Development and uses of a conceptual model in the study of antenatal services utilization by migrant women in Belgium.

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CONTENTS

1. INTRODUCTION

Health problems occur frequently during a pregnancy. In statistical terms : On the average 1 out of two pregnancies gets complicated by one or more morbidity problems. The risk of a major morbidity problem has to be estimated at 5-10 o/o. Known riskfactors are age, gravidity and parity, caesareal antecedents, etc...

Low educational and socio-economic levels are also associated with an increased risk of morbidity in pregnancy, of complications during labour and in the postpartum period (Marmot '87 , Romito '87, Eggermont & Renaer, '87, Naudin '86, Blondel '79, Donabedian & Rosenfeld '61)

Migrant women frequently belong to a high risk group because of their low educational and/or socio-economic status and/or their multigravidity. Pregnant Turkish and Moroccan women present furthermore certain specific problems, specially in their prenatal care consumption. Their norms and expectations are generally different from the occidental ones. Belgian general practitioners noticed differences between migrant and occidental women. For migrant women they noticed late first prenatal consultation, diminished contact rates and a reserved attitude towards prenatal examination in general and gynecological investigation in particular (Gailly, Leman and De Ridder '87, Gentilini and Brucker '86, Lafkioui '86, WHO '86, Cooney '85, Donnay '85, Sieval '83, Kaminski et al.'78, Kaminski '80, Wittlinger '77,

The prenatal behaviour of migrant women is a very complex matter. On the one hand, the occidental care providers have established certain norms and a routine of prenatal care which is inspired

by the existing conceptions on health and disease in West-European culture and based on biomedical sciences (Gelis '87). On the other hand migrants have no other choice than to attend the western antenatal care, although that antenatal care set up under a western point of view is not necesarily the most appropriate for them (Delaney '85, Carpentier '83, Delvecchio '80, Kagitçbasi '77).

An essential element in the comprehension of their deviant behaviour is the different socio-economic and cultural background of these women in comparison with Belgian women. Migrant women originate mainly from rural areas, which are only weakly touched by westernization. They usually have also a low literacy rate (Hermans '85, Gailly '83, Benedict '76, Meeker '76, Lecompte '73, Antoun '68).

The people who emigrated to Western Europe considered their stay mostly as temporary. Even in the second generation group the idea to return to their homecountry, remains vivid . They try to keep their cultural identity as pure as possible (Bensmail '82, Ozbek '76).
Integration in the host society is considered by them as inconvenient and it is sometimes systematically opposed. In this respect living in ghettos may be considered as a form of selfdefence against the foreign culture and as a way of staying loyal to the traditions. Furthermore the contacts with the homecountry are strongly maintained . Migrant women are often so strongly attached to their traditions that their living conditions undergo less influences from progress and modernization than those prevalent in their regions of provenance.

Their traditional concepts influence their prenatal behaviour, the latter being influenced also by the significance of the pregnancy in their view of life and by the importance they attach to modern health care (Delaney '85, Delvecchio-Good '80, Kagitçibasi '77).

Under the assumption that appropriate use of antenatal care is good for the health of the woman and the baby, (Ryan, Sweeney & Solola, 1980) the basic questions that have to be adressed are:

* how different is the prenatal behaviour of the migrant women,
* what are the major differences in prenatal behaviour between migrant and Belgian women and their determinants
* to what extend are those differences susceptible to change.

Given that little work has been done in Belgium on these issues a cross-cultural study of the preventive medical consumption during pregnancy and its major determinants is needed.
Such a study cannot be limited to the somatic problems arising during the pregnancy, but has to include cultural and socio-economic problems as well.

To set up a study regarding prenatal behaviour of migrant and Belgian women it is necessary to get a clear view on, and an understanding of, the value system of ethnic and socio-economic groups of migrant and Belgian women, and to grasp the place occupied by the western health care system in pregnancy follow-up, to get a list of the major determinants of that behaviour,and to get the links between those determinants straightened out.
To start up a study of antenatal services utilization by migrant women we carried out an extensive literature review and drew up long list of associated factors.

A major difficulty however is how to structure and organize in a logical manner all these multiple determinants related to the utilization of prenatal services by Morrocan and Turkish migrants in Belgium in comparison with Belgian women.

Systematization is needed but it is also extremely important to keep a global view on this complex issue. It is necessary to know interactions, interrelationships and pathways of influence for all the determinants affecting the utilization of the antenatal care.

In order to have a definite point of view from where we can orientate our study, a conceptual framework was needed.
Such a framework must satisfy the following requirements :

1. give an overall view of the problem;
2. consider the main determinants of the problem;
3. structure the dependancies between the determinants and the outcome;
4. be oriented towards the given situation and the given problem of health behaviour of migrant and Belgian pregnant women in a Belgian society.

That framework needs to be put in a kind of model that meets all those requirements. This paper presents the final model and describes the model development episodes.

2. METHODOLOGY

The causal model technique developed by Beghin and his team suits that purpose well. In Beghin's technique the model is constructed by a multidisciplinary team that starts from a well circumscribed problem, that is also well bounded by place and time limits, and starts from the endpoint (outcome) to the farthest- off determinants. (Beghin '85; Beghin, Cap & Dujardin,'84,)

Till now that approach has been more commonly used for the assessment of nutritional problems of children in various regions and countries.

As the utilization of health services is believed to have an effect on the nutritional status of children, Beghin et al. have pursued research on this issue during the last years. Their main objective was to overcome methodological difficulties in producing the decomposition of the determinants of health service utilization, which is as close as possible to the population's point of view. The decision to utilize a health service and the possibility to do so are the major determinants of the utilization behaviour. (Silveira & Beghin, in preparation).

The methodology of the causal approach consists of a set of sequential steps starting with the assessment of the particular problem under study and resulting in a constructed model. This assessment should be performed by a multidisciplinary team, through an iterative process of group discussions each leading to a further draft of the model, gradually tending to its final form.

Model is here understood as "a simplified theoretical representation of a complex reality aimed at facilitating its reproduction and understanding" . The model's main objective is to provide a tool for analysis of a specific situation, but by no means has it the intention of being an endproduct in itself nor of being generalisable (= inferrable beyond the boundaries of time, place and persons of the study population).

To analyse the determinants of the problem, a number of covariates must be studied. These are presumed to influence -positively or not- the dependent variable. To select them, hypotheses are generated regarding the potential roles they might play. They are then structured in a model.

Thus, the model is the graphic representation of a set of hypotheses which are made explicit and ordered in a logical manner, following a hypothetical hierarchy of influence. The determinants are represented by boxes and only the most important are kept and direct hypothetical links between them are indicated by straight lines. Usually the model is constructed backwards, that is to say, starting from the dependent variable and going backwards from the independent variables with a direct influence to those with less direct but still important effect on the dependent variable. Graphically, the dependent variable is in the box on the top and the covariates are in boxes in successive horizontal layers.

There exist different types of logical relationship among the covariates :influences between the variables (these will be translated in statitical models or correlations) and decompositions of relationships in sums, products and quasiproducts.

A relationship of a logical sum corresponds to that of an additive model i.e. the effect of the 2 independent variables A and B on the dependent variable Z = the sum of effects of A and B. Thus Effect (A and/or B) = Effect (A) + Effect (B). When Effect (A) = 0, than only the Effect (B) will be present; when Effect (B) = 0, than only the Effect (A) will be present.

A relationship of a logical product (of covariates C and D) on the dependent variable Z, means that the joint occurrence of C and D is indispensible for the effect on Z. If either C or D do as not occur, than the effect on Z is zero. These relationships will be illustrated in Part 4.

Due to multieffect one covariate may appear in the model more than once, and at different levels.

3. THE PROCESS OF BUILDING UP THE MODEL

The process of constructing the model may be schematized in the following successive steps :

3.1. "Brainstorming" session

The first step was a meeting -a "brainstorming session"- of a multidisciplinary team*, of which all participants were, either in direct professional health care delivery or in medical research, actualy involved with migrants.

The objectives of that meeting were ** :

a. to define the problems related to the utilization behaviour of antenatal services by migrant women;
b. to provide a list of factors and markers which are supposed to have influence on the antenatal behaviour;
c. to interrelate determinants in "causal" pathways;
d. to grade the determinants, and mainly the factors, regarding their relative priority.

Regarding the definition of the problem, the general consensus was that pregnant migrant women in comparison to Belgian ones present a different preventive health services utilization behaviour which is assessed as "inaproppriate". The underlying hypothesis is that an adequate utilization of the antenatal services by the migrant pregnant women will decrease their probability of having serious complications during pregnancy and delivery and improve the health of the pregnant women.

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* anthropologist, demographer, epidemiologists, family practitioners, gynecologists, nurses, nutritionist, psychologist, public health specialists, sociologists.)

** Dr. Beghin was the moderator of the meeting.

Appropriate or inappropriate, in this context, are related to the pre-established criteria, norms, and standards defined by Belgian health professionals. This is not to say that criteria, norms and standards adopted by the Belgian health services are necessarily the ideal ones for the migrant population.

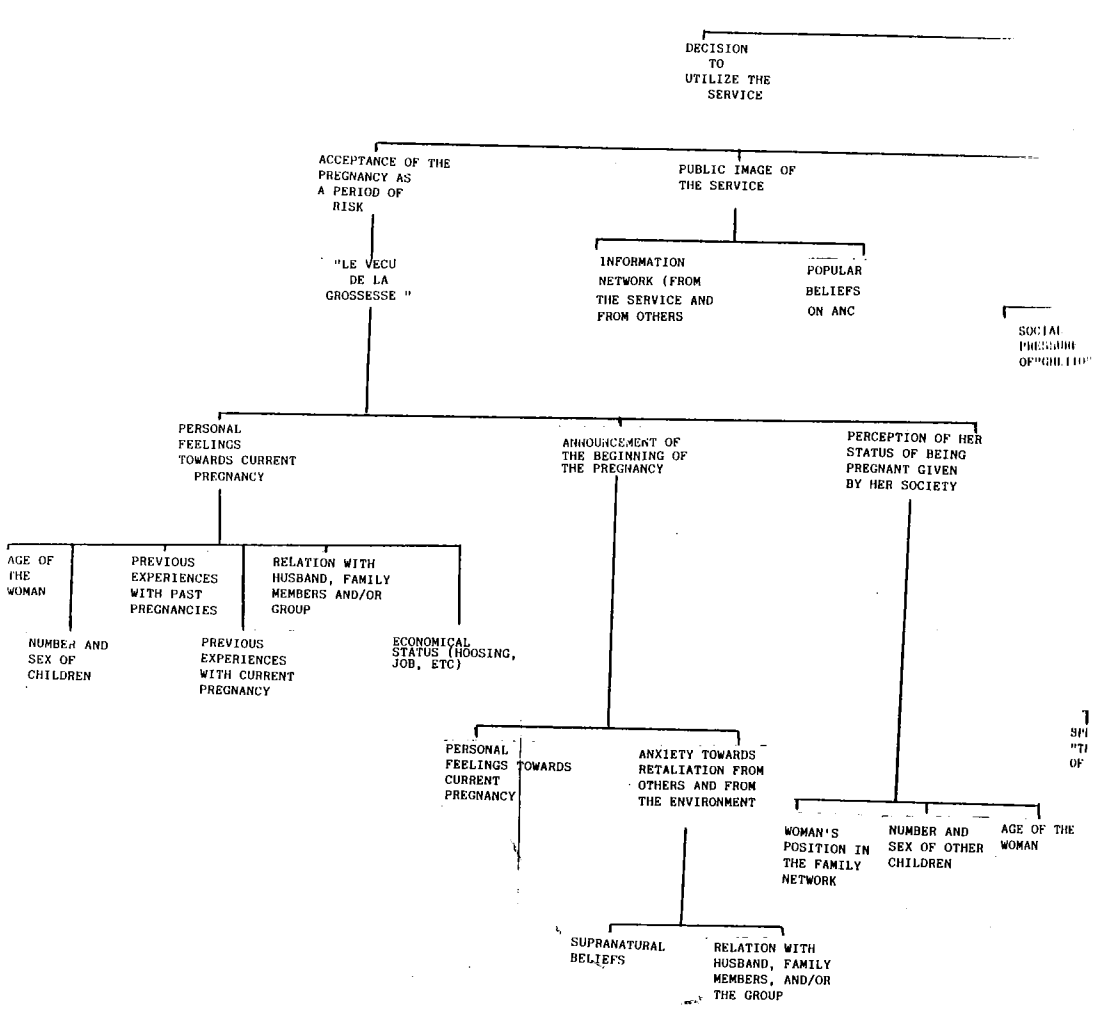
3.2. First draft of the model

The determinants listed by the participants (see Annexe I), were grouped according a hypothetical, but inasmuch as possible logical chain of influence as, for example : scepticism on the relevance of occidental antenatal care. These chains were linked and a variety of tentative models was generated. When considered necessary, bibliographical support for the hypothesized dependencies was looked for, and on many occasions people with extensive field experience were consulted to verify the hypothesized dependencies.

3.3. Reiteractive process

This first draft of the model was presented to the members of the ITG research group on migrant studies.
It was extensively discussed and the comments, criticisms and suggestions have induced modifications of that draft.
In the text the independent variables are called COVARIATES or DETERMINANTS. We prefer not to use the term "CAUSAL FACTOR" because it supposes that the causal relationship is proven, which is very difficult in public health.

When we are sure that there exists a direct association between the independent variable X and the dependent variable Y, we make a distinction between a "factor" and a "marker".
A factor can be influenced through manmade interventions.
A marker cannot be influenced.
A new draft was prepared and again presented to the ITG research group for final discussions. That version was accepted and approved and is presented here.


DECISION TO UTILIZE THE SERVICE
ACCEPTANCE OF THE PREGNANCY AS A PERIOD OF RISK
PUBLIC IMAGE OF THE SERVICE
"LE VECU DE LA GROSSESSE "
INFORMATION NETWORK (FROM THE SERVICE AND FROM OTHERS
POPULAR BELIEFS ON ANC
SOCIAL PRESSURE OF"GHETTO"
PERSONAL FEELINGS TOWARDS CURRENT PREGNANCY
ANNOUNCEMENT OF THE BEGINNING OF THE PREGNANCY
PERCEPTION OF HER STATUS OF BEING PREGNANT GIVEN BY HER SOCIETY
AGE OF THE WOMAN
PREVIOUS EXPERIENCES WITH PAST PREGNANCIES
RELATION WITH HUSBAND, FAMILY MEMBERS AND/OR GROUP
NUMBER AND SEX OF CHILDREN
PREVIOUS EXPERIENCES WITH CURRENT PREGNANCY
ECONOMICAL STATUS (HOOSING, JOB, ETC)
PERSONAL FEELINGS TOWARDS CURRENT PREGNANCY
ANXIETY TOWARDS RETALIATION FROM OTHERS AND FROM THE ENVIRONMENT
WOMAN'S POSITION IN THE FAMILY NETWORK
NUMBER AND SEX OF OTHER CHILDREN
AGE OF THE WOMAN
SUPRANATURAL BELIEFS
RELATION WITH HUSBAND, FAMILY MEMBERS, AND/OR THE GROUP

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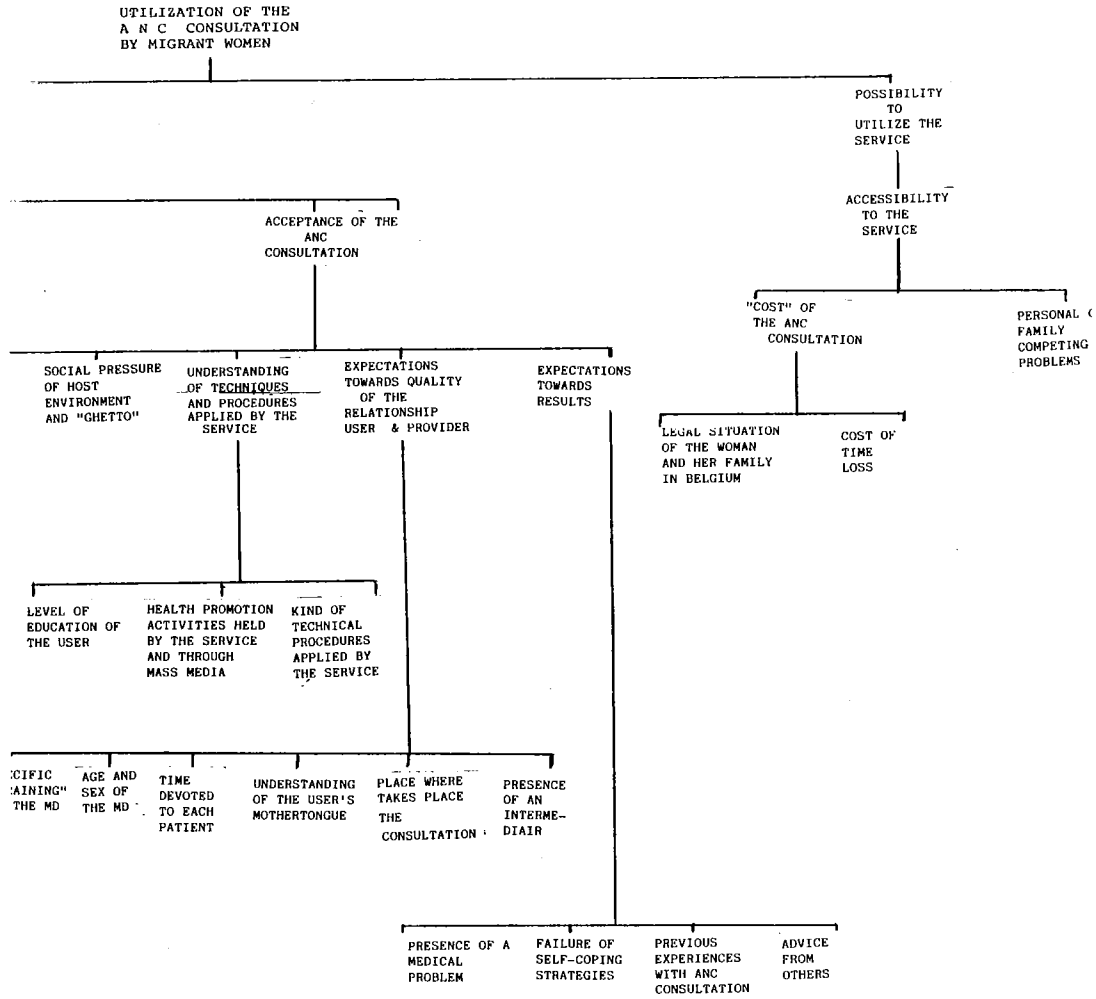
UTILIZATION OF THE A N C CONSULTATION BY MIGRANT WOMEN
POSSIBILITY TO UTILIZE THE SERVICE
ACCEPTANCE OF THE ANC CONSULTATION
ACCESSIBILITY TO THE SERVICE
SOCIAL PRESSURE OF HOST ENVIRONMENT AND "GHETTO"
UNDERSTANDING OF TECHNIQUES AND PROCEDURES APPLIED BY THE SERVICE
EXPECTATIONS TOWARDS QUALITY OF THE RELATIONSHIP USER & PROVIDER
EXPECTATIONS TOWARDS RESULTS
"COST" OF THE ANC CONSULTATION
PERSONAL FAMILY COMPETING PROBLEMS
LEGAL SITUATION OF THE WOMAN AND HER FAMILY IN BELGIUM
COST OF TIME LOSS
LEVEL OF EDUCATION OF THE USER
HEALTH PROMOTION ACTIVITIES HELD BY THE SERVICE AND THROUGH MASS MEDIA
KIND OF TECHNICAL PROCEDURES APPLIED BY THE SERVICE
AGE AND SEX OF THE MD
TIME DEVOTED TO EACH PATIENT
UNDERSTANDING OF THE USER'S MOTHERTONGUE
PLACE WHERE TAKES PLACE THE CONSULTATION
PRESENCE OF AN INTERME-DIAIR
PRESENCE OF A MEDICAL PROBLEM
FAILURE OF SELF-COPING STRATEGIES
PREVIOUS EXPERIENCES WITH ANC CONSULTATION
ADVICE FROM OTHERS

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4. MODEL AND COMMENTS

a. DEPENDENT VARIABLE : the effective utilization of the antenatal services by Turkish and/or Moroccan women in Belgium.

b. CONCEPTUAL BOXES: "decision to utilize the service" and "possibility to utilize the service".
These boxes can not be easily measured. They have a interrelationship of a logical product what means that if a woman decides to utilize the antenatal service but she does not have the possibility to do so, utilization will not take place.

c. DECISION : The decision to utilize the service is not exclusively an individual one but is also influenced by decisional factors from the surroundings and from peers. These factors are conceptualised in the model as : "social pressure from the host environment and from the ghetto"; "advice from others".
There exists a great variability in the decision-making process, not only from one person to another but also because the same woman may act differently from one pregnancy to another. Here it is assumed that population-groups under similar social and environmental pressure, as well as belonging to the same cultural upbringing, also follow a similar decision-making pathway. Eventual changes occurring in a woman's behaviour from one pregnancy to another are included in this research under the headings "previous experiences with past pregnancies" and "previous experiences with the antenatal consultation".

d. HEALTH PROFESSIONALS INFLUENCE HEALTH SERVICES UTILIZATION. Such an influence seems to be more important if the service is of a preventive type (Hulka & Wheat, '85)
In the model this is illustrated, for example, by "information network from the service", "expectations towards quality of the relationship user/provider", "health promotion activities held by the service", "previous experiences with antenatal consultation".

e. SERVICE FACTORS, even intra-service organizational ones, usually affect utilization. This is illustrated in the model as "time devoted to each patient", "presence of an intermediaire" , etc....

f. ANTENATAL CARE IS PREVENTIVE CARE, thus it deals mainly with healthy women, which implies a type of health behaviour defined by Kasl & Cobb ('66) as "any activity undertaken by a person believing himself to be healthy, for the purpose of preventing disease or detecting it in an asymptomatic stage". The Kasl and Cobb model shows a relationship of perceived threat of disease leading to health behaviour, being measured by the perceived value of the actions taken. They claim that the perception of the value of the preventive action taken is the most important measure of the influence of a perceived threat. It is our assumption that perception preceeds acceptance.

g. EXAMPLES OF A "SUM" TYPE RELATIONSHIP BETWEEN DETERMINANTS are "the acceptance of the pregnancy as a period of risk" "the acceptance of antenatal consultation" and the "public image of the service". This means that even if one of these covariates is not present, utilization still may happen : a migrant pregnant woman may eventually utilize the antenatal

service even if she does not accept her pregnancy as a period of risk.

h. Although our model looks almost like a **health behaviour** one, there is one exception when the PRESENCE OF A MEDICAL PROBLEM, such as bleeding, leads the woman to look for professional help. At that moment the woman enters an **illness behaviour** pathway, and her decision may be summarised as suggested by Safer et al. ('79) : the woman decides that she is ill, then she decides that she needs professional care, lastly she decides if the care is worthwhile or not. In this research the main concern is the last stage of this decision-making process.

i. The SAME DETERMINANT may be present in the model AT DIFFERENT PLACES. This is when one variable seems to have a major inpact at different points. See in the model, for example, "number and sex of other children" which appears more than once, but hypothetically influencing two different variables : "personal feelings towards current pregnancy" and "perception of her status of being pregnant given by society".

j. The UNDERLYING HYPOTHESES, graphically represented by rectangular boxes linked by straight lines may be expressed in phrases as for example : previously experienced pregnancies influence personal feelings towards current pregnancy which will influence how the pregnancy is experienced by the woman, her acceptance of her pregnancy as a period of risk and this will influence her decision to use the antenatal consultation. It also can be worded in other way around, starting from the endpoint, here the decision to utilize the service. Experience shows that this type of

phrasing exercise is time consuming and it does not enrich the research beyond what is already presented in the model.

k. There is LITERATURE SUPPORT for the role of the following determinants. (see annexe 2)

- "Utilization of the antenatal consultation by migrant women" (1,2,3,4,5,6,7).
- "Social pressure of host environment" and "social pressure of the 'ghetto'" (5,9,10,11,12,13).
- "Acceptance of the antenatal consultation" (14).
- "Information network" (7).
- "Expectations towards quality of the relationship user/provider" (7,15,16).
- "Perception of her being pregnant given by society" (8,17,18,19,20).
- "Personal feelings towards current pregnancy" (7,21,22,23).
- "Announcement of the beginning of the pregnancy" (21,24).
- "Level of education of the user" (14,34).
- "Number and sex of other children" (1,7,11,14,24,25,).
- "Previous experiences with past pregnancies" (1,37).
- "Relation with husband, family members and/or group" (7,8,21,23,26,27).
- "Economical status" (1,11,14,19,33,34).
- "Woman's position in the family network" (7,21,24).
- "Presence of an intermediaire (7,28).
- "Specific 'training' of the medical doctor" (29,30).
- "Age and sex of the medical doctor" (29).
- "Time devoted to each patient" (7,15,30).
- "Understanding of the user's mothertongue" (29).
- "Failure of self-coping strategies" (30).
- "Advice from others" (7,30).

- "Legal situation of the woman and her family in Belgium" (30).
- "Personal or family competing problems" (19).
- "Cost of time loss" (19,35).
- "Age of the woman" (33,34).
- "Anxiety towards retaliation from others and from environment" (31).
- "Presence of a medical problem" (32,33,36).

5. USE OF THE MODEL

5.1. Guidance in the choice of an adequate study design

Basically a conceptual model serves to dissect the complex interrelationships between the many determinants on the one hand and the determinant outcome relationship on the other hand.

The study of the determinants of the utilization pattern of antenatal consultation can be carried out following a classical epidemiological design: the case-control methodology in which the patients with inappropriate prenatal care utilization are considered as cases, and those with appropriate utilization as controls.

But the nature of the determinants obliges us to approach the questioning of the patients by techniques taken from the behavioural sciences.

5.2. Preparation of the questionnaire(s)

As such, the model is a good tool for the preparation of the questionnaire, because it allows someone to select the very important variables, and to hypothesize about the potential interactions between the determinants and the results.

5.3. Preparation of instruments for the measurement of facts and/or attitudes.

In our study the conceptual model served for the preparation of questionaires which different Medical providers during the ANC. These questionaires give us information about how

different Medical providers are confronted with the ANC of migrant women.

On the basis of the model, also an attitude scale was constructed in order to acquire more insight in the woman's opinions about fertility behaviour and facts related to it (Timmerman '87). For the construction of the scale we followed the methodology outlined by Dawson ('67).

5.4. Basis of statistical modelling.

A conceptual model allows us to decide upon the appropriate multivariate statistical models for the analysis of the data, upon the types of interaction between the determinants (like additive and multiplicative models) and upon the types of functional dependence between the determinants and the results.

5.5. Detection of unexplored areas in the study of the determinants.

In this case an important area of a conceptual model is occupied by what we may call "life experience" factors, which seems to be personally, socially and culturally inspired. Although semingly important to explain prenatal behaviour, until now little effort has been given to explore their impact on prenatal behaviour. This challenge must be taken up. As we did (see 5.3.).

5.6. Detection of causal mechanisms involved.

It is not sufficient to know that variables are interlinked, it is imperative to have an insight in the magnitude and directionality of the links between the variables, and in the process by which one variable

influences directly or indirectly another variable. The identification of those mechanisms is essential to understand the role of the different determinants, and to foresee the impact of changes in the causal factors on the outcome variable.

5.7. Basic of a mathematical model development

The conceptual model can be a rational basis of the development of a mathematical model; as it provides insight in the major determinants, their interdependencies and the functional relationship between determinants and outcome.

5.8. Help for a holistic approach.

This model as developed by a multidisciplinary team necessitates for its field application a multidisciplinary approach. So this model can serve as a guide for coöperation and integration of several disciplines, functioning thus as a tool that operationalizes a holistic view to the antenatal care.

6. AND NOW WHAT ?

This model is being used, now, as an instrument for carrying out the proposed research. Data will be collected through questionnaires designed to quantify factors present in the model, and the underlying hypotheses are then going to be tested. Many of the variables can be quantified, while others will be indirectly measured. A three-phase pathway of questionnaires will be followed.

The 1st is a morbidity questionnaire where incidence and prevalence of medical antenatal problems will be measured, together with the time of the first antenatal visit, the regularity of the antenatal consultations and the most common motivation to consult.

Secondly, a process questionnaire that goes beyond the more obvious factors and it will try to appraise from the practitioner's point of view, the process of consultation itself.

Thirdly, an attitude scale, that gives us insight in the opinions of the woman concerning several topics that are included in the conceptual model.

And with the obtained results, the model will be adapted and improved.

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ANNEXE I

LIST OF FACTORS SUGGESTED BY THE PARTICIPANTS OF THE "BRAINSTORMING SESSION"

- previous experiences of pregnancy
- perception of the actual pregnancy within a health, religious and socio-cultural context
- husband's perception as far as he may influence the woman
- parity
- demand for a child (from the family, from the mother-in-law)
- belief on the evil eye
- perception of the beginning of the pregnancy
- pregnancy seen as a personal achievement
- pregnancy seen as a cultural achievement
- honorific view of the pregnancy
- status of being pregnant
- non perception of preventive care
- scepticism on the relevance of the medicine
- difference in behaviour if a case of illness or if a pregnancy episode is experienced
- pregnancy as a normal event of life
- acceptation and rejection of medicalizing the pregnancy
- pression against certain techniques and procedures performed by the services
- relation medical doctor/patient
- pregnancy experienced as an extraordinary period and needing to be recognized as such
- unpersonal atmosphere of consultations performed at clinics and hospitals
- preference for consultations held at private offices
- significance and use of pregnancy licences
- irregularity to continuing consultations
- understanding and non-understanding of the usefulness of cards, records, examinations, etc...
- difficulty to attain to a compromise
- myth of the echography
- resistance to rest and to be hospitalised
- distinc feelings towards security
- dissociation between intentions and actual attitude

ANNEXE 2

Literature support for variables and determinants.

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