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Paraji and Bidan in Rancaekek : integrated medicine for advanced partnerships among traditional birth attendants and community midwives in the Sunda region of West Java, Indonesia

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Chapter III **METHODOLOGY AND ANALYTICAL MODEL**

3.1. Research Methodology

The challenging results of the applied research project ‘Making Pregnancy Safer’ (MPS), conducted in 2001–2002 under the collaborative efforts of WHOCC–PMC and WHO–SEARO, in which this author participated, has been a motivation for this longitudinal field study, conducted in the same research setting of Rancaekek. The general approach applied in this study is descriptive analysis with a retrospective orientation which aims to achieve a deeper insight into Maternal and Child Health (MCH) systems in the community. This study documents the knowledge, practices and beliefs about pregnancy and childbirth upheld by traditional and modern MCH systems in Rancaekek. Furthermore, the study analyzes health-seeking behaviour at the household level and utilisation of MCH systems during and after pregnancy. Using quantitative household surveys, the present study collects pertinent data by applying two major complementary research methodologies: *i.e.* qualitative and quantitative approaches. The technique employed in the field is participatory observation whereby a researcher lives in the study area, the Rancaekek sub-district, for a certain period of time while simultaneously conducting interviews and holding discussions with various community representatives and key informants: *e.g.* *paraji* (TBA) and *bidan* (CMW), medical staff at *Posyandu* and *Puskesmas* as well as other MCH organisations. After discussing MCH issues, attention is directed to integrated medicine and advanced partnerships between *paraji* and *bidan* who represent traditional and modern MCH systems, respectively. Before one can fully understand how to integrate MCH systems in Rancaekek successfully, more information is needed about the alliances which have already been forged.

First, literature on the ‘Safe Motherhood Initiative’ (SMI) and its implementation in Indonesia, especially West Java, is reviewed. Pertinent information is gathered from the literature to help develop and set-up original fieldwork and to prepare guidelines for interviews and focus-group discussions. Quantitative questionnaires based on pre-survey findings are constructed for use in the household survey. Data are categorized according to four different stages: (1) selection of a research setting, (2) qualitative key informant interviews and focus-group discussions, (3) quantitative household survey, and (4) grouping of qualitative data to help make sense of multifaceted data collected during the second and third stages. Furthermore, after first being re-categorised, the data are entered into SPSS 15.0. Re-categorisation of data is necessary due to the diversity of answers, particularly to open-ended questions related to traditional knowledge, beliefs and behaviours of women during and after pregnancy.

3.1.1 Leiden Ethnosystems Approach

Hahn (1999: 13) explains that many aspects of human social life, such as beliefs and values, are subjective and thus difficult to measure quantitatively. However, such principles

and judgements can be studied by intensive observation to gain knowledge about *emic* perceptions and interpretations which appear subjective. The subjectivity of a research topic does not necessitate that the research methodology must also be subjective. During the 1970s, an *emic* approach was developed by the Department of Anthropology and Sociology of Non-Western Societies at the Institute of Cultural and Social Studies, Leiden University. In their Ethnosystems Approach, the concept '*emic*' opens new perspectives on socio-economic development in the Third World and departs from methodologies generally used in ethnoscience which seek to take into account local and regional systems of knowledge and practice within a more dynamic context of processes of development and change. Furthermore, by combining formal and empirical approaches, the 'ethnosystems' methodology is shown to increase understanding and help clarify the processes of interaction between local and global knowledge in several study settings in East Africa, Indonesia and the Mediterranean (*cf.* Leakey & Slikkerveer 1991; Adimihardja 1999; Slikkerveer & Lionis 1996; Adams & Slikkerveer 1996).

By implementing the Ethnosystems Approach, certain significant aspects of local knowledge systems have been documented, analysed and integrated into pluralistic forms of agro-ecology, comprehensive health care and integrated wildlife management. In addition, this methodology has facilitated the designing, assessment and successful implementation of an analytical model programmed for human behaviour in various research settings. This multivariate model, based on the concept 'ethnosystems', not only broadens our perspective on culture but also enables assessment of the cognitive and behavioural components of particular groups or communities as 'systems' in a rather *holistic* mode. More importantly, such a definition for ethnosystems further facilitates, in a more dynamic way, elaboration of the concept 'culture' as the result of historical processes in which not only acculturation and transculturation between different cultures has occurred – 'Great' vs. 'Little' traditions (Redfield 1956). For example, such a model could accommodate the previously mentioned analysis of processes of utilisation of traditional and modern MCH systems. Furthermore, the Ethnosystems Approach enables us to cross borders and assess interactions between local and (inter)national systems in a more balanced way. Slikkerveer (1996) notes that with the concept 'ethnosystems', within the historical processes of social and cultural change and technological innovation, not only the dynamic character of culture becomes noticeable but also the interaction between ethno- and cosmos systems then enables us to broaden our area of interest to include research on the behavioural component of innovation and development processes. In *Indigenous Knowledge Systems and Development*, Brokensha, Warren & Werner (1980) directed us down a most promising track towards, to a certain extent, a behaviouristic approach to innovation and development, in which individuals in ethnosystems act as primary source for "*development from below*". The 'Leiden Tradition' applies the Ethnosystems Approach to Structural Anthropology, namely with the concepts (1) Participants' View (PV), (2) Field of Ethnological Study (FES), and (3) Historical Dimension (HD).

(1) *Participants' View*

The decision to include a participant's or the target population's point of view when planning and implementing innovative and developmental processes has encouraged a new relativist perspective on other cultures and societies. When observing and describing a

socio-cultural system from a participant's perspective, the 'subjective' perceptions and attitudes of individuals coalesce into an 'objective' social system which represents an invaluable addition to research on ethnosystems – *i.e.* indigenous world view, perceptions, and decision-making systems. This approach links with the *emic*, in contrast to *etic*, view of cultures.

(2) *Field of Ethnological Study*

Early Structural Anthropologists, originally from the 'Leiden Tradition', developed the concept 'Field of Ethnological Study' (FES) or 'cultural area' during fieldwork in Indonesia (*cf.* Van Wouden 1935; De Josselin de Jong 1980; Schefold 1988), starting from a linguistic focus on the original *lingua franca* of Pasar Malay alongside a series of existent regional languages across the entire Archipelago. In the case of Indonesia, certain shared cultural features – such as kinship classifications, patterns of social organization, ornaments on bronze kettle-drums, patterns on woven cloth, and perceptions and practices in medical systems – are spread over a 'Field of Ethnological Study (FES).

(3) *Historical Dimension*

In analytical research, strict contemporary-oriented approaches fail to highlight the dynamics of developmental processes which transform proto-forms into present-day complex configurations, albeit in medicine, religion or agriculture. Particularly in structural research settings, such as the Horn of Africa, (pre)-historic analysis of past acculturation and migration has facilitated reconstruction of plural medical systems (Slikkerveer 1990). Similarly, processes leading to the 'Agricultural Revolution' and subsequent pre-Columbian, colonial and post-colonial complexes in indigenous and imported systems of agriculture and horticulture in this area are still under-documented. In sum, these aspects facilitate the study and analysis of other cultures and help define the new approach to ethnosystems in a broader sense and stimulate the recent re-appraisal of the 'cultural dimension of development' in international cooperative efforts.

3.1.2 Selection of the Research Setting

In social research, there are two distinct opinions regarding quantification which reflect underlying differences in perspective among scholarly disciplines as to methodology and interpretation of results. On one side of this 'qualitative–quantitative' divide, a number of social scientists regard qualitative research on concepts, values and the meaning of social and cultural life to be the fundamental basis of anthropological knowledge. Their primary goal is to describe coherently and explain or 'make sense' of collected data. In contrast, other social researchers are of the opinion that quantitative data and statistical analyses provide the foundation for anthropological knowledge, although qualitative studies also aim at 'making sense' of information. A third category of social scientists tries to bridge this qualitative–quantitative divide by employing both approaches in a complementary fashion where each method lends support for the other. Anthropologists studying health issues apparently understand systems of health outcomes far better from within social and cultural systems of medicine. This generally applies to qualitative research and health

professionals. Anthropological methodology provides relevant conceptual frameworks with which to obtain substantive knowledge and insights which are essential for genuinely multi- and interdisciplinary research, which extends beyond selective incorporation of specific methods to encompass research conceptualisation and theoretical synthesis (Slikkerveer 2003)

The model for quantitative research requires sampling, collection of impersonal data, and statistical analysis. Research using surveys usually draws a sample from a much larger population. By studying a properly selected and representative sample, social scientists can make accurate assumptions about the population as a whole. A sample is selected by randomizing procedures, such as tables of random numbers, explained in many statistics textbooks. In a random sample, each member of the population has an equal statistical chance of being chosen as representative for that population. Recent advances in statistical analysis have shed more light on cross-cultural comparisons, thus further enhancing the value of a quantitative approach in helping understand and predict variations in complex processes of interaction and human behaviour – including psychosocial determinants. In particular, one advanced technique for data analysis is the Statistical Package for the Social Sciences (SPSS).

Sociographical material is collected from existing literature and secondary data such as statistical sources and reports, complemented by field observations. With this approach one can obtain specific data on relationships between traditional and modern Maternal and Child Health (MCH) systems and its users in the community. Moreover Slikkerveer (1990) describes how, following this approach, one can enter the target group from different perspectives: (1) community-based and (2) institution-based. A community-based study uses an *emic* approach to the population of the community itself (*cf.* Leiden Tradition in Structural Anthropology). Using health interview surveys, data are collected on the background characteristics of the respondents and members of their families which help clarify what effects the decision-making process has on the utilization of MCH systems. In contrast, an institution-based study views existing MCH systems from within, using qualitative and quantitative methodology to gather data on different medical systems in order to better understand how each system functions to serve the public or specific groups therein.

An explanatory approach is followed to better understand indigenous plant taxonomies and herbals used by *paraji* (TBA) to treat pregnant and perinatal women and their newborns. Explanatory models emphasize balance and proportion, more typically in the symbolic rather than physical sphere. Explanatory research characteristically seeks to recognize and clarify a causal association between two or more phenomena which is substantively significant and meaningful. Such an approach tends to employ quantitative methods, normally a survey although descriptive and explanatory methods using case studies and observation are also possibilities. The explanatory method aims to give details and elaborate upon theories, to advance knowledge about underlying processes, to extend research into new areas of interest, and to present interpretations which might enrich one's thinking. Explaining qualitative research to health professionals is an essential step in gaining acceptance for these techniques, although qualitative findings are not always equally rated. Concerns about research standards and the need for certain types of evidence have resulted in recommendations that qualitative health research take measures to ensure

quality control, such as using multiple coding, purposive sampling, and software packages for text analysis. Imposing intrusive measures, however, may constrain the direction and content of qualitative studies and legitimize sub-standard research, as incorporating recommended procedures does not always enhance the quality of the empirical work or analysis. Results collected using the above-mentioned approaches are as follows:

- (1) sociographical data on the community using a baseline survey;
- (2) data concerning MCH systems in the community, using an institutional-based survey, *i.e.* traditional and modern MCH systems;
- (3) taxonomies of indigenous plants (appearance, function, and so forth) which reflect how the public as well as *paraji* (TBA) experience and interpret their physical environment;
- (4) data on the utilisation of MCH systems, completed by respondents in the household survey who reported being pregnant and giving birth within the 12-month period prior to the survey, including their contacts with the medical systems; data on background factors for individual respondents, grouped according to predisposing, enabling and perceived factors in the reproductive process, collected using the household survey.

This study describes the roles *paraji* (TBA) and *bidan* (CMW) play in Rancaekek and proposes the possibility for integrated medicine through advanced partnerships. To accomplish this task, a sample population of women was selected in the Rancaekek sub-district who were pregnant and had given birth to a live neonate during the prior 12 months. To ensure that each group reflecting a specific background (*e.g.* ethnic, educational, occupational, religious, socio-economic status, etc.) is represented equally in the sample, a decision was made to select villages according to the local government's categorisation: 'A' = well developed (*desa maju*), 'B' = moderately developed (*sedang*), and 'C' = less developed (*desa tertinggal*).

During multistage cluster sampling, stratification is included at each stage of the design to refine the selected sample. Babbie (2004: 212) points out that: "*Once the primary sampling units have been grouped according to the relevant, available stratification variables, either simple random or systematic sampling techniques can be used to select the sample. You might select a specified number of units from each group, or stratum, or you might arrange the stratified clusters in a continuous list and systematically sample that list. [...] to extend that clusters are combined into homogenous strata, the sampling error at this stage will be reduced. The primary goal of stratification, as before, is homogeneity*".

During the first stage, based on the above, thirteen villages are chosen from among those in Rancaekek Sub-District: (1) Rancaekek Wetan (A); (2) Rancaekek Kulon (A); (3) Bojong Loa (A/B); (4) Tegal Sumedang (C); (5) Sangiang (C); (6) Bojongsalam (B); (7) Haurpugur (B/C); (8) Cangkuang (B); (9) Linggar (B); (10) Nanjung Mekar (B); (11) Sukamulya (B); (12) Sukamanah (B); and (13) Jelegong (A/B). Thereafter, five of these thirteen villages are selected as sample: Jelegong, Cangkuang, Haurpugur, Tegal Sumedang, and Sangiang (see Table 3.1). Tegal Sumedang and Sangiang are selected because their populations are smaller compared to the other villages and because their under-developed socio-economic status makes them eligible to receive additional MCH programmes: *i.e.* *Gerakan Sayang Ibu* (GSI: 'Mother's Friendly Movement') and another UNICEF programme. Cangkuang is located along the main road running from Bandung to

the east on the Island of Java, where most of the many garment factory workers are living within the research area. Jelegong is a village which provides housing for the lower middle class. On the opposite side of the road, all the villages are covered by the ‘Making Pregnancy Safer’ (MPS) Programme conducted by WHOCC–UNPAD in 2001–2002.

During the second stage, the study population is selected by categorizing all women who have been pregnant and given birth to a live neonate during the 12-month retrospective period. The group should be representative of women in the population lists (*cf.* see discussion on the census in Section 3.1.3). Interestingly, the total number of eligible women in each village is quite high: 77 women in Jelegong; 49 in Cangkuang; 71 in Haurpugur; 50 in Tegal Sumedang; and 55 in Sangiang. By applying this specification, a properly selected, representative sample should be drawn from the population by taking into consideration that each member of the population has an equal statistical chance of being chosen as representative of the population. As Babbie (2004: 213–214) points out: “*Although the application of probability sampling involves some sophisticated use of statistics, the basic logic of probability sampling is not difficult to understand. If all member of a population were identical in all respects – all demographic characteristics, attitudes, experiences, behaviours, and so on – there would not be needed for careful sampling procedures. In this extreme case of perfect homogeneity, in fact, any single case would suffice as a sample to study characteristics of the whole population. [...] The fundamental idea behind probability sampling is this: to provide useful descriptions of the total population, a sample of individuals from a population must contain essentially the same variations that exist in the population*”¹.

Table 3.1 List of Villages (N=127) Selected for the Household Survey

Village	SES	MCH Programme Implemented	N	%
Jelegong	A/B	GSI	35	27.5
Cangkuang	B	UNICEF	19	15.0
Haurpugur	B/C	GSI	33	26.0
Tegal Sumedang	C	GSI	18	14.2
Sangiang	C	GSI	22	17.3
Total			127	100.0

Categories for village’s socio-economic status (SES): A = highly developed (*maju*); B = moderately developed (*sedang*); and C = less developed (*tertinggal*).

GSI = *Gerakan Sayang Ibu* (GSI: ‘Mother’s Friendly Movement’), a MCH programme conducted in collaboration between the National Ministry of Health and Ministry of Women’s Affairs

N = The specification that women in the sample survey be post-partum, *i.e.* have already given birth, guarantees that each woman has had the opportunity to contact MCH services during pregnancy, labour and delivery.

Table 3.1 shows the selected sample villages and number of respondents. The Rancaekek sub-district is made up of 169 *Rukun Warga* (RW: neighbourhoods) and 789 *Rukun Tetangga* (RT: hamlets). Each hamlet has about 30 households. Taking into account the size of the area, the total number of households in the sub-district, and the socio-economic status (SES) of the villages, five villages are selected for the household survey to enable

comparison and delineation of differences in the utilisation of traditional and modern MCH systems in Rancaekek. Data for poor and more prosperous villages differ, suggesting perhaps that villagers who enjoy greater socio-economical prosperity will make more frequent use of a modern MCH system.

3.1.3 Selection of Respondents in the Survey

After selecting the research area, respondents are chosen for the survey. The unit for analysis is women or mothers who have been pregnant and delivered live newborns during the 12-month period retrospective to the survey. Because women are not totally self-sufficient during pregnancy, labour and delivery, members of their households are also included (e.g. the husband and senior family members such as mother, father, mother-in-law, father-in-law, etc.) Sometimes available community MCH services are recommended by neighbours or individuals whom the family honours, such as: *ibu RT* (wife of the hamlet's leader), *ibu kader* (volunteer health cadre), *ibu PKK* (local woman's organization), *kiyai* (religious leader) and his wife, and so forth.

According to gender, relationships between members of a household are often hierarchical, in which women and men each have a certain status. Therefore, the husband's role should be taken into account during decision-making processes within a household. In her article, Postel-Coster (1992) points out that a husband's status as head and breadwinner will affect his wife's position in the household. Although pregnancy and childbirth are considered matters for women, when it comes to choosing which MCH services to choose for a pregnant wife, the family's finances or socio-economic status (SES) of the household will be an important determinant. In some cases, regardless of the issue of money, the household's religious background will influence their choice of MCH systems.

From dissimilar categories of villages in the Rancaekek sub-district individuals representing diverse social, cultural and economic backgrounds are selected randomly from each population in the above-mentioned villages. Because the sample population of retrospectively selected post-partum women in the clusters or villages differ greatly in size, it is appropriate to apply a modified sampling design called 'probability proportionate to size' (PPS) for the cluster populations². Each cluster is selected proportionate to its size. Jelegong, with a population of 77 retrospectively selected post-partum women is said to represent 27.5% of the whole population of women with this specific characteristic. Thus, for a population sample comprising 127 respondents, Jelegong would have $27.5\% \times 127 = 35$ respondents. This formula, based on a population sample of 127 respondents, is used to calculate the sizes of the other selected clusters: *i.e.* for Cangkuang $15\% \times 127 = 19$ respondents; for Haurpugur $26\% \times 127 = 33$ respondents; for Tegal Sumedang $14.2\% \times 127 = 18$ respondents; and for Sangiang $17.3\% \times 127 = 22$ respondents. In brief, each case is given weight equal to the inverse of its probability of selection.

For the survey, the household sample is drawn from 50% of the female population who were pregnant and gave birth during the 12-month retrospective period. During the time interval between census and survey, a number of pregnant women had already given birth. During the data entry process, 23 respondents who were still pregnant have not had the opportunity to complete the entire MCH-seeking cycle up through childbirth. Unable to report the full extent to which they used traditional and modern MCH systems, they are

disqualified as unsuitable for inclusion in the study. Therefore, only 127 of the original 150 respondents are entered in SPSS for data processing and analysis of the utilisation of MCH systems in Rancaekek. Finally, 127 women thus categorized are selected: (1) 35 respondents from Jelegong; (2) 19 from Cangkuang; (3) 33 from Haurpugur; (4) 18 from Tegal Sumedang; and (5) 22 from Sangiang (*cf.* Table 3.1). In this manner, it is probable that the sample group will mirror the population equally.

3.2 Comparative, Qualitative and Quantitative Surveys

A quantitative survey collects its data by way of structured questionnaires and then applies statistical analysis, using bivariate and multivariate analysis, to discover relationships among factors which influence the choice of Maternal and Child Health (MCH) systems in the community. For this retrospective study, as already explained above, the target population living in Rancaekek Sub-District provides a sample of 127 respondents who have been pregnant and delivered live neonates during the 12-month retrospective period.

The qualitative approach aims to discover important themes, categories, dimensions and inter-relationships between variables. The word ‘qualitative’ implies that emphasis is placed on processes and meanings which are not measured in terms of quantity, amount, intensity or frequency. It reflects the socially constructed nature of intimate relationships between researcher and the topic studied. The researcher seeks answers to explain how social experiences come about and acquire meaning. This approach is followed in the first stage of data collection before designing the quantitative structured questionnaires. Content analysis involves coding (or indexing) segments of text which refer to the various topics and categories. Subsequently segments of the same topic are sorted and compared across all interviews, focus-group discussions and observations with the aim to develop theoretical constructs from the data.⁴

3.2.1 Preparation for the Research Study

Preparatory work was carried out during the ‘Making Pregnancy Safer’ (MPS) Programme in 2001–2002 by WHOCC–PMC at Padjadjaran University. Use of the ‘transitional’ medical system is under-represented for Maternal and Child Health (MCH) in the research setting. Their findings became the baseline for this study’s research proposal, specifically on traditional and modern MCH systems in the same area of Rancaekek.

During the preliminary study, the methodology used to collect information on local social, cultural and medical systems at the community level is as follows:

- (1) Focus-Group Discussions: Two focus-group discussions are conducted between pregnant and post-partum women (with or without problems), their husbands, community leaders, modern *bidan* (CMW), volunteer health cadres and *paraji* (TBA) in order to collect information on social, cultural and MCH systems in Rancaekek.
- (2) In-depth Interviews: These interviews are held to inquire how pregnant women, experienced mothers, husbands, volunteer health cadres, *paraji*, and *bidan* perceive traditional and modern medical systems.

Institutional-level information is used to gather data on availability, accessibility, affordability and acceptability for utilisation of MCH systems. Furthermore, support groups such as village leaders and social organisations are also targeted to obtain additional information on the social and cultural resources available in the area which could render pregnancy safer.

Data collected by WHOCC–Padjadjaran University on *paraji* and *bidan* in Rancaekek show that, with regard to Maternal and Child Health, in spite of the number of available modern *bidan*, it is the traditional *paraji* in whom the community places its trust. The women surveyed who have experienced pregnancy; labour and delivery also have formed opinions about both MCH systems. Finally, additional qualitative research using in-depth interviews and focus-group discussions is carried out. The findings are used to create the questionnaires.

During the month of Ramadan (September–October 2005) when Muslims fast and spend more time at home, seven enumerators – students or recent graduates from Padjadjaran University’s Department of Anthropology, Faculty of Social and Political Sciences – visited villages and hamlets to interview households. This timeframe proved advantageous by making it less difficult to locate and interview respondents. However, two obstacles which had to be surmounted were the distances between houses and villages and the bad weather. Because it was the rainy season, some areas were flooded which made it difficult for vehicles to reach remote areas. Fortunately, the interviewers brought their own or could borrow motorbikes from local residents. However, the household lists did not include the issue of pregnancy so great patience was needed while preparing for selection of households and respondents since not every village kept comprehensive records on its inhabitants. Even local government offices often lacked comprehensive records. However, it has been our good fortune which, in August 2005, a household census was being held in all the sub-districts (*kecamatan*) in Indonesia for the *Keluarga Miskin* Programme³ to register impoverished households. Interestingly, the census included the category ‘pregnancy’ for each household registered: if and when a member of the family had been pregnant. Thus, after making a long and tiring effort, a selection of respondents – pregnant and post-partum women – was extracted from the huge lists of the *kecamatan* household survey. Using random sampling, 150 respondents who were pregnant during the retrospective period are selected; however, by the time of the field survey, 23 of these women had not yet given birth.

The questionnaires were first tested several times during focus-group discussions and individual in-depth interviews. After re-adjustment and fine-tuning for actual situations in the community, they were used to collect data in the field. Each household interview took approximately 2 hours. The questionnaire begins with general questions about the household’s composition and background characteristics of all its members. Then, questions are asked which relate to a number of predisposing factors: *i.e.* psycho-social, socio-demographic, and perceptions on pregnancy. A respondent’s health-seeking behaviour was traced by noting the ‘external’ contacts each had made during the 12-month retrospective period with comprehensive MCH providers, also registering data on cost of treatment and locality. One section of the questionnaire focuses on opinions and knowledge about perceptions, values, beliefs, ideas, and practices which affect a woman’s MCH utilisation

during pregnancy, labour and delivery. Questions regarding enabling factors are interesting in their perspective, assuming that MCH utilisation is closely related to the household's socio-economic situation. Finally, the questionnaire turns to this study's main objective, *i.e.* the utilisation of traditional and/or modern MCH systems in the Rancaekek community.

It was decided to employ a 12-month retrospective orientation because most studies conduct retrospective analyses to establish the behaviour of people who have already sought and received medical help (in this case from MCH facilities). Although it is sometimes difficult for respondents to recall correctly details of their behaviour during pregnancy, a 12-month retrospective period appears to be a suitable timescale when researching behavioural aspects such as decision-making processes during pregnancy, labour and delivery.

Paraji (TBA) often prepare herbal concoctions for their clients, in this case pregnant, perinatal and post-partum women. Preparation of *jamu* requires the expertise which indigenous healers possess. It is a component in the field of ethnomedical knowledge systems and traditional herbal medicine which should be explored in more detail. To learn more about the use of herbals in *jamu* preparations, a list of medicinal plants and their characteristics is registered during group discussions in Rancaekek where *paraji* present numerous aromatic herbal plants and explain their functions. These discussions are documented as hand-written records, tape recordings and photographs. Several plants have been identified as well as their use in *jamu* preparations.

3.2.2 Qualitative Study

Lambert (1996: 358–361) explains why anthropology is able to contribute useful insights into health research. Qualitative methods are now commonly employed in research on socio-cultural dimensions of disease, illness and health care. Such methods derive from several social sciences; however, concepts and knowledge belonging to other disciplines have often remained under-used. Anthropology's potential to contribute is based on the ability of its methodologies to compare particular societies empirically. In health issues anthropology commonly relates to the social and cultural dimensions of health, behaviour, and treatment. Qualitative methodology is specific to behavioural sciences like anthropology, but many determinants, such as a household's socio-economic situation, call for quantitative measurement. As a response to concerns about the standard of qualitative research, attention has begun to focus on the methodologies employed. Applying qualitative methodologies, researchers aim to obtain an in-depth understanding of and reasons behind various aspects of human behaviour. Qualitative research investigates the 'why' and 'how' of decision making, not the 'what', 'where' and 'when'. Samples are small and focused rather than large and random. Qualitative approaches help categorise data into patterns based on reported results. Qualitative research typically relies on four methods for gathering information: participation in the setting, observation, in-depth interviews, and analysis of information. Kuhn (1961: 162) concludes that: "*large amounts of qualitative work have usually been prerequisite to fruitful quantification in the physical sciences*". Qualitative methodologies are frequently applied to gain a general sense of phenomena and to form theories which can be tested using additional quantitative research. Qualitative approaches offer the advantage of being able to generate many detailed and

valid processes through the perspective of participants. Both qualitative and quantitative methodologies can be applied concurrently to yield complementary insights. For instance, in the social sciences, qualitative methodologies help clarify our understanding of concepts such as intentionality and illustrate how an individual or groups of individuals think, behave and determine what is meaningful.

In this study, a qualitative approach is taken during preliminary research through the 'Making Pregnancy Safer' (MPS) Programme mentioned above. These findings became the baseline for preparation of this study's research proposal, in the same study area Rancaekek. Through direct observation of how traditional and modern MCH systems function and focus-group discussions, many interesting results have emerged. Later a proposal for a study on *paraji* (TBA) and *bidan* (CMW) was drawn up for further research. In-depth interviews are carried out while collecting data for the preparation of quantitative questionnaires and after the household survey to clarify quantitative numerical findings.

During field research, women were encountered who presented a higher risk for labour and delivery; they were therefore referred to a health centre. A special technique is used to collect data and obtain detailed information from the viewpoint of local people who have witnessed, experienced and interpreted certain events as being the cause of a particular outcome: *e.g.* a mother's death or survival. According to Iskandar and Hull (1996), qualitative techniques demand a specifically *emic* approach and perspective for data analysis. The technique is an anthropological attempt to study local concepts of health and illness. Compared to other qualitative methodologies, Iskandar and Hull (1996: 3) explain that: "(1) Concentration on a dramatic shared event; (2) Non-judgmental depth interviews of a limited number of witnesses who have clear and specific roles in the event, to establish their personal recollection and interpretation of the causes of the event; (3) On the basis of analysis of the various 'truths' obtained from the witnesses, and supporting information collected from a variety of sources, the analyst develops an 'external' evaluation of the evidence, to draw conclusions with direct policy relevance". In this study, however, the Ethnosystems Approach is used as a more appropriate research methodology to encapsulate local knowledge, beliefs and practices related to Maternal and Child Health. Complete interviews are recorded accurately, avoiding leading questions; individuals who collect data must be certain that the respondents do not overlook answers to major issues. Instead this policy-oriented approach to research is an attempt to understand the variety of perceptions held by people around the delivery mother at risk during the decision-making process to prevent maternal mortality. Individuals who play a leading role during the decision-making process should be questioned in depth to understand their decisions relating to the case. Such people are the husband who is directly related to the pregnant woman at risk, female members of the family, as well as the *paraji* (TBA) or *bidan* (CMW) involved. Data on referral of women who experienced complicated deliveries are included in the survey, with Step 5 for labour and delivery distributed according to the type of MCH system sought to obtain obstetric treatment (see Chapter VII).

3.2.3 Quantitative Study

Quantitative methodologies are used in research carried out for natural and social sciences. The term 'quantitative' in contrast to 'qualitative' research is most often used in the social

sciences as being complementary to qualitative research. Quantitative methodologies include research techniques applied to gather data dealing with numbers and measurable items. Statistics, tables and graphs are frequently employed to present the results obtained using quantitative techniques. The objective of quantitative research is to develop and apply theories and hypotheses pertaining to natural phenomena. The process of measurement is central to quantitative research because it provides the fundamental link between empirical observation and mathematical expression of quantitative relationships.

In the social sciences, particularly in sociology, social anthropology and psychology, the use of one or other methodology concurrently has become a matter of balance. Today, the tendency is to employ eclectic approaches. While quantitative methodologies might be applicable within a global qualitative framework, qualitative methods might be used to understand the meaning of numbers obtained from quantitative techniques. Using quantitative methods, it is possible to give precise and testable expressions to qualitative suppositions. Concurrent application of quantitative and qualitative methodologies is often referred to as 'mixed-methods research'. Quantitative studies emphasize the measurement and analysis of causal relationships between variables, not processes. Quantitative research using statistical methods typically begins with the collection of data based on a theory or hypothesis, followed by the application of descriptive or inferential statistical methods. Causal relationships are studied by manipulating factors thought to influence the phenomena under study while controlling other variables relevant to the experimental outcomes.

With regard to determinant models, Slikkerveer (1990: 52) states that: "*Determinant models of health care utilisation are based on the systems approach to the use of health care and, unlike the pre-dominantly qualitative approach of phase diagrams, classify number of blocks of variables of constantly increasing numbers of patients*". Furthermore, Kohn and White (1976) developed a 'WHO model' using four blocks of factors: 'predisposing', 'enabling', 'perceived morbidity' and 'health-service system'.

Chapter III describes the analysis of quantitative data collected during the survey of 150 household in the Rancaekek sub-district, Bandung District, West Java Province, between September and October 2005. The quantitative survey follows qualitative research in 2000 on the role of *paraji* (TBA) and *bidan* (CMW) in Maternal and Child Health (MCH) in Rancaekek and illustrates the significance of indigenous healers. This study presents various steps in the quantitative approach used to analyze correlations between blocks in the 'conceptual model' to uncover behavioural patterns for the utilisation of MCH systems in Rancaekek. Bivariate and multivariate analyses help construct an 'analytical' model. All components are inter-complementary and, at the end of the study, will illustrate the 'big picture' by providing a full package of information on the community.

3.3 Construction of the Conceptual Model

3.3.1 Multivariate Model for Utilisation of Maternal and Child Health Systems

The multivariate model developed by Slikkerveer (1990) facilitates the description and explanation of how an individual or social system changes over time. Tuma (1984: 7) states

that: “theoretical developments in social movements have also begun to emphasize dynamics. [...] collective violence is not an aberration but a natural by-product of social organization whose forms change as the distribution of power changes. Forces which challenge and perhaps overturn the existing order can arise even when a system is apparently stable. Such shifts place theoretical emphasis squarely on dynamics. [...] interest in explaining how and why social actors and social systems change overtime seem to be gaining momentum. What some view of disarray in contemporary sociology may partly reflect the pluralism and struggle involved in moving from questions and arguments about static relationships to the interrelated forces for change”.

3.3.2 Conceptualisation of the Analytical Model

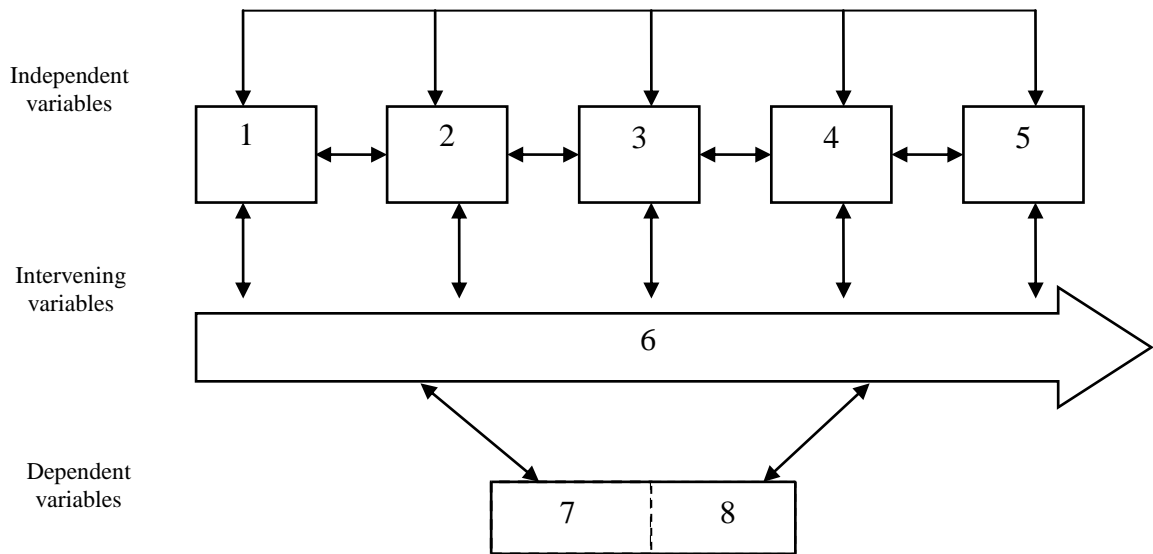


Figure 3.1 Conceptual model of the analysis correlations between independent, intervening, and dependent variables and utilisation of traditional and modern Maternal and Child Health systems in Rancaek. (Source: Slikkerveer 1990; Agung 2005, Leurs 2009, Amar 2010).

The primary objective is to develop, apply or combine conceptual tools in order to construct a comprehensive general overview, a theoretical synthesis or an integrative framework. The theoretical model developed may also include conceptual frameworks for analysis of particular problems and should be based on continuities between models (Klein 2007: 39). The analytical model identifies factors which inter-relate with the decision-making process at the household level in the research setting. It is divided into ‘individual’ and ‘system’ levels. The individual level consists of independent factors, namely predisposing, enabling, and perceived pregnancy/delivery factors.

The conceptual model (see Figure 3.1) shows the correlation between and influence of different factors in the decision-making process at the household level for pregnant women

seeking help, after becoming pregnant through to post-delivery, from MCH services. It is a modified model from Slikkerveer (1990).

3.3.3 Blocks of Factors: Variables, Indicators, and Categories

The model represented in Figure 3.1 demarcates a series of factors which interact to varying degrees with the dependent variable 'utilisation'. It can be divided into a number of 'blocks' which comprise concepts, variables, indicators and response categories. The model in Figure 3.1 shows which factors have been divided into five blocks of variables in the analytical scheme as follows:

at the individual level:

as independent variables: predisposing factors: socio-demographic (1)
predisposing factors: psycho-social (2)
enabling factors (3)
perceived pregnancy factors (4)

at the system level:

as independent variables: institutional factors (5)
as intervening variables: intervening factors (6)
as dependent variables: MCH utilisation factors (7,8)

The model's various blocks will factor in the analysis of MCH utilisation behaviour. In addition to the above-mentioned systems-level variables for plural Maternal and Child Health, the model also includes four types of individual-level variables: predisposing (socio-demographic, psycho-social), perceived pregnancy, and enabling factors. These factors, together with the accompanying concepts, variables, indicators, and response categories will now be defined and described separately within the context of the various blocks of the model. The multivariate model used in this study is constructed on eight categories or 'blocks' of factors, respectively:

- Block 1 Predisposing factors (socio-demographic)
- Block 2 Predisposing factors (psycho-social)
- Block 3 Enabling factors (socio-economic status)
- Block 4 Perceived factors (perceived pregnancy)
- Block 5 Institutional factors (availability of MCH systems)
- Block 6 Intervening factors (programmes introduced in the community)
- Block 7 Utilisation of the traditional MCH system
- Block 8 Utilisation of the modern MCH system

Block 1 and Block 2: Predisposing factors (socio-demographic, gender, and psycho-social)

- (1) Socio-demographic (Table 3.2): including age, gender, education, ethnicity, religion, occupation, number of children, and last delivery.
- (2) Gender: recorded but not used since the respondents in the survey are women at a reproductive age who have given birth during the 12-month retrospective period.

However, it cannot be denied that the role of other family members, especially the husband or older family members (mother, mother-in-law, father, father-in-law), affect the final decision-making process for health-seeking behaviour regarding the use of pregnancy and childbirth services. Other factors are religion and ethnicity which have both been recorded in the survey, although the majority of the respondents are Muslim and their ethnicity is Sundanese.

Table 3.2 Block 1: Predisposing Factors: Concepts, Variables, Indicators, and Categories

Concept	Variable	Indicator	Category
Socio-demographic Characteristics at the Individual level	Type of Village	Level of MCH condition	Name of the villages: Jelegong; Haurpugur, Cangkuang, Sangiang, Tegal Sumedang
	Age	Number of years	11–20; 21–30; 31–40; >40
	Education of Women	Type of school	No education; Elementary School; Junior High School; Senior High School; University
	Education of Husbands	Type of school	No education; Elementary School; Junior High School; Senior High School; University
	Occupation of Women	Type of work	Housewife; Peasant; Factory Labourer; Small Enterprise
	Occupation of Husbands	Type of work	Unemployed; Peasant; Factory Labourer; Employee; Retired
	Number of Children	Number of Children	1–2; 3–4; >5

(3) Psycho-social (Table 3.3): knowledge, expectations and beliefs. ‘Knowledge’ includes perceptions of pregnancy, childbirth and danger signs; while ‘expectations’ refers to local delivery practices and ‘beliefs’ about predestination. Knowledge will be operationalised in: general knowledge about human reproduction, perception of pregnancy, and knowledge about the danger signs when giving birth.

Slikkerveer (1990) defines perceived morbidity as: “*the observation and interpretation of symptoms of illness which initiate the decision making process of seeking and obtaining medical help. This subjective picture may conform to the objective picture according to medical standards but need not necessarily do so*”. In the case of pregnancy, which is not considered an illness, the definition still can be applied by modifying the symptoms of illness into knowledge of danger signs during pregnancy, labour and delivery. The perception of pregnancy and childbirth is influenced by social and cultural factors, such as a community’s beliefs, values, norms, mythology, taboos and cosmology.

Table 3.3 Block 2: Predisposing Factors: Concepts, Variables, Indicators, and Categories

Concept	Variable	Indicator	Category
Psycho-social Characteristics at the Individual level	Knowledge of Pregnancy	Level of knowledge	Little knowledge; Average knowledge; Much knowledge
	Knowledge of High-Risk Pregnancy	Level of knowledge	Little knowledge; Average knowledge; Much knowledge
	Knowledge of Miscarriage	Level of knowledge	Little knowledge; Average knowledge; Much knowledge
	Opinion about TBA's Skill	Level of opinion	No opinion; Negative opinion; Between negative and positive opinion; Positive opinion
	Opinion about Midwife's Skill	Level of opinion	No opinion; Negative opinion; Between negative and positive opinion; Positive opinion
	Health-Seeking Behaviour during Pregnancy	Participation of women in decision making	Little input; Average input; Much input
	Health-Seeking Behaviour during Delivery	Participation of women in decision making	Little input; Average input; Much input
	Belief in Pregnancy Rituals	Level of belief	Little belief in; Average belief in; Much belief in
Belief in Taboos during Pregnancy	Level of belief	Little belief in; Average belief in; Much belief in	

Block 3: Enabling factors

The enabling factor socio-economic status (SES) refers to a household's financial situation, such as family income and costs of ante- and perinatal services. The questions relate to family income, socio-economic status (SES), and occupations of the household head and his wife. The quantitative questionnaire is designed to include various related indicators: *i.e.* family income, family expenses, ownership (housing, land, livestock, vehicles, and electronics) and household budget. This is subjected to factor analysis in order to obtain the overall socio-economic status (SES) of the household with regard to a family's capacity to

afford MCH services. Table 3.4 presents the composition of enabling factors in Block 4 in terms of variable, indicator and response category in the model.

Table 3.4 Block 3: Enabling Factor: Concepts, Variables, Indicators, and Categories

Concept	Variable	Indicator	Category
Socio-economic Characteristics at the Individual level	Socio-Economic Status (SES)	Level of SES	Poor; Average; Well to do

Block 4: Perception of pregnancy and delivery

These factors are difficult to quantify because they are less overtly tangible. In the questionnaire, perceptions of pregnancy and childbirth were operationalised by the question: what kind of experiences did the woman perceive during and after pregnancy, including delivery. Table 3.5 shows the composition of perception of pregnancy factors in Block 3 in terms of variables, indicators and response category of the model at the individual level.

Table 3.5 Block 4: Perceived Factors: Concepts, Variables, Indicators, and Categories

Concept	Variable	Indicator	Category
Perceived	Perception of Pregnancy Experiences during Pregnancy	Level of perception	Low perception; Average perception; High perception

Block 5: Institutional factors

The institutional factors include the availability of traditional and modern MCH services, the general public’s accessibility to health facilities, the ability to finance the cost of MCH services, and the acceptability of the community. This represents the geographical accessibility of MCH facilities. Table 3.6 shows the composition of institutional factors in Block 5 in terms of variable, indicator and response category at the systems level.

Table 3.6 Block 5: Institutional Factors: Concepts, Variables, Indicators, and Categories

Concept	Variable	Indicator	Category
Geographical Accessibility	Geographical distance Traditional MCH care	Level of distance	Near; Average; Far
	Geographical distance to modern MCH care	Level of distance	Near; Average; Far

Block 6: Intervening factors

The intervening factors represent several programmes introduced by the Government, NGOs, or various foreign aid programmes as outside forces intervening in MCH systems at the community level. Such external intervening factors are ‘agents of change’ in the community which affect the community’s health-care systems and influence the utilisation of MCH systems at the individual level. Such factors can stimulate a change in behaviour towards MCH utilisation in the study area.

Several Maternal and Child Health programmes introduced in Rancaekek are *Gerakan Sayang Ibu* (GSI), *Pos Pelayanan Terpadu* (Posyandu), *Jaring Pengaman Sosial* (JPS), *Bidan Delima* (professionalized private midwives), *Gerakan Pita Putih* (MNH), *Keluarga Miskin* (GAKIN), *Ambulans Desa* (Village Ambulance), *Menjamin Persalinan Sehat* (MPS), etc. Table 3.7 shows the composition of intervening factors in Block 6 in term of variables, indicators, and categories of the system level.

Table 3.7 Block 6: Intervening Factors: Concepts, Variables, Indicators, and Categories

Concept	Variable	Indicator	Category
Intervening characteristics at the individual level	Impact of MCH Programmes through Participation	Level of impact	Some impact; Average impact; Much impact

Block 7 and block 8: Dependent factors for utilisation of traditional and modern MCH systems

These factors in the model include two related categories of characteristics, resulting from the dynamic interaction between independent (predisposing, enabling, and institutional) and intervening variables, representing a reflection of the variance in reported utilisation of MCH systems. The dependent factors have been sub-divided into two categories occurring within the study area: the traditional MCH system represented by *paraji*; and the modern MCH system represented by *bidan* (in both *Puskesmas* and private facilities). The dependent factors in Block 7 (Table 3.8) and Block 8 (Table 3.9) will provide the overall patterns of MCH utilisation in the study area as reported by respondents’ pregnant 12-months retrospectively.

Table 3.8 Block 7: Dependent Factors for Traditional Maternal and Child Health: Concepts, Variables, Indicators, and Response Categories

Concept	Variable	Indicator	Category
Dependent characteristic of traditional MCH system at Individual level	Utilisation of Traditional MCH system	Level of use of traditional MCH system	Little use; Average use; Much use

Table 3.9 Block 8: Dependent Factors for Modern Maternal and Child Health: Concepts, Variables, Indicators, and Response Categories

Concept	Variable	Indicator	Category
Dependent characteristic of modern MCH system at Individual level	Utilisation of Modern MCH system	Level of use of modern MCH system	Little use; Average use; Much use

In the final analysis, the dependent variables for utilisation of traditional and modern MCH systems will be combined to substantiate the concept of MCH utilisation behaviour.

Notes

1. Weighting refers to assigning different weights to cases which were selected for a sample with different probabilities in selection. In the simplest scenario, each case is given a weight equal to the inverse of its probability of selection. When all cases have the same chance of selection, no weighting is necessary (Babbie 2004).
2. PPS (Probability Proportionate to Size). This refers to a type of multistage cluster sample in which clusters are selected, not with equal probabilities but with probabilities proportionate to their sizes – as measured by the number of units to be sub-sampled (Babbie 2004: 213).
3. Programmes for impoverished households (*keluarga miskin*) are due to the increasing price of gasoline; the Indonesian Government tends to give subsidies to poor families, by taking door-to-door household census.
4. The focus-group discussions illustrate the flexibility and richness of the qualitative method. The method can be easily used to complement quantitative work by providing detailed descriptions about the perspectives of focus-group participants. Furthermore, focus groups can be used to examine the meanings and group processes involving participants' experiences and what is being studied. The focus-group method is ideal for illustrating the current tensions and controversies characterizing qualitative methodology (Denzin and Ryan 2007).

