etc have been estimated for all study components combined. (please see under section 8.3. on the budget). The number of questionnaire required for the longitudinal survey is :

- for the illness surveillance :
  - -expected number of illness episodes : 2,100 x 6 = 12,600
  - -and assuming the use of on average 2 health care alternatives per illness episode, we obtain a total number of health care utilisation questionnaires of 12,600 x 2 = 25,200,
- for the socio-economic/demographic surveillance :
  - -baseline survey questionnaires : 1,050
  - -update forms : 1,050 x 6 = 6,300.

The questionnaires for the longitudinal survey will be the same as the ones used for the study on "health care use patterns of slum-residents in Dhaka-City, Bangladesh" that has been conducted in 1993 by some of the authors of the study proposed here. They have been translated and tested for translation accuracy for the previous study. As the study presented here will be carried out in another study population, their content and translation will be adjusted where required.

Four tape recorders will be purchased for the cognitive study and for conducting the case studies.

For the purposes of data analysis, it is indicated to equip the Dhaka Urban Community Health Project with a desk computer with a 486 processor and a printer.

Data entry will be done at the offices of the Dhaka Urban Community Health Project. The project disposes of computers for this purpose.

ANNEXES

Annex 1.	Consent form and details on procedure for maintaining confidentiality
Annex 2	Map of Dhaka-City with location of study area
Annex 3.1	Detailed sampling procedure
Annex 3.2	Some details for sample size calculation
Annex 4	Guidelines for key informant interviews
Annex 5.1.	Screening Forms
Annex 5.2	Illness and first Health Care Resource Questionnaire
Annex 5.3	Subsequent Health Care Resource Questionnaire
Annex 5.4	Socio-economic and Demographic Baseline Survey Form
Annex 5.5	Socio-economic and Demographic Update Form
Annex 6	Outline for data analysis and expected outcome

Annex 1. **Consent form and details on procedure for maintaining confidentiality.**

Consent form

I have come from the International Centre for Diarrhoeal Disease Research, Bangladesh in Mohakhali, Dhaka.

In different areas of Dhaka city, we are conducting a study on the types of health care people seek when they are ill and on the reasons why they make those particular choices.

During six months we intend to visit you every two weeks to record data on this issue for every illness episode which will occur.

We also would like to ask you some questions about yourself, your family and your living conditions.

Each interview will take about 30 minutes. All the information collected will be kept confidential. There are no risks for you in participating to this study.

We are requesting you to take part in this study. You have the option to accept or to refuse participation. You may withdraw from the study at any later period.
If you agree, you may please sign your name or give left thumb impression on this form.

Signature of the interviewer	Signature or left thumb impression of the interviewee
Date	Date

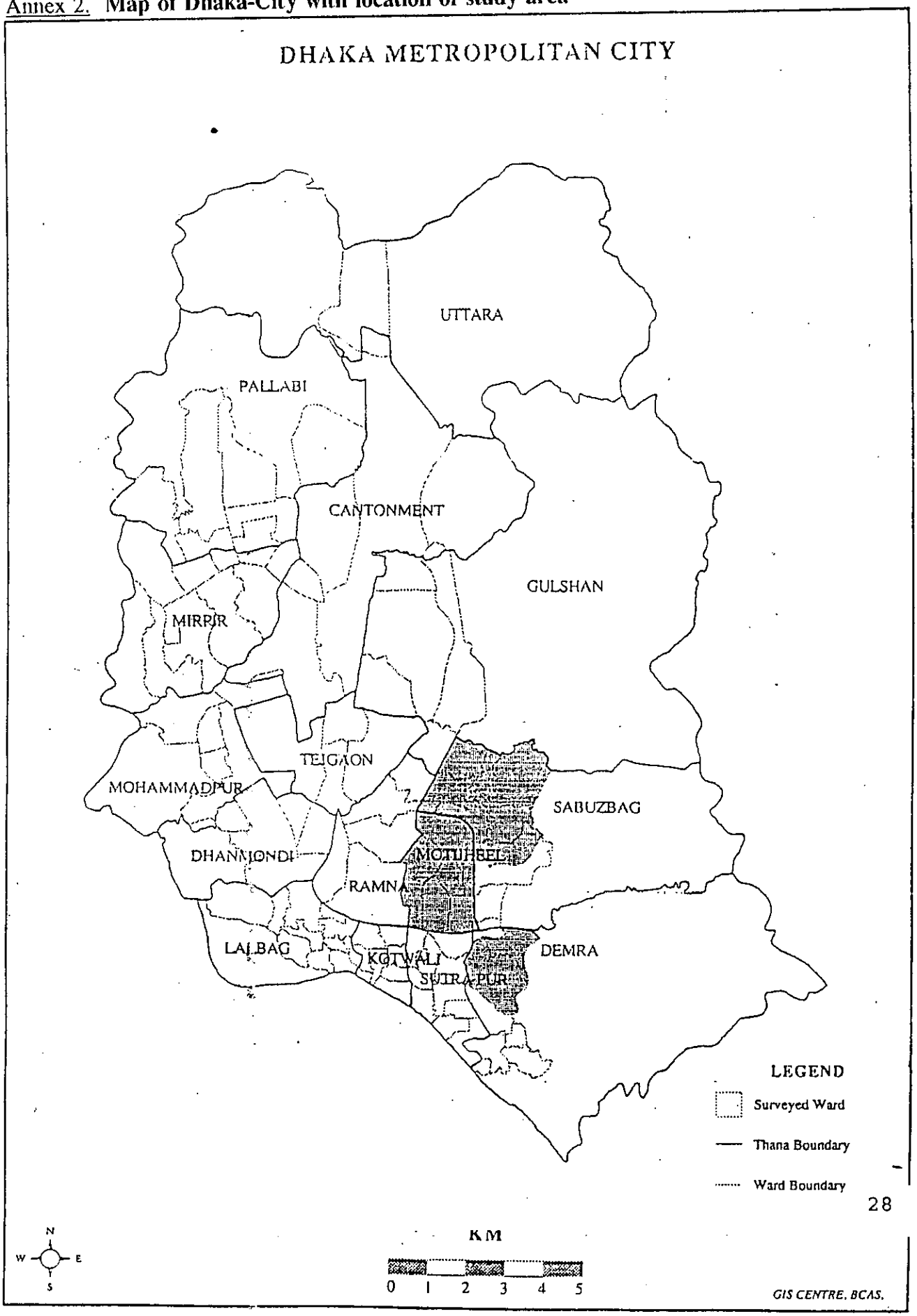
Details on procedure for maintaining confidentiality

1. During the training of the interviewers and field supervisors emphasis will be given on the aspects of confidentiality in handling data of the survey.
   Special attention will be addressed to the use and communication of any personal data of the households under investigation or their members.

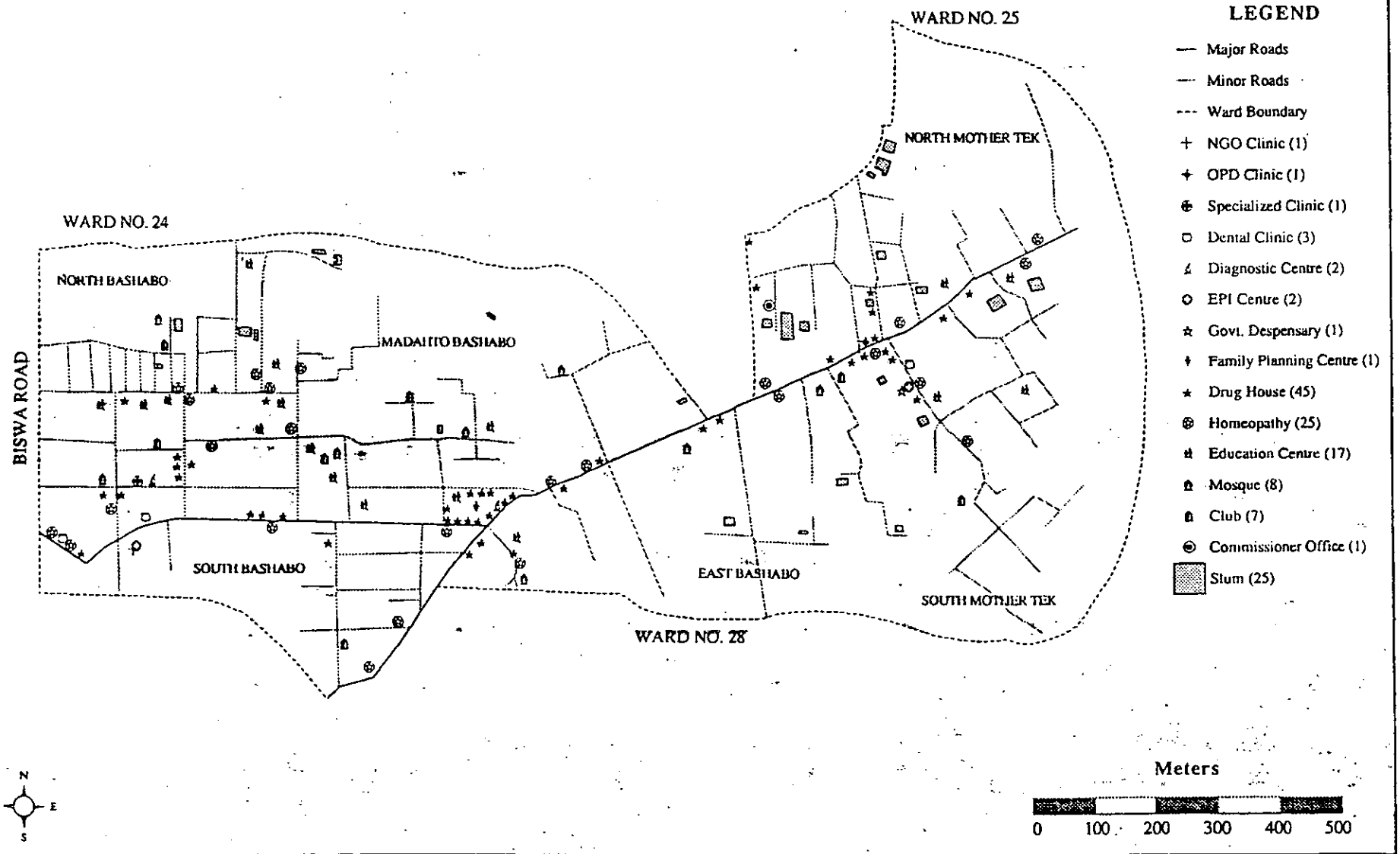
2. The data that will be collected will be kept in a locked place.

3. Computer files containing the data will also be maintained in a secure and locked place.

Annex 2. **Map of Dhaka-City with location of study area**



HEALTH FACILITIES IN SABUZBAG THANA
WARD NO. 27, DHAKA CITY CORPORATION
JUNE 1994



Annex 3.1 **Detailed sampling procedure.**

I. STUDY POPULATION

The data presented hereunder are taken from the Ward Survey conducted by the Dhaka Urban Community Health Project in 1993 and 1994[1] in the 15 selected wards for the first implementation phase of the Ward based Urban PHC System.

Total population 619,012 pop, out of which there are
545,847 non-slum pop or about 99,245 HH (criterium 5.5 pop/HH[2])
15 wards ≈ 6,616 non-slum HH/ward

Detailed population figures and estimated household numbers

Ward #	Tot pop	non-slum pop	estimated # of HH
22	59,467	56,842	10,335
23	46,318	40,263	7,321
24	56,560	43,515	7,912
25	48,606	45,976	8,359
26	15,855	12,175	2,214
27	61,114	58,604	10,655
31	27,008	23,978	4,360
32	44,877	43,347	7,881
33	26,408	25,008	4,547
34	56,545	49,015	8,912
35	42,045	31,820	5,785
36	40,768	39,188	7,125
84	24,735	23,935	4,352
85	28,252	15,222	2,768
86	40,554	36,959	6,720
Total	619,012	545,847	99,245

[1] Most data from a presentation given by Dr Mizan Siddiqi, Director Dhaka Community Health Project at the Urban PHC Workshop on "Ward-based Urban PHC System development", Dhaka, 23 June 1994.

[2] Average number of members per household from Slum Survey, conducted in 1991 by the Centre for Urban Studies, Dhaka University, and the MCH-FP Urban Extension Project (formerly Urban Health Extension Project) of ICDDR,B.

II. SAMPLING PROCEDURE

II.1. Introduction

1. Referring to the sample size calculation, 12,353 HHs have to be selected for the screening phase of the study

2. The Ward Survey (see footnote 1, previous page) has shown marked discrepancies of health care resources availability between the wards, especially for institutionalised modern health care. Differences in geographic accessibility may substantially influence health care seeking. Therefore it is suggested to stratify the study population according to the 15 wards under investigation.

3. Origin and level of population data of the Ward Survey :
   - the data on the non-slum population are from the National Census conducted in 1991
   - data are aggregated at the level of the wards, not of Households
   - no data are available on rough demographic figures nor on SES.

   So, although SES may be an important determinant for health care utilization, the non-existence of household based or other proxy SE indicators makes it impossible to stratify for this variable.

4. The Ward Survey has resulted in a map of each ward designed with the Geographic Information System software. Each map contains geographic locations of health care resources (modern public and private, traditional, homeopathic), social/religious and educational centres and organisations, and of slum and non-slum areas, parks and roads.

II.2. Suggested procedure : stratified two-stage sampling

1. Definition of non-slum population : are all inhabitants of the 15 wards under investigation who do *not* live in slum areas. A slum has been defined[3] as

> "settlements of very high gross area density, poor housing, inadequate water supply, poor sewerage and drainage facilities, little or no paved streets, irregular clearance of garbage and absence of street lights".

2. The notion of a block will be used as *primary sampling unit (PSU)*. A block is defined as

> "a unit of 80 to 120 households, geographically concentrated and contained in 1 ward, and with as boundaries as much as possible easily recognisable physical structures, such as roads and commonly known buildings or landmarks".

3. Referring to the definition of a block and the total number of households in the study population, there are about 1,000 blocks spread out over the 15 wards.
This means per ward the following number of blocks or PSU's :

Ward #	non-slum pop	estimated # of HH	blocks (PSU's) estimated #	%
22	56,842	10,335	103	10.4
23	40,263	7,321	73	7.4
24	43,515	7,912	79	8.0
25	45,976	8,359	84	8.5
26	12,175	2,214	22	2.2
27	58,604	10,655	107	10.8
31	23,978	4,360	43	4.3
32	43,347	7,881	79	8.0
33	25,008	4,547	45	4.5
34	49,015	8,912	89	9.0
35	31,820	5,785	58	5.9
36	39,188	7,125	71	7.2
84	23,935	4,352	44	4.4
85	15,222	2,768	28	2.8
86	36,959	6,720	67	6.8
Total	545,847	99,245	992	100.2

[3] According to the Slum Survey conducted in 1991 by the Centre for Urban Studies of Dhaka University and the Urban Health Extension Project of ICDDR,B.

4. The required number of households for the screening is 12,353. This is equal to 124 blocks or PSU's. They will be assigned to the 15 wards by **PPS**.
This gives the following distribution :

Ward #	non-slum pop	estimated # of HH	blocks (PSU's) estimated #	%	# of assigned PSU's
22	56,842	10,335	103	10.4	13
23	40,263	7,321	73	7.4	9
24	43,515	7,912	79	8.0	10
25	45,976	8,359	84	8.5	11
26	12,175	2,214	22	2.2	3
27	58,604	10,655	107	10.8	13
31	23,978	4,360	43	4.3	5
32	43,347	7,881	79	8.0	10
33	25,008	4,547	45	4.5	6
34	49,015	8,912	89	9.0	11
35	31,820	5,785	58	5.9	7
36	39,188	7,125	71	7.2	9
84	23,935	4,352	44	4.4	6
85	15,222	2,768	28	2.8	3
86	36,959	6,720	67	6.8	8
Total	545,847	99,245	992	100.2	124

5. In order to locate for each ward the required number of blocks the following procedure will be used :
   -the estimated number of blocks will be mapped in the field in each ward using the existing ward maps,
   -for each ward the assigned number of blocks will be selected by SRS.

6. In the selected blocks :
the household is taken as *secondary stage unit (SSU)* :
in the field and for each block separately : listing (address, head of HH and spouse(s)) of all the HHs (see screening form, Annex 5.1) :
   -the question if there is a pregnant woman in the HH will be addressed. IF YES, then that HH will be taken into the sample;
   -using this list of HHs, for each HH identified with a pregnant woman, another HH will be added using **SRS**.

According to the sample size calculation, the result of the sampling procedure is expected to be the identification of about 525 HHs with a pregnant woman and the selection of a same number of HHs without a pregnant woman, giving the total required sample size of 1,050 HHs.

Annex 3.2. **Some details on sample size calculation.**

I. Table of illness episode incidences for examples of illnesses under investigation and for different numbers of populations

The following assumptions have been considered :

- the duration of the study (six months)
- population structure :
  - 20% as the proportion of children under 5
  - 40% as the proportion of children under 10
  - 50% as the proportion of adults (above 15 years old)
- the number of illness episodes per child under 5 per year :
  - 4.5 for diarrhoea
  - 2 for ARI
  - 1.5 for fever
- the number of dysentery episodes per child under 10 : 0.5/year
- the number of illness episodes per adult per year :
  - 2 for diarrhoea
  - 2 for fever
  - 1 for ARI
- the number of illness episodes for the whole of the sample :
  - 0.8 for skin diseases
  - 0.3 for injuries (all types)

Age/pop group	% pop	Health problem	ILL Epis/inhabitant		# ILL Episodes/6 months		
			/1yr	/6mths	pop=3,000	pop=5,000	pop=7,000
<5 yrs	20%	Diarrhoea	4.5	2.25	1,350	2,250	3,150
		ARI	2	1	600	1,000	1,400
		Fever	1.5	0.75	450	750	1,050
		Ear infection	0.6	0.3	180	300	420
<10 yrs	40%	Dysentery	0.5	0.25	300	500	700
>15 yrs	50%	Diarrhoea	2	1	1,500	2,500	3,500
		Fever	2	1	1,500	2,500	3,500
		ARI	1	0.5	750	1,250	1,750
All	100%	Skin disease	0.8	0.4	1,200	2,000	2,800
		Injury	0.3	0.15	450	750	1,050
Pregnant women*	-	Pregn-related complic.	3/3 mths		-	-	-

II. Minimum required number of pregnant women to be followed up

*For the pregnancy related complications, the minimum required number of women to be followed up in order to get 315 illness episodes during pregnancy, can be calculated as follows

: if we assume that :
- about 20% of currently pregnant women experience complications,
- pregnant women are followed up in the survey for minimally three months,
- during this period, a pregnant woman with complications experiences about three illness episodes,

then the minimum required number of pregnant women to be followed up becomes :

$$315 \times 5/3 = 525.$$

Assuming further that pregnant women are household women, we can use 525 as a number of households. Using the average number of 5.5 members per household mentioned above, this represents 525 x 5.5 = 2,888 individuals.

III. The *minimum number of households to be screened* in order to detect the 525 pregnant women mentioned above can then be calculated as follows :

-we assume that women are aware of their pregnancy from the third month of pregnancy, and

-we need for the purpose of the study of complications due to pregnancy that women should be detected in the second trimester of pregnancy,

-and assuming further that the crude birth rate is 3.4%,

then with the formula : P=IxD, where P = prevalence of pregnancy at time x
I = incidence of pregnancy
D = duration of pregnancy under investigation

we can calculate : $P=34/10^3 \times 0.25 = 8.5/10^3$ at time x.

The minimum sample for the screening is then :

$525/8.5/10^3 = 61,765$ people, or divided by 5.5, 11,230 households. Allowing for 10% non-responders, this becomes 12,353 households.

Annex 4 **Guidelines for interviews with key informants**

GUIDELINES - DISEASE CLASSIFICATION AND MANAGEMENT : Female and Male key informants of the study population

INTRODUCTION

(I) The purpose of this interview is to investigate the main health disorders in the community, their perceived causes, the ideal sources of treatment for different kinds of disorder and the problems people face in obtaining treatment.

(II) The respondent has been selected because of his\her special knowledge, expertise of experience of health or community.

(III) The interviews will require some concentration and time and peace. Discuss with respondent where he or she would be most comfortable and make transport arrangements if necessary ; interviews could be conducted either in the respondents' home or in the office.

1. List the names of common illnesses in this community.

2. List the symptoms of each type of each of these illnesses?

3. Who mostly suffers from each of these?

4. Should each illness in be treated at home? If yes, which ones, how and why?

5. Should outside treatment be sought for the illnesses mentioned in the answer on question 1? If yes, what kind and why?

6. What are the main problems in obtaining each kind of treatment?

7. Women and female patients are admitted to treatment centres less often than men. Why do you think this is?

Annex 5.1. **Screening forms**

1) Household list

Date ___/___/___ Interviewer : Name_____ ID#_____

Identification:

THANA_____ WARD #_____ BLOCK #_____

HH #	Name of Head of HH	Age Woman	HH Size	Marital Status	Housing type	Pregnant Y/N	Selected (tick)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							

2) Enrollment form

Date ___/___/___ Interviewer : Name_____ ID#_____

Identification:

THANA_____ WARD #_____ BLOCK #_____

Location of the block:

N:_____ S:_____

E:_____ W:_____

Other information :_____

Number of HH in the block:_____

Name of HH Head	Address/Location of HH	Date of Last Period	THANA	WARD	BLOCK	HH
Pregnant HH						
		___/___/___				
		___/___/___				
		___/___/___				
		___/___/___				
Non-Pregn HH						

Annex 5.2. **Illness and First Health Care Resource Questionnaire**

ousehold No.: |_|_||_|_|_|_||_|_||_|_| Date:_____ Interviewer:_____

ame:_____ Id #:____ Respondent Id #:_____Resp.alone?:Y/N

#	QUESTIONS	ANSWERS
1.	Date of onset of illness episode (fill dd/mm/yy)	__/__/__

2.Type of illness	Probed? Yes/No	Cause	3.Severe/ trivial	Mental/ physical
1)_____	1 / 2	_____	1 / 2	1 / 2
_____		_____		
2)_____		_____	1 / 2	1 / 2
_____		_____		

4.	What did you **FIRST** do to combat the disease..... (Use list of Health care resources or write down if not in list)..... If possible :Name and address or specify location of HCare resource :_____ _____ _____	_____ _____
5.	Why did you choose this resource...1._____ (use the list of criteria or write down when not in list ; fill from most to less important) 2._____ 3._____ 4._____ 5._____	
6.	Who did decide to take this Health care resource (encircle) : Codes: 1 Patient, 2 Mother, 3 Father, 4 Parents, 5 Wife, 77 Other_____, 6 Husband, 7 Mother-in-law, 8 Father-in-law, 9 Grand parents, 10 Other family members, 11 Neighbours/relatives	
7.	Why did you NOT choose other Health care resources (use list of constraints or write down when not in list) 1. "wait and see"....._____ 2. self care(personal,family,commun)_____ 3. pharmacies....._____ 4. DCC dispensaries/satellite clinics_____ 5. govt hospitals....._____	

Household No.: |_|_||_|_|_|_||_|_||_|_| Date:_____ Interviewer:_____

Name:_____ Id #:____ Respondent Id #:_____

10.	How did you cover these expenses ? (fill how much has been used) -with cash money..... -with savings..... -with loans from -relatives..... -friends..... -office/employer..... -money lender..... -with grants from office/employer or others..... -with sale/mortgage of sale=1,mortg=2 -poultry/birds.....|..... -livestock.....|..... -crop.....|..... -ornaments.....|..... -others (specify)_____|_____	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
11.	Did you (or the ill person) use any other health care resource at the same time or after having used used the first health care resource	YES 1-->Quest subseq.HC Res NO 2-->Q12
12.	a. Is the sick person still ill ? (YES=1 ; NO=2)..... If NO : fill date of end of episode (dd/mm/yy)..... If YES : 1) write down the reason why health care is no longer sought : _____ _____ _____ 2) write date of visit.....	___/___/___ ___/___/___
	b. # of working days lost by : - the ill person..... - other HH members : - Head HH..... - Father..... - mother (if working)..... - others.....	____ ____ ____ ____ ____

Annex 5.3. **Subsequent Health Care Resource Questionnaire**

ousehold No.: |_|_||_|_|_|_||_|_||_|_| Date:_____ Interviewer:_____

ame:_____ Id #:____ Respondent Id #:_____

#	QUESTIONS	ANSWERS
1.	a) Repeat date of onset of illness episode..... b) **Health care resource #**.....	__/__/__ __
2.	Used (Together=1, After=2).....	_____
3.	Were you sent to this HCare resource by the first HCare resource (YES=1, NO=2).....	_____
4.	Type of HCare resource (see list of HCare resources) If possible :Name and address or specify location of HCare resource :_____ _____ _____	_____
5.	Why did you choose this resource...1._____ (use the list of criteria or write 2._____ down when not in list ; fill 3._____ from most to less important) 4._____ 5._____	
6.	Decided by (see Q6 for codes).....	_____
7.	Why did you NOT choose other Health care resources (use list of constraints or write down when not in list) 1. "wait and see"..... 2. self care(personal,family,commun) 3. pharmacy..... 4. DCC dispensaries/satellite clinics 5. govt hospitals..... 6. private allopath doctor (soloist) 7. private clinic..... 8. free treatment centres..... 9. homeopath..... 10. kobiraj/oja..... 11. spiritual healer.....	

ousehold No.: |_|_||_|_|_|_||_|_||_|_| Date:_____ Interviewer:_____

ame:_____ Id #:____ Respondent Id #:_____

8.	(Fill YES=1, NO=2, DON'T KNOW=3) a.Were you satisfied with the treatment effects of the chosen alternative ?..... Why (use list of service characteristics, or write down if not in list ; fill from most to less important) 1_____ 2_____ 3_____ 4_____	_____
	b.Did you have to travel to get the treatment ?..... If YES, how long ? (fill minutes)..... c.Did you have to wait at the place of care before getting treatment ?..... If YES, how long ? (fill minutes)..... d.Did the people listen to what you had to say ? At the reception ?..... During the consultation ?..... e.Were you able to understand what the healer said to you about your complaints and the treatment you had to take ?..... f.Do you feel that you have been well treated ?.....	_____ _____ _____ _____ _____ _____ _____
9.	How much did you have to pay in taka for 1. Travel..... 2. Entrance ticket..... 3. Consultation(s)..... 4. Drugs tablets|_|syrup|_|injection|_|ointment|_| other_____|_|..... 5. Surgical intervention_____..... 6. Hospitalisation..... 7. Technical procedures & tests (specify) a. First/decided by..... cost ?..... b. Second/decided by..... cost ?..... c. Third/decided by..... cost ?..... d. Fourth/decided by..... cost ?..... 8. Other purposes (specify_____).cost?..	_____ _____ _____ _____ _____ _____ ___/___ _____ ___/___ _____ ___/___ _____ ___/___ _____ _____

ousehold No.: |_|_||_|_|_|_||_|_||_|_| Date:_____ Interviewer:_____

ame:_____ Id #:____ Respondent Id #:_____

10.	How did you cover these expenses ? (fill how much has been used) -with cash money..... -with savings..... -with loans from -relatives..... -friends..... -office/employer..... -money lender..... -with grants from office/employer..... -with sale/mortgage of sale=1,mortg=2 -poultry/birds.....|..... -livestock.....|..... -crop.....|..... -ornaments.....|..... -others (specify)_____|_____	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
11.	Did you (or the ill person) still use another health care resource ? (YES=1, NO=2)..... If YES : fill questionnaire "subsequent health care resource" If NO : go back to question 12 of illness episode questionnaire	___

Annex 5.4. **Household Baseline Survey Questionnaire**

ate:_____ Interviewer:_____ Respondent Id #:_____

ousehold No.:_____ Religion:_____ Ethnic Group:____

. Demographic data

ID #	Name	DOB	Sex	MS	REL HH	Mo Id #	Fa Id #	Hu Id #	EDUC	Health Provider's Info			
										Hlth Prov	Kind trt	Trnd by	DUR
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

2.Household Expenditure :

Rice (kg/day):_____(Tk./day)...:_____
Food (Tk./day).....:_____
Education(Tk./month).....:_____
Health care (Tk./month).....:_____
Clothing&Bedding (Tk./_____)...:_____
House rent (Tk./month).....:_____
Gas (Tk./month)..... .....:_____
Electricity (Tk./month).....:_____
Water (Tk./month).....:_____
Sanitation (Tk./month).....:_____
Occupation rel. expenses(Tk/month.:_____
Other expenses(Tk./month).....:_____
(specify_____
_____

Date:_____ Interviewer:_____ Respondent Id #:_____ HH No_____

3. House Ownership

Owned..... 1
Rented..... 2
Squatter..... 3
Caretaker..... 4
Other_____ 7

Land Ownership: Y/N

	Size	*Unit*
URBAN:	_____	_____
RURAL:	_____	_____

4. House Construction

Type...flat |_| detached |_|

bedrooms.....|__|
living room.....
length |__| breadth |__|
walls clean :
no spots |_|
some spots |_|
dirty |_|

environment of plot...
-crowded |_| quiet |_|
-clean |_| less clean |_|
dirty |_|

5. Assets (in no.)

Fan....:_____
TV.....:_____
Radio..:_____
Cycle..:_____
Table..:_____
Bed....:_____
Watch..:_____
Cookpot
-AluCu.:_____
-earth.:_____
Scooter:_____
Car-brand_____
-type_____
Other_____
_____
_____

6. Water

Source	Drink	Cook	Wash
Tap.....1	1		1
Tubewell..2	2		2
Well.....3	3		3
Pond/river4	4		4
Other.....7	7		7
	_____	_____	_____
Shared by:			
HH.members.	1		1
Comm.people.	2		2
# households sharing...	_____		_____

7. Latrine

Type	>=5 yrs	<5 yrs
Con.sewerage....	1	1
Con.septic tank.	2	2
Con.open area...	3	3
Pit with ring...	4	4
Dughole.....	5	5
Hanging(open)...	6	6
No fixed site...	7	7
Others_____	8_____	8
No child.....	-	9
Shared by:		
HH.members.....	1	1
Comm.people.....	2	2
# households sharing.....	_____	_____
# latrines.....	_____	_____

8. Fuel

Type
Gas..... 1
Kerosine.... 2
Firewood.... 3
Cow-dung.... 4
Garbage/Misc scraps.. 5
Dried leafs/ or coconut. 6
Other_____ 7

Date:_____ Interviewer:_____ Respondent Id #:_____ HH No:_____

ID #	Name	9.P/BF STAT	9.P/BF Date	GRAVI	10.Occupation & Income: Prim occupation Pri Src	Prim.Income Unit (d/w/m)	Prim.Income #of U	Prim.Income taka /unit	Second occupations Secon Srce #1	Secon Srce #2	Sec.Inc#1 Unit	Sec.Inc#1 #	Sec.Inc#1 taka /unit	Sec.Inc#2 Unit	Sec.Inc#2 #	Sec.Inc#2 taka /unit

Annex 5.5. **Socio-economic and Demographic Update Form**

Part I - Socio-demographic events update

The information structure of the demographic events is given here-under. It will be updated for each member of the households under investigation :

Type of Event	Event #	Date	Data #1	Data #2	Data #3
Migration-in	1	Migrated in	Source	Reason	X
Migration-out	2	Migrated out	Destination	Reason	X
Remigration	3	remigrated	Reason	X	X
Change of relation to HH	4	Changed relation	New status	X	X
Change of marital status	5	New marital status	New status	X	X
Change of pregnancy status	6	New pregnancy status	New status	X	X
Pregnancy outcome	7	Delivered/ Miscarriage	Outcome type	Delivery place	Conducted by
Change of feeding status	8	Started new food	New status	X	X
Death	9	Died	Cause of death	Place of death	Attended by

Part II - Economic data : individual income data and household monthly expenditure

ID #	Name	1.Occupation & Income											
		Pri Src	Prim.Income Unit (d/w/m)	#of U	taka /unit	Secon Srce #1	#2	Sec.Inc#1 Unit	#	taka /unit	Sec.Inc#2 Unit	#	taka /unit

2. Household Expenditure :

Rice (kg/day)..... .....:_____
Food (Tk./day).....:_____
Education(Tk./month).....:_____
Health care (Tk./month).....:_____
Clothing..... (Tk./_____)....:_____
House rent (Tk./month).....:_____
Gas (Tk./month)..... .....:_____
Electricity (Tk./month).....:_____
Water (Tk./month).....:_____
Sanitation (Tk./month).....:_____
Occupation related expenses.....:_____
Other expenses(Tk./month).....:_____
(specify_____)

Annex 6 **Outline for data analysis and expected outcome.**

EXPLANATORY AND RESPONSE (OUTCOME) VARIABLES TO BE INVESTIGATED

Explanatory variables (indicative) :

- of the sick subject and the household to which she/he belongs :
  - -age, sex, marital status, household size, status in household (demographic)
  - -religion, ethnic group, (cultural)
  - -occupation, assets, availability of cash (economic)
  - -formal education, interaction with family and neighbours (social)
- of the disorder (as perceived by subject)
  - -acute or chronic
  - -severe or trivial
  - -mental or physical
- of the service
  - -objective geographical accessibility and type of service
  - -perceived accessibility : geographical, opening time, waiting time, type of service, fees/fares charged
  - -patient's satisfaction : expected benefits of treatment, healer-patient communication, technical level of service

Response (outcome) variables (indicative) :

-modern healers (public and private, allopathic qualified and unqualified)
-homeopathic healers
-traditional healers (fakir, imam [spiritual, religious], kobiraj[herbal, minerals], TBA)
-drug seller
-self care
-no action.

COMPONENTS IN HEALTH CARE DECISION PROCESSES TO BE INVESTIGATED

To be identified during the first stage of the study (cognitive study) and tested during the longitudinal survey :

-criteria including constraints to choose health care amongst the health care alternatives available to the study population
-principles for ranking of these criteria
-health care alternatives that the study population considers as available

OUTLINES OF DATA ANALYSIS

I. *Choice of* (perceived) associated with *variables* related to *HCare resource (OUTCOME)*

- subject
- HH
- disorder
- service (perceived)

1) descriptive part : 2xc or rxc tables :

- categories of OUTCOME : see above and details on p.39

- categories of explanatory variables :
  - -binary : eg sex; acute vs chronic, severe vs trivial disorder
  - -categorical : eg marital status; income; location health service

- analysis : frequencies

2) analytical part : 2x2 tables or rx2 tables :

- in accordance to results of 1) : regrouping of variable categories where appropriate into binary variables.
- analysis : - χ^2 and where appropriate χ^2 for trend
  - multivariate analysis of variables where association

Sample size : based on calculation of proportions,choice per (group of) Health Problem(s).

II. *Health Care decision processes* :

1) descriptive part : Health care decision processes determined by :
- criteria (incl constraints) to choose
- principles to prioritise criteria
- health care alternatives available to study population
- qualitative & quantitative analysis

Sample : key informants, longitudinal survey

2) analytical part : validity testing of the relative importance of criteria:
- on different subsamples of I. according to different (groups of) health problems
- quantitative analysis : each illness episode will be scored on each criterion relevant to it, and the actual treatment choice(s) made compared with the one predicted through the key informant interviews. With the same method reasons for non-use (constraints) will be analysed.

(See the following figures on determinants of health care choice, and of an example of a health care decision tree)

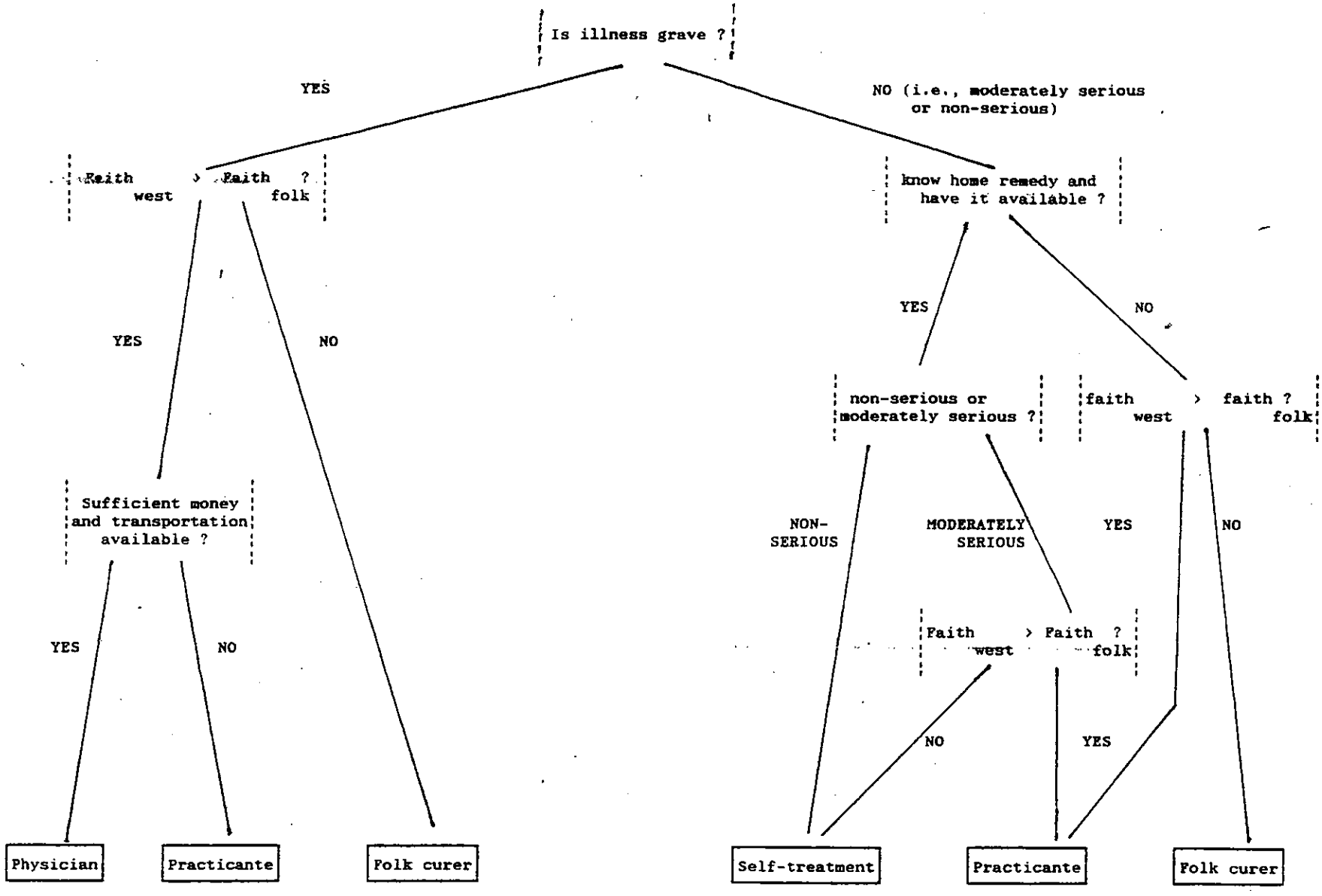


Figure 2. Decision model for the initial choice of treatment (Young)

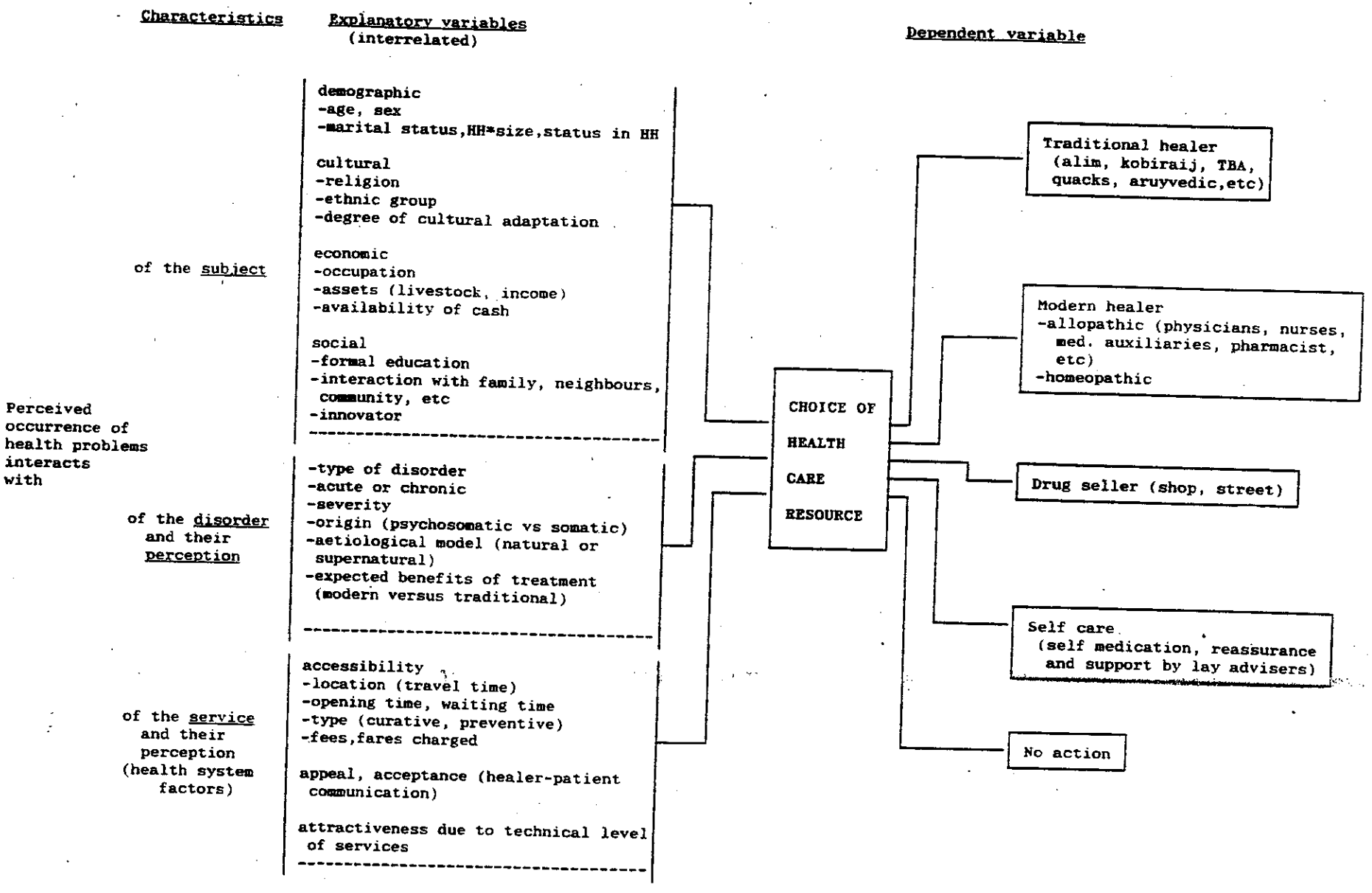


Fig. 1. Possible determinants in the choice of health care resource in Bangladesh.
(adapted from A Kroeger)

EXPECTED OUTCOME

1. Study population.

categorisation of the non-slum residents by different socioeconomic and cultural indicators.

2. Health problems occurring in the study population

categorisation of the health problems as they are perceived by the study population
by socio-economic indicators of the study population

3. Provision of health care.

categorisation of health care resources
by type of delivered health care
by type of supplier
by indicators of accessibility
by indicators of patient's satisfaction

4. Health care user costs

4.1. Direct costs

-average cost per illness episode, by type of illness, for different illness categories
-average cost per illness episode, by type of illness, by cost-item, for different illness categories
-average cost per health care resource, by type of illness, by health care resource, for different illness categories
-average cost per illness episode, by socio-economic variables, by type of illness
-annual user expenditure per inhabitant, per household

4.2. Indirect costs

same analysis plan as for 6.1.

4.3. Total user costs

same analysis plan as for 6.1.

5. Development of health care decision processes

using criteria, principles for their ranking, and the health care alternatives available to the study population
by (groups of) health problems

6. Choice of health care resource

by indicators related to the sick subject
by factors related to the household to which he belongs
by factors related to the disorder (as perceived by study population)
by factors related to the service

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