EMPOWERMENT AS A WAY TO IMPROVE NUTRITION IN PREGNANCY IN WARU JAYA, WEST JAVA INDONESIA: AN ACTION RESEARCH STUDY

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by

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Abstract

The purpose of this study was to use empowerment as a means of working with pregnant women in Waru Jaya village, rural West Java, Indonesia to improve their nutrition in pregnancy. Pregnant women in developing countries are at increased risk for poor nutrition and as a result experience increased incidence of morbidity and mortality for themselves and their infants. Although poverty and poor socioeconomic conditions are the major causes of this poor nutrition, other limitations, such as, cultural prohibitions, household food distribution, and attitudes toward women make the situation worse.

In this study I worked with 14 lower-socioeconomic pregnant women and cadres (village volunteers) over a four month period, using a participatory action research methodology. The aim was to assist the women both to become empowered and to improve their nutrition. Freire's empowerment model of education was the theoretical framework for the research.

Findings from the study suggested the women were becoming empowered as evidenced by them gaining new knowledge, being motivated to change, making changes in nutritional practice, weighing cultural beliefs, increasing self-confidence, developing social relationships, improving decision-making abilities, and working to overcome barriers. The barriers that the women continued to experience were poverty, availability of nutritious food in the village, and availability of health and nutritional care.

A model was developed to describe the empowerment process that occurred. The research, although limited to these women and their situation, does have implications for nursing practice, education, and research, and for nutrition policy especially in developing countries.

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CHAPTER 1

INTRODUCTION

Poverty and the malnutrition that results from poverty takes a great toll on the lives of women and children in developing countries (Gardner & Halweil, 2000). A particularly vulnerable group is pregnant women. Since it is possible to find workable solutions to the problem of undernourishment (The State of Food Insecurity, 1999), when I began my research, I was committed to finding a workable solution with the pregnant women in Waru Jaya. This thesis describes the process and outcome of our work together. It describes the process of empowerment that occurred among a group of poor rural women in a developing country who wanted to improve their nutrition.

The nutritional status of the woman prior to and throughout her pregnancy is felt to be "a critical determinant of the outcome of pregnancy for both the mother and her infant" (Krasovec & Anderson, 1990, p. 1). Poor nutrition during pregnancy has been linked to a number of adverse outcomes, such as anemia in the mother, congenital defects in the infant, and preterm and low birth weight infants (Institute of Medicine, 1996). A number of factors may contribute to poor nutrition during pregnancy and put the woman and her infant at risk (Koblinsky, 1995). The Committee on International Nutrition Programs (1986) examined the problem of hunger and malnutrition in developing countries and predicted that over the next twenty years, "poverty, population growth,

overcrowding, unemployment, lack of food availability and purchasing power, and behavioural patterns"(p. 1) would be "synergistic" factors influencing poor nutrition.

These diverse factors continue to affect nutrition in developing countries and this suggests that creative strategies need to be put in place to assist pregnant women who are at high risk for poor nutrition (UNICEF, 2001a). One of the critical aspects of any of these strategies is to involve the targeted women as active participants in the process, in order to develop strategies that are more acceptable to them, and thus more likely to be successful (Kwast, 1995). Accordingly, the aim of the present study was to improve nutrition among pregnant, rural Indonesian women of low socioeconomic status living in Waru Jaya, West Java. This was accomplished through an action research study that developed and implemented a prenatal education program as a strategy to empower the women who participated.

The Scope of the Problem

Adequate nutrition for all age groups has been and continues to be a major problem in developing countries (Committee on International Nutrition Programs, 1986; UNICEF, 2001b). In 1993 it was estimated that between 11 to 32% of adults in developing countries were undernourished (Kusin, Kardjati, & Renqvist, 1993). Pregnancy increases the problems associated with poor nutrition. Extra nutritional demands are placed on the pregnant woman, who is already at risk for health problems, because of her less than ideal nutritional status (Kusin, Kardjati, Renqvist, & Goei, 1992).

Inadequate nutrition during pregnancy is a major problem for poor rural Indonesian women. The main problem for this group is malnutrition (undernutrition) because pregnant women are not eating enough of, or do not have access to, the right kinds of food. Since 1997 Indonesia has been in a continual economic crisis. An economic crisis, especially in lower socioeconomic communities, worsens the nutritional problems for pregnant women because they are not able to buy enough food for their own consumption or for that of their families. The food prices for the nine basic essential foods [*sembako*] went up by 300% during the first half of 1998 in Indonesia.

Common nutritional problems in pregnancy in Indonesia include chronic energy deficiency (CED), vitamin A deficiency, and anemia (Departemen Kesehatan RI, 1999). About 51.3% of pregnant women in that country have an iron deficiency anemia which is estimated to contribute to an infant mortality rate of 41 per 1000 live births. Poor nutrition in pregnancy further affects maternal and infant mortality rates in a country where the rates are already quite high. The maternal mortality rate in Indonesia is around 373 per 100.000 live births (Departemen Kesehatan RI, 1999). In 1999 the percentage of low birth weight infants was 15% of all births in the country (World Bank, 2001). Undernutrition, very early age at first pregnancy, having a baby after age 35 years, and late interventions when complications arise, which are more common in rural areas, all contribute to an increase in the number of maternal deaths. In Indonesia, almost 27% of women are less than 17 years of age when they marry (with the first birth occurring soon after marriage) and 30.1% live in a rural area.

In West Java 71.5% of pregnant women have an iron deficiency anemia with an infant mortality rate of 66 per 1.000 live births (Departemen Kesehatan RI, 1996). The maternal morbidity and infant mortality rates in West Java are higher than the national rates. During a recent community needs assessment several cases of malnutrition during pregnancy were found in Waru Jaya, the site of the present study (Fakultas Ilmu Keperwatan UI [Faculty of Nursing, University of Indonesia], 2000). In that village 38% of the women between ages 13 to 18 years were married.

Rationale for the Study

There have been numerous strategies to try and reduce maternal and infant mortality in Indonesia (Alisjahbana et al., 1995; Okamoto, 1993; Ronsmans, Achadi, Sutratiko, Zazri, & McDermott, 1999). There have been focussed programs on maternal-child health in rural Indonesian villages since the 1950s, when the Centres for Mother-and- Child Welfare [Balai Kesejahteraan Ibu dan Anak: BKIA] were established in each district "to provide assistance to pregnant women, babies and infants through health education, vaccination and simple curative practices" (Sciortino, 1995, p. 76). These programs have continued in one form or another since that time. Many of the programs have included strategies aimed at reducing the nutritional risks of pregnant women. Some of the nutritional strategies have consisted of distributing nutritional supplements such as ferrous sulphate (iron), vitamin A, or iodine to pregnant women.

Distribution of nutritional supplements are short term "band aid" solutions and the longer term impact of these strategies is not known. At the root of why the programs are

not always successful is a lack of awareness of the importance of identifying nutritional needs and behaviour and factors affecting these needs and patterns, so that a more acceptable and comprehensive solution may be found. These strategies fail to address the important causes of nutritional problems among poor women living in rural villages. Giving nutritional supplements or providing educational programs without trying to change and/or incorporate some of the underlying attitudes, beliefs, and values that affect nutritional practices may even be counterproductive. Many of these programs have been developed without any input from either the targeted women or their caregivers, even though the input of both groups is felt to be important (Viegas, Wiknsosastro, Sahagun, Chaturachinada, & Ratnam, 1992). More recently programs by non-governmental organizations (NGOs), such as the United Nations International Children's Emergency Fund (UNICEF), have been based on systematic information about the target audience (UNICEF, 2001c).

Nutritional programs designed for pregnant women need to consider the factors that influence nutritional practices and, therefore, influence a program's success. A critical factor in any approach is the influence of culture. In a Muslim country like Indonesia women are highly regarded (Borek, 1999). A statement in the Hadis (the chief source of guidance for understanding religious questions) states: "Heaven exists under a mother's feet" meaning that a Muslim must honour her or his mother. The high importance and status attributed to woman, as mother, is further reflected in the reply of the Prophet Muhammad in answer to the question: "Who deserves most to be treated

preferentially?" The Prophet Muhammad answered for the first three times: "Your mother, your mother, your mother", and only, thereafter, "your father", and then "your close relatives". Unfortunately these values are not always translated into daily life. For example, during the distribution of food in the household, women often eat last and get the least amount of food (Mulatsih, 1994). In Indonesian culture a woman is considered a weak person who does not require a great deal of food, whereas men are given larger quantities of food because of their status as breadwinners. Even if adequate amounts of food are available, unequal food distribution that favours men over women, together with cultural taboos, act to restrict the food intake of women (Kusin et al., 1993).

There is a commonly held belief among women in many South Asian countries that a small baby means an easier birth and one way to have a smaller baby is to eat less (Arole, 1995). This belief results in a practice known as "eating down", or consuming less food during pregnancy (Koblinsky, 1995). Another example of a cultural constraint on good nutrition in pregnancy is that a woman should maintain a beautiful body even during pregnancy. As a consequence pregnant women may try to eat very little food during pregnancy and may maintain that habit throughout their lives. A number of cultural beliefs require pregnant women and their husbands to eat certain foods, or alternately, they are prohibited from eating selected foods. These prohibitions more frequently affect the woman. Community beliefs about the impact of these designated foods on the outcome of pregnancy may be particularly strong and act as a deterrent to good nutritional practices.

A second factor affecting nutritional practices and health care during pregnancy is the ability to act on knowledge about good health practices. In a patriarchal society, such as Indonesia, the father is the main decision-maker, including making decisions about health. In Waru Jaya village 82% of the decisions about accessing health services were made by fathers (Fakultas Ilmu Keperwatan UI, 2000). This situation is oppressive to women and negates their right to make decisions about their health. The failure of women to be able to exercise their rights in decision-making on health related matters has long term implications for child development, family health, productivity levels, and even on the economic status of the country.

Making decisions about one's health can be considered a form of "empowerment". Empowerment is defined as "a social-action process in which individuals and groups act to gain mastery over their lives in the context of changing their social and political environment" (Wallerstein & Bernstein, 1994, p. 142). This process encompasses people's rights, strengths, and abilities, and assumes competencies or the development of one's abilities to make decisions (Jones & Meleis, 1993). In the context of this study, an underlying assumption is that for a woman to be able to make decisions about her health care and nutritional practices, is to be 'empowered'. Empowerment encompasses defining, seeking, and finding conditions and resources to develop processes to be an effective agent in meeting significant needs. In this research study I envisioned prenatal education as a strategy to facilitate women's empowerment. Prenatal education will increase the power of pregnant women through improving their knowledge

and skills, so that they will be able to make their own decisions about nutrition in pregnancy within the constraints of their economic situation.

A second assumption underlying this study is that knowledge is a key to increasing an awareness about how to solve problems and that problem-solving is, in turn, empowering. Knowledge is power, and without knowledge people will continue to experience powerlessness in many spheres of their lives. In order to overcome specific problems, using knowledge as empowerment is a useful approach. The person with the problem needs to be an active and knowledgeable agent in any form of problem-solving (Gibson, 1991). A further assumption in this study is that the level of knowledge a woman has about prenatal nutrition will increase her ability to make decisions around food consumption, and have a positive effect on other aspects of her prenatal care.

Nutrition during pregnancy can be improved through increased knowledge, improved skills, and changed attitudes, which may be facilitated through a prenatal education program, in which women play an active part. With increased knowledge, pregnant women will become more aware of their health needs and be motivated to take an active role in solving the problems they experience. Prenatal education is an important means of increasing maternal knowledge and skills and helping women develop an ability to improve their lives. Prenatal education is, therefore, a strategy, which could have a positive effect on maternal health and pregnancy outcomes. It can be an important means to ensure good eating behaviour, that in turn, will support the woman's health and optimal fetal growth and development. A healthy woman who has knowledge of and

access to a proper diet will adjust to the situation by increasing her food intake (Rosso, 1990). There are a number of prenatal education programs available in developed countries and with some modification, these have been carried out in developing countries. "Safe Motherhood" Programs that have educational components for the health care workers, including traditional birth attendants (TBAs), have been widely used in developing countries (Sibley & Armbruster, 1997). However, because empowerment was the overall approach to prenatal education and improving nutrition, the design for this study was action research in which all participants (women, village volunteers, and the researcher) contributed to the design of the prenatal program, rather than simply adopting an existing one.

Background to the Study

The study is part of a larger project entitled "*Nursing, Women's Health and Community Outreach in Indonesia*". The project is a partnership between the Faculty of Nursing of the University of Indonesia and the School of Nursing Memorial University of Newfoundland. One of the foci of the project is community development in four villages in West Java. These villages were selected to illustrate typical conditions and problems in women's health in rural Indonesia. They are also a reasonable travelling distance from the Faculty of Nursing of the University of Indonesia making travel on a daily basis more manageable. Additionally, the professional staff at the health centres for the villages were supportive of the project, and appropriate governmental

permission was granted to carry out the project (see Appendix A). Health professionals in the village and village leaders were also supportive of the project being carried out in their catchment area. To determine what community development initiatives were important to the people in the study villages, a needs assessment was conducted in the four villages and findings presented to various groups in the villages (Fakultas Ilmu Keperwatan UI, 2000). One of the problems identified was that the women in Waru Jaya considered pregnancy as *"Berkah"* [gift from God) and therefore they thought that God would look after their pregnancy.

This was in sharp contrast to the reality of their situation. Cultural practices, poor socioeconomic conditions, and a lack of nutritional counselling for these women contributed to poor care during pregnancy. As a result, several pregnant women were found to be malnourished, and a few had experienced complications with their pregnancies (Fakultas Ilmu Keperawatan UI, 2000). As a participant in the project, with an interest in community health and women's health, I selected to work with the village and the pregnant women on this problem.

In order to appreciate the scope of the problem of prenatal nutrition and how to deal with this problem it is important to have some information about the country and the particular village where the study was conducted, as well as an overview of the health system.

Indonesia and Java

Indonesia, located in Southeast Asia, consists of 27 provinces. There are 17,000 islands that make up the country and the surrounding sea is three times greater than the land (Dalton, 1999). The country is quite ethnologically diverse consisting of 336 ethnic groups and approximately 200 indigenous languages, not counting regional dialects. Indonesia has the fourth largest population in the world. The population of Indonesia in 2000 was estimated to be 203,456,000 (Statistic Indonesia, 2001). The largest population group is those between the ages of 5 to 9 years of age. The population over the age of 15 years is 141,312,722 and around 6,000,000 of that group are unemployed. The proportion of the population 10 years of age and over with no schooling is 10 percent.

Java (the island where the study was carried out) is the most densely populated area of Indonesia. Java makes up only seven percent of the country's total land area, but contains sixty percent of Indonesia's population. It has a very rapidly growing population, tripling in the past century, to almost 110,000,000. West Java (the province where the study took place) covers approximately 2.4% of the total area of Indonesia with a population of 43,552,923 people (Statistic Indonesia, 2001). The capital and cultural centre of West Java is the city of Bandung. In 1994, West Java consisted of 20 districts [Kabupaten], 529 subdistricts [Kecamatan], 7,104 villages [Desa], 9,070,7000 RTs [neighbourhoods], and about 5 people per household (Departemen Kesehatan,

1996). The study took place in Waru Jaya, a village in West Java, under the regional government of Bogor in the district of Parung (see Appendix B for a map of the area).

Waru Jaya

Waru Jaya, one of the villages in the project, was selected as the site for the study. It is located sixty kilometres south of the largest metropolitan city in Indonesia, Jakarta (two hours by bus). BPS dan BAPPEDA Kabupaten Bogor [Statistical and Management of District of Bogor], (1999) gives a picture of Waru Jaya village. The total land area of the village is 9.23 square kilometres with a population density of 2.4 people per square kilometres. The total village population is 7,059 with over 3,500 women. Among the women almost 1,400 are of childbearing age.

A village in Indonesia, called a *desa,* consists of clusters or *dusun*, further divided into groups of neighbourhoods called *RW*, and groups of households known as *RTs*. Waru Jaya has three dusuns; Melinjo; Waru Kaum, and Cidokom. Each dusuns is further subdivided into two RWs. The village has 19 RTs and 1,348 households. About 30% of the population are farmers, mainly producing fruit e.g., durian, papaya, banana, and rambutan, and vegetables e.g., long bean, chili, eggplant, cucumber, and spinach. Other households have fish ponds where they raise fresh water fish to sell. The economic crisis in Indonesia has affected the incomes of these farmers and fish suppliers/sellers.

Overview of the Health System in Rural Indonesia

Health services in Indonesia do not have sufficient resources to deal with the health problems in the country. In 1999, as a percentage of the total gross domestic product (GDP), the health expenditure was 1.6% with an estimated 0.1 physicians for 1,000 population (World Bank, 2001). As in many countries, rural areas are more disadvantaged than the more urban areas. The current hierarchical infrastructure of the health system in Indonesia, for health care in the village, consists of the regional hospital(s), the community health centre [Puskesmas] for the district, and a village health service [Posyandu]. The Ministry of Health of the central government sets the official programs for the various levels of service and prepares printed media for health education programs in the community.

The country adopted a primary health care (PHC) focus more than thirty years ago, which saw the creation of the Puskesmas to deliver community health at the village level (Ministry of Health, 1990). Puskesmas are state run and staffed by government employees. Despite a formal state run health service, a private system thrives as well, often with the same health care practitioners e.g., physicians, active in both systems. Two of the most important facilities/functions for village health are the *Puskesmas* (community health centre) and the *Posyandu* (maternal child health program) and they will be described in greater depth. The system of cadres, or community volunteers, is also briefly described. There is a well developed indigenous

medical/health system that is very important to health care, especially in rural villages, so a brief description of this system in relation to maternal and child health will be described.

Puskesmas. The community health centre or Puskesmas is designed as a unit of health services under one roof. It is usually housed in a building that has been built as a community health centre. Therefore, the term applies both to the health centre itself and the services offered through the centre. Each Puskesmas is responsible for a designated geographical area, usually, a subdistrict, and for the programs carried out at the village level. One of the functions it is mandated to address is providing continuing education for all health workers, including volunteers, in its area of responsibility. Health care providers such as physicians, dentists, nurses, midwives, nutritionists, and laboratory personnel work at the building where a series of clinics are held. Some, but not all, of the Puskesmas have provision for in-patients and/or birthing rooms.

The Puskesmas delivers 18 services: 1) maternal child health, 2) family planning, 3) nutrition, 4) environmental health and sanitation, 5) communicable disease control, 6) health education, 7) dental health, 8) community health nursing, 9) mental health, 10) laboratory service, 11) immunization, 12) school health, 13) elderly health, 14) occupational health, 15) pneumonia, 16) basic medical treatment, 17) recording and reporting, and, 18) traditional treatment (e.g., herbal medicines). Some services receive more attention and emphasis than others e.g., family planning is always carried

out, while community health nursing may not be. Many of the health professionals, particularly physicians, are young and inexperienced because all graduating physicians are required to spend the first three years of practice in a rural setting. There is a frequent turnover of health professionals at the Puskesmas.

Health system reform has occurred in Indonesia, and in July 2001, the Ministry of Health announced a "trial" concept for the Puskesmas reducing it from 18 to 6 services: 1) health promotion, 2) environmental health, 3) maternal and child health and family planning, 4) nutrition, 5) communicable disease control, and, 6) basic medical treatment. The three functions of the Puskesmas under this reform include moving health to the community, acting as a centre of family and community empowerment, and providing primary health services.

Posyandu. The Posyandu is the cornerstone of village health services for maternal and child health. Unlike the Puskesmas, the Posyandu only represents a program/service and does not usually have a special building where it is housed. In some villages the Posyandu is held in the village meeting hall or in one of the houses of someone in the village; usually a cadre (community volunteer). The Posyandu is a package of community run mother and child health programs, i.e., nutrition, diarrhoeal control, immunization, maternal and infant care, and health education (USAID, 1998).

With slight variations, each time a Posyandu is held there are five stations set-up, with at least one cadre at each station to help with each function. The first station is

a registration table where attendees (children under five years, pregnant women, and other community members) are registered and recorded before they receive health services. The second station is for physical examination. It is here that the cadres weigh and measure every infant or child. The third station functions as a reporting and recording area. The result of all examinations are recorded to be sent to the Puskesmas for their official statistics. The fourth station is for health problems. If any attendee is deemed to have a problem, she or he, and in the case of an infant or child, also the mother, is referred here for health teaching. The fifth, or last station, is to distribute food supplements, perform administration of medication, or give simple treatment and family planning services. The services are carried out by the bidan (trained midwife) and cadres. A major problem in the villages is the low level of education of the bidans and cadres.

Cadres. The community health centre or Puskesmas have had longstanding difficulties meeting the expectations of PHC at the village level. Additionally, many people in the village continue to rely on private and traditional health care practitioners. One of the strategies of the government, to bridge the gap between PHC and traditional care, was to create a volunteer group of village health workers called cadres or "*Kaders*" (Rienks & Iskandar, 1988). Cadres are responsible for maximizing the services of rural health centres and programs and supporting the rural heath policy of the government. They are also more widely involved in community development

programs in a number of the villages. Cadres are chosen from among the local population by village leaders and in keeping with the political activities of that leadership result in "the majority of the candidates belong[ing] to (or have close connections with) the existing political and economic elite" (Rienks & Iskandar, 1988, p. 73). Because of this selection process, cadres tend to work on problems of political and economic importance to village leaders and in carrying out their work may not always be neutral or give community needs priority. In theory cadres receive their preparation and continuing education from the regional Puskesmas, but in reality many have little or no training.

Traditional medicine. There is a well developed system of traditional or indigenous belief and medicine in West Java with a wide range of healers (Rienks & Iskandar, 1988; Sciortino, 1995). The cultural beliefs, which are frequently reinforced through the indigenous system and traditional healers, are important in considering maternal and child care in the village. As an example, most births (estimates of up to 75% - 85% of the births) are attended by the traditional birth attendant (TBA) known as a *Dukun Bayi* in this area of Indonesia (Niehof, 1992). In Java the TBA is almost always a woman, who not only attends the birth, but delivers antenatal and postnatal care up to 40 days after the birth. Her care is a blend of spiritual and physical actions that she has learned in the village, frequently from her mother. The Dukun Bayi and use of herbal medicine of the traditional system has been "integrated" into the formal

health system, although tensions exist between the two systems (Sciortino, 1995). The aim is to have the Dukun Bayi work closely with the *Bidan* (the trained village midwife), but in practice the Bidan is usually only consulted when a problem exists, and often at a late stage. Programs aimed at integrating the TBA more fully into the formal health system and earlier referral of women for complications has met with limited success (Alisjahbana et al., 1995).

Purpose and Research Questions

The main objective of the study was to develop and implement a prenatal education program that would empower lower socioeconomic pregnant women to improve their nutritional intake through using action research. The main purpose of the research was to identify how women became empowered to improve their prenatal nutrition through prenatal education. To achieve the purpose of the study an overall research question was: how does prenatal education empower women to improve their nutritional intake? The study was designed to answer the following research questions:

1. What are the nutritional patterns and behaviours of lower socioeconomic pregnant women in Waru Jaya?
2. What influences these nutritional patterns and behaviour?
3. Who gives these women information about prenatal nutrition?
4. What do pregnant women want to learn about prenatal nutrition and pregnancy?
5. What changes if any take place in these nutritional patterns and behaviour following

prenatal nutrition education?

6. What empowerment takes place following the prenatal education program and how does it occur?

Summary

Studies of maternal nutrition suggest poor and inadequate nutrition during pregnancy is a major factor in maternal and child health in Indonesia and in West Java. Poor nutrition contributes to maternal and infant morbidity and mortality, while good nutrition would support better health and well being for the mother and infant. Poor prenatal nutrition among rural women in developing countries is therefore, a huge problem, but one with potential solutions. A challenge to finding a solution is that the socioeconomic conditions of these women pose a major limitation to improving their situation. However, other factors, more amenable to change, play important roles in determining nutritional status. This study with poor women in Waru Jaya village in Indonesia, attempted to get at the root of the problem by exploring nutritional patterns and behaviours, and how these influenced nutrition during pregnancy. By identifying these patterns and behaviours, and in partnership with the pregnant women and cadres, we tried to create a strategy relevant to the women's needs. My hope was to enable the women, through an empowerment model, to have greater control over their nutrition during pregnancy.

CHAPTER 2

LITERATURE REVIEW

The problem of malnutrition, or undernutrition, during pregnancy among lower socioeconomic women living in rural areas in developing countries is very complex and has received a great deal of research attention (Mora & Nestel, 2000). It has also been the focus of many maternal health programs and nutritional policies for developing countries, but still presents many challenges for clinicians, researchers, and policy developers. The purpose of this literature review is to provide some understanding of the problem of prenatal nutrition in these countries, the way that it has been dealt with in the past, and how it might be influenced by a prenatal nutrition program that empowers women themselves, to improve their nutrition during pregnancy. Accordingly this chapter is divided into four sections. The first section examines the problem of prenatal nutrition in developing countries. The second section is on research into the contributing factors to poor prenatal nutrition among this group. The third section explores the effects of educational programs on prenatal nutrition among lower socioeconomic pregnant women. The fourth, and final section, examines the contribution of prenatal and other health education programs to the empowerment of women. A focus in this section is an examination of some of the indicators of empowerment for women that have been identified in the research literature.

The Problem of Prenatal Nutrition in Developing Countries

Nutrition in developing countries is an enormous world problem and has earned a great deal of attention from an economic, social, political, and health point of view (Uvin, 1994). Organizations such as the Administrative Committee on Coordination/ Subcommittee on Nutrition (ACC/SCN), International Fund for Agriculture Development (IFAD), Food and Agriculture Organization of the United Nations (FAO), UNICEF, United Nations Population Fund (UNPD),World Health Organization (WHO), and World Bank (WB) all monitor nutrition or hunger in the world. These organizations monitor undernourishment which is defined as, " an estimate from existing data about numbers of people and the amount of food available to them" (*The State of Food Insecurity*, 1999, p. 6). At the 1996 World Food Summit in Rome a target was established to reduce the number of hungry people by 50% from the 1995/96 levels.

Two of the highest risk groups recognized by all these organizations noted above, are women, especially pregnant women, and children under five years of age, with children often receiving the greatest attention. South Asia is one of the areas in the world with the highest percentage of malnourished women (Okojie, 1994). Although this review focuses on pregnant women, the nutritional status of that group has an enormous effect on nutrition in infants and children. A woman poorly nourished during pregnancy has a higher chance of having an infant of low birth weight and/or at risk

for nutritional deficiencies. Malnutrition in families, like poverty, is a continuous cycle.

While maternal nutrition in an industrialized population seemed to have only a small effect on placental and birth weight (Mathew, Yudkind, & Neil, 1999), maternal nutrition is a critical factor in developing countries. One of the reasons why this is so is that many women in developing countries are so poorly nourished during childhood and in the prepregnancy period that when they become pregnant, they are in an already much compromised nutritional status (Mora & Nestel, 2000). The two main nutritional problems noted among pregnant women, and indeed women of all ages, in developing countries are chronic energy deficiency (CED), from inadequate caloric intake, and nutritional anemia from micronutrient deficiencies e.g., iron, folate, or B12 (Okojie, 1994). Although the problems are interrelated, the shift in emphasis often varies between the two problems (Grew, 1999).

Chronic Energy Deficiency

CED, known as protein-energy undernutrition, occurs when a person does not consume sufficient calories to cover growth and development demands or energy output. The effects of CED are readily visible, in measurements such as weight, height, and arm circumference (McGuire & Popkin, 1989). One of the problems in identifying the extent of CED in developing countries is that few national studies have been done, so the true extent of malnutrition is hard to estimate (Mora & Nestel, 2000). Some of

the health implications of CED, besides the maternal health consequences already mentioned, are poorer quality of life and an inability to engage in an optimal level of work either at home or in paid employment (Okojie, 1994).

To combat CED during pregnancy it is important to establish who is at risk. Measurement of prepregnancy weight is an important indicator, not only in predicting negative pregnancy outcomes, but in recommending weight gain during pregnancy, and in determining target areas for nutrition intervention. One of the challenges with this assessment is that it is extremely difficult to get information about prepregnancy weight because the woman often does not seek health care until the fourth or fifth month of gestation when the first recording of her weight is made (Achadi, Hausel, Sloan, & Anderson, 1995). There was limited research located on nutritional status among child bearing women in developing countries as it relates to assessing CED.

Kusin and co-researchers (1992) tried to establish how prevalent and severe CED was among rural women in Madura, East Java. The researchers used a longitudinal design covering all women with children 0-60 months and those women newly married during the time frames of September, 1982 to December 1985 and January 1987 to December 1989. Anthropomorphic measurements were completed on over 700 women during pregnancy. CED was found in over 40% of the women prior to pregnancy, as indicated by a Body Mass Index (BMI) of less than 18.5. The women's average weight gain in pregnancy was only 6.6kg, with some of the heavier

women having a net weight loss during pregnancy. From monitoring arm circumference of the women in pregnancy, it was found that they used limited fat reserves for the developing fetus. Many of the women of reproductive age in that area were found to be chronically undernourished. The study supported the need for increased emphasis on maternal nutrition.

A later study by Achadi, et al. (1995) compared the nutritional status of pregnant and non-pregnant women and weight gain over pregnancy among women in West Java, Indonesia. Their objective was to examine the nutritional stress of pregnancy among these women. They compared 451 pregnant women in Indramayu with 418 non-pregnant women. The main findings were: only 9% of the women had an adequate weight gain during pregnancy with an overall average weight gain of 8.9kg. This average weight gain was only 57% of the recommended 15.5kg that is considered adequate for such a group. Adequate weight gain during pregnancy was related to prepregnancy weight; 24% with a prepregnant weight of >50kg gained an adequate weight, while only 17% of those less than 45kg. before pregnancy did so.

In another study the nutritional status of 122 lower socioeconomic women in Bangladesh were studied in the postpartum period and 2/3 of these women had a BMI of less than 20. (Uzma, Underwood, Atkinson, & Thackrah, 1999). Moderate to severe malnutrition was present in 60% of the women,who had an upper arm circumference of less than 227mm. Additionally, more than 3/4 of these postpartum women weighed 45

kg or less. Related to these anthropomorphic measurements, the women in the study identified fatigue as one of their main health concerns. This study illustrates that selecting pockets of the population where socioeconomic conditions are worse than the national average will help identify vulnerable populations for intervention.

Micronutrient Deficiency

Deficiencies in micronutrients, sometimes referred to as "hidden hunger", are less evident than CED, but are critical to identify and treat because of the number of pregnant women affected, as well as the consequences they have for the women (Uvin, 1993). The three micronutrients that have received the most attention are iron, vitamin A, and iodine, however, other vitamins, minerals, and trace elements have been studied. The WHO acknowledges the impact of the three main micronutrient deficiencies in that " each singly constitute a brake on socioeconomic development and mostly are combined in synergistic action to the detriment of the world's already underprivileged groups" (1991, p. 5). Pregnant women are identified as one such underprivileged group. Much of the research located focussed on iron deficiency anemia.

Iron deficiency. The most common anemia in pregnancy is iron deficiency (Massawe et al.,1999 & Thompson, 1997) as a result of decreased hemoglobin production. This condition is most often due to inadequate dietary intake of iron, folate, or B12, malabsorption of iron, blood loss, closely spaced pregnancies, or

hemolysis (Ramirez, Loria, Nieto, Malacara, & Piedras, 1998). In countries where malaria and other parasitic infections are endemic the problem of anemia is made worse (Msolla & Kinabo, 1997). Anemia in pregnant women is related to spontaneous abortion, premature delivery, low birth weight, stillbirth, and perinatal death (Blot, Diallo, & Tchernia, 1999; de-Aquino, Cecatti, & Mariani, 1998; Siega Riz, Adair, & Hobel, 1998). The poor outcomes i.e., abortions and stillbirths, from anemia during pregnancy are especially marked in women in developing countries (Argarwal, eat al., 1998; Kusin et al., 1993). In West Java women delivered infants 172g. heavier on average if they took at least 1 or more iron-folate tablets per week than women who did not (Achadi, 1995).

Giving iron supplementation to women and children at risk is one strategy used to combat anemia. In Indonesia pre-school children, girls in high school, and pregnant women have all been targets of iron supplementation programs (Angeles-Ag deppa, Schhultink, Sastroamidjojo, Gross, & Karyadi, 1997; Ridwan, Schultink, Dillon, & Gross, 1996; Schultink, Gross, Gliwitzki, Karyadi, & Mutulessi, 1995). Although all groups in these studies had significantly increased iron status, the program was less successful with pregnant women. This group was not prepared for the side effect of constipation and, therefore, did not always take the iron. Iron supplementation during pregnancy has not been that effective in reducing the prevalence of anemia in Indonesia. The optimal approach to iron deficiency anemia needs to include the

alleviation of poverty, empowerment of women, and the provision of a safe environment (Adish, Esrey, Gyorkos, & Johns, 1999).

While the challenges for improving nutrition during the prenatal period in developing countries are many and complex, Mora and Nestel (2000) identify a number of strategies that take into consideration conditions important to these countries. Among their recommendations, the strongest one is to take a life cycle approach rather than to just focus on the prenatal period. Risk factors do not begin with pregnancy, but rather begin with infancy and childhood. Policy emphasis must begin with education of girls and young women, as higher educational achievement is associated with better nutrition, and mediated through better purchasing and distribution of food within the household. Women also need the help of legislation within their countries, which would break down some of the barriers for them to access food, or change the conditions that interfere with fair distribution and access to health services. Finally they recommend an integrated health and nutritional program, as adequate nutrition must be considered within the health system, and women need to learn to take charge of their health and nutritional status. The latter goal is that of empowerment.

Contributing Factors to Prenatal Nutrition in Developing Countries

Pregnant women, including women in Indonesia, want to have healthy babies. In the absence of an absolute food shortage where "total food supplies within a designated area are insufficient to meet the needs of the population living within that

area" (Uvin, 1993, p. 1), it is usually the social organization or the distribution of food that is the problem. This is usually not the case for Southeast Asia (Florentino & Pedro, 1992). Other factors though impinge on these food distribution patterns. Some of these factors are knowledge and practices. Others identified are cultural factors, which take into consideration traditional beliefs and practices and the use of indigenous health services for health problems. It is important to try and determine what influences the distribution of food within a household and food consumption patterns, in order to determine appropriate interventions to improve maternal nutritional status.

Depending on the determinants of prenatal nutrition, interventions may be aimed at community, group, family, or individual level and could include education, altering food distribution within the family, food supplementation, reduced work load, family planning, and community development (Krasovec & Anderson, 1990). Pregnant women recognize that nutritional knowledge is important and will identify information about nutrition as a learning need (Moran, Holt, & Martin, 1997).

Gender bias. Gender bias, or showing preference for one gender over the other, in a situation where gender ought not to be an important factor, affects women's nutrition in developing countries. Gender bias influences food distribution within the family, with women being the last recipients of food in the household. This pattern of food distribution results not only in a small quantity of food being allocated to the woman but low quality as well (Panwar & Punia, 1998). Even if an adequate amount of

food is present in the household an unequal distribution will still favour men over women, as some research has demonstrated. Even though the studies were on food distribution to children Miller's (1997) review of the research demonstrated that intrahousehold food allocation favours males over females and is a complex area related to the social status of the families. As a result it is difficult to generalize even within a selected geographical region.

In examining research on female disadvantage in poor countries, Santow (1995) identified differential allocation of food within households as one of the nutritional risks to women's health. The problem has been identified in European, African, and South Asian countries. This uneven distribution took a number of forms, included having men eat first, giving women the leftovers, serving larger quantities of foods to males, breastfeeding male infants longer than female infants, and giving more nutritious foods to males. At times even the women are co-opted and contribute to the problem by socializing women to put their husband's and other male's nutritional needs above their own. These problems have been identified mainly through dietary surveys in households and observation in the field.

One study suggested that for poor women in rural areas of Indonesia, women are at risk when it comes to food distribution within families. Mulatsih (1994) did an ethnographic study of women in rural east Kalimantan. She made several observations of food distribution in households. One was that women "eat least and last" (p. 1).

Husbands were always given larger quantities of food with the reasoning being that they needed more energy to carry out their work. This reasoning persisted despite women having heavy workloads and chronic protein and calorie malnutrition. She observed that pregnant and lactating women did not have their nutritional needs met, because no allowances was made in food distribution in the household to meet these needs. Where there is a scarcity of food the situation of women becomes worse, because of the built in gender bias in food distribution.

Culture. Culture and cultural practices are closely related to women's health and to their health promoting behaviours, including nutrition. Many traditional practices continue despite a high degree of social change and outside influence (Spector, 1995). A number of studies have included the effects of culture on nutritional practices, especially how acculturation has had either positive or negative impacts on changes in nutrition. Culture and cultural practices, or taboos, in certain developing countries, which include but are not limited to prohibiting certain foods, or obligations to eat selected foods can also act as barriers to good nutrition.

Swasono (1998) in her book *Pregnancy, Birth, and Caring of Mother and Baby in the Cultural Context* [Kehamilian, Kelahiran, and Perawatan Ibu dan Bayi dalam Konteks Budaya] gave a description of some of the cultural beliefs operating in the Indonesian culture and some of the underpinnings of these beliefs. Childbirth in many parts of the country was still considered as a time of crisis and danger both to the

mother and infant. This potential crisis was tied in with the dichotomous belief of hot-cold [panas-dingin] that can disturb the health of the mother when she is pregnant and immediately after birth. There was an association with food tied into this belief system. During pregnancy the hot [panas] condition required the woman to restrict the consumption of certain foods that have a "hot" quality, e.g, chillies. This restriction was thought to prevent a spontaneous abortion from occurring. In contrast, after birth the woman was in the cold [dingin] condition, that brings with it a prohibition of other foods considered cold.

Another belief that Swasono (1998) discussed was the association between the physical characteristics of a particular food and their relationship to birth. For example, squid were a taboo food because of their tentacles. If women ate squid while pregnant it was believed that the placenta would stick to the uterus making separation of the placenta difficult. Shrimp was associated with a difficult delivery because of the belief that the unborn infant would take on the bent shape of the shrimp. Therefore, consumption of shrimp during pregnancy was prohibited.

In the villages of Simpar and Kosambi in West Java, Anggorodi (1998) identified both food obligations and prohibitions among Sudanese women during pregnancy and lactation. Leafy vegetables, such as *katuk*, spinach, and long beans, were recommended during the latter period because they aid milk production. Cabbage was another vegetable often consumed after birth because of the belief that the body of

the women would be healthy and stronger if the women ate it. The women of those villages categorized the type of prohibited and obligated foods for the different gestational periods, until the women gave birth. Starting with the first month of pregnancy women were prohibited to eat shrimp, a type of food that had sharp parts, and foods with a hot quality. *Pete* [beans with pungent odour] and *jengkol* were prohibited beginning with the second month of pregnancy. After two months gestation, women were prohibited from eating pineapple, papaya, cucumber, banana, fruits with a sour quality, eggs, and coconut. Fish and salt fish were not to be eaten after the women were three months pregnant. In the fourth month gestation, women must avoid eating eel and mussels, and finally, salak [zalacca] in the fifth month of pregnancy. The reasoning behind these cultural food prohibitions was to look after the safety of the mother and baby. The associations are often illogical and reflect cultural beliefs about the connection between characteristics of those plants and animals and birth outcomes. Nevertheless, these beliefs caused concern and worry over rules and taboos in the community for pregnant women in Indonesia. As a result pregnant women were likely to restrict food intake and follow the suggestions of family members around these cultural norms. Community health workers need to be aware of these cultural influences and how they relate to other factors and use this information in educational and other programs (Stone, 1992).

The strength of traditional beliefs during pregnancy vary and seem to be related to certain socioeconomic characteristics. Traditional beliefs about maternal health were studied in three randomly selected villages in East Java in the late 1970s (Prajitno, Green & Windsor, 1979). From these villages, 135 women were selected and agreed to participate in the study. Data were collected through two questionnaires and a guided interview. The researchers were interested in factors that influenced the strength of the beliefs rather than the beliefs themselves. The latter were not reported. The factors they examined were: educational level; age, length of marriage; number of live children; and number of children who had died. Findings suggested that fewer younger and better educated Javanese women held traditional beliefs than their older and less well educated counterparts. Not surprisingly, length of marriage produced similar effects to age. There was no relationship between number of children, whether alive or not, with number of traditional beliefs held.

Gutierrez (1999) studied cultural beliefs among 46 Mexican American, first time, pregnant adolescents in San Francisco. They described how these beliefs and other factors such as, level of acculturation, nutritional knowledge, food intake behaviour, and attitudes about weight gain, were related to two outcome variables; weight gain during pregnancy and infant's birth weight. Acculturation was measured by length of time in the United States (group 1 from 3 to 12 months; group 2 from >12 to 48 months; group 3 from >48 to 216 months). There were similarities among the

groups of participants with regards to food choices and diet adequacy during pregnancy. Significant differences were evident in nutritional knowledge with group 3 being the most knowledgeable group. However, none of the groups demonstrated a good knowledge of nutrition. Another significant difference was found between group 1 and 3 regarding attitude toward weight gain in pregnancy; group 1 had a more favourable attitude. The results of examining cultural beliefs about nutrition during pregnancy, demonstrated that acculturation did affect this variable. Those living longer in the United States were less likely to hold the beliefs from their Mexican culture. The author concluded that acculturation affected nutritional knowledge, attitudes about weight gain during pregnancy, and cultural beliefs, however, not nutritional intake during pregnancy. Dominant beliefs in a community influence some of the aspects related to prenatal nutrition. However, not all cultural beliefs need to be changed.

Socioeconomic status. Women who have higher educational levels and greater income (with the two often being related) tend to be better nourished and have better food intake. Increased education and better financial resources, two of the social determinants of health, are also determinants of good nutrition. Panwar and Punia (1998) studied the influence of education and income on nutrition among rural pregnant women in farming (n = 45) and non-farming (n = 45) communities in Haryana State, northern India. They surveyed the women about daily intake of food, and one week after the survey, recorded the actual food consumption of each woman. Findings from

the study suggested that the mean daily intake of cereals, pulses, fruit, and vegetables for both groups of women were significantly lower than the recommended dietary intake (RDI). Their intake of milk products was significantly higher than the RDI. Level of education did not have any significant influence on any of the daily food intakes but not surprisingly, income did. Pregnant women in both farming and non-farming communities, had a good mean daily intake of green leafy vegetables and fruit if they were members of a high income group and poor intakes of these food groups if they belonged to the low income group.

In the study reported above by Achadi and co-researchers (1995) on how women in West Java handle the nutritional stress of pregnancy, they also found that socioeconomic status influenced weight gain during pregnancy. Women of lower status gained less weight during pregnancy than their counterparts with a higher socioeconomic status. Lack of financial resources and poverty are certainly big factors in inadequate prenatal nutrition, but they are not the only factors.

Barriers to good nutrition. Another approach to looking at factors that affect nutrition, is to study barriers that limit optimal nutrition and good eating patterns. Barriers to improved prenatal nutrition include a lack of resources, limited education including nutritional knowledge, and family and individual preferences and practices around food. A few studies were located which systematically studied some of the barriers to nutrition among lower socioeconomic pregnant women.

As part of a larger study examining nutritional educational needs of low income Hispanic women living in rural southern Colorado, Palmeri, Auld, Taylor, Kendal, and Anderson (1998) tried to identify some of the reasons why this group may not have optimal nutrition. In focus groups with 29 participants, predominantly women, the main barriers identified were not having enough money for adequate nutrition, trying to find time to prepare meals, some food customs and preferences for food within families, and receiving conflicting messages about nutrition, which led to confusion about what was the best nutritional practices. A barrier for women was that they put the needs of their children and other family members above their own. Besides the low income women, the researchers also conducted focus groups with professionals (n = 10) and paraprofessionals (n= 26) who offered nutritional counselling to the women. The purpose of the research was to look for similarities and differences among the groups in their perceptions of nutritional needs and the best method of teaching the target group. Professionals concentrated on content required, e.g., recommended nutrition and rationale for recommendations, nutrition in pregnancy and child development, and common terminology used in nutrition, while the paraprofessionals focussed on process, e.g., problem-solving strategies for nutritional problems. The women themselves suggested both content and process was important and wanted practical applications in teaching about nutrition.

Similarly, Hartman, McCarthy, Park, Schuster, and Kushi (1994) studied a low literacy group to determine what might help them change their eating habits and identified a number of barriers to good nutrition. The focus group study, conducted in Minnesota in the United States, included 41 participants, 39 women and 2 men from the "Expanded Food and Nutrition Education Program"; a program targeted towards low-income families. A variety of ethnic groups participated in the program. Only one participant did not want to change her/his eating habits. The participants listed as potential reasons for changing their diets: wanting to lose weight; wanting healthful eating habits (self and family); possible high cholesterol or elevated blood pressure; and diabetes. The main barriers they reported were financial, time, objections from family members if change occurred in foods prepared, and lack of knowledge about nutrition. In addition, the focus group participants wanted information in language they could easily understand. They also confirmed that the lecture format was not a good method to help them learn and they preferred the format of focus group discussion as a way to learn from each other. While the study lent support to poverty or lack of money as a factor in poor nutritional status, it also demonstrated that causes of nutritional status are much more multidimensional than just financial, and non-traditional ways of communicating information need to be used more often.

The Effects of Educational Programs on Prenatal Nutrition Among Poor Women

A number of approaches to improving nutritional practices in the prenatal

period have contained an educational component. Prenatal education is a strategy to facilitate knowledge and improve skills that will help women understand the process of pregnancy, and how to improve their health and that of their infants. The effects of nutrition on health are usually included in any prenatal education program. Researchers have tried to determine the effect of prenatal education on various outcomes of pregnancy and the results are far from conclusive. Belizan et al. (1995) found that health education during pregnancy had a significant impact on improved knowledge about signs and symptoms of complications in pregnancy and onset of labour, but no significant improvement in health behaviours or use of services.

Taren and Graven (1991) did a retrospective review of 9,014 charts in a study in Florida, U.S.A., to determine what interventions high-risk patients were receiving, and the effect these interventions might have on reducing the number of low birth weight (LBW) infants born. They found that significantly fewer LBW infants were born to those women who received education on early signs and symptoms of preterm labour, when compared with those who did not have the education. Women who had their hemoglobin measured and were given iron supplements also had fewer LBW infants. Findings from this study suggested that higher quality prenatal care as measured by the presence of prenatal education and nutritional supplements can have positive effects.

Similarly, Schulman (1995) found that prenatal nutritional education had a significant positive association with an increased gestation period, thus reducing the incidence of preterm births and lower gestational periods. Among New Mexican women who did not receive prenatal care there was a higher incidence of complications and low birth weight, suggesting that pregnant women need to know how, and be motivated, to change nutritional practices and engage in self-care activities like avoiding substance abuse, getting adequate sleep and rest, and exercise (Higgins & Woods, 1999).

Evaluation research on nutritional programs in pregnancy, although not always done or reported, can also provide important information. Kafatos, Vlachonikolis, and Codrington (1989) evaluated a nutritional education program for pregnant women in Florina, northern Greece. There was a high perinatal and infant morbidity and mortality in this rural area, and the authors wanted to see if nutritional counselling could make a difference to these women, in terms of improved nutrition, weight gain, and improved outcome in pregnancy. The 20 clinics in the selected region were divided on a random basis into either an intervention or a control group. Nurses who were employed to care for the intervention group received intensive training in nutritional counselling. Nutritional counselling consisted of teaching about basic nutrition during pregnancy, how to select nutritious foods that were readily available in the area, and how to store and prepare food to protect nutrients. In the 10 control clinics, routine

prenatal care was given. Most of the women in each group were of lower socioeconomic status and did not differ a great deal on physical and obstetric characteristics. Diet was assessed for caloric intake, and laboratory tests examined selected micronutrients in the blood. The findings from the study demonstrated that the women in the intervention group had a significantly greater calorie consumption throughout pregnancy. Although mean intake of protein, carbohydrate and fat were at first similar in the two groups, after week 21 they were significantly higher in the intervention group. Serum iron and vitamin A levels were similar for each group, but the intervention group had significantly higher levels of vitamin C and beta carotene. Outcome measures showed that the intervention group gained significantly more weight in pregnancy, had a slightly higher mean birth weight, lower prematurity rate, and lower number of perinatal deaths. Nutritional counselling and using readily available foods was found to be a means of improving prenatal nutrition.

A second evaluation study used an experimental method to develop an in-home prenatal nutrition protocol, assess the effectiveness of the intervention to improve dietary intake, and identify predictors of infant birth weight among low-income, pregnant women in Nebraska, USA (Widga & Lewis, 1999). Eligible women were assigned randomly to either an experimental group ($n = 40$) or a control group ($n = 26$). Following the development of a protocol, a nutritionist conducted in-home nutritional sessions that consisted of nutritional assessment, education, counselling, and

goal setting with the intervention group. These visits were conducted weekly for four visits followed by two monthly visits. There was a significant increase in nutritional intake and total energy by the women in the intervention group, but no significant correlation between increased nutritional intake and total energy and infant birth weight. There was also no significant difference in mean birth weight between the intervention and control group. Infant birth weight, however, was correlated with the mother's prepregnancy body mass index, weight at delivery, number of visits by the nutritionist, gestational age when the woman began the program, and weight gain during pregnancy. The study's findings were limited by the unequal sample size between the two groups, few women in the control group, and lack of information about the control group's dietary intake.

A longitudinal study was conducted by Koniac-Griffin, Anderson, Verzemnieks, and Brecht (2000) in California to evaluate the effects of an early intervention program (EIP) on health and social outcomes of adolescent mothers and their children. One of the social outcomes studied was the quality of mother-child interaction. Participants were placed in an experimental group (n = 62) or a control group (n = 59) on the basis of random selection. Early EIP for the experimental group consisted of the following areas: health, sexuality and family planning, maternal role, life skills, and social support. Approximately 17 comprehensive home visits over the pre- and postnatal period and preparation-for-motherhood classes were given to the experimental

group. Traditional public health nursing care was given to the control group consisting of one or two prenatal visits, preparation for child birth, and well baby care. Although both groups had a reduction in premature and low birth rates, the differences were not significant. There were significant differences in the total days of birth-related hospitalizations and re-hospitalization with the intervention group having fewer days in each category.

Boyd and Windsor (1993) did a meta-evaluation of interventions for pregnant women that contained nutrition education. They identified five studies that met their criteria for inclusion in the analysis, i.e., quasiexperimental or experimental design published between 1966 and 1990. Most of the studies were directed towards populations at risk for low birth weight or other complications. All the studies were conducted in the United States and with women in lower socioeconomic groups, or among ethnically diverse groups. The five studies all demonstrated improvement, such as increased knowledge, dietary improvement, or weight gain, in the experimental groups. However, the authors concluded that the studies contained too many methodological flaws to qualify as rigorous trials to look at the benefits of nutrition education programs. Clinical trials of nutrition education can, of course, miss some of the subtle changes that take place in women's lives and their approach to nutrition, as the studies on empowerment below will demonstrate. It is more difficult to find easily

measurable criteria for empowerment, than for variables like weight gain in pregnancy, infant birth weight, or even scores on nutritional exams.

The Contribution of Health Education to Empowerment Among Women

An understanding of how health education empowers pregnant women and thus contributes to improved prenatal nutrition is important, yet relatively few studies are available on how prenatal education is related to empowerment in or to improved nutritional practices. This is somewhat surprising in that one of the underlying beliefs of a number of prenatal classes is that they strive "to empower women through women-centered education" (Nolan, 1998, p. 5). Additionally, "Childbirth education is a force for change. [Prenatal] Education is about a change in attitudes, feelings, ability to cope and range of skills" (Nolan, p. 9). Only two studies were located addressed this construct, i.e., empowerment, as related to the target group. Ovrebo, Ryan, Jackson, and Hutchinson (1994) did a qualitative evaluation of the impact that the "Homelessness Prenatal Program" had on empowerment among the women who took part in the program.

Lugo (1996) used a case study design to examine the effectiveness of implementing an empowerment education model to assist pregnant women in Florida, USA. The researcher wanted to develop the skills of women in the community to facilitate peer support groups for pregnant women. Findings reflected an improvement in the quality of in-group participation among the target group, with greater numbers

taking part, an intensity in social cohesion, social activism, and collective problem-solving indicating that personal empowerment was taking place. There were no significant differences in mean birth weight or low birth weight of the infants of the participants, when compared with infants of women who did not participate in the education program.

Although not specific to pregnant women, a qualitative pilot study by Rusness (1993) examined a model of integrated nutrition education on empowerment among homeless women and children. Three assumptions guided this model: learning plays a role in feeling helpless and powerless, so education is an appropriate strategy for change, the process of empowerment takes time as groups develop a new consciousness about how to change situations, and principles of adult learning are an effective approach to achieve empowerment. The program had three components: an educational class "Eating Right is Basic" focussed on nutritional information, buying foods, and cooking skills; group discussions; and nutritional assessments. Nine women took part in the educational program and group discussions, while seven of these and nine of their children were assessed. A number of the women and children were at risk nutritionally, but most were able to achieve a nutrition target that had been mutually set. The educational class resulted in an increased score in the posttest over the pretest score, although no details of the test are available. Pertinent to the present study were

findings of beginning empowerment, such as development of personal power, improvement in self-esteem, and feeling part of a community.

Abusabha, Peacock, and Achterberg (1999) suggest that a model of facilitated group discussions for improving nutrition is a good approach because it allows women to work together to find solutions to their nutritional problems. The model has been used successfully with women, infants, and children in New Mexico and has been evaluated favourably by both nutritionists and participants as "a promising method for empowering clients . . . to make positive changes in nutrition behaviour" (p. 26).

Further evidence of the success of health education being influenced by an empowerment approach comes from a study by Pelino et al.(1998) in Wisconsin in the United States. This study, conducted with postoperative patients, examined whether patients who received an empowerment model of education had improved outcomes as compared with patients who received traditional education. The researchers wanted to find out how empowerment was related to self-efficacy, and how self-efficacy in turn was related to the ability to carry out peri-operative activities, and length of patient stay. The research found that empowerment was related significantly to self-efficacy. Self-efficacy was significantly related to carrying out peri-operative tasks, but not to length of hospital stay.

Programs in developing and more developed countries alike that have empowerment as a goal, are more likely to be successful (Kar, Pascual, & Chickering,

1999; Manderson & Mark, 1997). Manderson and Mark examined 16 projects in Africa, China, Southeast Asia, the Pacific, and South America targeted towards an improvement in women's health. The more successful projects were the ones that used a participatory approach that included the women's input from the beginning (planning) to the end of the program (evaluation). Other factors associated with successful programs were ones that included gender issues, had realistic and achievable goals, and recognized the roles and status of women. The authors realized that evidence of success in these types of programs are not always easily available, as often NGOs do not publish their evaluations. They also realized that if the evaluations are published, success tends to be measured in terms of greater use of health services only. This reliance on a single measure leaves out some of the more subtle, yet important, indicators of empowerment, such as the women changing their health seeking behaviour, having different health priorities, or an increased sense of well being.

Kar et al. (1999) did a meta-analysis of 40 case studies that resulted in the empowerment of women's health promotion movements in developing and developed countries. These authors wanted to identify conditions and factors that led to empowerment as well as the methods the women used to achieve their ends. Content analysis of these studies identified seven methods that were commonly employed by the women. These methods consisted of education and training, an advocacy function, public education, activism, formation of associations and unions, work training with a

business enterprise approach, development of services and supports, and promotion and protection of human rights. While the authors were concerned with organizational and community empowerment, a necessary component would be personal empowerment of the women involved, because the two levels of empowerment are interdependent.

Indicators of Empowerment in Women

One of the challenges of doing research on empowerment and prenatal nutrition was finding evidence that empowerment has occurred. Many studies recommended empowerment of women as an approach to dealing with a particular problem in women's health, yet few defined what this empowerment would look like in practice. As a consequence, one of the objectives in doing a literature review for this study was to locate studies that used empowerment as a research outcome, and to examine how the researchers defined and measured empowerment. Although empowerment can occur at a personal, organizational, and community level, because this study dealt with personal empowerment, the research was limited to that level. The search was not limited to educational programs and included other strategies that may empower women. Table 1 is a summary of the results of this search. Challenges related to this part of the literature review are those indicated by Sheilds (1995); a lack of clear conceptual definitions of empowerment and the variety of situations the definitions of empowerment cover from individual to social perspectives. I would also add as a limitation, a lack of clear indicators that empowerment is present or has occurred.

Table 1: Summary of Definitions and Indicators of Personal Empowerment for Women

Author(s)/ (Year)/ Location	Focus / Participants	Definition	Indicators
Rusness (1993) New Mexico	Nutritional education/ 9 homeless women	A new consciousness/awareness that one's life and the world can change (p. 78).	-Ability to talk with each other about common issues -Enhanced self-esteem -Sense of community -Greater realization of personal power
Leuning & Ngavirue (1995) Namibia	Safe child care/ 52 women	Growth of personal strength, power and ability to enact one's own will and love for self in the context of love and respect for others (p. 539)	-Increasing vitality -Freedom from worry -Opportunities to Increase financial security -Strengthened parenting competence -Personal satisfaction and a sense of fulfilment
Shields (1995) Oregon	Meaning of empower-ment	Defined by the women as three themes: Emergence of an internal sense of self; movement to action; and connectedness	-Claiming pieces of their identity -Developing self-value -Developing self-acceptance -Developing self- knowledge

Table 1: (continued).

Shields (con't)			-Ability to have voice -Ability to take positive risks -Development of a sense of competence -Emergence of refined thinking and learning patterns -Intrapersonal connectedness -Interpersonal connectedness
Too (1996) Great Britain	Pregnant women 10 women	Defined as helping people to assert control over the factors which affect their lives or health.	-Being an active participants in decisions around labour and birth - Having control over decision-making and comfort during labour -Increased self-esteem

The studies located covered a variety of situations. Most of the studies located used some variation of either the definition of Friere (1970) or Gibson (1991) in defining personal empowerment. Indicators identified ranged from those of having control over

some facet of one's life, to a feeling of self enhancement in some way, e.g., increased self-esteem. Personal growth and community involvement were other indicators identified. These studies show the many positive benefits that may accrue from using an empowerment model; some anticipated and some not. However, the indicators were consistent with how empowerment is conceptualized.

Summary and Conclusion

The literature on nutritional status of women during pregnancy in developing countries suggests that it is a huge problem leading to maternal and infant mortality and morbidity and poorer quality of life for the women. Most of the information on the extent and type of malnutrition experienced by pregnant women comes from the NGOs that monitor world hunger and give us a broad overview of the problem. The two problems of malnutrition most frequently reported in pregnant women are CED and micronutrient deficiencies, especially iron, vitamin A, and iodine. During pregnancy, iron is the micronutrient most frequently described, because of the negative effects of anemia on pregnancy. Good detailed population studies in individual countries are less available, but some are starting to appear in the literature, including studies in parts of Indonesia. What these studies indicate is the necessity of identifying vulnerable populations at increased risk for nutritional problems in pregnancy, and going beyond descriptive studies with these groups to intervention studies to deal with the problems

identified (Flaskerud & Winslow, 1998). However, these studies do confirm that malnutrition in pregnancy needs urgent attention.

The problems of obtaining adequate nutrition for pregnant women are multifactorial and are related to economic, social, and cultural factors. While the economic situation in many developing countries pose a number of hardships for lower socioeconomic families, economics is not the only factor explaining why these women do not have good nutrition. Social organization, which includes patterns of food distribution within households, maintains a system which sees women eating "last and least". Higher education and knowledge about nutrition helps break down some of the social barriers, and seems to be related to women having better nutritional practices. Finally, cultural factors, especially where women adhere to traditional beliefs about food in pregnancy, may also work against women obtaining an adequate diet. Studies on cultural beliefs in pregnancy in Indonesia demonstrate that many of the beliefs about food prohibitions and restriction still persist in many areas of the country.

There is good evidence to suggest that nutritional education programs can have a positive impact on improving nutrition in pregnancy, but success is highly dependent on the approach used to conduct the program. One of the limitations in finding evidence to support the effect of nutritional programs in developing countries is that many of the programs are run by NGOs, who either do not conduct a systematic evaluation or if they do, do not publish them. Studies done with lower socioeconomic

groups, mainly in the United States, suggest programs are effective if they have an approach that meets the attendees' needs. One of the approaches that works best is a program that has empowerment as a component; whether that empowerment is a conscious strategy or not.

Health education programs targeted to women based on an empowerment model are reported in the literature. Women involved in these programs report a number of positive effects on their lives as a result of taking part in these programs. These programs have resulted in personal empowerment, as evidenced by a greater sense of community with other women in similar circumstance, increased self-confidence and awareness, and feelings of some control over one's life and circumstances. Although the support for nutritional improvement with these programs is perhaps more tenuous, at least some of the necessary preconditions for women being able to make changes in their nutrition are developing.

There are three challenges in the study of empowerment: first, a lack of consensus about how to define empowerment, second, no clear distinction between empowerment at the individual level (personal empowerment), versus broader levels (organizational or community empowerment), and third, indicators of empowerment not clearly explicated. The proposed study will attempt to contribute to the latter, by identifying indicators of empowerment resulting from developing and implementing a prenatal nutrition program for poor women in a rural area in Indonesia.

CHAPTER 3

METHODOLOGY AND METHODS

In the study I used action research as a means of trying to improve women's health during pregnancy. I worked with a group of lower socioeconomic status, rural pregnant women in Waru Jaya, Indonesia to improve their nutritional intake. Together we developed a prenatal educational model based on Freire's (1970) strategy of education as social change, to empower these women to improve their health. Through an empowerment process, I aimed to improve the nutritional intake of the pregnant women who participated, within the limits of their socioeconomic situation. I also developed a theoretical framework to describe the women's empowerment that resulted from their involvement in the prenatal education program. This chapter is divided into nine sections: action research, conceptual framework for the study, participants and recruitment, setting, data collection methods, prenatal nutritional strategy, data analysis, trustworthiness, and ethical considerations.

Action Research

Action research is a social research approach, carried out by a team that is composed of a researcher or researchers and members of an organization or community, in order to improve some situation in the organization or community, and simultaneously to study the effects of the action (Greenwood & Levin, 1998). In an action research study the researcher attempts to involve fully the organizational or community members in the entire research process. Within nursing the purpose of action research is to find a solution

to a health or clinical problem that has applicability to a particular practice situation (Streubert & Carpenter, 1999). A fundamental assumption of action research is a belief that participants and the researcher, together, can develop their capabilities to deal with the problem being studied. This implies that participants are given a chance to understand their situation or problem and to develop effective solutions. The basis of action research is "look, think, and act", through a constant process of "observation, reflection, and action" (Stringer, 1996). Action research aims to increase the ability of those involved to have more effective control over their lives and to improve their capacity to solve their problems.

There are four characteristics common to all action research. First, is an attempt to find a solution to a problem in practice, second, is a collaborative approach that involves all concerned with the problem and solution, third, is implementation of some strategy or change, and the fourth, is a theorization of the process (Streubert & Carpenter, 1999). A variant of action research is participatory action research, where collaboration between researcher and participants is stressed throughout and which has empowerment of participants as a key part of the process. The characteristics as outlined above were present in this study. Throughout the research, I attempted to work with the pregnant women in the village to find a solution to poor nutrition during pregnancy, a common problem encountered in community health nursing in rural Indonesia. I worked with the women as collaborators in defining the extent of the problem, making suggestions for a prenatal education program, and evaluating the outcome of the program. Together we

implemented a strategy of empowerment as a mechanism of change. The final step of the research was the development of a theory of empowerment that I presented to the participants and they confirmed as representing their experiences.

Empowering Education: Conceptual Framework

The conceptual basis of action research in the present study is based on Freire's (1970) educational approach. Paulo Freire was a Brazilian educator and reformer who developed an innovative strategy of adult learning and social change during the 1960s. In contrast to traditional education approaches, his approach was to consider teaching and learning as a mutually interactive exchange between teacher and learner, whereby, the learner and teacher teach and learn at the same time. Since adult development is facilitated by a group approach, the group process is organized to improve creative problem-solving. In this process, the participants are encouraged to reflect on their situation and the learning that is occurring within them. The psychological keys to the learning process are reflections about oneself, discussions about others' reflections, and cooperation with ones' peers to change things for the better. It is when the participants struggle with their thoughts, feelings, and the skills of others, that they are able to grow intellectually and emotionally.

Freire (1973) was convinced that "the role of people was not only to be in the world but also to engage in relations with the world". Through the adult education process he envisioned, people were able to be fully integrated in the educational process. It is through this educational process that people create and re-create the reality of their

culture. This reality is expressed as "subject to object" and results in knowledge which can be expressed through language. It is through creation and re-creation that people develop a critical consciousness and try to find the cause of their problems. An assumption of this approach is that the more accurately people can grasp the true cause of their problems, the more critical they will be in understanding their reality. With every understanding, sooner or later there is a corresponding action. Furthermore, when people perceive a challenge, they try to understand this challenge, recognize possibilities of response, and take an action. Critical understanding leads to critical action. Dialogue is a basis for action because it helps to establish empathy, relationships, and communication between people who become linked by love, hope, faith, and trust.

Action research was described by Freire (1970) as a means to develop an "empowering" educational program. In this approach, there are three methodologies that form the basis for empowerment. The first methodology consists of listening to and understanding the issues involved. In this phase participants identify problems and determine their priorities. This occurs through a partnership approach. In approaching prenatal nutrition with the women in the study we explored the problems and issues associated with food availability, distribution, beliefs, and consumption. The second methodology is a participatory dialogue about the issue being investigated, where a problem-posing methodology uses a "codification or code" as a trigger to improve the participant's awareness of the issues. As a group we met and discussed three major problems, food distribution in the household, the women's decision-making abilities

about her health, and accessing prenatal care in an attempt to find solutions to these problems for the women involved. We particularly wanted to create an awareness of perceived barriers in these three areas. The third methodology is action, or positive change, as efforts are made to solve the issues. In order to create a successful empowerment educational program, the three methodologies must be conducted continually through a process of reflection and action. Our action was a prenatal education strategy and the women began to incorporate change in their lives. They were encouraged to reflect on and discuss these changes.

Participants and Recruitment

The primary participants in the study were pregnant women in Waru Jaya village in West Java, Indonesia. Other participants were the cadres or community volunteers, as they are the people in the village who assist with prenatal and infant care, through their activities with the posyandu. Pregnant women were recruited by the cadres for the study if they met the following inclusion criteria: 1) were resident in Waru Jaya village, 2) were physically and mentally able to follow the research process, 3) gave informed consent to take part in the research, 4) were able to speak and understand Indonesian or Sundanese, and, 5) were in no more than the second trimester of pregnancy because of the time required for the study. Those women in the third trimester of pregnancy and who chose not to participate in the research, were welcome to attend whatever part of the program they wished to attend. Some took part in the focus group discussions and/or the prenatal education program.

Following ethical approval from the Human Investigation Committee (HIC) Memorial University of Newfoundland and the Komite Ethic Penelitian [Research Ethics Committee] University of Indonesia, I met first with the Director of the Puskesmas in Parung, next the village midwife, and then the village leader to explain the study and obtain their support. After contact with these individuals, I met with the leader of the cadres and the community leader in each dusun for an explanation of the study and to obtain their cooperation in helping with the research. The cadres agreed to be responsible for approaching potential participants, who fulfilled the selection criteria, and asking them if they would agree to be interviewed by the researcher for inclusion in the study. The cadres knew many of the pregnant women in the village because of their work with recruiting them for care at the Posyandu.

A total of 22 pregnant women who met the inclusion criteria, from the approximately 40 known pregnant women in the village, were identified by the leaders of the cadres during the first week of February, and were approached for permission for me to contact them. Seven of these potential participants lived in dusun Melinjo, nine in dusun Waru Kaum, and the remaining six in dusun Cidokom. I approached all women who had agreed to be contacted and held an initial visit with them in order to provide a clear explanation of the study and answer any questions or address any concerns. At that visit if the woman agreed to be involved in the study, we signed the consent form (see Appendix C), and scheduled a time and place for the first interview.

Of the 22 women who were approached, 19 agreed to an individual interview about their experiences of nutrition in pregnancy. Three participants declined; one had moved to her mother's house so it was not convenient for her, another did not want to be tape recorded, and a third had a spontaneous abortion before the interview could be conducted. Only twelve of these women completed and returned their 3-day food diaries of foods consumed before the program and this was reduced to ten women after the prenatal program. After the individual interviews with these 19 women, other participants dropped out of the research process. Two women gave birth prematurely before the focus groups were conducted. One gave birth at 30 weeks and the other at 32 weeks gestation. Two other participants were unable to take part in the rest of the study for unknown reasons, and one woman preferred not to be tape recorded for a second individual interview following the prenatal program. This left a total of 14 women who took part in the study.

The ages of these participants ranged between 19 and 37 years. Based on pregnancy "risk" classification by age, two of the women were older than 35 years, four were under 20 years (19 years of age), and the remaining were between 20 and 35 years of age. In keeping with the usual pattern of marriage in rural villages in West Java almost all the participants had married when they were less than 20 years of age. Only one of the participants was at least 20 years old when she married.

As per the inclusion criteria for participation in the study, the women were between 2 and 6 months gestation. Most of the women were 3 or 4 months pregnant when

the study began. Six of the participants were experiencing their first pregnancy, and for one participant it was her second pregnancy. The others ranged from their third to eleventh pregnancies. The participant with her eleventh pregnancy had had one child who died as an infant, and three spontaneous abortions. Another participant pregnant for the third time, had had an abortion with her second pregnancy. The Indonesian government has a policy of requiring that each family with two children be provided with a contraception program. Despite this official program, most had two or more live children. Three women had two children under 5 years, and five others had one child younger than five years.

Many of the participants lived with their husband and children as a nuclear family in a single household. Seven women lived with their extended family. In addition to their husbands, women lived with parents-in-law, mother, or grandmother. Most of the women who lived in an extended family were pregnant for the first time. Five of the participants were accompanied by their mother during the first interview, one by a mother-in-law, and another by her mother and grandmother. All participants were Muslim, but level of adherence to their religion was not assessed. Almost all the women were original residents of the village [*Betawi*]. Some had moved from Jakarta (Metropolitan city) to Waru Jaya.

There was a variation in educational background of the participants. Some participants had only completed grade 3 or 5 of elementary school. Eight graduated from elementary school, two from junior high school, and three had a certificate from senior

high school. Only one participant had ever been in paid employment and this was as a private teacher for reading Qur'an. Occupations of spouses varied from motorcycle [*ojek*] driver, seller, driver, tailor, private teacher, fireworks maker, security guard, farmer, labourer, and unemployed.

Setting

The setting for the study was the dusuns in the village of Waru Jaya and appropriate places were selected and mutually agreed upon for each phase of the research. I encouraged and tried to use a naturalistic setting and approach for the different phases of the research, to help make the participants feel more relaxed and to avoid a gap between the researcher and participants. It is also part of action research that the work is carried out in the setting where it would normally occur. Individual interviews were scheduled at the women's convenience and were held at the women's home in places, such as the *bale-bale* [bamboo bank in front of the house] or the living room. The interviews were face-to-face and conversational. If the participants were members of an extended family and wanted other family members present for the interview, this was permitted. When such interviews were conducted, the mother, mother-in-law, grandmother, or sister sat beside the participants and were involved in the interactions. Family members gave additional information to that of the participants, especially sharing experiences about nutritional beliefs and culture. At some points family members tended to dominate the conversation and the participant was less active in the process. However, I encouraged all participants to talk about their experiences. If participants had children under five years, these

children were present, as it is the responsibility of the mother to look after the children. Some women were breastfeeding at the time the interview was conducted. The conditions and interactions I observed during these interviews were very useful, as they were illustrative of both family and environmental constraints and supports of the woman during pregnancy and when taking care of her health.

Focus groups were conducted at a cadre's house in each of the dusuns. We (women, cadres, and myself) sat around the floor for the discussions. Before the focus group began I provided a brief explanation about the study and asked permission from the women to record their experiences. Prior to the start of the focus group, I outlined some rules for the discussion in order to ensure that all the women would have a chance to be involved, and especially to give the less vocal women a chance to participate. Thirty-six women participated in the three focus groups; 14 of the original participants, 8 cadres, and 14 additional pregnant women. These additional women said that either an original participant or a cadre invited them to come to the discussion. I then read three vignettes (see Appendix D) to the participants to involve them in a problem-solving exercise and share opinions on how to deal with the situations presented. We began with the first vignette I had prepared and I asked them for comments on the situation. After they had exhausted the discussion on this one, we moved to the second one, and then the third vignette.

The first vignette was on priority of food distribution within a household and how this should occur. I purposely constructed the case, using a chicken, to vary a little from

the usual pattern. In reality at the household level in the village, the wife would give the husband the chicken breast. There is more meat on the legs, so the mother would give them to the boy. In my version the father gave the chicken head to himself, the legs to the boys, the wings to the girls, and the breast to his wife. The second vignette was on the woman's ability to make a decision about the type of health care she needed during pregnancy. I described the situation of a woman who had a prenatal haemorrhage while her husband was away working in a distant village. The woman did not seek assistance or emergency care because she was waiting for her husband to return to consult him. The last vignette was about receiving health care during pregnancy. In this situation the women had inadequate access to information and health facilities at the village level.

The vignettes acted as triggers to create an awareness among the participants of some issues I had identified from their individual interviews. Some participants discussed the issues among themselves and when they were given an opportunity to provide their opinion were active discussants, while others were not. Inactive participants just tended to smile, or say "the same as [participant]" or give a very short answer. I incorporated all the information that came from the focus group discussions into the prenatal education program. At the end of the focus group discussions, all of those present together engaged in planning how to solve the problems that the women had identified and to develop a prenatal program to meet their needs. The participants, cadres, and researcher all agreed to take part in the education program.

We designed and scheduled a prenatal education program for a two day period. The first day the setting was the house of an RT leader and on the second day it took place in a room in a village office. To promote understanding of the material, I used a flip chart as a visual aid. This flip chart containing diagrams and information was placed on the wall in front of the participants. I also designed a book on prenatal education containing frequently expressed concerns of the women (see appendix E) that I distributed to the pregnant women and cadres at the end of the first day. On the first day, I sat on the floor beside the flip chart, and participants either sat on the floor or on chairs in the room. The second day, I stood in front of the participants while they sat on the floor, when I explained some information. When I demonstrated selected exercises, the women were free to sit or assume a lying position as they wished. Some of the women took part in demonstrating and practising the exercises. Seating/standing arrangements depended on space, the activity taking place, and the usual ways such a meeting would be conducted. On both days the cadres always stayed behind the pregnant woman observing and facilitating. On the second day, at the village office, the village leader sat in an adjoining room that had an opening to the room where the program was conducted

Data Collection

Data were collected through a number of methods: interviews, focus group discussions, 3-day food diaries, pre- and post-test nutrition questionnaire, and observation.

Individual interviews. Nutritional practices of the women and influences on these practices, were collected through individual interviews with the women at two points in time. The first time was when the study first began. I used a list of semi-structured, open-ended questions to guide my questioning (see appendix F, Interview schedule 1). In this interview I asked each participant to tell me as much as she could about her nutrition and nutritional practice during pregnancy, so I could learn as much as possible. I also gave the participants an opportunity to ask any questions they wanted to ask me. Whether the women asked questions before, during, or after the first interviews, I answered all questions directly. With participant's permission all interviews were audio-taped. The first interviews lasted from between 30 to 60 minutes. Nineteen women participated.

The second set of individual interviews was conducted with the women approximately one month after the completion of the prenatal program. These were conducted to help determine what impact the prenatal education had on the woman's nutritional knowledge and practices, and to what degree empowerment had occurred. These interviews were semi-structured and open-ended (see appendix F, Interview schedule 2). The length of the interviews ranged between 45 and 60 minutes. They were held at the participants' homes. Fourteen women were interviewed.

Focus Group Discussions. Focus group discussions were held with the pregnant women and cadres in the second month of the study (the last week of March). I conducted three focus groups, one in each dusun, scheduled two days apart because of the travelling distance. Pregnant women, who were not part of the study, but wanted to attend the focus

groups were welcome to do so. The main objective of the focus groups was to provide a forum to help engage in problem-solving around the nutritional problems and prenatal care of pregnant women in the village. I welcomed and thanked all participants for coming and introduced myself to the group. I tried to help the participants to relax, be active in the discussion, share their opinions, and not to be shy about taking part in the discussion group. I assured them that all their opinions were valuable to the process because we would learn from each other. Towards the end of the discussion we talked about a prenatal education program and identified content for the program from problems suggested by the women and cadres. The focus group discussions were tape recorded and transcribed.

3-Day dietary Diary. Actual food intake was recorded at two periods through the use of a 3-day food diary (see appendix G). The first time period was before the educational program began. I gave the women a 3-day dietary diary after the focus groups and asked them to keep a record of all food consumed for a 3-day period. I explained how to record the data. Food groups used were those recommended through the nutrition program at the Puskesmas (i.e., grains, protein [legumes], protein [animal], vegetables, fruits, and milk and milk products) and amounts or portions were in common household measures (i.e., plates, bowls, glass, cup, and piece). They recorded meals for breakfast (up until 12 pm), lunch (after 12 pm. until 4 pm), and dinner (after 4 pm to bed time). After women completed the prenatal program, they were asked to record their

food intake again in the diary over another 3-day period. Comparison of food intake at these two periods enabled me to see nutritional practices before and after the program.

From the 15 diaries that were distributed to the original participants at the focus group discussions, to record their nutritional intake prior to the prenatal education program, only 12 were returned. Ten women completed their 3-day food diaries after the completion of the program, therefore, I had 10 completed pre- and post- program daily food diaries.

Nutritional questionnaire. I prepared a short test consisting of ten items and administered this at two points in time. The first time was before we began the prenatal education program, and the second time was at the end of the program. In conducting the test I had to take into consideration the variation in the educational background of the women and so I to read the items to those unable to read. The content of the questions covered major nutritional demands that pregnant women need to know, including changes in the body, body weight, and nutritional and exercise needs (see Appendix H). The participants were asked to choose whether the statements were true or false. The women's responses helped me to have a sense of what they knew about nutrition and how this knowledge may have been improved by the prenatal program. All participants who attended the prenatal program completed the pre- and post- program nutritional questionnaire. I had comparative nutritional scores for all women who participated in the study.

Observations. Over the four months of this action research study, from early February to the end of May 2001, I spent a great deal of time in Waru Jaya. This enabled me to gather detailed observational data. I wanted to find out as much as I could about some of the barriers the women faced in improving their nutrition and health during pregnancy. I visited the nearest traditional market and a number of food kiosks in the village to find out about food availability and costs. I also visited the women in their homes and could see the distances they had to travel between their homes and services and amenities. I carefully recorded all my observations in the form of field notes to supplement other data collected.

Prenatal Nutrition Education

Prenatal nutritional education was chosen as a strategy for empowering the women through their knowledge about nutrition during pregnancy. Planning for the prenatal education was carried out by the women, cadres, and myself. Based on the group's input, from the first individual interviews, first set of food diaries, and the focus group discussions, I developed a prenatal nutrition program that contained information and content relevant to the pregnant women's needs. In addition to prenatal nutrition, participants wanted to learn about physical and psychological changes during pregnancy, healthy eating, the process of birth, preparation for delivery, relaxation techniques, and exercise throughout pregnancy. To reinforce and support the information they wanted, I developed a booklet that could be distributed to the participants and to the cadres. The content of the booklet included changes during pregnancy, healthy eating, relaxation

techniques, and the birth process (see Appendix E). The booklet turned out to be very popular with the women and many mentioned it in my second interviews with them. In designing the booklet, I took into consideration the educational background of the participants and tried to meet their level of understanding. The booklet consisted of pictures as well as words. During the program instruction I used flip charts as a medium to explain the material.

Prior to conducting the prenatal program, I contacted the Director of the Puskesmas in Parung, the village midwife, and village leader to inform them of the progress of the study and what I planned to do. I also welcomed them to take part in the program but none did so. They agreed to my conducting the program in the village hall and the participants were agreeable to this site as well. The program was conducted in the first week of April 2001 over a two day period. The program consisted of two sessions, each session lasting about three hours per day. On day one we discussed changes during pregnancy and healthy eating. On the second day, we covered the birth process and how to prepare for birth. I also demonstrated relaxation techniques and exercises in pregnancy. Some of the women practised these techniques. The pre- and post nutritional questionnaires were administered on these two days; before the educational program started and after it was over.

There was a higher than anticipated turnout for this two day program. On the first day there were 45 participants; 33 pregnant women and 12 cadres, while on the second day 32 pregnant women and 12 cadres attended. Fourteen of the pregnant women were

research participants in the whole process. There was a very high motivation among pregnant women in Waru Jaya village to take part in the prenatal education program. The women and cadres even asked me to continue the program by continuing to hold weekly meetings. Based on this request from the women and cadres, I continued to hold prenatal education classes every Tuesday morning from the second week of April until the end of May when I returned to Canada. These meetings took place at one of the cadre's houses. At these meetings we discussed issues such as breast care, bathing the newborn, umbilical cord care, food for infants, and contraceptive methods.

Data Analysis

In qualitative research, data analysis often focuses on the spoken word as represented in text from interviews or other sources (Miles & Huberman, 1994). All data in this study had been recorded in some textual form, either as tape recorded interviews (individual and focus groups), field notes, completed food diaries, or nutrition questionnaires. All tape recorded data were transcribed verbatim within two weeks after the interview process and checked for accuracy. Since the interviews had been conducted in Sundanese or Indonesian, they had to be translated into English and once again checked for accuracy.

Data from each source were coded and grouped into common themes or categories that helped to describe that particular part of the research. For example, data from the individual interviews described the women's nutritional practices during pregnancy, influences on these practices, knowledge of nutrition during pregnancy and where the

women received the information, cultural obligations and prohibitions, and what the women would like to learn in a prenatal nutrition education program. Focus group discussions were coded and grouped for common themes related to the problems posed and problem-solving approaches. Final data analysis of individual interviews were done to determine the conceptual categories of the empowerment model. A constant comparative method of data analysis was used for all the interview data (Glaser & Strauss, 1967) to make sure that all data were accounted for in the analysis and that good data reduction occurred.

A daily average food intake by portion and food group was created from the data from the 3-day food intake diary for each time period. Average amounts were then compared by participant, pre- and post- nutrition education program. Likewise, each participant was given a score on the pre-and post- test nutritional questionnaire and the scores compared.

Trustworthiness

In any research study it is important to establish trustworthiness of the findings to ensure that the findings accurately reflect the participants' experiences. In this study I used two main methods to ensure trustworthiness; credibility and confirmability.

Credibility is defined as a process that helps to ensure that the findings from the research are reflective of the data (Green-Wood & Levin, 1998). LoBionda-Wood and Haber (1998) define it as, "truth of findings as judged by participants and others within the discipline" (p. 238). Credibility addresses how well the research findings represent

the phenomena studied. Because I used a participatory action research approach, I worked closely with participants throughout the study, giving frequent feedback to ensure I had accurately captured their experiences. At the end of the research process I presented the results to the women who participated and to the cadres, as a group. I also clarified any outstanding issues they had related to nutritional practices. Each participant was given an opportunity to provide any additional information if she so wished. A qualitative study is considered credible if the participants recognize their experiences in the findings (Streubert & Carpenter, 1999).

Confirmability refers to whether someone else is able to follow the decision trail of the researcher and arrive at the same conclusions or interpretations. In order to demonstrate confirmability, I worked closely with my thesis supervisory committee in the data analysis and interpretation. In this study one of the concerns around confirmability was related to the fact that the data were recorded in Indonesian and Sundanese and translated to English. To ensure accuracy of translation and confirm the findings, both the Indonesian and English texts were given to one of my supervisory committee members, who is fluent in both languages.

Ethical Considerations

The proposed study received approval from both the HIC, Memorial University of Newfoundland, St. John's, Newfoundland, Canada (see Appendix I - 1) and the Komite Ethic Penelitian [Research Ethics Committee], Medical Faculty of the University of Indonesia, Jakarta, Indonesia, (see Appendix I -2). Throughout the research, I took several

steps to guarantee high ethical standards and protect the participants. I provided explanations to the participants using simple language in Indonesian or Sundanese so they could more easily understand the research and what their participation entailed. The explanations included the purpose of the study, data collection, an example of questions and length of the interviews, and the participant's rights and obligations during the research study.

If the woman agreed to take part in the research, we both signed an informed consent form (see Appendix C). One of the participants was illiterate, so her husband was present for the consent process, and with her agreement, signed the consent on her behalf. Participants were also informed they could withdraw from the research at any time and this withdrawal would not affect their participation in the prenatal education.

Confidentiality was ensured by not linking participants' names to any data. All tapes, transcriptions, food intake diaries, and questionnaires were kept in a secure place. When conducting the research, I emphasized privacy and confidentiality of information to the participants and assured them that their information would only be seen by myself and my supervisory committee.

CHAPTER 4

FINDINGS

For lower socioeconomic pregnant women in rural Indonesia, becoming empowered, and making changes in nutritional practices and health behaviours, is a challenging process. The women I worked with had to learn to deal with a number of complex issues that interfered with their ability to have as good nutrition as possible given their socioeconomic circumstances. First, they needed to become conscious of many of these issues, weigh the importance of the issues for themselves, and then decide what to do about their issues. This was particularly true for cultural prohibitions and the influence of mothers and mothers-in-law. I could certainly identify with that because during my pregnancy I had had similar experiences. When I was pregnant in 1993 and 1995, because of my knowledge as a nurse, I tried to eat all the foods that I liked and were good for me, although I knew some foods were culturally prohibited during pregnancy. Even though these people knew I was a nurse, they told me about what foods were prohibited and which ones I was obliged to eat. My mother and mother-in-law also told me about these foods. I would tell them there was no relationship between these foods and outcomes of pregnancy. Sometimes they were angry when I told them this. Just before I gave birth, my mother-in-law asked me to drink coconut oil and to eat a raw egg in order to make the birth easier. In contrast to what I knew, I consumed these because I

was afraid something would happen during birth. I had healthy babies weighing 3300 and 3700 grams. I could not help thinking as I worked with the pregnant women in the village, that if, as a well-educated health professional, who knew about nutrition in pregnancy, I was torn between cultural beliefs and eating well, how would it be for women who perhaps only had cultural beliefs to guide their food intake?

This chapter is an exploration of the empowerment process that resulted from the research process. It includes the changes that occurred as a result of the women's participation in the prenatal nutrition program. The chapter is divided into two main sections. The first section, the process of becoming empowered describes eight themes that capture the empowerment process: being motivated to change, gaining new knowledge, making changes in nutritional practices, weighing cultural beliefs, increasing self-confidence, developing social relationships, improving decision-making abilities, and working to overcome barriers. The second major section contains the conceptual model of the empowerment process that occurred as a result of the research.

Becoming Empowered

My main work with the women was to try and find a means of helping them to improve their food intake during pregnancy. The strategy that we developed was a prenatal nutrition program, which was broadened to discuss problem-solving strategies, around other concerns and learning needs during pregnancy. The women identified these through my interviews with them and in the focus groups when we discussed three common problems these women encounter in their daily lives. These common problems

were food allocation in the household, decision-making about health care, and access to and obtaining prenatal care.

In working through the various issues these women had to deal with, and comparing their situation prior to, with that after the completion of the program, I saw a great deal of growth in these women. The growth was behavioural, but also attitudinal. This growth was their "empowerment", and the following themes capture this growth, defined as "becoming empowered". These themes were interrelated and the order of presentation does not represent the order of importance, as all themes were important to the women who participated.

Being Motivated to Change

Motivation is a critical precondition to change. Perhaps the fact that the women agreed to be part of the research meant they wanted to change. Motivation was very good and evident from the beginning of the study. When I first interviewed the participants, and later, during the focus groups, they told me they wanted to understand about pregnancy, and that they wanted to have a healthy baby. Having a healthy baby was the initial motivator, but that broadened to include healthier living for themselves and their families. In the beginning of the study when I was working with the women to identify their learning needs, one participant told me she would like "*health education related to a healthy pregnancy*" and another said she wanted to know "*about a healthy baby and a healthy pregnancy*". The women also told me they would like to be able to meet with

other pregnant women to discuss common problems associated with pregnancy.

Their motivation to change was demonstrated by their wanting to know the desired information in greater depth. Although the women may not have read about pregnancy before, after the program they were reading the booklet I prepared for them. They were able to report on some of the changes they saw in themselves, viewed differently what was occurring in their bodies, and how they felt about these, and they reported changes in their behaviour. Two examples that show some motivation to change are:

> *I read the book more, I read it again and again . . . I knew that when birth started it was painful, but from reading the book, I know even more, I know it in depth.*

> *You* [the researcher] *taught about exercise for pregnant women. I am happy. I often do* [exercise] *at home, although perhaps I do it wrong . . . even at night, I try to do* [exercise].

Many of the participants wanted to try and incorporate what they were learning about nutrition into their daily living. They were paying attention to the nutrients in their food, trying to shop for healthier foods, and improving their food intake in quantity and quality. Being motivated to change nutritional practices was evident in what the women told me in the follow-up interviews, when I asked them what they were doing differently with their food intake after the prenatal program, and why. Some of these changes were reinforced by family members who took an interest in the women's learning. These reinforcements served as additional motivators to improve prenatal nutrition. Two of the women explained their motivation:

> *I try to cook different foods every day. I mean . . . those* [foods] *have vitamins that are healthy for pregnant women. During this pregnancy I always think about what kinds of food contain good vitamins, such as carrots. Really I did not know* [before the program] *what the yellow vegetables were.*
> *Now, my husband asks me to eat carrots and spinach. He seldom did before. I didn't really eat carrot before the activities* [program], *but I like it now.*

The motivation to eat more healthily and to improve their nutrition in pregnancy in order to have a better pregnancy outcome was very strong. It was strong enough to help them overcome some of their previous food dislikes. A number of the participants had told me they did not like foods such as eggs, fish, or different vegetables. After the program when I noticed that these foods were in the food diaries, I asked the women about them, and what was happening:

> *After following the activities* [program] *I try to eat much more. Even if I do not like it, I try, . . . Alhamdulillah* [Thanks to God] . . . *I pay attention to nutritious food.*

> *I did not like it* [egg] *before. Basically, since I followed* [prenatal program] *I know that it is good for my baby. Now I pay attention to foods. Since I know it is good for pregnancy, I like it.*

Towards the end of the research the participants were more open to change. Not only did they have a better understanding of their needs during pregnancy, they had a clearer sense of what was healthy and what was not. They tried to work through the information they had received in the prenatal program, how it helped them, but more importantly, why they were changing certain behaviours. From the women's comments, I could sense they wanted to try and make changes in their lives. What was even more

positive and encouraging, and why I believe that this theme is part of becoming empowered, was the way they spoke about themselves, after they changed their behaviour or attitudes. They felt a real sense of accomplishment and described themselves as "happy", "proud", or "losing their fear". One of the women, who felt especially good about her personal changes told me:

> *I tended to stay at home. If anything happened, I was nervous and afraid. If I wanted to ask* [about health] *I was shy. Since I now know more, I feel like a woman who has more experience, even though this is my first experience with pregnancy. Now I am not shy to ask the midwife, for example, when she examined me, I asked her the result of the examination.*

The program seemed to contribute to the health status of the women. They talked about now feeling well, fresher, calmer, or having no complaints. Taking part in the program did help the participants to change some of their negative behaviours to positive ones. One of the participants was successful in stopping her consumption of coffee because of the possible negative effects on her unborn infant. In this case knowledge of caffeine in pregnancy was a good motivator:

> *Many benefits* [from the program], *such as I really like to drink coffee. When I found out that pregnant women should not drink coffee then . . . I thought about it. Now Alhamdulillah* [Thanks to God], *I was not only able to decrease but I could stop . . . coffee consists of caffeine, and I am afraid of the effect on my baby.*

Changes the women experienced motivated them to try and recruit other pregnant women in the village into the program. These women wanted others to experience what they were experiencing as a result of their participation. The reason that there was an

increase in number of pregnant women attending both the focus groups and the educational program was that the original research participants, and some of the cadres, were active recruiters. Of course, not all attempts at recruitment were successful, but that did not change the participants motivation, or assessment of the benefit of the program, for them:

> *My mind has been changed . . . calmer. Many of the women here* [her areas of the village] *are six months pregnant. I asked them to follow the activities* [program] *but they said "no". We asked some others, but there was no response. It is o.k., but I am happy because I know more. You learn from the other pregnant women, and the other pregnant women also learn from you.*

Gaining New Knowledge

Prior to the prenatal education strategy, basic knowledge of nutrition varied a great deal among the participants. Some had a knowledge of nutrition and pregnancy, and how nutrition affected the developing fetus, while others did not. During the first interviews, when one participant was asked how food was related to pregnancy, she responded, "I don't know". When I questioned her further about the impact of the food that she ate on the baby, she told me, "There is no impact". However, she did feel there was a connection between problems in pregnancy and nutrition, but was unsure what they were. She also told me that during pregnancy she needed to eat foods like milk, eggs, and vegetables, but did not know why.

The situation described above is in contrast with another participant who told me that fetal growth was dependent on, "good nutrition, exercise, and rest" and "if nutrition

and exercise are enough . . . the baby will be healthy". This woman was experiencing a problem gaining weight during pregnancy and was concerned about it. Although she knew there was a connection between food and weight gain she wanted to know more about it. Other women were desirous of specific knowledge of nutrition and pregnancy.

One of my research questions was "who gave these women information about prenatal nutrition?". I was particularly interested in the influence of family members, e.g., mothers or mother-in-law, neighbours, other women who had experience with pregnancies and birth, and health care professionals. As some participants explained:

> *Beside parents, from neighbourhoods and the midwife when I am examined...*
>
> *I know somebody told me, friends...also the cadres...*
>
> *When I was in senior high school, my teacher gave us information...grandmother...she said that when I am pregnant there are many prohibitions...From women who had been pregnant, they said...*

One woman said that she knew about food she should eat during pregnany from other pregnant women because she heard about nutrition on television. Another said that the traditional birth attendant gave her information.

The most frequent source of nutrition education for pregnant women was the bidan or midwife. The bidan was also criticized because the women felt that although she knew about nutrition, she did not give them the necessary information to improve their diets. Teachers in the school system also were identified as resources of nutritional

education, at least for the women fortunate enough to remain in school until the level when this was taught. Other health professionals were hardly mentioned.

One of the benefits of the prenatal program, which all women mentioned, was how much they had learned. Every participant felt more knowledgeable about some aspect of pregnancy, child birth, or care of the newborn. In the interviews at the end of the research, a number of women recounted what they had learned and how helpful this knowledge had been to them at some point in their pregnancy. The women who gave birth after the program, and before I finished my final interviews, told me how much the knowledge they had gained helped them during the birth process. They said they had time to read the booklet a number of times and use the information in the booklet to help them with their deliveries:

> *I was happy with my pregnancy, because of the activities. I was ready for childbirth and prepared everything myself. At the time* [labour started], *I read the book. Starting in the afternoon, I tried to follow the suggestions, and if one was not helpful, I tried another. I was thinking when the baby came out, how long it would take for the afterbirth to come out. I was afraid I would have to go to Parung* [Puskesmas] *like I did the last time to have the afterbirth removed, because I had no money.*

> *Before, when I saw women who had given birth to their first child, they had many difficulties. However, I am Alhamdulillah* [Thanks to God] *not like that. After reading the book, I practiced and Alhamdulillah* [Thanks to God], *it has helped me much. Although my baby is small, he is healthy and five days after birth, his umbilical cord separated. I could cook and was really mobile.*

The women who used the information about pregnancy and birth in the booklet that I designed for them, rated it very highly. This information not only improved their

knowledge about pregnancy and their developing infants, but made them more aware of their bodies and what they were experiencing. One woman in commenting on how the booklet was helpful said:

> *When I was pregnant before, I was just examined* [by the bidan]. *I never knew anything like this* [prenatal development], *nothing. I never knew . . . We can see pictures of the baby's development in our belly from your book from a month, to two months - until nine months. Now I know more. I never knew before, now I know after seeing the pictures.*

The content in the prenatal programs provided them with additional knowledge and they were pleased with what they were able to learn. This pleasure came from knowing that the knowledge had made a difference to how well they felt they could handle their pregnancies and improve their health during pregnancy. During the final interview with individual participants, one woman contrasted her knowledge before and after the program as follows:

> *Before I did not know how contractions worked, or how to do good exercise in pregnancy. Often now I follow what I learned. Now I know more about nutrition for pregnant women, than I knew before you* [the researcher] *came.*

One of the methods I used to find out what the women had learned was through a pre and post test on a nutritional questionnaire. I compared the results of the test taken at these times to evaluate the impact of the prenatal program on the participants' level of knowledge. Table 2 is a comparison of the women's scores at these two time periods. The average pre test scores was 75% (SD = 13.82) and this increased to 87.14% (SD = 9.94) post test. The mean percentage change was 20.09%.

Table 2: Pre and Post Test Scores on the Nutritional Questionnaire (N = 14)

Participant Number	Pre Test Score %	Post Test Score %	Change (%)
1	60	90	50
2	60	80	33
3	90	90	0
4	90	80	-11
5	80	80	0
6	60	100	67
7	100	100	0
8	70	100	43
9	80	100	25
10	60	80	33
11	70	70	0
12	80	90	11
13	*	80	--
14	*	80	--
Mean	75	87.14	20.09

* Did not take the pre test

The empowering effect of knowledge is well known, and this effect was found among this particular group of participants. In fact when they talked about the new knowledge they had gained, it was almost always in conjunction with the way they felt about having this knowledge. One of the best illustrations of this is the woman who said since she had gained new knowledge, she felt the change made her "braver". She is now able to "just take control, and do things directly".

Making Changes in Nutritional Practices

One of the assumptions I came into this research with was that the prenatal nutrition practices of women in the village were problematic, because it was identified as a problem in a health needs assessment that had been carried out in the village. However, I did not know the extent of the problem and how women were affected. One of the first steps in the research process was to find out more about the extent of the problem from the women's perspectives. This was done through individual interviews and through the use of a food diary.

Early in the study when I began the individual interviews with the women, I asked them what type of foods they consumed during pregnancy and why they ate these foods. A more systematic collection of food consumption was done by a daily food diary. In general, many participants consumed rice, leafy vegetables, tempe [fermented from soya bean], tofu, and salt fish as part of their daily diet. Rice is the main food among Indonesian people. Not surprising then rice was of great importance to these participants because even though the women may have eaten many types of foods during the day, if they had not eaten rice, they did not consider that they had a complete diet that day. Protein sources mainly came from plant/legume and sometimes fish and egg. Chicken and meat were seldom consumed except on special occasions, such as a Muslim celebration, or when they had more money. If confined to celebrations, it meant that the participants may have eaten meat only once a year. Examples of what the women ate were given by two participants:

> *Definitely I eat tofu and tempe. Usually my daily food consists of rice, sambal* [a mixed of hot chili, tomato, salt, sugar, and terasi/fermented from shrimp], *soup* [vegetables and water], *and if available, salt fish, but I do not eat fish everyday. Vegetables such as kangkung* [leafy green vegetable that grows in the water] *and cassava leaf; spinach I seldom eat. I just eat those foods because they are available.*
>
> *I eat cassava leaf every day,... Leafy vegetable is cheaper. I never see meat, except once a year. Eating meat is just for the Muslim celebration* [Idul Fitri].

The daily diet of the participants consisted mainly of vegetable sources. There was a lack of attention to sources of protein, especially animal protein. Participants did not eat much in the way of fruits. Some ate papaya and banana which was readily available in the village. When fruit such as rambutan, duku, jack fruit, and durian were available, the participants ate them. Fruit consumption then depended on the season. Almost all the participants said they seldom drank milk because they simply could not afford it.

A more systematic assessment of the adequacy of the women's daily nutritional day was a 3-day food diary where they recorded food they consumed before the program, and again after they completed the program. For this 3-day diary the women were instructed to use common household measurements, i.e, glass, cup, or piece to estimate the portion of food they ate. I used the recommendations from the Ministry of Health to

determine nutritional adequacy during pregnancy. These are 4-5.5 portions of grain product, 2-4 portions for plant/legume protein, 4-5 potions for animal protein, 2-3 portions for vegetables, 3 portions for fruits, and 1 portion recommended for milk (Departemen Kesehatan RI: Ditjen Pembinaan Kesehatan Masyarakat Direktorat Bina Gizi Masyarakat, 1996).

Improvements in daily intake of nutrition were indicated not only by amount of consumption of food but also by a change in type of foods. Table 3 is a comparison of food categories and amounts prior to and after the programs. Greater changes took place in the consumption of grain products and legumes, with less change in animal protein and vegetables, and virtually no change in fruit and milk. In the follow-up interviews with the women, I asked them about changes they made to their food intake. Some told me that they may not have increased their total food intake, but that they gave more attention to what they ate. They tried to include more fruit or protein in the form of fish in their diets. Others described more careful buying at the food kiosk:

> *When shopping I check the nutrients. I choose green vegetables now, fresh vegetables and tofu and tempe.*

> *I pay attention to the food. I look to see what food there is that will be good for my children, and what food is good for me.*

Other women changed the frequency of their meals during the day. These were women who did not consume much food at the regularly scheduled meals. Now, because they knew the importance of their food intake for their baby, they wanted to have a better diet.

Table 3: Comparison of Nutritional Intake Pre and Post Program Based on a 3-Day Average of food Categories and Amounts Recommended

Participant	Grain Product 4-5.5 Portions		Protein Legume 2-4 Portions		Protein Animal 4-5 Portions		Vegetable 2-3 Portions		Fruit 3 Portions		Milk 1 Portion
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1T2
1.	3	4	2	2.7	2.5	2.7	3.5	4.3	0	0.3	00
2.	7	7.3	4	2.3	2.5	3.7	3.5	3	0	0	00
3.	4.5	4.5	2.5	3	1.8	2	1.8	2.7	0	0	00
4.	4.5	4.3	1.5	3	0.5	0.7	2	1	0	1.7	00
5.	3	3.7	1	2.7	1	1	0.5	0.7	0	0.3	00
6.	6	*	7.5	*	2.5	*	2.5	*	1.5	*	0*
7.	4.5	6.7	3	4.5	1.5	2	2	3	0.5	0.7	00.3
8.	4.5	2.7	3	1.7	2	2	2	1.3	0	2	00
9.	4.5	*	2	*	0.5	*	1	*	2	*	00
10.	5.5	6.7	4	1	0.5	0.3	1.8	1.7	2.5	3.3	00
11.	2.5	3.7	2.5	1	1.5	1.3	1	1.3	0	2	00
12.	3.5	5	5	4.7	1.5	2.7	2	2	0	0	00

Note. * Did not complete. T1= Time 1 prior to the program; T2= Time 2 after the program. Based on RDI of food categories for pregnant women in Indonesia (Departemen Kesehatan R. I.: Ditjen Pembinaan Kesehatan Masyarakat, Direktorat Bina Gizi Masayarakat (1996). *Panduan 13 pesan dasar gizi seimbang*. Jakarta: Departemen Kesehatan Republik Indonesia (p. 50).

One of the changes that some women made was to choose foods they did not eat before, because they did not like them. Now that they knew they were good for them, they were more willing to include them in their diet. When I asked one woman if there were changes in the food she ate after the program she responded:

> *Yes, I now like eggs and chicken livers, when in fact I did not like these before. Chicken livers are available at the kiosk.*

Other dietary changes the women made were related to cultural beliefs, and these are described in the next section.

Weighing Cultural Beliefs

Cultural beliefs were very strong among the women I interviewed. They also played an important role in influencing the women's nutritional practices. One strategy that women used to look after their health in pregnancy was to follow prohibitions or obligations relating to food. Many women said they believed these cultural beliefs, or at least were not willing to go against them and, as I described in the introduction to this chapter I could easily identify with their feelings.

The beliefs had been passed down from generation to generation. In the first set of interviews women told me about cultural beliefs that had been reinforced by their mothers and grandmothers. I mentioned that during some of the interviews the women were accompanied by their mothers and/or grandmothers. I could see from what these older women said that they did reinforce the importance of the cultural beliefs. Some good examples are:

Grandmother:

> *In the village pregnant women are prohibited from eating eggplant and cabbage. We need to pay attention because it is true, there is a lot of evidence* [separated placenta], *before there was a hospital. Ice and chilli are also prohibited, but not fish. I just try to advise* [pregnant women].

Mother:

> *For my grandchild, I just give information because I feel it is important. Once I inform, it depends on you* [what pregnant women do].

From my interviews it seemed that some foods were thought to have a positive effect on the baby and birth process, so mothers were obliged to eat these. Other foods were thought to have a negative effect and mothers were prohibited from eating these. Table 4 contains a summary of some of the common cultural beliefs I found among the women interviewed. Even if a woman was not sure of the validity of the belief, she still felt she had to comply. It was a strong pull as a woman explained:

> *But if I violate these prohibitions, my goodness I feel too guilty. I keep wondering if something will happen to my baby.*

After they completed their prenatal education, the women began to question what they had been told by their mother, or other female relatives and friends and to decide what food they would consume. For some, although they questioned these practices, they were a little doubtful and even fearful about going against a prohibition that their mothers had advised them to follow. A participant compared her experience before the teaching

Table 4: Common Foods Prohibited or Obligated During Pregnancy

Food Prohibited	Food Obligated	Effects
Eggplant and cabbage		Umbilical cord will be break or placenta will separate
Squid		Placenta will separate
Tape (fermented rice or cassava), durian, pineapple, jackfruit, Soft drinks, *sambal* (mixture of chili, tomato, salt and sugar), chili, and hot water.		Abortion or the baby will have no hair.
Ice		The baby would be big when born and lose weight after birth
	Coconut water	Baby's skin would be clean
	Eel and coconut oil	Makes birth easier
	Raw egg	Mother would have more energy to give birth

session and after, when she talked to me about eating cabbage; a food that is readily available to the women:

> *Sometimes our mothers tell us not to eat something, but it is healthy. For example eating cabbage that has vitamin C. When my mother told me not to eat it I was afraid, worried about eating it. Now that I know* [it is not harmful] *I am not afraid. The first time I ate it I was doubtful, I was afraid to eat it. I tried to eat it again and nothing happened. Now I eat it and I don't worry. I can put more cabbage in my soup.*

Another woman had similar feelings about eating cabbage and also pineapple, which before had both been prohibited. As she told me about these changes she added "I hope I am well".

Women were also able to incorporate some of the cultural beliefs they were taught by their mothers into their changed practices. They could still follow the advice that their mothers gave them, but also practice what they were taught. It did not necessarily have to be an "either-or" situation. When one participant decided to move to using a bigger plate for her meals she explained:

> *Now I am not using the smallest plate, but a bigger one. I don't care about the belief* [using a big plate will result in having a baby with a big face or lips] *because the baby's organs have been established. I know that this has happened by 4-5 months, so my mother doesn't care. When I first used a big plate in front of my mother, my sister said, "why aren't you using the smallest plate?" I didn't care because the baby is growing, organs have been established. I can eat what I like now.*

The fact that women had learned about pregnancy and childbirth meant that they did not have to ask their mothers what was happening during pregnancy. Before the program some women felt they only had their mothers, or some other woman in the village who had given birth, to consult. The women recognized that bidans were knowledgeable about nutrition, but they also felt that the bidans did not have time to do teaching or that they did not want to do so. Prior to the program the women felt they did not have any other sources to consult about their pregnancies and what they were experiencing, so they relied on the familiar. Many times the familiar consisted of beliefs

that had been passed down from mother to daughter. The women did not have other sources of information. They were also afraid of what they did not know:

> *When I can't sleep I look for other positions for sleep. Finally, I am sleeping well. Before I would complain to my mother. I would ask "why is it like this or like that?" She couldn't tell me. When I felt movement, I was afraid, I wanted a massage. After you explained about the baby's movements, I feel at ease. It means that my baby is normal. I don't have to ask my mother so many questions now.*

After delivery the women also questioned some of the traditional ways they had been taught to care for their infants. They then made changes to the practices they had been used to following. Some of these were practices that the cadres and bidan had been trying to change. It seemed as if the women had begun to question a number of practices and were willing to change ones they felt were not good for them or their infants. I interviewed one of the women, who gave birth a few weeks after the program, and who came to some weekly educational meetings we held, and she told me:

> *We don't listen to all the advice our mother gives us because of what we have learned. In the past we gave banana to very young babies, but I don't do that now. After I learned about infant nutrition, I changed my mind.*

When the pregnant women or new mother was accompanied by her own mother or mother-in-law, I asked these older women what they thought about changes in adherence to cultural beliefs. Some had a slight shift in their opinion, as the participant's mother who admitted that not following a prohibition was, "*o.k. for a little change, but may not be if*

the woman ate too much [of the prohibited food]". Another mother of a participant said that she would leave the choice to her daughter, and noted the change from when she was pregnant and her mother advised her: "*When my mother told me not to do something. I was afraid to do it*".

Increasing Self-Confidence

When I first interviewed the women and during the focus groups, I had the feeling that the women did not have much confidence in themselves and what they could do. Even the way they interacted with me suggested they did not feel confident in answering the questions I asked them. They frequently told me that they were unsure or seemed to need validation for what they said, "*I don't know if that is right*".

The women did gain a new level of confidence by taking part in the program. Even though they were limited in what they could change, they were better able to deal with their current pregnancy. At a minimum, the women felt more confident that they could handle the pregnancy and the birth of their infant. One woman captured how she felt since she took part in the program:

> *I feel more confident after hearing the advice. I am ready for the delivery, ready for breathing, ready for pushing. Ready because I know what to do.*

Some of the source of confidence was learning about their bodies, changes during pregnancy, and what to expect during labour and delivery. However, another source was interacting with other women and feeling a bond with them. When one woman was asked to talk more about this confidence and what the program did for her, she explained:

> *It is not feeling inferior because I am pregnant. Usually we feel ashamed if we are pregnant. We feel shy if walking alone, but with many pregnant women, we are not shy.*

Part of the confidence was an acceptance of the pregnant body and how the woman looked. The woman just quoted was not alone in her response because another woman also told me:

> *When I was a teenager I felt shy if I got fat. But now I am not shy to be fat, I am happy. After seeing other pregnant women I lost the feeling of shyness because I am pregnant. Now I feel stronger with this pregnancy.*

Because of this confidence, they could teach other women who were not involved in the research or program. There was a positive effect in the community from the participants' increasing self-confidence. They shared their new knowledge with other new mothers. One woman told me how she was able to help a neighbour:

> *When she* [a neighbour] *delivered her second child, she asked me about contractions and I told her to move around when she got her first contraction. Then she also asked about your* [the researcher] *book and wanted to see the book, so I lent it* [book] *to her.... She said her baby was always crying so I wanted to see him* [baby]. *I tried to help her with care of the baby's umbilical cord, so I said not to use powder and clean it* [umbilical cord] *with a cloth. After two days she said that her baby was not fussy now. So I felt more confident to give information to others if I know what to do.*

Not all of the participants felt fully confident about birth. They still did not feel ready. A woman, pregnant for the first time, told me she was still afraid of birth. Another said while she was more confident, she was also still worried:

My self-confidence to face pregnancy and birth is higher, different compared to how I felt before. I cannot describe it any better. I will try not to worry, I will just place trust in God.

In the current situation, having fear is not unrealistic, as the women know there is a high maternal and infant morbidity and mortality rate. I can understand why women asked me to teach them more about pregnancy and childbirth. Women fear what might happen to them. Prenatal education can demystify some of the birth process and can help the women engage in healthier behaviors, but it is not a guarantee of a good outcome. One woman articulated this quite well when she told me during her final interview:

I am ready to face pregnancy and birth. But sometime I am afraid...afraid I will die. Many people say that when we give birth, we just have two choices - one to live and the other to die.

The reason that women were able to make the changes they did was that they were much more confident about themselves, their ability to make decisions, and their level of knowledge. When I asked the women what they liked about participating in the research and what they believed they had gained from it, many used the word "confidence" or that they had "gained confidence", or "became more confident".

Developing Social Relationships

In Waru Jaya village there are not many opportunities for the women to get together. They do assemble for Muslim meetings, but this is hardly a social activity or a place where they can exchange information on their experiences during pregnancy and childbirth. None of the women were employed outside the home, so they did not have that type of social contact. If the women attend the Posyandu they move through the different

stations by themselves and only interact with cadres or the bidan. Women are mainly found in their homes.

One of the positive aspects of the prenatal program that the women commented on, and that was important to them, was the social contact that they had with each other. The prenatal program brought these women together. This would not have happened if the study had not taken place and the women really liked that aspect of the program. They wanted to continue to meet, as a woman told me:

> *In following these activities* [program] *we got to know other pregnant women. We became familiar with others, some far from my house, but some near. We got together, we are becoming friends. If we did not take part in the activities we would not know each other. We think we are the only ones who are pregnant, but in fact, there are many pregnant women in here...When we see each other we say "hello", we ask each other when we will have activities together again.*

For some women, the prenatal program was the first opportunity to meet other women, even those who lived nearby. They may not have known or interacted with neighbours.

> *I was not familiar with my neighbourhood. Since the meetings I now know other pregnant women, I recognize them. When we meet I have friends. Since the activities I know where the cadre lives I did not know this before.*

> *After the activities I recognize many pregnant women...I am happy there were the activities, very helpful, especially for pregnant women who are in their first pregnancy because they have no experiences yet.*

After the women met together for awhile and took part in the activities of the program they began to form closer social relationship. The women were more open to

making connections with each other and really saw themselves as part of a group. There was a feeling of closer ties among pregnant women in the village. Two of the women described for me what they saw taking place among the women and changes in attitudes that were taking place:

> *We concentrate more on other women. We share experiences... When we are shopping we meet each other, talk to each other.*
>
> *Pregnant women are happy meeting together. Now we can ask others about their experiences with a first pregnancy or a second one and so on. If we did not come here we could not ask about this. We can share experiences with other pregnant women. Share experiences about our destiny being pregnant, and having difficulties.*

The close social relationship among the women in the study was evident in how they related to each other in the group sessions. I observed in their interactions that they had begun to pay attention to each other's needs. An incident that demonstrated this care for one another happened at a weekly meeting. A woman who had been part of the group and attended earlier meetings had given birth. The others visited this woman and asked me to come to her house with them. After one of our weekly meetings, we went to her house to see her. During the visit, the woman who had just given birth, shared her experience of birth. She told us about the effects of the program on her, while other women gave comments. There was lots of laughter and a sense of enjoyment among the women. Because the topic of this weekly meeting was umbilical cord care, a participant taught the new mother about this care. It was a good demonstration that learning had occurred in the group. When I interviewed this woman who gave birth later, she said:

I have many friends. I know others and we are familiar with each other. My friends from the group came after I gave birth. I know others who are pregnant. If we did not have these activities I wouldn't know they are pregnant. I even know women who live far from here. If we met we say "hello". We recognize each other. If I was just at home, nothing like this would have happened.

Improving Decision-Making Abilities

From the individual interviews and focus groups it was clear that decision-making about health care was not totally in the women's domain. The discussion resulting from the vignette about the woman who had an antepartum hemorrhage while her husband was away illustrated this. While most felt that if the women's life was in danger, she should not wait for her husband, but go to the midwife or hospital, depending on what she could afford. One participant had a different view and voiced the opinion:

> *It is good for her to wait for her husband because this* [decision for care] *is his responsibility. It is also his responsibility where she should go. The only exception is if our husbands tell us to go directly to the hospital if we have a problem. But if my husband did not say to go, I would be afraid.*

In the groups, as the women personalized the situation, they did say their husbands had only given them permission to seek health care for important health matters. With better knowledge about their health and their bodies, the women were more conscious of their rights to health, and how decisions affected their health. It was a kind of awakening that helped them look at the reality of the situation and how some of their cultural beliefs could be a limiting factor in their ability to be healthy and they needed to weigh that in their decision-making. A couple of the participants talked about this with

me and described some of the insights they had achieved and what effect it had on how they decided to approach their food intake:

> *We now have confidence after we have heard your advice, confidence not to listen to what people say, like not eating this and that. I have advice from an experienced person* [the researcher], *so we can use those. We are not restricting certain foods now, those that people said we may not eat, if I know that those* [foods] *contain the vitamins, I eat it* [foods].

> *Whatever is good to be eat, I eat now. No prohibitions. I took your* [the researcher] *advice. Before I did not eat cabbage, and pineapple. However, I eat those right now. I hope I am well.*

The participants were not only more aware of their culture, but saw their wider environment as contributing to the outcome of their pregnancy. They wanted to know what else they could do to make good decisions for a positive outcome. The women looked at other sources of help to see whether or not is was possible to solve some of their problems. They identified support from their social environment, such as family members, as important to achieve their goals. One woman described her situation and contrasted it with how she saw it before the program:

> *There is more progress than before. I wanted to work and eat well, I was not lazy...Now alhamdulillah* [thank God] *I have activities ...I am feeling well and my mind is at ease... Every Tuesday my husband always reminds me to attend the weekly meeting with you* [the researcher]... *My husband suggested I always follow these activities... Now I am more ready... I think that after this* [pregnancy] *I will stop being pregnant....I am stronger in my decision, although I have had many children...Now, I have more confidence for doing things alone such as to shop, cook, wash, and ii on. I now, eat much more, pay more attention to foods, and my husband supports me...He also asks me whether I have been examined or not, although just at the Posyandu. Perhaps, he*

believes in me and loves me. When I read your [the researcher] *book, he reads it too. He said that we must use this* [information], *hopefully we will have an easier birth.*

The prenatal program increased the ability of the participants to overcome a number of their problems. They started to think about their needs and determined how to deal with these. The participants, in general, felt they were better able to handle the common problems during their pregnancies on their own. This was a change from being dependent on others to feeling more self-reliant and deciding what was within their control and knowledge ability. Two of the women described their new attitudes:

For overcoming my pregnancy problems...I treat myself now. Yesterday I felt pain in my back, I treated myself by doing the exercises we learned, and then, I felt well again... In taking this decision for my health I can treat some things by myself. For other problems, I discuss [with husband]. *So it depends on the problem. However, if he is not at home I will decide alone and when he returns I tell him what I decide.*

I am not in doubt in taking action and I have confidence to do it...For example, yesterday when we was shopping I bought whatever I wanted...I want to be independent...

Working to Overcome Barriers

From the beginning of the research when I started interviewing the individual women and later in the focus groups, I was aware that the women had a number of barriers to improving their nutrition. One of the main barriers was socioeconomic. In talking with the women who participated in the study, and in my observations, it was evident that the socioeconomic factors of these women and their village contributed to their poor nutritional intake and practices during pregnancy. These were factors that we

explored in some depth, particularly how they affected the availability of food during pregnancy. From observations in the village and households, it could be seen there were a number of barriers to good nutrition.

The village was somewhat economically depressed and this influenced the supply of food to that area. As mentioned previously, more than 30% of the population worked as farmers and many household had fish ponds, but these are for commercial purposes and not necessarily for household consumption. Most of the food, particularly for my participants, consisted of whatever food was available commercially in the village at the food kiosks.

The result of a community needs assessment in Waru Jaya village by Fakultas Ilmu Keperawatan [Faculty of Nursing] (2000) showed that the incomes of the majority of the families was Rp. 200.000,00- 400.000,00 per month or about $ 40-80 Canadian (CDA). I did assess the women's daily budget for buying the daily foods consumed by their families. The budget ranged from Rp. 5000.00-10.000,00 per day or about $1-2 Canadian (CDA) . The participant's ability to consume certain type of food as a part of their daily diet did reflect their own socioeconomic conditions. It depended on the family income as the women explained:

> *I want to eat nutritious food but I am not able to buy meat. I am just able to buy tofu and tempe. Where is the money to buy meat? My husband and I are not working. We have two fish ponds. Our children are many.*

> *I will cook depending on the availability of food in the near kiosks. I seldom go to the traditional market because it is far...I do not lie I*

> *go only once year to the traditional market...I am not planting* [a garden]... *In here it* [leafy vegetables] *is free to take from neighborhood's field, basically by just requesting them.*

To get some sense of what it cost the women to prepare food for their families I went to the traditional market and priced some of the common foods there. Table 5 is a list in both Indonesian rupiah and Canadian dollars. Within the household either the women or, if they lived in an extended family, the mothers or mothers-in-law, prepared food for daily consumption. Food prepared was either what the participants had obtained from the food kiosk, or for a few women, what they obtained from their garden.

During my observation in the participants' homes when I interviewed the women, only one had a refrigerator. So a further limitation for these women is food storage. In a hot country like Indonesia (average 32 Celsius degree for daily temperature) food spoils very quickly without a refrigerator. To cook the food most of the women used either kerosene or wood, with the latter the more traditional fuel. Some could not afford kerosene and used wood. The women reported that wood was faster than kerosene. After finishing cooking, the foods would be prepared at the *bale-bale* [bamboo bank] in the kitchen.

Food availability in the village was a barrier that determined what food they had for consumption, as the women said their daily diet consisted of whatever food was in the kiosk or field. While I was in the village doing field work I went to several kiosks to see what food was available for the women to buy.

Table 5. Cost of Food in the Traditional Market in Indonesian Rupiah (Rp) and Canadian dollars (CDA$) May 2001

Food/Amount	Rupiah (Rp)	Canadian dollars (CDA$)
Rice/kilogram	2,000.00	.40
Salt fish/kilogram	10,000.00	2.00
Salt/kilogram	1,000.00	.20
Sugar/kilogram	4,000.00	.80
Egg/kilogram	7,000.00	1.40
Fish/kilogram	10,000.00	2.00
Chicken/kilogram	10,000.00	2.00
Leafy vegetable/kilogram	1,000.00	.20
Frying oil/kilogram	5,000.00	1.00
Chili/kilogram	5,000.00	1.00
Tomato/kilogram	3,000.00	.60
Meat/kilogram	30,000.00	6.00
Kerosene/liter	1,500.00	.30

Predominantly vegetables [spinach, kangkung, napa, cabbage, long bean, eggplant, cucumber, tomato, carrot, and other leafy vegetables] and salt fish were available in the food kiosk. There was little in the way of fresh fish, chicken, and other meat. When I asked the sellers about these foods, they said not many women purchased them. The women more often bought salt fish. These kiosks were supplied by the traditional market in the subdistrict of Parung. Unless the participants had a means of transportation to go to the traditional market, they could not go. For those nearest to the market it was a 30-60 minute walk and those furthest away had to use public transportation, such as motorcycle or mini bus, that could take from 15 to 30 minutes.

Sellers of foods in the kiosk bought their food supplies daily from the traditional market. The food available for the village depended, therefore, on what the sellers brought each morning. Because of the economic conditions in the village they tended to buy the same type of product. Mostly, these were foods the women could afford and wanted to buy. There were about 5 kiosks in each dusun, around 100 meters from the participants' houses. If women had money they could obtain food:

> *Sometimes it* [buying food] *is at the food kiosk also in the traditional market. I go to the kiosk more often than the traditional market. Many food kiosks* [in the village] *are complete, everything is available such as fish, meat, vegetables, tofu, and tempe.*

All the women had limited household production of food. Not many of them grew vegetables or had a fish pond, so they mostly purchased their food at the food kiosks. If the family did have a fish pond or field, they tended to sell what they produced so they could buy other food for the household. A woman explained:

> *If I have cooked all the foods in the home by noon, when I cook again in the afternoon I will cook whatever is available in the field in ...There are leafy vegetables such as cassava leaf, sweet potato leaf, katuk and kangkung* [leafy vegetables], *corn, chili, and nuts. If I have no money I just take these.*

Another barrier the women had to work with was food distribution in the household. One of my topics in the individual interview and a vignette for the focus group was how food ought to be distributed within the family. The pattern of food distribution in the household limited women's nutrition, not only during pregnancy but throughout most of their lives. All participants said they paid attention to giving a portion of food to

their husbands or their children and in one instance to mothers-in-law. Typical descriptions of the process of food distribution are:

> *First I separate out food for my husband because he wishes it* [food] *to be separated....then the children, and next me, if food is still available.*

> *First* [food] *for mother-in-law. Although her children are many, I must give priority to her. Whether there is meat or not, a parent may not be ignored. When we eat, my husband always ask about her and whether she has been delivered food or not. After my mother-in-law, then my husband, my children and me.*

> *I give priority to my children because my husband comes home late. If he is still working in the market he]will eat at there. If he is hungry at home, he just eats again.*

Giving priority to a husband is considered by the wife an honour. The participants viewed their husbands as the person who gave them money for the family's needs so he must be given the first priority. One woman said that "*Because he is working and giving money, we honor our husbands*". Availability and distribution of food in the family are two of the barriers that affected the women's ability to have good nutrition during pregnancy. After the program, some pregnant women explained that their husband had started to pay attention to the need for better nutrition for their wives. However, they did not clearly say that there were changes in the food distribution in their family. Therefore, this is still a barrier they need to try to overcome.

A third barrier for these women was good prenatal care. Prenatal care would ensure better nutritional counseling. In our focus groups, the third vignette was about seeking prenatal care. I presented a case to participants about some of the difficulties they

had told me regarding their care. The women agreed that seeking care during pregnancy was important, but there were limitations in trying to accomplish this. The participants wanted health care providers to be more active in helping them by *"coming from house to house to do community health"*. Others commented on how they saw the midwife as *"never giving information on prohibitions or obligations of food in pregnancy, even though she is knowledgeable"*. Other women commenting on care in the community by the midwife in the village said:

> *Service from the midwife in the Posyandu is not good. The midwife is not friendly, so I am afraid. For example I did not have an examination last month when she came to the Posyandu, so this month she will be angry. I do not like it...In here, if women are not examined by the midwife at her house, when they later give birth she will not come to their home...The cost for birth* [by midwife] *is too expensive, the women who are giving birth are poor.*
>
> *The midwife never does anything except to palpate my abdomen and then give medicines* [vitamin]. *If we have complaints, we ask and, she answers it is not a problem and it's usual for pregnant women.*

A Model of the Empowerment Process

The final step of action research is to theorize the process that has taken place as a result of the study. The research explored the experience of pregnant women and their nutrition and nutritional practice prior to and after a prenatal educational program. In particular, I attempted to use empowerment as a vehicle to improve nutrition during pregnancy, but to do this in a holistic context, as that is what the participants wanted me to do. The findings above demonstrated that the women did make improvements, but that

barriers such as economic conditions, and availability of food in the village, and having good prenatal care somewhat limited their abilities to make many changes.

Being disempowered

In the first phase of the study I focused on the women's present situation and in working with them found out where they stood in regards to empowerment. The women were disempowered in that they identified a number of factors that stood in the way of feeling more control over health in their pregnancies. This cluster of factors were: a lack of knowledge, cultural beliefs that limited nutritional practices, food distribution in the family or household, image of women in the community, availability of food in the village, and their economic situation.

Taking action

The second phase of the empowerment process occurred when the women became active participants in the prenatal programs. The fact that they agreed to come, and did attend and participate in the research, indicated they wanted to be more active in taking care of their health. A bridge to this phase was definitely the focus group discussions that we held and where we discussed some of their common problems. It was here that the women were able to get to know each other better, began to develop a degree of comfort interacting together, and started to engage in thinking about and talking about their situation through problem-solving, using the three vignettes I had designed. The taking action then, really occurred through learning from each other in the prenatal educational program.

Personal empowerment

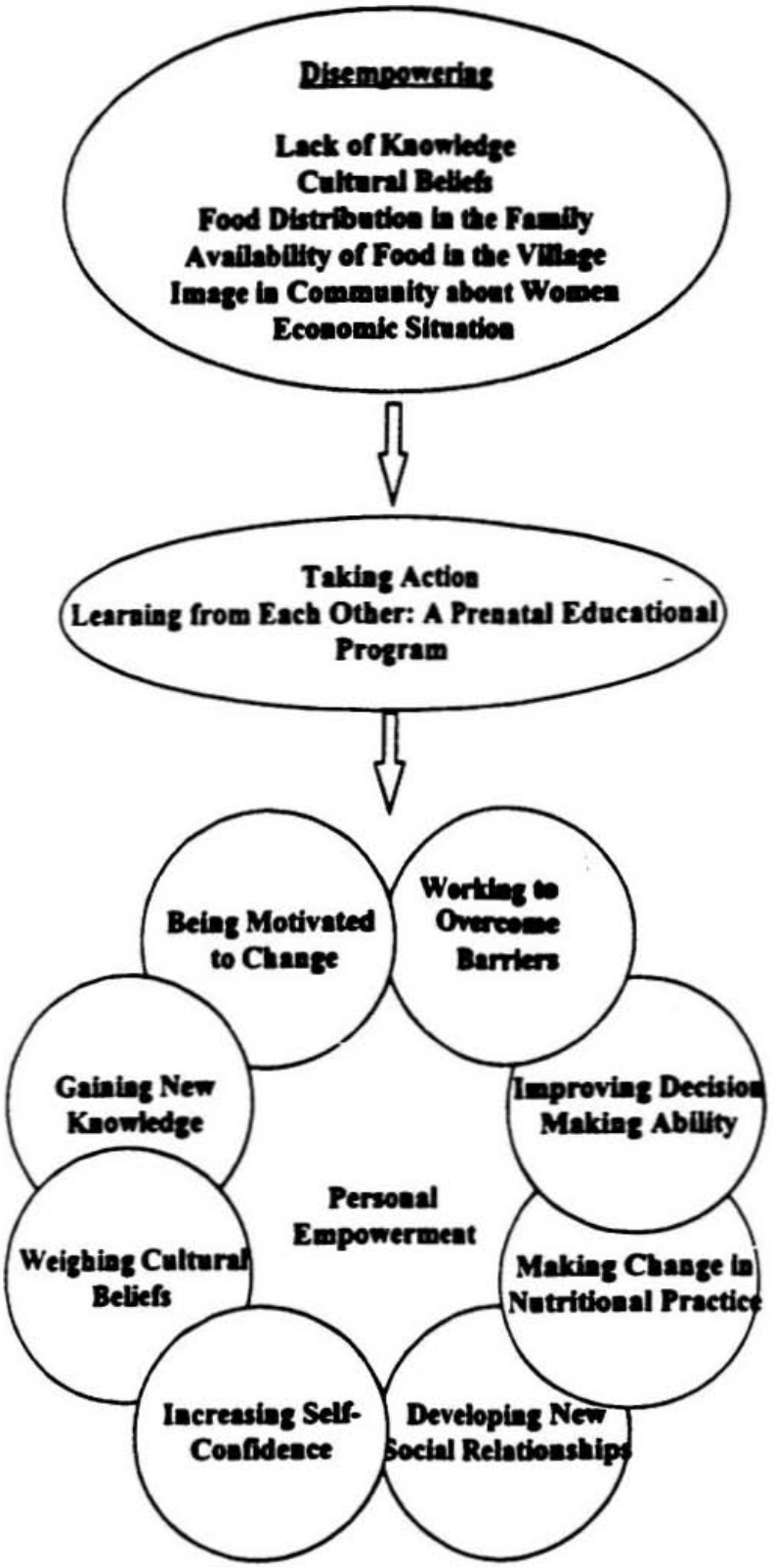
The final stage of the empowerment process was personal empowerment. In this stage I observed and women told me about the changes they had experienced as a result of the prenatal program. There were eight indicators of this empowerment and there definitely seemed to be an interrelationship among the factors. These indicators were: being motivated to change, gaining new knowledge, making changes in nutritional intake, weighing cultural beliefs, increasing self-confidence, developing new social relationships, improving decision-making ability, and working to overcome barriers. A model of the empowerment process that represents and describe what occurred in this study is represented in Figure 1.

Summary

A prenatal educational program for the lower socioeconomic women in a rural area in Indonesia improved these women's abilities to take greater control of a number of areas of their lives. Through this prenatal program they were able to achieve a degree of personal empowerment as evidenced by their motivation to change, new knowledge, changes in nutritional practices, dealing with cultural beliefs, self-confidence, social relationships, and decision making abilities, and working to overcome barriers. A few of the women were able to achieve the RDI of food for pregnant Indonesian women, at least for certain foods while others were not able to so.

The barriers for these women were significant. The economic situation of the family and village contributed to availability of food at the household level. Inadequate

Figure 1. Model of the Empowerment Process



incomes limited the ability of the family to buy certain types of food such as animal protein, milk, and fruit, so pregnant women could not meet the RDI in those food groups. Cultural beliefs also placed a number of limitations on the women's nutrition. A number of readily available foods were prohibited for the women. Another limitation was the women's knowledge of nutrition. The women received information mainly from their mothers or other female relatives, and the predominant form that information took was cultural beliefs. Health professionals, although considered knowledgeable, rarely told the women about nutritional requirements. If women were able to stay in school longer they did learn about better nutrition through this medium. The last limitation was how women are viewed within the community. Women are considered weak in contrast to men who are considered strong, because the men's role in supporting the family. This view of women acted to control food distribution at the household level and to give men priority over women in, both the quantity and the quality of food.

CHAPTER 5

DISCUSSION

The main objective of the study was, through action research with the participants as active members, to develop and implement a prenatal education program in Waru Jaya village for lower socioeconomic pregnant women to improve their nutritional intake. In particular I wanted to identify how these women could become empowered to improve their prenatal nutrition through prenatal education. My overall research question was "how does prenatal education empower women to improve their nutritional intake?" In order to understand the personal empowerment process, I first had to find out about the nutritional patterns and behaviours of these lower socioeconomic pregnant women, what influenced them, how the women learned about prenatal nutrition and who gave them information. Because the women were active participants in the research, I wanted to know what they wanted to learn about prenatal nutrition and pregnancy and then to see what changes, if any, took place in their nutritional patterns and behaviour and why. I also needed to find out what they considered were barriers to improving their nutrition, and how this research fits in with other research that had similar goals and approaches. This chapter is a discussion of what occurred and why. It is divided into four sections. The first section is a discussion of changes that occurred in the women's nutritional practices. The second section examines some of the barriers to good prenatal nutrition in the village. The

third section provides a closer look at personal empowerment as a mechanism of change. The fourth and final section revisits the research methodology, action research, and its appropriateness in developing countries for a problem like poor nutritional intake during pregnancy. We must not only reflect on what we did, but how we accomplished or failed to accomplish our goals, and the suitability of our methods for the study participants.

Changes in Prenatal Nutrition

Based on the 10 women who completed the dietary diaries prior to and after the prenatal program, I could see some changes in nutritional practices. The findings from this data indicated that three women were able to make positive changes to their food intake and meet the RDI for Indonesian pregnant women in grain products, proteins (legumes), and vegetables but not in animal proteins, fruit, or milk. Three others had negative change in some types of foods. One woman was able to change her nutritional intake in all types of foods, even though her consumption of those foods were still less than the RDI, except for proteins (legumes). After the program most of women were able to increase their consumption of fruit, although only two women met the RDI. For animal protein, none of the women were able to meet the RDI for pregnant Indonesian women. In addition, none of the woman consumed milk prior to the program, and just one woman drank any afterwards, but it was still less than the RDI.

While this record of food intake informed me that the women's nutritional intake was still inadequate, I was able to ascertain that they were paying attention to nutrients in their foods. When they were shopping or cooking they tried to make sure that they obtained green leafy vegetables that contained vitamin A. Thus the diary gave an incomplete picture of their nutritional changes. Other women told me that they were not able to make much change because of their financial situation. These changes, or lack of changes, need to be considered in the context of barriers to good prenatal nutrition, the empowerment process and indicators present, and the use of the research strategy employed.

Barriers to Good Prenatal Nutrition in Waru Jaya

Before I present a discussion of the empowerment that occurred, I believe it is necessary to consider the barriers that operated to prevent the women from having better nutrition. Abouzahr, Vlasoff, and Kumar (1996) suggest we look at the constraints that women face in receiving optimal health care. In fact, one of the reasons why programs in developing countries are often unsuccessful, is that the person or group implementing the program does not consider the political, social, economic, or cultural factors that affect health in these countries (Parfitt, 1999). What was evident in both sets of interviews were the many constraints placed on their nutritional choices.

One of the findings that impressed me when I first began working with the women and involving them in the research is the disadvantages these women are

operating under on a daily basis in obtaining an optimal diet for themselves and their families. There were synergistic factors that served as barriers to good nutrition. These were similar to those identified by others (Koblinsky, 1995; The Committee on International Nutrition Programs, 1986) and that have been reported as longstanding problems in developing countries.

The one factor most evident was economic, and this has been well recognized as a barrier for women in developing countries, together with other sociocultural constraints (Paolisso & Leslie, 1995). These women struggled against a poverty that severely limited their purchasing power for food in the market. They also had limited income for fuel to prepare their meals. The continual economic crisis and political instability in Indonesia worked against maintaining a steady income and achieving any stability in the cost of food and fuel. Rural areas are being hit hard by the economic crisis. Economic constraints are powerful agents for disempowering women and others. They instill a sense of hopelessness in a society where one needs money to buy food. Although the market could supply food to the village, limited family income meant that women could not take full advantage of what was available. The limited family income also contributed to availability for food storage and cooking facilities in the household. The role of poverty as a factor in poor nutritional status is well recognized at the broader national level by organizations that study world hunger (Cohen & Hoehn, 1991; The State of Food Insecurity, 1999) and at household levels

(Kusin, et al., 1992; Panwar & Punia, 1998; Uzma et al., 1999). However, other barriers make the situation of poverty worse for the people who find themselves in this disadvantaged state.

A second barrier that we had to work through, and was more amenable to change, was the women's poor knowledge of nutrition and nutritional demands during pregnancy. Other researchers have also identified that lower socioeconomic groups identify lack of knowledge as a barrier (Hartman et al., 1994). In my study the source of nutritional knowledge, or where the women received information on nutrition was tied in with the problem of a low level of nutritional knowledge. The PHC system for rural areas of Indonesia has a nutritional program under both the old programs and in the newly reformed system as described in the first chapter. This nutrition program does not appear to be meeting the demands of providing nutritional knowledge to pregnant women. Yet, ironically, the women in the study knew that the health care professionals were knowledgeable about nutrition and knew they needed to increase their own knowledge. It was not that the participants were unwilling to learn or did not perceive a need. They wanted to take part in learning activities that would help to give them a healthy baby.

A third barrier, that was still quite strong, was culture, especially culture acting as a means of mediating food choices during pregnancy through obligations and prohibitions. Many of the practices that Swasono (1998) found in her study were

evident in this group of rural women. Not surprisingly, in the absence of another belief system (nutritional knowledge) the women relied on tradition and what other women's experiences had told them. Work on traditional belief systems suggest that we need to make sense of our world and actions in some way and rely on what knowledge is available to us.

The fourth barrier to women's nutrition during pregnancy, and indeed any time, is the allocation system of food within the household. Women were socialized to be the last to eat and to first look after others' nutritional needs before their own. This was a practice evident among the participants in the study. Some of the women said their husband were given priority for food and others said their children had priority, but none gave themselves priority This is congruent with what other researchers have found when studying food allocation in a household in developing countries (Mulatsih, 1994). Gender bias in food allocation patterns may be a more sensitive indicator of how women in general are treated, as health care access, education, and other advantages have shown the same pattern of the favouring of males over females (Ojanuga & Gilbert, 1992; Okojie, 1994; Santow, 1995).

A fifth barrier, and the one that reinforced my belief in doing action research and using personal empowerment as my underlying theoretical framework for the research, was that the women did not feel at first that they could do much about their situation. They felt disadvantaged for a number of reasons, not the least of which was

being able to make their own decisions about their health and well being. I sensed an overall lack of confidence among the women early in the study, that had been reinforced by health care professionals becoming angry with them if they did not comply with the prenatal care offered. They were unsure of themselves and that affected many areas of their lives; one of these areas was nutrition.

Personal Empowerment as a Mechanism of Change The women were able to achieve a degree of personal empowerment, some more than others. The findings of the study certainly help to increase our understanding of the impact of effective strategies to use in prenatal education programs aimed at empowering women, and what that empowerment might look like as both process and outcome (Wallerstein & Bernstein, 1994). They also serve to reinforce the idea that if programs are to be successful, "people must feel a sense of ownership" in whatever approach is taken to deal with the problem (Cohen & Hoehn, 1991, p. 9). The study produced eight interrelated theoretical constructs that were indicators of personal empowerment. These eight constructs were: gaining new knowledge, being motivated to change, making changes in nutritional practices, weighing cultural beliefs, increasing self confidence, developing social relationships, improving decision-making abilities, and working to overcome barriers. These constructs fit fairly well with how other researchers have defined empowerment or identified indicators of empowerment.

Gaining new knowledge. Knowledge as empowerment was developed as a means of helping lower socioeconomic people deal with problems in their lives. Improving pregnant women's level of knowledge has been associated with improved nutritional intake or better outcomes of pregnancy among poor women (Kafatos et al., 1989; Taren & Graven, 1991). An essential component of developing programs to address women's knowledge is finding out the women's concerns and level of knowledge (Palmeri et al., 1998). In the pre-program interviews, the participants became more aware of what they did not know and the importance of maintaining a healthy pregnancy for themselves and their infants.

Researchers looking at empowerment models in health education frequently look at information and knowledge acquisition as indicators of success, such as receiving desired information and understanding the information (Pellino et al., 1998). Studies of management of health problems have also used gaining knowledge as an indicator (Wuest & Stern, 1991).

The fact that the women in this study were much more knowledgeable about nutrition meant that given better circumstances they may be able to make changes in their food consumption. Although other researchers have not specifically mentioned this construct, it could be because it is too obvious. To be knowledgeable is to be empowered. Shields (1995) did use developing self-knowledge as an indicator of

empowerment. However, the indicator as used in this study refers to women obtaining knowledge about nutrition in pregnancy and other aspects of their health.

Being motivated to change. None of the research used this exact construct as an indicator of empowerment, although some authors used terms that would suggest this. For example Connelly, Keele, Kleinbeck, Schneider, and Cobb (1993) talked about a greater participation in care by the participants. Shields (1995) defined this as movement to action and her participants described necessary preconditions for this to take place ,including being able to take risks to improve their lot.

Making changes in nutritional practices. The targeted behaviour was change in nutritional practices. As described above this was successful for some women and not for others because of some of the constraints and limitations in the women's lives. Other researchers have looked at behavioural changes as evidence of empowerment. Rusness (1993) used nutritional changes following an empowerment model as an indicator that empowerment did occur. Educational programs that are built on empowerment are frequently aimed at changing a specific behaviour or behaviours.

Weighing cultural beliefs. For the women in my study the fact that they were able to consider cultural beliefs and how these would influence their behaviour was a good indicator of empowerment. Many times in working with women in developing countries we do not pay enough attention to the influence of culture or let women work through the importance of cultural impacts. Although some of the other research on

empowerment I reviewed were with women in developing countries, none dealt with an aspect of cultural beliefs and empowerment.Shields (1995) had an indicator "claiming pieces of their identity" and perhaps my construct on culture comes close to this, as the women's culture was part of their identity.

Increasing self-confidence. An increase in self-confidence or self-esteem is one of the indicators of empowerment that has been found by other researchers (Rusness, 1993; Too, 1996). This positive evaluation of self leads to a sense of personal power and control (Abusabha et al., 1999). Unless women believe that they have the ability to improve their nutrition, they may not try to do so, even if motivation is present. Furthermore, they must feel confident enough to define their problems, rather than having them defined by experts (Avotri & Walters, 1999). When a woman's confidence is at a level that she can begin to talk about her health problems, and see how her life circumstances affect these problems, she is able to take greater control over some of these circumstances and deal with the problems. In the study by Shields (1995) a comparable indicator was a theme called "emergence of an internal sense of self" (p. 23). Components of this theme were self-value, self acceptance, and self-knowledge.

Developing new social relationships. Not surprisingly women who are disempowered are more isolated socially than women who have become empowered. The women in this study fit that description. They were somewhat isolated in their neighbourhoods and village. They had little means of association where they could talk

about common concerns. An indicator of empowerment for them was the new social relationships that they developed with women in the study group. A similar finding was reported by Rusness (1993) who termed it a "sense of community". In fact her participants, who were homeless women, were surprised at how quickly this community developed and how easily they could discuss their common problems. Connelly et al., (1993) identified the same indicator, but called it "moving beyond their internal world" (p. 300), recognized by mutual support and aid.

For Shields's (1995) study, this theme was named "connectedness" and the women distinguished between two levels; intrapersonal and interpersonal. The former helping them with the latter so they could reach out to others. The term used by Rudner Lugo (1996) to describe the indicator related to social relationships was increased "social cohesion". She also described it as developing a community. Her participants, poorer women in Orange County, Florida, described their changes as making friends or sharing of problems with others. My participants also described this outcome as making new friends. They described their friendships in terms of what they could do together, e.g., going for prenatal care or going to the traditional market together.

Improving decision-making abilities. A component of the personal empowerment model that came out of this research was the improvement in these women's decision-making abilities. Too (1996) saw this facet of empowerment as key

in empowering women through birthplans. Control over the many decisions in being able to have the type of birth the women wanted were indicators she used for empowerment. The studies by Connelly et al. (1993) and Pelino et al. (1998) concur that decision-making is an important aspect of empowerment. Wuest and Stern (1991) define this indicator as a recognition that participants have choices. Unless someone is able to make her or his own decisions and have control over what may affect health, there is not much latitude to make the necessary changes. When prenatal programs improve women's ability in this regard they are able to overcome some of the problems related to their health during pregnancy.

Working to overcome barriers. This last construct that I identified did not have a comparable indicator in the literature. However, I felt it was an indicator of empowerment, at least, for the women I worked with in Waru Jaya. It might be one of the more important indicators, because unless women are able to become conscious of these, and work to overcome them, they will not be able to make changes in their lives. This identification of barriers and trying to overcome them could be considered similar to consciousness-raising, a precondition for empowerment (Henderson, 1997). In consciousness-raising one of the main objectives is to understand why you experience certain conditions or feelings. Through this process you increase your awareness and ability to deal with the situation.

Other indicators of empowerment. There were other indicators of empowerment reported in the literature. Connelly and co-researchers (1993) identified as indicators staff and patients interacting on a more equal basis to meet needs and mutual goal setting. Similarliy, Too (1996) had an indicator which she termed "being an active participant" (p. 37). While I do not discount being an active participant or more frequent interactions by participants as components of empowerment they were part of the process of action research in my study. Pertinent data would be required from the women to suggest that they saw these as part of their empowerment.

Another indicator of empowerment described in the literature, but not in my study was personal achievement, such as a job, accessing higher education, or finding new accommodations (Leuning & Ngavirue, 1995; Ovrebo, et al., 1994; Rudner Lugo, 1996). One of the differences between my study and those cited was that the latter were carried out over a longer time frame and what I saw was a beginning empowerment process rather than longer term effects. Some indicators of empowerment are particular to the situation in the study, such as Ovrebo et al. finding an increased mother-child connection. They were working with prenatal homeless women, many addicted to drugs, and they wanted these women to realize the power the women had over their unborn infant and that infant's birth outcome. Another similar example would be Wuest's and Stern's (1991) work with families who had children with chronic

middle ear infections. One of their indicators was the skill the families developed in managing the problem on their own.

Action Research With Lower Socioeconomic Women in Developing Countries

Action research or participatory action research covers a number of research traditions and is surprisingly little understood in some research circles (Hagey, 1997). When I began the process of seeking ethical approval for my study I was asked if what I was doing was really research or if indeed it was feasible to have the proposed study group, i.e., lower socioeconomic women, as active participants in the research. These were good questions to reflect on for the study. Hagey lists seven characteristics of action research that can be used to evaluate a project. These can be used to see the degree I was able to accomplish an action research study that was participatory in nature.

The first of these is that the "problem" comes from within the community. I chose the topic because it was identified in a needs assessment in this village that had various people from the village as active participants (Fakultas Ilmu Keperawatan, 2000). The research process, particularly in the early phases, was one of continually delineating what the problem was and how to solve it with the women as active participants. The women who took part and the health care workers in the area identified prenatal nutrition as an important area to try and effect change. Statistics on

nutritional problems in West Java also confirm the problematic nature of adequate food intake among pregnant women.

A second characteristic is that the goal of the research must fundamentally improve the lives of those involved. From the beginning interviews with the women, to the end of the study when we looked at change and what might impede that change, the goal was to help the women achieve personal empowerment as a strategy to improve their lives. This approach is consistent with feminist action research that has as a basis helping participants to understand their situation in order to change it (Reinharz, 1992). In the follow-up interviews with the women, they talked about how their perceptions of the problem had changed and how they saw differences in their lives. I observed differences in the women and how they were able to relate to one another.

The third characteristic speaks to the degree of control the people in the community have throughout the process. We will only be able to develop more effective and acceptable programs for pregnant women if the women themselves are involved in all phases of the development of the program from assessment to evaluation (Manderson & Mark, 1997; Wong, Li, Burris, & Xiang, 1995). The women, the community of interest in this study, were key participants in how their program was structured. The women identified all that we did as their "activities" and spoke about the research in this way; it was more than the program.

Although prenatal nutrition was my target, I broadened the prenatal program as the women asked me to, so that we dealt with preparation for labour and delivery and exercise and rest during pregnancy. I also gave them control over the process in that when they wanted to continue with the program on a weekly basis and address other aspects of care during pregnancy and infant care, we did so.

A fourth characteristic relates to the research working with a group which is oppressed in some sense. The women who worked with me were from an oppressed group with limited financial resources, poor education about nutrition, and were disadvantaged by not receiving good prenatal care, which would include the types of knowledge that they wanted. Their culture was somewhat restricting to them in terms of allocation of food in the household, obligations and prohibitions of foods, and activities during pregnancy. They were further oppressed in that they did not have a forum where they could talk about common problems and define solutions. The social structure of the village was not conducive to empowerment, where women find a means of collective action (Kar, et al., 1999).

The fifth characteristic mentioned is that of enabling, of strengthening the participants' awareness of their capabilities. This did occur for all of us. The women learned that they did have some control over their nutrition and their health, despite the real limitations that were imposed on them. The model of personal empowerment that evolved spoke to this characteristic. This model is congruent with the "power-with"

approach where the needs and wishes of the women are taken into account (Abusabha et al., 1999). I learned the enabling power of working with an empowerment model to help women make changes in their lives. I felt that we worked together to deal with the problem of poor nutrition in pregnancy.

The sixth characteristic is that all participants see themselves as researchers. I am not sure to what extent this was possible given the time frame and the women's level of understanding. Street (1998) in looking back at the journal she kept while doing her study *Inside Nursing* , and working with a more knowledgeable group of nurses as co-researchers, found that despite every effort to be inclusive, it was hard to accomplish. Her conclusion was, "The power-sharing democratic focus is not on equality in contribution and outcomes but on the level of satisfaction of personal, professional, group, community or social goals" (p. 158). In my study on prenatal nutrition my participants were very satisfied with the program. Additionally, although the participants might not have seen themselves as researchers, there was a levelling process. I believe that the women saw me as part of the group, solving problems with them, more than as a researcher.

The seventh, and final characteristic of action research, is that the researcher is a committed learner in the process rather than a detached observer. In many ways this study was a learning process of how to work with similar groups to effect change. The women came to see me as one of the group and contrasted my approach to their

problems with how they had been treated in the past. I was, at first, viewed with some suspicion, but in the end felt a great deal of acceptance as the women suggested we do things together. Two examples of this were first, continuing with prenatal classes on a weekly basis after the defined teaching areas for the research study were decided and carried out, and second, suggesting we all go to a participant's home after she had her baby to give support and friendship. The women could have done this without me.

In examining the characteristics of action research it would appear that, depending on the research purpose, it is an appropriate research methodology for lower socioeconomic women in developing countries. Unless we work with people to identify problems and solutions to the problems in a systematic way and document and analyse this process, we will not reduce the health problems they face nor the burdens these problems put on the lives of people who are experiencing them. Nutritional programs aimed at developing countries in the past have not had the success that is needed to reduce the problems of hunger in these countries. NGOs, researchers and other policy makers agree that active involvement of the population is a critical first step. This study did demonstrate how important the women were to all phases of the study and how they felt the "activities" were their own. An empowerment approach creates a supportive and reinforcing environment in which the women learn from each other in a comfortable and familiar setting.

CHAPTER 6

CONCLUSION

In carrying out this research, I tried to have as strong an action research study as possible. However, the inquiry does have a number of limitations. I am also aware that action research, by its nature, is limited to the research setting where it occurs and thus produces "local theory"(Streubert & Carpenter, 1999). Despite these limitations, the study has a number of implications for nursing practice, education, and research. It also has implication for nutrition policy and programs in developing countries. This chapter will present the limitations of the study, implications for nursing, and a conclusion.

Limitations

The study with pregnant women living in a rural village in West Java, Indonesia was conducted over a fourth month period in early 2001. A limitation of the study was the time available to conduct the study. The purpose of action research is to work with the people concerned to change some aspects of their lives or a situation they would like to change (Green-Wood & Levin, 1998). In order to do this, the researcher needs time to get to know the participants. Likewise, the participants need time to get to know the researcher fairly well. This takes a great deal of time and sustained interaction for trust to develop. While I believe that this trust was occurring to some

extent when I was finishing the research process, I felt that it was not strong in the beginning. The women I worked with are used to the health professionals from the Puskesmas being the people in "control" of health matters, and they probably initially viewed me in the same way.

The women's lower socioeconomic situation made them more vulnerable. Because of this status, many women did not have good experiences with health care providers. At first they expected me to be angry if they did not participate or that I would expect payment for the care I gave them. Although I tried to make sure that the participants understood the research and the basis of their participation, they did not have previous experience with this type of research. It was later in the research when they understood more fully and then greater trust developed.

A second limitation was access to research participants. One of the requirements of the ethical approval from HIC, Memorial University of Newfoundland was that I recruit participants through the cadres. In selecting the potential participants, the cadres were limited in recruiting women who came to the Posyandu for care. The cadres would not have access to other pregnant women who could have participated in the study. Thus, because of low participation in formal prenatal care I was just able to sample a few of the pregnant women in the village. I realize this was the tip of the "ice berg", many more women needed nutritional education. The fact that additional pregnant women were recruited through the participants and wanted to take part

indicated that a greater numbers would have been available to take part in the research had other options of recruitment besides through the cadres been readily available.

The small number of women, and method of recruitment to the study may limit the strength of the substantive theory on empowerment that I began to develop for the study. A larger number of participants would be required to achieve data saturation and describe empowerment more fully.

A third limitation was that I was not able to recruit all the participants who were important to the process of prenatal education. Action research usually involves all the people who are part of a desired changed (Green-Wood & Levin, 1998). While I did make an effort to recruit formal healthcare workers, such as the bidan, who helps to deliver prenatal education at the Posyandu, I was unsuccessful. The bidan and village leader were supportive of the study taking place in the area, but the bidan did not take part in the study. The only members of the formal system who took part were the cadres. I was unable to recruit traditional birth attendants (TBAs). Niehof (1992) identified the TBAs as "brokers" between formal and traditional health care, however, the TBAs did not want to be brokers in this process. Both the bidan and TBAs are busy and participating in the research may have been seen as a burden or, alternatively, they may have wanted to see how the program progressed before they became active members.

Finally, a limitation of the research stemmed from the fact that I was a novice researcher, and like my participants, I had to learn to trust myself and find out what was realistic to accomplish. In this respect, a mutuality between myself and other participants did develop as we all became more comfortable with each other. I did at times feel a "tension" between closely adhering to ethical requirements of the study and making sure all pregnant women had access to participate in and receive good health care. There were also tensions between adhering to the research process I planned, and making sure the methods used were appropriate to the cultural groups I worked with in the process. Western research methods are not always appropriate to Asian countries. For example, when I was conducting the individual interviews I was at first surprised, that despite my explanation of the study and what was expected of participants, that mothers and grandmothers wanted to be present at the interviews. The pregnant women wanted them to be present as well. As I conducted the interviews, and more especially as I read the transcripts I realized how important these other women were to the information I obtained. In the follow up interviews I also wondered how some of the mothers of the pregnant women felt about the difference between what I was teaching their daughters versus their cultural beliefs. In a village like Waru Jaya where mothers and daughters are close how might their relationship change or more importantly would my teaching create a tension?

Conducting research in a naturalistic setting does present challenges not evident when one is writing a proposal and this phenomenon is not fully described in the research literature. I could identify with the reflective experiences of Street (1998). She took a retrospective look at her action research with nurses in a community setting. Ten years later she felt that while every attempt was made to be ethical, "at times this ethical facade is shielded by the research rhetoric and undermined by the complexity of actual research decision making in real life research situations" (p. 147).

Implications for Nursing

Despite the local character of the theory, this research does have a number of implications for nursing practice, education, and research, particularly as they relate to the Indonesian context. However, the implications are not limited to rural Indonesia and may have wider applicability in developed countries as well as those undergoing development. Nursing as a practice discipline in an academic setting, like a university, is in the beginning stages of development in Indonesia. As such, early research by nurses in Indonesia will set standards for others in the profession. There are also implications for nutrition policy that would affect lower socioeconomic women and other people living in rural villages.

Implication for Nursing Practice

The findings from the study do support the approach of using a prenatal educational program as a strategy to improve nutritional intake by empowering women.

The level of empowerment that the women were able to achieve contributed to their motivation to change their nutritional practice. The findings also support the conclusion that in delivering nursing care to this group of women it is critical to work with them, and to try and understand the factors that would influence or constrain their participation in an educational program, or other strategies that might be helpful to them.

It was also evident from working with these women that a clear contract needs to be made with the women. This contract would include a common understanding of the goal of the intervention, length of time it would take, and the role of the nurse and the women. The time it took to accomplish this would have a great payoff in terms of the women taking part and receiving the type of care that would be of benefit to them.

Another implication for practice is that nurses need to help women to be active participants in their own care. It is not enough to involve the women in just a few phases of the nursing process. They need to see themselves as having control over the decisions related to their care.

Any materials developed for the women to help them learn about nutrition, or other aspects of care, need to have input from the women themselves. In this way the learning resources will address the women's learning needs and be seen as their resource. Too often client education material is transferred from one setting to another without thinking about how appropriate the material is for the new setting.

A further implication is that a system of prenatal care needs to be developed that will help attract more women to participate. As pregnant women in the village learned about the program and approach they were motivated to attend. A social marketing strategy, sensitive to local customs, could be devised to attract more women.

Finally, it is important that women in lower socioeconomic groups are accepted for themselves, that their opinions are valued, and their beliefs respected. In acting as an advocate for these women the practising nurse must begin to work with these clients, value their opinions and input, and their right to make health decisions. A non-judgmental attitude was found to be important in helping the women participate.

The participating nurse also needs to come up with strategies to involve other influential people in the village such cadres, TBAs, bidans, community leaders, and the women themselves. While this may be a longer term goal than could be accomplished in this project, these people are important to health in the community. They would help move the project to foster empowerment at the community level. If these influential people remain committed and active in the project as a whole, longer term effects may be evident at a later date. Women in the village can be taught to help each other learn about self care in pregnancy and about infant care. A good illustration of this was when we visited one of the participants who had given birth and another participant taught her how to do umbilical cord care.

Implications for Nursing Education

As nursing at the baccalaureate and Masters level develops in Indonesia, there are a number of implications of my research for nursing education. First, students at both levels need to learn community development and participation as nursing skills. These skills would enable them to develop similar programs to meet the health needs of people living in both urban and rural areas.

Teaching health promotion strategies that help students learn about co-responsibility between people and the wider society, is one approach that would enable nurses to help clients improve their situation (Saporiti Angerami & Correcia, 1997). This model would see nurses learn to work with clients on a more equal basis, respect their input, and assist them in their own problem-solving. It would enable students to learn to consider social and ecological factors that affect clients' health and later as nurses, to work with these factors.

Another implication of the study for nursing education is that students need to learn how to identify women at risk for poor nutrition and to work with these women to improve their nutritional intake. Nurse educators need to teach students to respect the needs and concerns of these women. The nurse educator could be a positive role model to students by providing an example of how to create good nursing care and client teaching programs for this vulnerable group.

A model of field work based on this experience could be developed and used with nursing students. This would bring the students into the clinical reality of working with lower socioeconomic groups. They can then learn from a more experienced nurse how to work with clients and how to use an empowerment model to improve prenatal nutrition.

Finally, it is important to teach students about the importance of cultural beliefs and practices when working with clients. This will not only create an awareness of how important these beliefs are, but how to incorporate these beliefs and practices into a clinical situation.

Implications for Nursing Research

Looking at the findings from this study and the research process that was used, there are a number of implications for nursing research. First, the research needs to be conducted over a longer period of time, involve a greater number of participants, and if possible incorporate all the players (pregnant women and their families and informal and formal care providers) necessary to improving prenatal nutrition. The imposed short time frame allocated to thesis completion imposed a somewhat arbitrary period. Development of a larger scale study with appropriate levels of funding would help to improve the study.

There is also a need to study some of the factors that had an impact on women's prenatal nutrition. One of these is cultural beliefs and practices. A systematic study

could be done to examine these, what they are, what are the variations, what functions they serve, how they are transmitted or learned, and how they effect various aspects of health and disease. This study could be done with clients and practitioners as well.

A study of the barriers to good nutrition is also needed. Among these barriers, food distribution and allocation at the village and household level, require further research. Women's empowerment requires further study. A qualitative study such as Shields (1995) could be conducted to determine how women see this phenomenon, what they understand it to be, and what indicators demonstrate that it has taken place.

For any research process, it is critical to look at the suitability of various methods of data collection for the participants. In the focus group discussion I modified the approach from using selected questions to presenting vignettes the women would be familiar with or were at least in keeping with their cultural values. This approach seemed to work well, but research could be done on the "process" of this type of research. The use of a tape recorder was a barrier to some women's participation in the study. While a tape recorder does allow the researcher to gather more complete data from interviews, it is possible to collect interview data without them as many ethnographers have demonstrated. Perhaps a more flexible approach may be warranted in such instances.

Other areas of prenatal and postnatal health require research and knowledge development in the context of women in rural Indonesia. An action research could be

carried out with the women to identify barriers and facilitators to obtaining optimal health care during pregnancy and birth. Researchers could also look at women's preferences for health care providers during this period.

Another area that requires further research is the postpartum period. The women wanted to continue with educational classes after their infants were born. This suggests we need to do research on the postpartum needs of these women and to examine the presence and incidence of postpartum depression and adaptation to motherhood; phenomena we know little about it in this population.

Finally to return to nutrition during pregnancy; research is required to determine nutrition from a life-cycle approach. We need to study how we can help women begin their pregnancy with better nutritional status than is presently the case and how we can influence better nutrition for younger women.

Implications for Nutrition Policy

Nutritional health is critical for all women and policies could be developed that will give it the prominence it deserves. Nutrition has been one of the programs in the Puskesmas, and continues to be, even under the reformed health system. How nutrition programs are designed, implemented, and evaluated needs to be examined. If necessary clear clinical guidelines could be instituted to promote good nutrition and identify barriers that affect the population, or parts of the population, from achieving adequate nutrition in the short term. Special attention is required for vulnerable populations. It is

not enough to identify these and give nutrition supplementation. A more pro-active stance must be developed.

Opportunistic nutrition counselling could be instituted at the Puskesmas, and all clients regardless of their health problems, could be assessed and given appropriate counselling about nutrition. The more nutrition is taught and reinforced, the better chance there may be of obtaining nutritional changes.

Nutrition education should be a compulsory part of education beginning with young children as they enter school. Schools that have a higher number of children of low socioeconomic status could be helped to develop nutrition programs that the community can deliver.

Wider community approaches could be instituted to help people in the villages. Community gardens and an emphasis on local nutritious foods could be one approach, but this must be done through community participation.

Finally the policy makers need to consider the approaches used in delivering programs. Health care workers need to reorient their approach to thinking about delivering services with the community and not to the community. In this way communities, and the people in them, will gain power and develop the abilities to engage in effective problem-solving.

Conclusion

The main objective of the study was to evaluate whether a prenatal educational program empowered pregnant women to improve their nutritional intake within their socioeconomic limitations. Although time was a constraint, there is evidence from the data that empowerment was beginning to occur, and that the women were starting to make positive changes in their lives. Findings helped to identify some of the barriers that confronted these women in achieving better nutrition. Some of these limitations were a lack of financial resources, poor knowledge of nutrition and pregnancy, cultural beliefs, and food distribution patterns that favoured others in the household. Through the prenatal education program and taking part in the research process, the women were learning positive behavioural changes. The beginning of empowerment was evident by a motivation to change, gaining new knowledge, changes in nutritional practices, weighing cultural beliefs, increased self-confidence, greater social activity among the women, improved decision making abilities, and working with barriers. The study emphasized the importance of using education as a means to empower women, especially among those who could be considered a vulnerable group. The findings provide some new insights into the nutritional needs of lower socioeconomic pregnant women in developing countries. It also shows that approaches with these women, as active participants, can help empower them to make improvements in their lives.

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Appendix A

Permission Letter from the Indonesian Government

1. Metropolitan City, Jakarta

2. Provincial of West Java, Bandung

3. District of Bogor

DIREKTORAT SOSIAL POLITIK

Jl. Medan Merdeka Selatan 8 - 9 Telp. 3822170

JAKARTA

Nomor : 767 /-1.591.9

Lampiran :

Perihal : Rekomendasi.

31 Januari 2001

Yang terhormat,

Gubernur KDH Prop DT I Jawa Bar
Up. Kadit Sospol

di -

Bandung

Sehubungan dengan surat dari : Dekan Ilmu Keperawatan UI No. 196/PT02.H.14F
I/2001 tanggal 25 Januari 2001.

Nama	:	Wiwin Wiarsih
Alamat	:	Utan Panjang III Rt.14/06 Kemayoran
Pekerjaan	:	Mahasiswi
No. Mahasiswa / KTP	:	09.5003.560967.0254.
Fakultas	:	Ilmu Keperawatan
Tingkat	:	Akhir
Tujuan	:	Penelitian : "Empowerment as a way to improv nutrition in pregnancy in Waru Jaya, West Ja
Lamanya	:	31 January s.d. 31 April 2001
Peserta	:	1 orang
Lokasi	:	Waru Jaya, Propinsi Jawa Barat
Penanggung Jawab	:	Dra. Elly Nurachmah, D.N.Sc

Maka perlu dijelaskan bahwa kami tidak berkeberatan dilakukan Penelitian

dimaksud, sepanjang dipenuhinya ketentuan dan persyaratan yang berlaku di daerah setempat.

Demikian agar menjadi maklum.

A.N. GUBERNUR KEPALA DAERAH KHUSUS IBUKOTA
JAKARTA
KEPALA DIREKTORAT SOSIAL POLITIK
U.b.
KEPALA SUB. DIT KETERTIBAN UMUM

SOLIHIN SUIT, SH

Tembusan :

1. Gubernur KDKI Jakarta
2. Sekretaris Wilayah / Daerah

DIREKTORAT SOSIAL POLITI

Jl. Taman Sari No. 55 Telp. 2501678 - 2503206 FAX. 2512150 Kode Pos 40
BANDUNG

Sifat :
Derajat :
Nomor : 070.3/4457
Lampiran :
Perihal : Pemberitahuan Survey/Riset

Bandung, 5 Pebruari 2001

Kepada Yth.
Bupati Bogor
Up.Kepala Kantor Sospol,
di
CIBINONG.

Dengan ini dipermaklumkan bahwa dengan surat tanggal 25 Januari 2001 Nomor 196/PT02.H.14FIK/I/2001 dari Dekan Fak. Ilmu Keperawatan UI. kami telah menerima pemberitahuan rencana survey / riset oleh :

Nama : WIWIN WIARSIH.

Alamat : Utan Panjang III Rt 14/06 Kemayoran Jkt.

Pekerjaan : Mahasiswa.

Yanga akan dilakukan di daerah / kantor Saudara dari tanggal 5 Pebruari 2001 s/d 5 Mei 2001 dengan judul / masalah :

EMPOWERMENT AS A WAY TO IMPROVE NUTRITION IN PREGNANCY IN WARU JAYA, WEST JAVA.

Sesuai dengan Surat Keputusan Gubernur Propinsi Jawa Barat No. 300/Sk. 1215-Huk/1990 tanggal 14 Agustus 1990 kami lanjutkan kepada Saudara dan apabila situasi / kondisi memungkinkan kami tidak berkeberatan dilaksanakan.

An. GUBERNUR PROPINSI
JAWA BARAT
Kepala Direktorat Sosial Politik
u.b.
Kasubdit Ketertiban Umum,

H. PERMADI, SH
Pembina
NIP.480 053 257

TEMBUSAN disampaikan kepada :
1. Asstapra pada Setda Jabar.
2. Ketua Bappeda Jabar.
3. Dekan Fak. Ilmu Keperawatan UI.
4. Yang bersangkutan.

KANTOR SOSIAL POLITIK

KANTOR : DESA TENGAH CIBINONG TELP. (021) 8073965

Cibinong, 29 Januari 2001

Klasifikasi : Biasa
Sifat : Terbatas
Nomor : 070.1/ 34 - Sospol
Lampiran :
Perihal : Surat Ijin/Pemberitahuan kegiatan

Kepada,
Yth. : Camat Parung
Kabupaten Bogor
di-
BOGOR

I. Dasar :

1. Surat Keputusan Menteri dalam Negeri No. 134 Tahun 1978, tentang Susunan Organisasi dan tata Kerja Direktorat Sosial Politik dan Kantor Sosial Politik Kabupaten/Kotamadya ;
2. Surat Keputusan Gubernur Propinsi jawa Barat No. 300/SK/1215/Huk/1990, tanggal 14 Agustus 1990 tentang Tata cara memperoleh Ijin atau Rekomendasi Kegiatan yang berkaitan dengan Pembinaan Ketentraman dan Ketertiban Umum ;
3. Surat Keputusan Bupati Bogor No. 300/931/Kpts/Huk/1990, tentang Tata cara memperoleh Ijin/Rekomendasi kegiatan yang berkaitan dengan Pembinaan Ketentraman dan Ketertiban Umum di Kabupaten Bogor.

II. Memperhatikan : Surat Dekan Fak. I. Keperawatan UI No. 162/PT 02. H4. FIK/I/2001, tgl. 19 Januari 2001

III. Atas dasar tersebut, dengan ini kami memberikan Ijin / pemberitahuan dilaksanakannya kegiatan: Penelitian
oleh ;

Nama : WIWIN WIARSIH, SKp
Alamat : Jl. Salemba 4 Jakarta
Tema/Judul : Penelitian
Peserta : 1 (satu) orang
Penanggung Jawab : Dekan (Dra. ELLY NURACHMAH, D.N.Sc)

IV. Yang akan dilaksanakan tanggal Januari 2001 s/d April 2001 dengan ketentuan :

1. Dalam pelaksanaan kegiatan tersebut agar tidak mengganggu keamanan dan ketertiban ;
2. Sebelum melakukan kegiatan, wajib lapor kepada Kepala Wilayah setempat dan Instansi terkait dengan menunjukan surat ijin ;
3. Mentaati ketentuan-ketentuan yang berlaku dalam wilayah setempat ;
4. Sesudah selesai melakukan kegiatan, wajib melaporkan hasilnya kepada Kepala Kantor Sospol Kabupaten Bogor.

Demikian agar menjadi maklum.

An BUPATI BOGOR
KEPALA KANTOR SOSIAL POLITIK,

Drs. H. HARY HERAWAN, MM

Tembusan Yth :
1. Bupati Bogor (sebagai laporan) ;

Appendix B

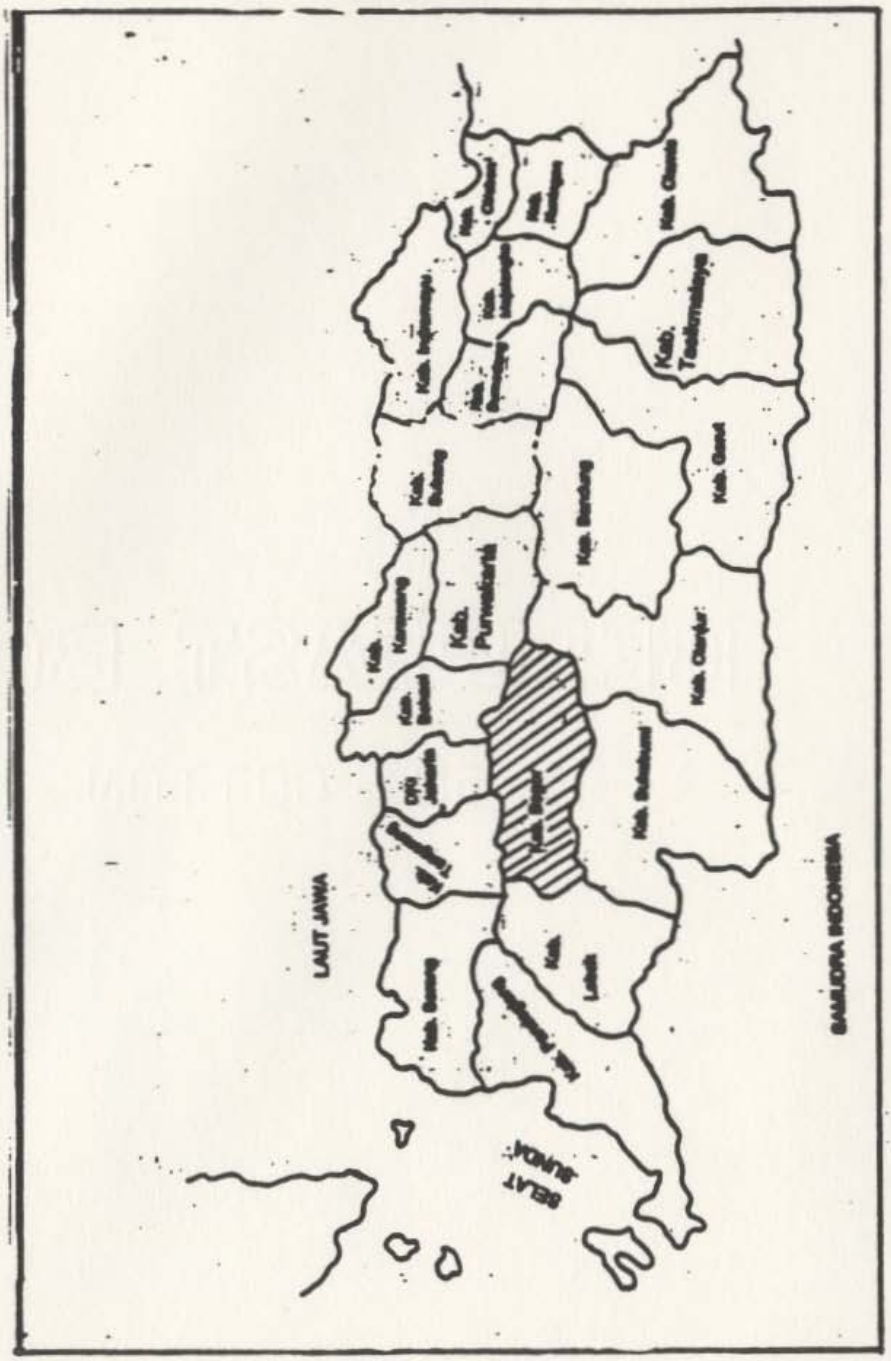
Maps of Research Area

1. West Java

2. Subdistrict of Parung (villages in the project)

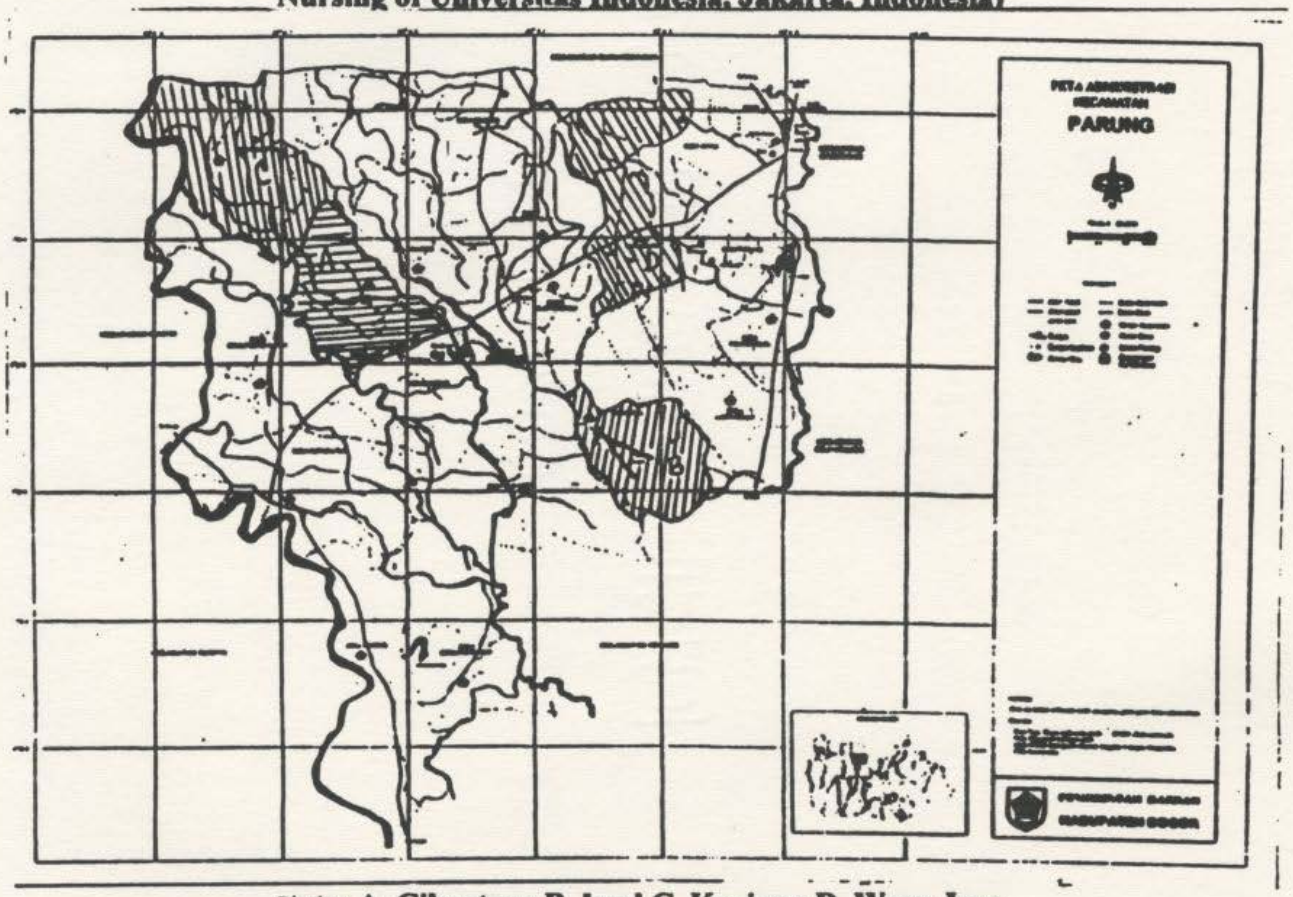
3. Waru Jaya Village

1. MAP OF WEST JAVA



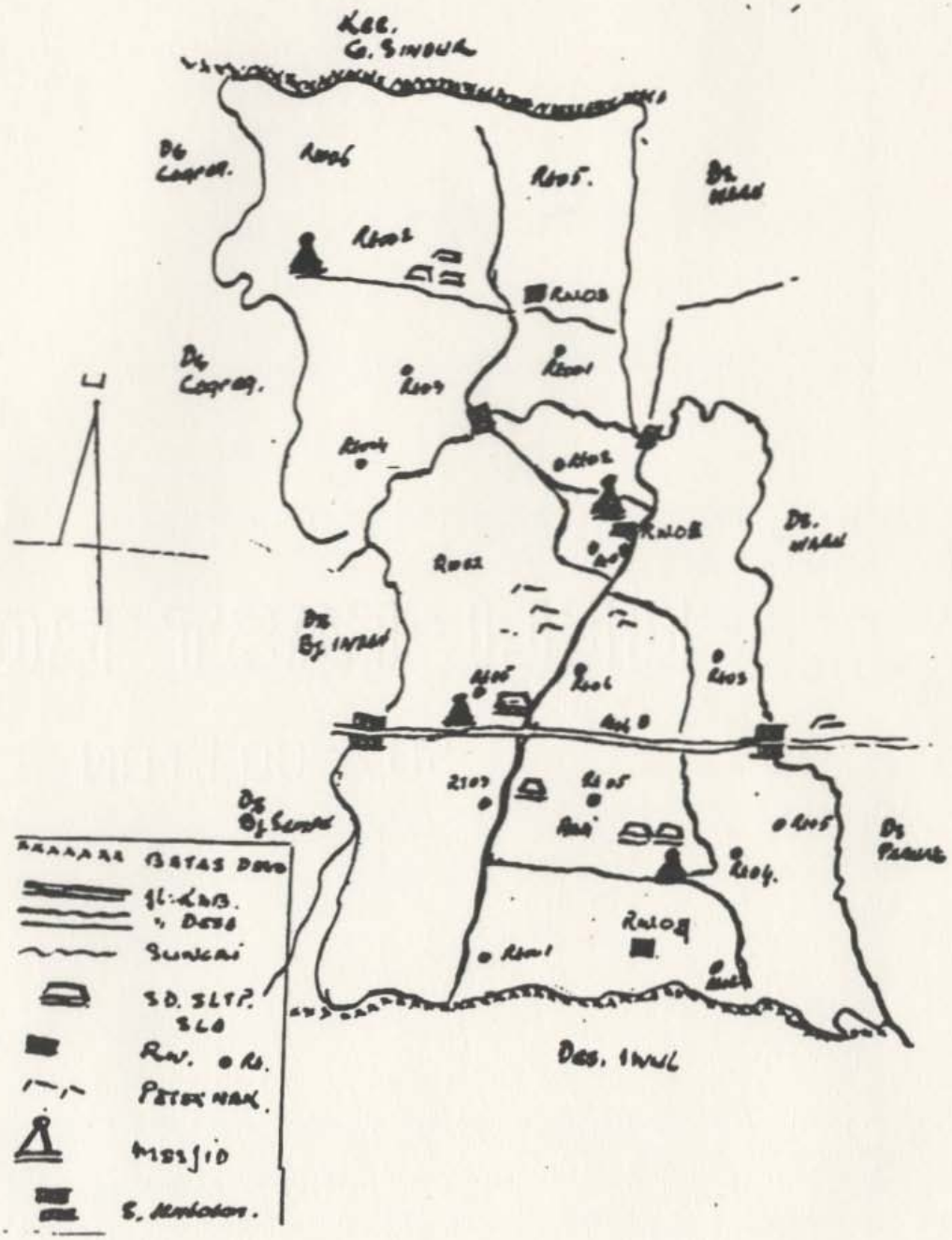
2. MAP OF SUBDISTRICT OF PARUNG

(The Villages of Project of Women's Health between School of Nursing of MUN, Newfoundland, Canada and Faculty of Nursing of Universitas Indonesia, Jakarta, Indonesia)



Note: A. Cibentang B. Iwul C. Kuripan D. Waru Jaya

3. MAP OF WARU JAYA VILLAGE



Appendix C

Informed Consent
(Note: translated into Indonesian using simple language)

SCHOOL OF NURSING – MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Consent to participate in Nursing Research

TITLE: Knowledge as a Way to Improve Nutrition in Pregnancy

PROTOCOL: N/A

INVESTIGATOR: Wiwin Wiarsih

SPONSOR: AUCC/CIDA througha Tier 2 Linkage Project "Nursing, Women's Health & Community Outreach in Indonesia between School of Nursing of Memorial University of Newfoundland, St. John's, Newfoundland, Canada and Fakultas Ilmu Keperawatan (Faculty of Nursing) of University of Indonesia, Jakarta, Indonesia

You have been asked to take part in a research study. It is up to you to decide whether to be in the study or not. Before you decide you need to understand what the study is for, what risks you might take and what benefits you might receive. This consent form explains the study.

The researcher will:

- discuss the study with you
- answer your questions
- keep confidential any information which could identify you personally
- be available during the study to deal with problems and answer questions

If you decide not to take part or to leave the study this will not affect your health care/normal treatment.

Introduction: Nutrition in pregnancy plays an important role in the pregnant woman's well being and for fetal development. Adequate maternal nutrition during pregnancy reduces the risk of complications to the mother and her baby. In contrast, inadequate maternal nutrition may cause problems for the mother and her baby.

Moreover, maternal nutrition contributes to the quality of a child's development. Nutrition in pregnancy can be improved through increased knowledge and a change in attitudes. This can be facilitated through a prenatal education program that is tailored to meet the needs of the specific group it is intended to help. With added knowledge, pregnant women can become aware of their health needs and be motivated to take action and find a solution. Prenatal education fosters a positive effect on maternal health and pregnancy outcomes and is an important strategy to ensure good eating behavior to support optimal fetal growth and development. This study may help health care providers to determine a better way not only to develop a prenatal education program but also to conduct it.

Purpose of study:

The purpose of this study is to find out how prenatal education during pregnancy helps pregnant women to improve their nutritional needs. I will be working with you to try to increase your understanding and ability to meet your nutritional needs.

Description of procedure:

You have agreed to be involved in the research process. The interview will be conducted at a place and time that is convenient for you. Based on your permission, a tape recorder will be used to record your conversation. In the first interview, you will be asked about your experiences with selection of foods and eating practices during pregnancy. Discussion about how to solve nutritional problems will be conducted in a group with pregnant women in the study in each RW. Based on your responses we will develop a prenatal education program. You are requested to take part in the prenatal program. The prenatal education program will be conducted over a two week period, 6-8 sessions, each session lasting about two hours depending on the needs of group.

A month after you complete the prenatal program, you will be asked about the impact of the program on your understanding and ability in relation to your nutritional intake. A further session will be held with you in a group to discuss your nutritional changes, examine your decision-making ability, and clarify any outstanding issues. To measure your food intake, you will be asked to complete amount and kinds of food eaten by sorting pictures of foods in a dietary diary for three days per week before and after prenatal program. We expect that the individual interviews and discussion will take about 60-90 minutes each.

Duration of participant involvement: Because I am using action research, you will be involved not only in the data collection process but also in the research process especially in a prenatal education program as a strategy to improve your ability to meet nutritional intake. We will be working together over the next four months.

Possible risks, discomfort, or inconveniences: There are no anticipated risks from this study. If you feel uncomfortable with the questions during interviews, you may choose not to answer specific questions or you may withdraw at any time. Times will be arranged at your convenience.

Benefits which the participant may receive: You will get information about prenatal nutrition and nursing services that are available to you.

Liability statement: Signing this form gives me your consent to be in this study. It tells me that you understand the information about the research study. When you sign this form, you do not give up your legal rights. Researchers or agencies involved in this research study still have their legal and professional responsibilities.

Signature: _____ Date: _____

Witness: _____ Date: _____

Signature Page

Study Title: Knowledge as a way to improve nutrition in pregnancy
Name of principal investigator: Wiwin Wiarsih
To be filled out and signed by the participant:

	Please check as appropriate
I have read the consent [and information sheet]	( ) yes ( ) no
I have had the opportunity to ask question/to discuss this study	( ) yes ( ) no
I have received satisfactory answers to all of my questions	( ) yes ( ) no
I have received enough information about the study	( ) yes ( ) no
I have spoken to Wiwin Wiarsih or a qualified member of the study team	( ) yes ( ) no
I understand that I am free to withdraw from the study	( ) yes ( ) no
• at any time	
• without having to give a reason	
• without affecting my future care	
I understand that it is my choice to be in the study and that I may not benefit	( ) yes ( ) no
I agree to take part in this study	( ) yes ( ) no

_____ _____
Signature of participant Date

_____ _____
Signature of witness Date

To be signed by the investigator:
I have explained the study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

_____ _____
Signature of investigator Date
Telephone number: (021) 4242024
Assent of minor participant (if pregnant women less than 19 years old)

_____ _____
Signature of minor participant Date

_____ _____
Relationship to participant name above Age

Appendix D

Focus Group Vignettes

Vignette #1. Mr. T. (40 years old) and Mrs. S (35 years old) have 2 boys and 2 girls. Mrs. S is pregnant again and in the fourth month of her pregnancy. Mr. T has brought home a chicken for the noon meal. Mr. T divides the chicken among the family members as follows: the chicken breast for Mrs. S, his wife, a chicken leg and thigh for each son, a chicken wing and back for each daughter, and the chicken head and feet for himself (Mr. T).

Question: What do you think of the way Mr. T has divided the chicken among the household members?

Vignette #2. Mr. Sm and Mrs. R are a young couple. Mrs. R is six months pregnant with the couple's first child. The couple live with Mrs. R's mother because Mr Sm works in another village quite far away. He only gets home once a week. Mrs. R does not feel like eating and looks pale and weak. She is experiencing pain in her abdomen and notices that she has some bright red vaginal bleeding. She does not seek any care for this condition because her husband makes all decisions in their family about seeking health care. Even though the bleeding is increasing, she still waits for her husband to return to ask him what to do.

Question: 1. What do you think of Mrs. R's actions?

2. What would be the best action for Mrs. R to take to care for herself and her unborn infant?

Vignette #3. They are a number of women in the village who are pregnant. They have a number of complaints, like dizziness and feeling weak and tired. Most of these women do not get prenatal care. Some of the reasons they give for not seeking care are that they do not have any energy to go to the Posyandu or they are shy because there are many children under-five years with their mothers at the Posyandu. The women keep saying they will get care and have an examination later in their pregnancies, when their baby is bigger. There are not many facilities and of activities available for care pregnant women.

Questions: 1. What do you think of this behaviour by these pregnant women?

2. What would you like to see in the village for your own care?

Appendix E

MENUJU KEHAMILAN DAN PERSALINAN SEHAT

(ACHIEVING A HEALTHY PREGNANCY AND BIRTH)

Kehamilan terjadi mulai dari pembuahan telur sampai lahirnya bayi. Selama kehamilan, rahim akan membesar sesuai dengan pertumbuhan bayi. Sementara bayi membesar di dalam perut, perubahan-perubahan akan terjadi dari bulan per bulan. Selama sembilan bulan, ibu adalah dunia bagi bayi. Berikut ini akan digamberkan perubahan fisik dan emosional yang terjadi setiap akhir tiga bulanan.

Tiga bulan pertama (3 bulan)

Pertumbuhan bayi:

Panjang 7.5 cm, Berat 28 gram

Terbentuk jari tangan dan kaki

Tangan dan kaki dapat bergerak

Dapat tersenyum dan mengkerutkan dahi

Perubahan fisik:

Mual dengan atau tanpa disertai muntah

Mengeluarkan ludah yang berlebihan

Sering buang air kecil

Sembelit, Kembung

Keletihan dan mengantuk

Enggan makan atau nafsu makan meningkat

Perubahahn pada payudara

Kadang sakit kepala, pusing, dan seperti akan pingsan

Gambar dikutip dari Department of Health (1994). *Nine months of changes: A new life*, pp. 3, Newfoundland: Department of Health.

Perubahan emosi:

Cepat tersinggung

Suasana hati berubah-ubah

Cengeng

Perasaan yang was-was, takut, atau gembira.

Perhatikan: peningkatan berat badan

Tiga bulan kedua (6 bulan)

Pertumbuhan bayi:

Panjang 28-36 cm, Berat 680 gram,

Kulit mengekerut, Mata terbuka

Janin mulai banyak bergerak

(bangun, tidur, menguap, menangis, mengisap ibu jari)

Perubahan fisik:

Gerakan janin lebih pasti dan jelas

Pengeluaran cairan keputihan dari vagina

Sakit pada perut bagian bawah

Hidung tersumbat dan kadang mimisan

Gusi berdarah saat sikat gigi

Nafsu makan besar, Pembengkakan

Varises atau ambaien

Rasa gatal pada perut. Sakit punggung

Gambar dikutip dari Department of Health (1994). *Nine months of changes: A new life*, pp. 5, Newfoundland: Department of Health.

Perubahan emosi:

Mulai ada perasaan bosan terhadap kehamilan

Cemas dengan masa depan

Perhatikan: pelajari proses persalinan

Tiga bulan ketiga (9/10 bulan)

Pertumbuhan bayi:

Panjang 50 cm, Berat 3200-3500 gram

Lemak tubuh cukup untuk menjaga kehangatan

Kuku jari panjang, Kepala besar

Tangan dan kaki ditekuk ke badan.

Perubahan fisik:

Janin lebih banyak menggeliat

Pengeluaran cairan (lendir atau darah) makin banyak

Rasa tidak enak dan nyeri pada pinggul dan pantat

Kolustrum merembes atau keluar saat ditekan

Bertambahnya atau kehilangan nafsu makan.

Perubahan emosi:

Lebih gembira atau lebih cemas

Tidak sabar dan gelisah

Mimpi dan khayalan tentang bayi.

Gambar dikutip dari Department of Health (1994). *Nine months of changes: A new life*, pp. 8-9, Newfoundland: Department of Health.

Perhatikan tanda persalinan:

Rasa nyeri lebih sering (setiap 5 menit) dan semakin kuat

Nyeri mulai pada bagian bawah punggung

menyebar ke bagian bawah perut, mungkin juga ke kaki

Nyeri terasa lebih sering dan teratur

Adanya darah (merah muda atau benang darah)

Pecah ketuban

Tidak semua perubahan itu nyaman. Banyak dari perubahan itu adalah normal dan tidak memerlukan obat atau penanganan khusus. Apapun ketidaknyamanan itu, adalah dapat dilakukan sesuatu untuk menolong meningkatkan kenyamanan.

✓Setiap kehamilan berbeda, tetapi umumnya, makan yang baik dan tetap aktif akan menolong mengurangi ketidaknyamanan dan menciptakan hidup sehat selama kehamilan

Sementara hamil, ibu adalah dunia bagi bayi. Jika ibu makan, maka ibu makan untuk bayi juga. Apa yang dimakan selama hamil tidak hanya membuat perbedaan nyata pada pertumbuhan dan perkembangan bayi tetapi juga pada kesehatan ibu. Makan sehat dapat mencegah atau mengontrol ketidaknyamanan yang muncul selama hamil seperti mual dan susah buang air besar. Penting untuk memperhatikan kebiasaan makan selama hamil dan pertambahan berat badan.

- **Pertambahan Berat Badan**

Adalah lazim, normal, dan sehat jika berat badan bertambah selama hamil. Peningkatan berat badan akan menciptakan bayi sehat, menjaga kesehatan ibu, dan mempersiapkan badan ibu siap untuk menyusui. Kebanyakan wanita sehat memerlukan penambahan berat badan sekitar 11-16 kg atau 05 kg setiap minggu. Ibu yang mempunyai badan kurus sebelum hamil atau ibu hamil masih remaja perlu peningkatan berat badan sekitar 20 kg, sementara ibu yang gemuk penambahannya cukup 8,5 kg. Kebanyakan wanita hamil tidak mengalami peningkatan berat badan selama tiga bulan pertama sementara pada masa ini bayi berkembang sangat cepat.

✓Peningkatan berat badan selama hamil disebabkan karena penambahan berat janin (3300 gram), ari-ari (650 gram), ketuban (800 gram), lemak ibu (5200 gram), pembesaran rahim (900 gram), payudara (400 gram), dan darah (1250 gram).

- **Prinsip makan sehat selama hamil adalah:**

1. Makan teratur

Adalah sangat baik untuk membuat kebiasaan makan yang teratur. Jika kesulitan makan 3 kali sehari, coba untuk makan sedikit tapi sering, misalnya 6 kali sehari dengan porsi kecil.

2. Makan bervariasi.

Karena tidak ada satupun makanan yang mengandung semua zat gizi, maka ibu hamil seharusnya makan makanan yang bervariasi dari kelompok biji-bijian (nasi dan sebangsanya), sayur, buah, lauk pauk dan susu atau produk susu.

a. Biji-bijian sebagai seumber tenaga.

Sumber makanan ini mengandung:

Karbohidrat atau zat tepung, memberikan energi dan membantu penyerapan lemak.

Vitamin B, membantu penggunaan energi dari makanan dan menjaga sistem syarap, kulit, dan mata.

Zat besi, menjaga kesehatan darah.

Kebutuhan: 3-6 porsi, dimana satu porsi setara dengan 2 lapis roti tawar, 1 gelas nasi atau mie.

b. Sayur dan buah

Sayur dan buah mengandung:

Asam folat, membantu pembentukan sel darah merah

Vitamin A, membantu pembentukan tulang dan gigi, dan menjaga kesehatan mata dan kulit

Vitamin C, menjaga kesehatan gusi dan pembuluh darah, dan mencegah infeksi.

Kebutuhan: 3-5 porsi dimana paling tidak 2 porsi harus dari sayuran hijau dan kuning. Satu porsi setara dengan 1 mangkok buah atau sayur, 1 mangkok jus, atau 1 potong sedang buah.

c. Lauk pauk

Mengandung:

Protein, membangun sel dan memperbaiki sel yang rusak dan melawan infeksi

Zat besi, menjaga kesehatan darah

Asam folat, membantu membentuk sel darah merah

Kebutuhan: 2-3 porsi. Satu porsi setara dengan 1 potong daging, ikan, atau hati atau 2 telur

d. Susu dan produk susu

Mengandung:

Kalsium, membentuk dan menguatkan tulang dan gigi

Vitamin D, juga untuk kekuatan tulang dan gigi

Protein, membentuk dan meperbaiki sel badan dan mencegah infeksi

Kebutuhan: 3-4 porsi. Satu porsi setara dengan 1 gelas (ukuran standar) susu.

e. Air

Mengatur vitamin dan mineral untuk digunakan badan, mencegah susah buang air besar. Kebutuhan 6-8 gelas per hari.

Karena kalsium, vitamin D, zat besi, dan asam folat sangat penting untuk pertumbuhan dan perkembangan bayi, ibu hamil perlu makan lebih banyak dari biasanya. Berikut ini akan diuraikan sumber makanan dari zat gizi tersebut.

Asam folat

Sayur dan buah seperti brokoli, bayam, ubi, jeruk, hati atau organ tubuh lain, kacang tanah dan kacang-kacangan lain. Asam folat akan rusak dengan panas, udara, dan air. Maka makanlah sayuran mentah segar, jika dimasak gunakan sedikit air. Bagi ibu hamil, zat besi berperan juga untuk menghindari kecacatan pada bayi. Pil besi mengandung 250 gram asam folat. Jumlah tersebut cukup untuk memenuhi kebutuhan selama hamil.

Zat besi

Sumber makanan dari lauk pauk seperti hati dan organ lain, kacang-kacangan, sayur dan buah. Vitamin C membantu penyerapan zat besi dari sayuran dan buah. Makanlah makanan yang mengandung vitamin C bersamaan atau berdekatan waktu dengan makanan yang mengandung zat besi. Sumber vitamin C adalah jeruk, tomat, kol, kembang kol, dan brokoli. Sumber zat besi hewani lebih mudah diserap daripada sumber nabati. Hindari untuk minum kopi dan teh karena menghambat penyerapan zat besi. Jika minum kopi atau teh, tunggu waktu paling tidak satu jam untuk makan makanan yang mengandung zat besi.

Kalsium

Susu dan produk susu adalah sumber kalsium yang baik. Sumber kalsium lain adalah ikan yang dimakan dengan tulang, tahu atau tofu, kacang tanah sanggrai, dan brokoli.

Kesimpulan

Secara umum, kebutuhan makan ibu hamil dalam satu hari adalah:

Nasi atau penggantinya 4-6 piring

Lauk hewani 4-5 potong

Lauk nabati 2-4 potong

Sayur 2-3 mangkok

Buah 3 potong

SELAMAT MENCOBA, BAYI SEHAT JIKA ANDA MAKAN SEHAT

MENINGKATKAN KENYAMANAN MELALUI HIDUP AKTIF

Secara umum hidup aktif berarti membuat aktifitas fisik sebagai bagian dari kehidupan sehari-hari. Ini berarti menjadikan aktifitas sebagai sesuatu yang gembira, sehat, dan memberikan kepuasan.

Manfaat hidup aktif:

Menurunkan stress, memberikan kenyamanan, mempertahankan berat badan, menjaga atau meningkatkan kesehatan, membuat lebih energik.

Beberapa aktifitas yang dapat memberikan kenyamanan pada punggung

1. Berdiri.

Sikap berdiri yang benar menurunkan rasa sakit pada daerah punggung.. Pertahankan sikap ini ketika berjalan.

2. Tidur.

Posisi miring dengan sokongan bantal dapat menurunkan tekanan pada leher dan punggung

3. Mengangkat.

Hindari mengangkat beban berat.

Tekuk lutut, dekatkan beban dengan badan, dan angkat dengan bantuan kaki

4. Duduk

Duduk tegak dengan punggung dan pantat menempel pada dinding kursi.

Gambar dikutip dari department of Health (1994). *Healthy activity: A new life*, pp. 4-9, Newfoundland: Department of Health.

Tujuan: memperkuat, meregangkan, dan merelakskan badan. Penting dilakukan untuk mendukung kehamilan dan kelahiran yang sehat dan penyembuhan yang cepat setelah lahir. Olahraga selama hamil dirancang untuk menolong badan menyesuaikan pada proses kehamilan dan memperkuat otot untuk melahirkan. Juga membantu badan untuk kembali pada keadaan sebelum hamil.

Memperkuat otot.

1. Memutarkan sendi bahu

dengan posisi tangan sejajar bahu.

2. Posisi miring,

angkat dan turunkan kaki bagian atas dan bawah

3. Posisi merangkak

punggung rata dengan kepala rileks ke bawah.

Angkat lutut ke samping

4. Telentang, lutut ditekuk, tangan disamping

Kencangkan perut dan pantat, angkat bokong,

turunkan pelan.

5. Jongkok. Berdiri dengan kaki melebar 30 cm

dengan telapak kaki menempel ke lantai,

jongkok pelan. Hindari jika ada keluhan di lutut.

6. Pengerutan otot panggul.

Rapatkan otot lubang kemaluan, kencing, dan buang air.

Tahan beberapa menit dan lepaskan.

Gambar dikutip dari Department of Health (1994). *Healthy activity: A new life*, pp. 23-25, Newfoundland: department of Health.

Meregangkan otot

1. Lutut. Duduk dengan satu kaki lurus dan yang lain ditekuk. Pegang kaki yang lurus sejauh mungkin, tahan.

2. Paha. Duduk dengan posisi kupu-kupu dengan telapak kaki menyatu. Tekan kedua lutut.

3. Punggung. Telentang dengan kedua lutut ditekuk. Pegang satu paha dekat dengan lutut, tarik lutut ke dada, dan tahan. Jika pusing stop.

Rileks

Manfaat rileks: menyimpan energi, memberikan kenyaman, mebuat kelahiran lebih mudah. Pada saat latihan rileks, hindari posisi telentang lurus pada punggung. Jadi gunakan posisi miring.

Tidur miring dengan bantal dibawah kepala dan yang lain diantara lutut.

Tidur tidur miring dengan satu tangan disamping, satu bantal dibawah kepala dan bahu, dan yang lain mendulung kaki.

Telentang dengan paling tidak dua bantal dibawah kepala dan bahu, yang lain dibawah lutut.

Sementara melakukan relaksasi, lakukan nafas lambat dan dalam.

Gambar dikutip dari Department of Health (1994). *Healthy activity: A new life*, pp. 6 & 28-29, Newfoundland: Department of Health.

Kunci menyamankan persalinan:

1. Mengerti dan bekerja dengan proses kelahiran
2. Mempelajari dan mempraktekan tehnik meningkatkan kenyamanan.

Tehnik meningkatkan kenyamanan dapat dilakukan melalui latihan nafas dan relaksasi.

Proses kelahiran dibagi menjadi tiga tahapan:

1. Pembukaan mulut rahim dari 0 sampai 10 cm yang berlangsung selama 12-18 jam.
2. Mulut rahim telah terbuka 10 cm sampai lahirnya bayi, berlangsing 1 ½-2jam
3. Lahirnya plasenta, lamanya 15-30 menit

Relaksasi

Gunakan tehnil relaksasi menggunakan posisi tidur miring dengan sokongan bantal.

Posisi tubuh selama proses kelahiran:

1. Tahap 1: berjalan, berdiri, duduk, ½ duduk, tidur miring

2. Tahap2-3: Jongkok, ½ duduk, merangkak, tidur miring

Kenyamanan juga dapat ditingkatkan melalui mandi air hangat, pijatan, mendengarkan musik, dan minum cukup.

Gambar dikutip dari Department of Health (1994). *Healthy birthing: A new life*,pp. 6-7 Newfoundland: Department of Health.

Bernafas

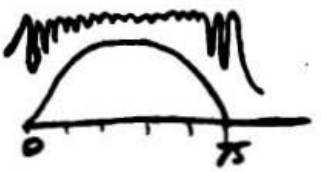
Tiga tehnik bernafas dapat digunakan selama tahapan pertama persalinan:

1. Nafas lambat dan dalam

Ketika mules datang, bernafas secara tenang. Tarik nafas dan keluarkan melalui hidung atau mulut. Pilihlah mana yang lebih nyaman. Tarik nafas sampai perut terasa penuh dan dada mengembang, keluarkan nafas secara perlahan. Ulangi sampai mules hilang.

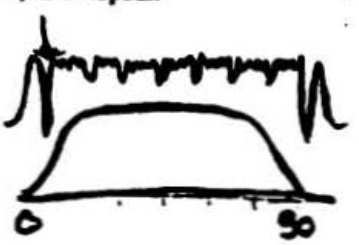
2. Nafas cepat dan dangkal

Digunakan ketika mules lebih sering dan tidak dapat diatasi dengan nafas lambat dan dalam. Tarik nafas dan keluarkan melalui mulut. Jika mules mulai menghilang, gunakan kembali tehnik nafas dalam dan lambat.



3. Nafas pendek dan cepat

Digunakan jika mules mulai lebih lama dan kuat. Tarik dan keluarkan nafas secara cepat dan dangkal beberapa kali, lalu tiupkan



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Appendix F

Interview Schedules

1. The First Individual Interview

2. The Second Individual Interview

Interview Schedule 1

Thank you for your agreement to be a participant in this study. The purpose of the study is to explore how nutrition in pregnancy can be improved through prenatal education as a strategy for improving not only your understanding about nutrition during pregnancy but also your ability to solve nutritional problems. In this interview, I want to know as much as possible about your foods and your eating practices during pregnancy. Based on your experiences, you can share any thoughts, feelings, and ideas.

Questions for facilitating the interview: Could you give me information about:

1. What you eat daily during pregnancy?
2. Why you eat those foods?
3. What you think are some benefits and impacts of foods on your pregnancy and your baby?
4. During pregnancy what influences your eating habits?
5. Who gives you information about foods during pregnancy?
6. What kind of information do you want to know or to learn about foods during pregnancy?
7. What do you propose as solutions to improve prenatal nutrition?

Interview Schedule 2

Thank you for you participation in prenatal education programs. In this interview, I want to know as much as possible about the impact of prenatal education programs on your lives.

Questions for facilitating interview: Could you give me information about:

1. What do you now eat daily?

2. Why do you eat those foods?

3. What are the impacts of nutrition on your pregnancy and on your baby?

4. Has the prenatal nutritional education helped you?

5. Has your decision-making ability changed in order to meet your food intake?

Appendix G

Dietary Diary Form

Name: .....
Day/date: .....
Complete kind and amount of food that you eat each a day, please.

Time of eating	Kind of food	Amount (in plate, bowel, or piece)
Wake-up to 12 pm		
After 12 to 4 pm		
After 4 pm to bed time		

Appendix H

Pre and Post Test

Name: _____

Circle the letter T if the answer is true and the letter F if the answer is false.

1. During pregnancy there are no changes in the body	T	F
2. Weight gain during pregnancy is important	T	F
3. Loss of weight during the first three month of pregnancy is normal	T	F
4. Discomfort during pregnancy can only be overcome by using drugs	T	F
5. The baby's nourishment comes from what mothers eat	T	F
6. Coffee and tea are good to drink during pregnancy	T	F
7. No one food contains complete nutrients	T	F
8. Leafy and yellow vegetables must be eaten during pregnancy	T	F
9. Exercise is not recommended for pregnant women	T	F
10. Emotions do not change during pregnancy	T	F

Thank you for your participation

NOTE: Translated from Indonesian.

Appendix I

Letter of Approval from the Human Investigation Committee

1. Memorial University of Newfoundland, St. John's, Newfoundland, Canada

2. Faculty of Medicine University of Indonesia, Jakarta, Indonesia

Memorial
University of Newfoundland

Office of Research and Graduate Studies (Medicine)
Faculty of Medicine
The Health Sciences Centre

November 16, 2000

TO: **Ms. W. Wiarish**

FROM: Dr. F. Moody-Corbett, Assistant Dean
Research & Graduate Studies (Medicine)

SUBJECT: Application to the Human Investigation Committee - #00.158

The Human Investigation Committee of the Faculty of Medicine has reviewed your proposal for the study entitled **"Empowerment as a way to improve nutrition in pregnancy"**.

Full approval has been granted for one year, from point of view of ethics as defined in the terms of reference of this Faculty Committee.

For a hospital-based study, it is **your responsibility to seek necessary approval from the Health Care Corporation of St. John's**.

Notwithstanding the approval of the HIC, the primary responsibility for the ethical conduct of the investigation remains with you.

F. Moody-Corbett, PhD
Assistant Dean

cc: Dr. K.M.W. Keough, Vice-President (Research)
Dr. R. Williams, Vice-President, Medical Services, HCC
Dr. S. Solberg, Supervisor

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Jalan Salemba Raya 6 Jakarta Pusat - Telp. 330371, 330373
Fax. 330372 Pos Box 1358 Jakarta 10430

No : 01 /PT02.FK/ETIK/2001

KETERANGAN LOLOS KAJI ETIK
ETHICAL CLEARANCE

Panitia Tetap Penilai Etik Penelitian, Fakultas Kedokteran Universitas Indonesia dalam upaya melindungi hak asasi dan kesejahteraan subyek penelitian kedokteran, telah mengkaji dengan teliti protokol berjudul:
The Committee of The Medical Research Ethics of the Faculty of Medicine, University of Indonesia, with regards of the protection of human rights and welfare in medical research, has carefully reviewed the proposal entitled :

"EMPOWERMENT" SEBAGAI SUATU CARA UNTUK MENINGKATKAN NUTRISI WANITA HAMIL".

Nama peneliti utama : WIWIN WIARSIH,SKp
Name of the principal investigator

Nama institusi : FAKULTAS ILMU KEPERAWATAN UI
Name of institution

dan telah menyetujui protokol tersebut di atas.
and approved the above mentioned proposal.

Jakarta, 8 JANUARI 2001

Dekan
Dean

Prof.dr. Ali Sulaiman,PhD

Ketua
Chairman

Prof.dr. R. Sjamsuhidajat