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THE EFFECT OF REDUCED FAMILY SIZE ON THE STATUS OF MCH IN THAILAND

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As with all research however, any shortcomings of this manuscript that remain are the sole responsibility of the authors.

ABSTRACT

As one of the earliest rationales for family planning program was to reduce maternal and child mortality, this research paper represents the renewed concern to explore the existance and nature of health consequences of large and small families on both the child and the mother. To investigate these relationships two samples of married women in the reproductive ages were taken : one from the North Region of Thailand and one from the South. A total of 2,583 women were interviewed on a range of topics including socio-economic status, fertility and family planning and health-related issues. Significantly a sub-sample of 1,622 women with their children under five years were given physical examinations.

The data were subjected to a variety of statistical tests including multivariate analysis. The authors conclude that there are demonstrable positive and direct health benefits of reduced family size on maternal and child health. This leads to the conclusion that the organized family planning activities need to be more thoroughly integrated with MCH services given their mutual reinforcement.

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	Pornpong	Pradaptong
	Sukon	Sinkim

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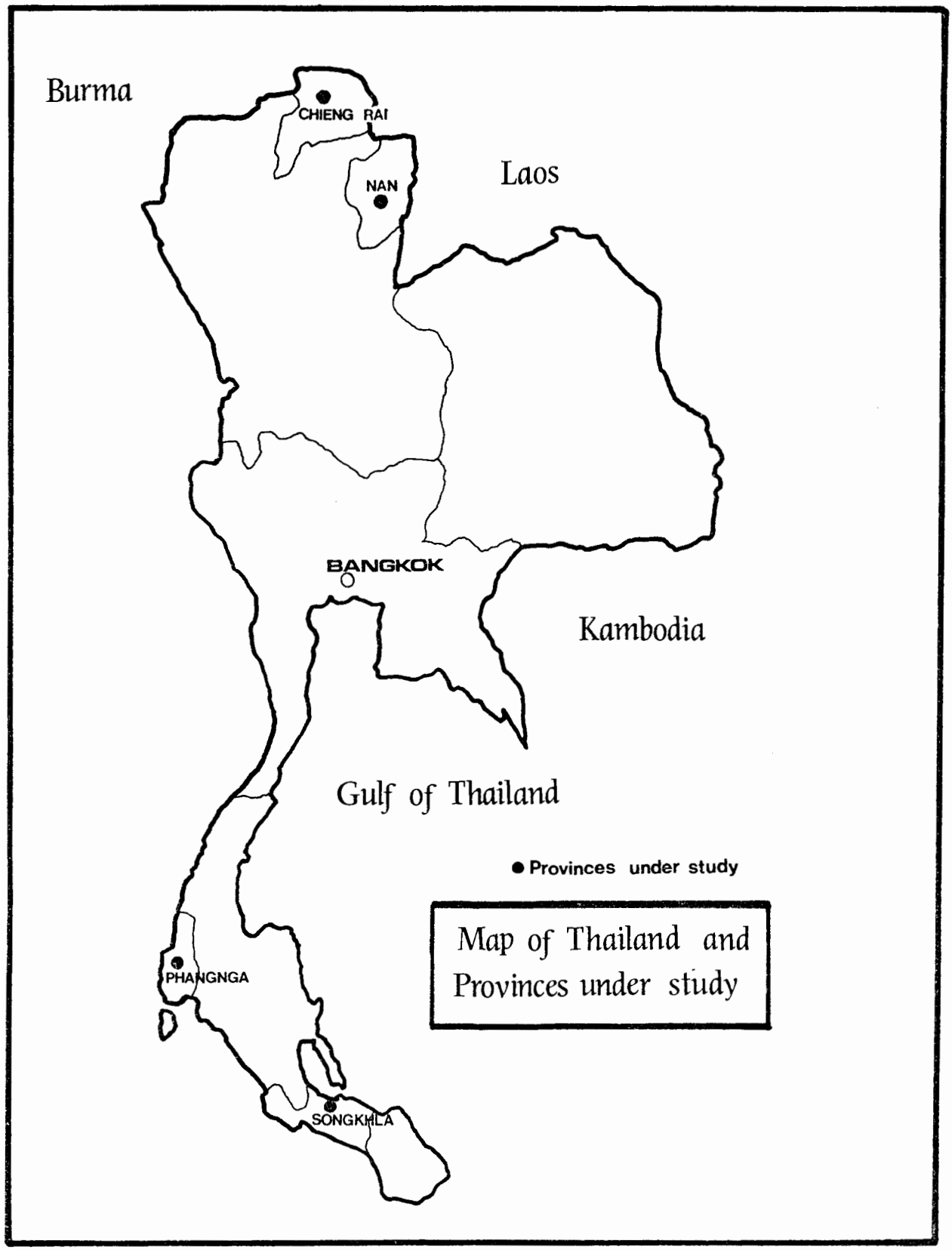

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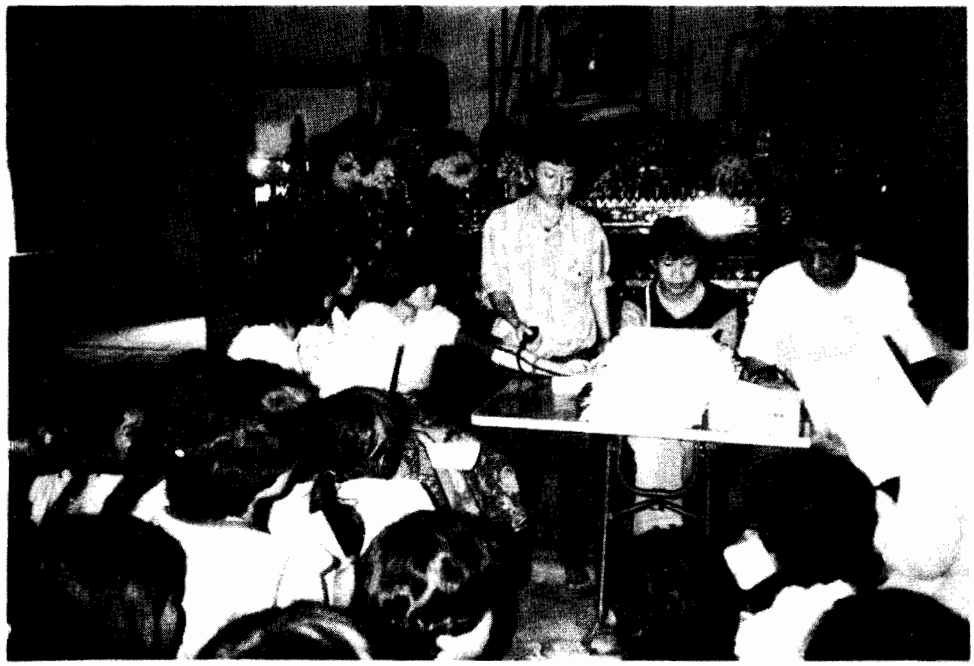

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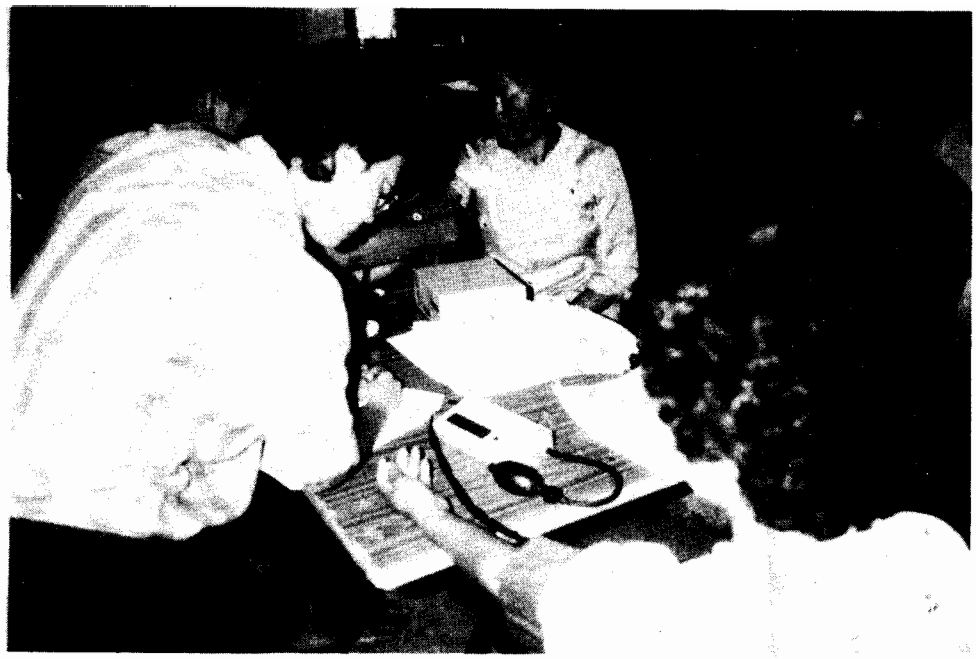
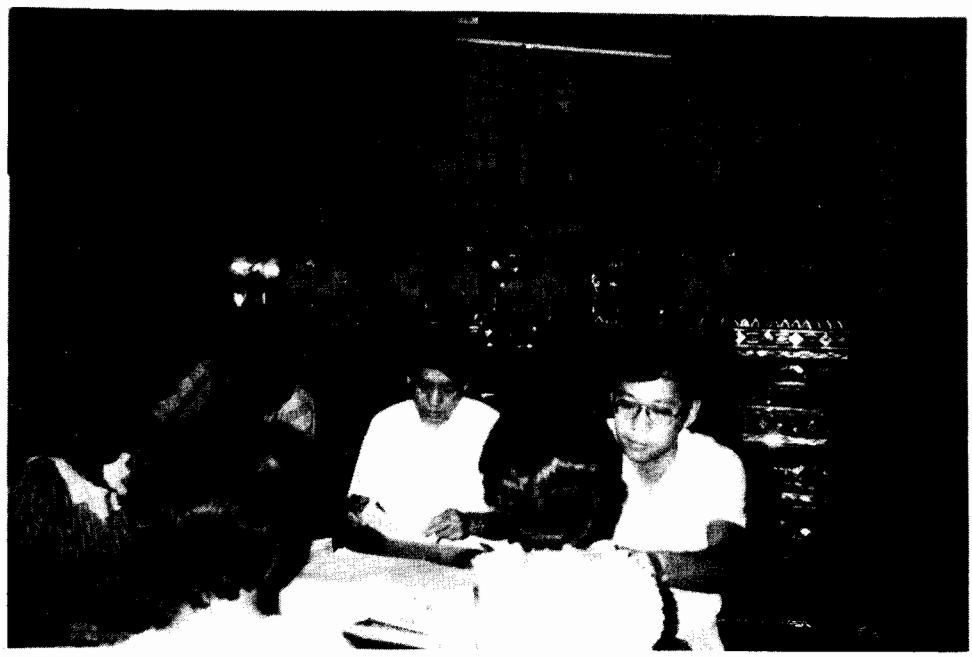


Blood pressure measurements for Northern women



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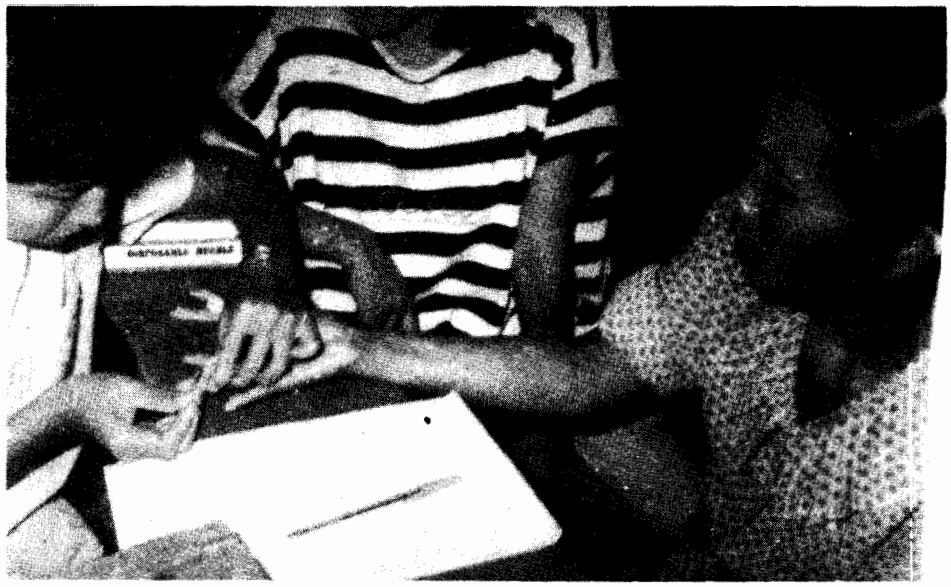

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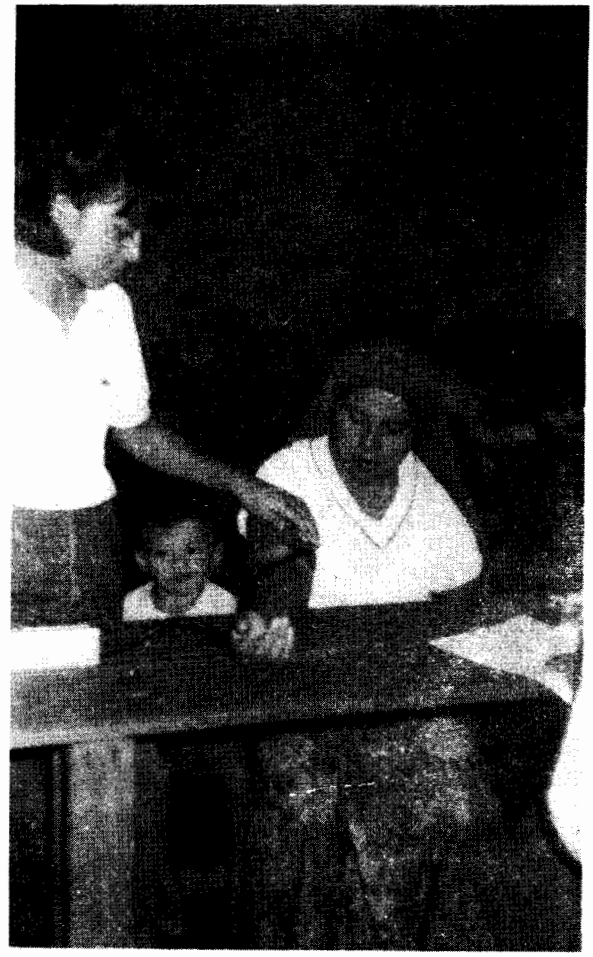

Part of health for Southern Thai Muslim women

Typical village road in the South : dense rubber tree orchards permit travel by foot only.

PART I :

BACKGROUND TO THE STUDY

CHAPTER 1

Introduction

1.1 Background
1.2 Hypothesis
1.3 Methodology
1.4 Organization of the report

CHAPTER 1
Introduction

1.1 Background

In the recent past, Thailand has been recognized as having one of the highest fertility levels in the world. It has been suggested that during 1947-1960 Thailand had an average population increase of 3.2 percent per year (Krannich and Krannich, 1980). According to the information available from the 1960 census, Das Gupta et al. (1965: 17) stated that Thailand had a birth rate of about 45 per thousand, and an average of 6.6 live births per woman.

Recognizing that population growth would have serious implications for the nation's future development, population planning was advocated for a national family planning policy. The planners wanted the government to establish an organizational infra-structure so as to provide sufficient resources for delivering family planning services. Such goals became a reality in 1970, when the government officially declared the voluntary family planning program.

As approved by the Cabinet in 1970, the adoption and original objective of the Thai national policy on population growth and family planning was to reduce the rate of increase from over 3.0 percent per year to 2.5 percent per year in a five year period (Bautista, 1976). After the1970-1975 period, the objective was then shifted to a goal of 2.0 percent per year for the five-year period beginning in 1976. This policy also included two subsidiary goals: to limit family size through voluntary family planning and to enhance the status of maternal and child health care.

Evidence indicates some decline in the crude birth rate in the mid-1950's (Economic and Social commission for Asia and the Pacific, 1976; Vallin, 1976 as cited in Knodel et al., 1982), and a decline in marital fertility in Thailand between 1960 and 1969 (Cho and Retherford, 1973). However, there are some differentials in fertility among the four regions of Thailand. Pardthaisong (1976), explicitly claims that the fertility rate in the North has been rapidly declining. The most recent evidence indicates significant declines in fertility for the Northern and Central regions while fertility levels of the

Southern and Northeastern regions only slightly decreased (Chamratrithirong and Boonpratuang, 1977: Chamratrithirong et al, 1985). Knodel and Debavalya (1978) even state that Thailand is now in a decade characterized by a "reproductive revolution" due to a rapid decline in marital fertility. In the period between 1965 and 1975, the total fertility rate for all regions has decreased over 20 percent (Thai National Demographic Committee, 1978). Furthermore, there are indications that the rate may have already fallen to below 2.0 percent in 1981 (Krannich and Krannich, 1980; Nortman and Hofstatter, 1980). The target of 1.5 percent growth rate by 1986 was nearly achieved and zero population growth is not such a distant prospect (Economic and Social Commission for Asia and the Pacific, 1979).

In other areas of the world, many researchers have analysed and addressed the adverse affects of high fertility on maternal and child health (cf. Isley et al., 1979; Omran and Standley, 1976; Radovic, 1966). In Thailand, previous research has also investigated some effects of high fertility on infant and child mortality (cf. Kunstadter, 1979) and on family's health in general (cf. Limtragool, 1979; Siddhichai, 1977). However, the specific implications of greatly reduced population growth rate on maternal an child health have not yet been addressed by previous research. This report therefore attempts to demonstrate how fertility decline has affected maternal and child health in Thailand. The specific aims of this study are:

1. To investigate the status of maternal and child health in two distinct groups of women, i.e., women of smaller families and of larger ones, in two regions of Thailand: the North where fertility has been declining significantly and the South where fertility has just begun to decline, on a more moderate basis.

2. To compare and assess the status of maternal health in two distinct groups of women, i.e., contraceptive and non-contraceptive users in the North and the South.

3. To investigate the accessibility and use of family planning services in the North and the South.

4. To compare the effect of reduced family size on maternal and child health in the two distinct groups of women i.e., women of smaller families and of larger ones, in the North and the South.

5. To compare the health and economic rationale of family planning practice in both the Northern and the Southern regions.

1.2 Hypothesis

The overall hypothesis is that certain health advantages are obtained from reduced family size (to a 2 child family) and include :

a. favorable pregnancy outcome
b. low infant and child mortality
c. low maternal morbidity including anemia, complications related to pregnancy and parasitic infection.
d. low child morbidity, including malnutrition and parasitic infection.

1.3 Methodology

The research project started in August 1983. The project study areas included the Northern and Southern regions of Thailand since the former has exhibited a rapid fertility decline while the latter has shown relatively slight reductions in the fertility rate. In the North, five villages were purposively selected from Nan province and six from Chiengrai province. In the Southern region, villages were also purposively selected from the provinces of Phang-Nga, where five villages were chosen, and from Songkhla province where twelve villages were studied. Thus, a total of 28 villages were studied.

Eligible respondents included married women of reproductive age who were currently living with their husbands. Interviews and health check-ups were conducted. Fieldwork was undertaken during the months of January-June of 1985. Three fieldwork teams were arranged, the North, Southern and Community profile groups. The Northern and Southern groups comprised one field supervisor and five interviewers. The community profile was the responsibility of one person.

The interview instruments included 1) key informant interviewing, 2) household enumeration, and 3) a structured questionnaire for eligible women. For the latter, every eligible woman in each village household was interviewed.

As for the health check ups, provinces with a large number of population were selected to receive health check-ups. Those provinces are Chiengrai and Songkhla in

the North and the South respectively. The sample population consisted of 2 groups, namely: (1) women aged 15-44 years who are presently cohabitating with their husbands; and (2) the children of women in (1) aged under 5 years of age. Health check-ups for mothers included blood tests, blood pressure readings, weight and height measurements, nutritional measurements and stool tests for parasitic infections. Check ups for children included height and weight measurements, upper arm circumference, fat measurements, nutritional measurements and stool test.

1.4 Organization of the report

This report is divided into two parts. Part one is the background to the study which includes chapter one to four. Part Two is a presentation of the findings which is divided into six chapters.

Chapter One is primarily a delineation of the background and goals of this study.

Chapter Two is a review of relevant literature which contains three major sections. The initial section reviews the studies focusing on maternal morbidity and mortality associated with high parity. The second section surveys previous research on infant and child morbidity and mortality. The third section focuses on the consequences of family size on maternal and child health.

Chapter Three is devoted to research design which includes sampling procedure subsample for physical and laboratory examination, summary of research activities and personnel.

Chapter Four is a discussion of study areas and the socio-cultural attributes of the population under study. Emphasis is on a comparison between the Northern and Southern regions with regard to community level physical surroundings and social environment. Also at the individual level, data on socio-economic status as well as the results of health examinations for mothers and children are comparatively analyzed.

Chapter Five centers on a comparative examination of the fertility behavior of Northern and Southern Thai women. In this chapter the nuptiality patterns, family size (ideal and actual), pregnancy history, breast-feeding practice and knowledge of breast-feeding as birth control are presented.

Chapter Six examines family planning practice and health consequences reported by the Northern and Southern Thai women. This chapter includes opinions on the current use of birth control, knowledge and practice of specific methods, induced abortion and family planning services. Opinions on health are also emphasized. Again, a comparison has been made between the Northern and Southern respondents.

Chapter Seven and Eight concentrate on maternal and child health. Repurcussions of family size on maternal health, be they the extent of prenatal care, pregnancy complications or health utilization, are discussed in chapter seven. Chapter Eight is devoted to the effects of family size on child health. In these two chapters, the similarities and differences in health between the Northern and Southern mothers and children are discussed.

Chapter Nine analyzes the effects of reduced family size on the status of maternal and child health.

In Chapter Ten conclusions are drawn from the findings as to the consequences of reduced family size on status of maternal and child health. Also included in this chapter, are recommendations for policies related to family planning and the health status of mother and child.

CHAPTER 2

Review of Relevant Literature

2.1 Studies focusing on maternal morbidity and mortality
2.2 Studies focusing on infant morbidity and mortality
2.3 Studies focusing on the consequences of family size on maternal and child health
2.4 Chapter summary

CHAPTER 2
Review of Relevant Literature

Research investigations into the consequences of fertility decline on health conditions have been increasing rapidly in recent publications. The vast majority of such analyses have focused on the major negative effects of high fertility on maternal and child health, in particular, and on family health, in general. These studies can be classified into three groups: 1) studies focusing on maternal morbidity and mortality associated with high parity, 2) studies focusing on high incidence of infant morbidity and mortality associated with birth intervals and/or order, and 3) studies focusing on the consequences of family size on maternal and child health. This chapter will supply background information on these studies from both developed and developing nations. Special reference to Thailand's situations, where such studies exist, will also be presented.

2.1 Studies focusing on maternal morbidity and mortality.

An abundance of cross-cultural evidence has accumulated indicating both a direct and an indirect relationship between increased maternal morbidity and mortality and high parity. Jaffe and Polgar (1964) have indicated that for 348,393 live births in the United States between 1951 and 1961, maternal mortality generally increased with both age and parity. Furthermore, in comparing maternal mortality rates for second to fourth births with that of fifth and higher births within each of four maternal age groups (i.e., under 20, 20-29, 30-39, and 40 and over years), the data revealed higher incidence of maternal mortality for women of higher parities, in some cases more than twice as high as for those of low parity.

Radovic (1966) conducted a comparative study of maternal and fetal mortality and maternal complications among a group of patients at the Tema General Hospital in Ghana. His analysis revealed that a greater risk of maternal mortality or maternal complications existed for multiparas during their fifth or higher delivery. This research is also supported by the more recent studies of Omran and Standley (1976, 1981) and

Isley et al. (1979). Both sets of researchers independently state that countries where the average parity per woman exceeds five, a higher maternal mortality rate is expected.

In addition to maternal mortality, empirical evidence from several countries (especially developed countries) indicates a relationship between gynecological and obstetrical morbidity and high parity. Omran and Standley (1976) have stated that prolapse was the most frequently mentioned condition reported by women of high parity. In 1978, Omran further specified that in Bangladesh, Egypt, Indonesia, Nigeria, Sri Lanka, and Sudan several conditions were reported to increase with parity including anemia, toxemia and hemorrhage, malpresentation, and blood disorders.

For the United States, Phillips et al. (1965) noted the leading causes of maternal death from 1937 through 1945 at a hospital center in Pittsburgh, Pennsylvania were hemorrhage and toxemia, with the latter continuing to be a major problem through 1962. More recently at this same center, Guha-Ray (1976) reported the single most common cause of maternal mortality was amniotic fluid embolism during labor or the puerperium. In both reports, maternal mortality was also stated to increase with parity.

Other health problems have also been pin-pointed as being associated with increased parity and these include cancer of the cervix (cf. Maliphant, 1949; Wynder et al., 1954; Wahi et al., 1969), breast cancer (MacMahon et al., 1970), diabetes (Pyke, 1956) and hypertension (Miall-Oldham, 1958).

It is important to stress at this point, however, that the majority of studies examining the effects of high parity on selected maternal health problems have been conducted in developed countries where methodologies and environmental conditions (e.g., social, cultural, economic, political) differ. Moreover, these differences exist not only within the context of such developed countries but they also vary with regard to developing and developed country comparisons. While conclusions drawn from such studies have initially shown a direct relationship between high parity and increased maternal morbidity and mortality, other research findings have emphasized only an indirect relationship. As cases in point, cancer of the cervix is found to be associated with several factors, of which parity is only one (cf. Lundin et al.,

1964). As for diabetes, the examination of mean blood glucose levels by parity for specific age groups in the United States indicated that these levels did not rise with increasing parity. In fact, the correlation of parity with blood glucose levels was very low when all parities were considered together (O'Sullivan and Gordon, 1966).

In sum, while previous research results have indicated a relationship between high parity and levels of maternal morbidity and mortality, this relationship is still not clearly and totally understood. Future research efforts examining this relationship, whether in Thailand or elsewhere, must emphasize methodological consistency while taking measures to control for environmental and/or medical variables which may mask the exact nature of possible relationships.

2.2 Studies focusing on infant morbidity and mortality.

In the realm of infant mortality, investigations have centered on two main areas, i.e., score birth intervals and high birth order. With regard to the former, data obtained by the Children's Bureau in the United States demonstrated an association between high infant mortality and short birth intervals (Hughs, 1923; Woodbury, 1925; Yerushamy, 1945; Yerushamy et al., 1956). For India, the same phenomenon was reported by Wyon and Gorden (1962) where preceeding intervals of less than two years were associated with higher neonatal and infant mortality in 11 Punjab villages.

The likelihood of infants of high birth order dying shortly after birth has also been of particular interest and importance. In Taiwan, the Vital Demographic and Registration Survey collected data on births and infant deaths during the period of 1968-1969, with results indicating a steady rise in both neonatal and post neonatal infant mortality rates with increased birth order (Omran and Standley, 1976). The risk increases even more among infants of higher birth order if the mother has previously had a miscarriage, stillbirth, premature live-birth, and/or infant death (Isley et al.,1979).

With reference to Thailand, Kunstadter (1979) examined the relationship between child mortality and maternal parity. His findings indicated that a strong relationship exists between levels of maternal multiparity and age on child mortality. In

sum, incidence of infant morbidity and mortality have been noted to increase with regard to short birth intervals and high birth order, particularly in cases of high parity and maternal age as in Thailand.

2.3 Studies focusing on the consequences of family size on maternal and child health.

Several studies, using family as a unit of study, have examined the detrimental effects of large family size and high birth order on physical and intellectual development, as measured by height, weight and sexual maturity. In a study of elementary school children in London, Scott (1962) found that the mean heights and weights of both boys and girls declined progressively as the number of children per family increased. Similar effects of family size on weight and height were also reported by Douglas and Simpson (1964) in a British national sample of approximately 3,000 school children.

Although possessing many methodological problems, research into the levels of intelligence and mental deficiency among the children of large families has been undertaken. Studies utilizing a variety of intelligence tests generally show that mean I.Q. scores decrease with increased family size, and that this effect persists within each social class (Wray, 1971). Similarly, one study of children exhibiting mental deficiency also shows a positive relationship with birth order (Reed and Reed, 1965). This finding has been tentatively confirmed through an analysis of the existing research literature on the only child. Generally, only children were found to surpass all others except firstborns and children from two-child families in achievement and intelligence. They also surpassed people from three or more child families in adjustment and character (Falbo and Polit O'Hara, 1985). Once again, however, these studies and their results should be cautiously interpreted due to the inherent difficulties of assessing intelligence levels accurately. Large family size and high birth order therefore appear to affect physical and intellectual development, although a definitive correlation especially with regard to the latter is not possible at this time.

Hare and Shaw (1965) in their study on the health status of British families acknowledged a relationship between poor health, particularly of mothers, and large family size. Conversely, however, the health status of children in large families appeared to be better than that of children raised in small families. To account for this last instance, Omran and Standley (1976) state that this occurrence may arise due to the method used for assessing child health. Namely, the health of children is usually measured by the number of visits to doctors, the more visits corresponding to a low level of health. They next hypothesize that less attention is received by children of large families and consequently fewer visits to the doctor are recorded for these individuals.

Running contrary to Hare and Shaw's (1965) data on maternal and child health, research on malnutrition has shown that this disease is more common in large families. In a study of preschool children in Candelaria, Columbia, Wray and Aguirre (1969) noted that the difference between the prevalence of malnutrition in families with under five living children and in families with five or more children was statistically significant. Supporting this finding except for India, Gopalan and Rao (1969) also indicated that the children admitted to the hospital with malnutrition in their study also from predominately large families.

Counterevidence, however, does exist with regard to malnutrition in general. As a case in point, a study conducted by Robertson and Kemp (1963) among a "colored" group in Cape Town, South Africa concluded that large families per se did not place children at risk of malnutrition. Instead, other factors such as poverty or the degree of parental care were responsible for this increased risk.

As with the aforementioned data, a controversy also exists for Thailand specifically over whether or not large families promote better health conditions or hinder them. In a rural area of Chiengmai province, Northern Thailand, Limtragool (1979) stated that the degree of malnutrition is more serious among members of large families. In support of this finding, Auamkul and Amornwichet (1984) investigated family planning practice and its relationship with well-baby services and the health status of children. They also discovered that malnutrition was more prevalent in families with high numbers of live births.

In opposition to these findings, Siddhichai (1979) who did his work in Northern Thailand, mentioned that a comparatively high rate of illness symptoms per 1,000 population existed for small families, rather than large ones. The author suggested that the respondents with a small family, in the process of answering the questionnaire, may have thought more readily about illnesses in a small family context than those with a large family.

As a final case, an anthropological study conducted by Yoddumnern (1985) in the Northern Thai province of Lampang suggests that it might indeed be true that children from larger families may be in better health than those from small families. When asked about the advantage of having many children in the family, respondents overwhelmingly volunteered the answer that children will eat more when they have several siblings to eat with. Children who do not have many siblings will tend to eat less or have less of an appetite.

In addition to this indigenous belief, Yoddumnern (1985) also indicates that historical events such as improvements in public health and the introduction of modern medicines improved the status of family health in traditional Northern Thai society leading to a direct effect on population trends. Specifically, fertility was increased through the elimination of disease which shortened the life expectancy and/or reduced fecundity. The study design to investigate health consequences of family size therefore needs to be made with caution. This point was also supported by study of Taylor et al. (1976) of maternal and child health in rural central Africa. Their results showed that improvement of maternal nutrition would lead to rapid consecutive pregnancies, thereby reducing the length of time each child could be breastfed and reducing the protein available to each child. Hence, the authors recommended modern birth spacing methods in combination with programs to improve maternal and child health.

2.4 Chapter Summary

The main conclusion to be drawn from this literature review is that high levels of fertility negatively affect maternal and child health by increasing rates of morbidity and mortality. Although this point is generally agreed upon, exceptions also exist not only in the literature in general but also for Thailand in particular. Specifically, do small families really promote better maternal and child health and under what conditions for Thailand ? It is therefore the purpose of this report to present evidence to answer this question through a comparison of the health status of mothers and children from both large and small families and from one region of rapid decline in fertility in contrast to another region with a moderate decrease in family size. The samples for this analysis have been drawn respectively from two different regions of Thailand, the North and the South.

CHAPTER 3

Research Design and Activities

3.1 Sampling procedure
3.2 Sub-sample for physical and laboratory
3.3 Summary of research activities

CHAPTER 3
Research Design and Activities

3.1 Sampling procedure

Two provinces were purposively selected from the Northern and the Southern regions. In the North, Chiengrai and Nan were selected to represent a large and a small province. Both provinces represent to a large extent, socio-culturally, the Northern areas. In the same way, Songkhla and Phang-Nga were choosen as a large and a small province in the South. These provinces also represent the Southern areas to a great extent, as far as the social and cultural setting is concerned.

For each of these four provinces, a district was selected, and for each of the districts a subdistrict was chosen. The selection is purposive, in order to represent the typical rural areas of the districts and subdistricts respectively. The selection was done during the site visit to the four provinces and after discussions with local authorities and scholars. Twenty-eight villages were then selected for the study. At first, five villages were selected from each of the four subdistricts. However, six villages from Chiengrai and twelve villages from Songkhla were included in the study instead of five villages from each province (see Table 3.1). This is because, for Chiengrai, two of the six villages are, socially speaking, of the same community and used to be the same village before recently being subdivided into two. For Songkhla, the five villages had also been recently subdivided into twelve smaller villages. It was therefore decided to include these villages in the study.

The number of villages in Chiengrai and Songkhla was set by considering number of households in the villages, so that the number of households in the large provinces were proportionally more than in the small provinces. For each region, the proportion of households between the large and the small province to be interviewed was made to be approximately the same as the proportion of total households of the two provinces.

Data at the village level were collected for all 28 villages by means of group interview of the village key informants. Questionnaire Form 1 was used (see Appendix

A1). Every household in the villages was then interviewed with the household enumeration form (Questionnaire Form 2, Appendix A2). A total of 3,612 households were interviewed. In each household, all currently married women aged 15-44 were interviewed with structured questionnaire Form 3 (see Appendix A3). The total of 2,583 women were interviewed and included in this study.

3.2 Sub-sample for physical and laboratory examination

For Chiengrai and Songkhla, additional information was collected. In Chiengrai, 851 out of 868 women, and 771 women out of 795 women in Songkhla were interviewed on health history. Health examination was also conducted for all (including stool test, haematocrit exam and weight and height measurement) and their children under five. These data are recorded on Questionnaire and Health Examination Form 4 (Appendix A4). Measurement on weight and height and stool test of almost all children under five of these women were also made. These included 439 children in Chiengrai and 579 children in Songkhla (see Table 3).

Table 3 : Number of cases collected in the study distributed by region and province

Questionnaire	North			South			Total
	Nan	Chiengrai	Total	Phang-Nga	Songkhla	Total	
Form 1: Village Profile	5	6	11	5	12	17	28
Form 2: Household Questionnaire	519	1244	1753	560	1299	1859	3612
Form 3: Questionnaire for Eligible Women	450	868	1318	470	795	1265	2583
Form 4: Questionnaire Form for Physical and Laboratory Examination							
Women		851			771		1622
Children		439			579		1018

3.3 Summary of research activities

3.3.1 Translation and development of questionnaire

a) Form 1: Village profile

b) Form 2: Household questionnaire

c) Form 3: Questionnaire for currently married women

d) Form 4: Physical and laboratory examination form

3.3.2 Review of new literature and existing documents.

3.3.3 Staffing of research team and project personnel.

3.3.4 Pretesting of questionnaire and field feasibility studies among research staff in October, 1984.

3.3.5 Contacting local government offices (including Provincial and District Health Officers) and other affiliated offices for lab examination including local office of Population Development Association (Meechai's Office) in the North for stool test and district hospitals for blood test in the North and the South and stool test in the South.

3.3.6 Remodification of the questionnaire after the first two pretests in October,1984.

3.3.7 Recruiting and training of interviewers : 10 female university graduates under 25 years old who can speak the local dialect were recruited as interviewers. The recruitment was made on the merit of interview and field experience. They were not formerly associated with the government and planning personnel. After in - office training, all interviewers were again trained by practicing interviewing in the field in the Central area at Tambol Bo-Ploi, Bo-Ploi District, Kanchanaburi in January, 1985. Forty questionnaires were used for this further pretesting and training purpose.

3.3.8 Selection of research site and sampling:

Two provinces from the North were selected, Chiengrai representing the larger province and Nan representing the smaller province. Two provinces from the South were selected on the same basis, Songkhla and Phang-Nga. District and subdistricts were selected from each province on a purposive basis aiming to locate the areas which best represent the typical rural area of those provinces. Twenty-eight villages were selected for the study. These villages in Chiengrai and Songkhla were also subsampled for physical and laboratory examination.

3.3.9 The field survey was conducted by two teams headed by team supervisors who are experienced researchers, and another researcher for the village profile. Field work was conducted during from January and June 1985. Medical and laboratory examination was done after the questionnaire survey. After considering the feasibility in terms of the budget and the possibility of data collection in the field, physical and laboratory examination of women and children were increased to 1,622 and 1,018 respectively.

3.3.10 Data were coded, hand-edited and machine-edited, and keyed into the computer.

3.3.11 Data from the currently married women questionnaire and physical and laboratory form were merged into one file so characteristics of women and health measures could be cross-analysed. A child file was also created to make possible the analyses of child's health information linked to mothers' information by using children as the unit of analysis.

3.3.12 Analysis and preparation of report was done during May-November 1986.

3.3.13 The research team contacted local district hospitals of both provinces to give treatment to patients (our interviewees) who had parasitic infection. About 70 percent of the patients in the North and 95 percent in the South had received treatment.

CHAPTER 4

Study Areas and Social and Economic Characteristics of the Population under study

4.1 Physical surroundings and social environment
- 4.1.1 The Northern region
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4.2 Socio-economic status
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CHAPTER 4
Study Areas and Social and Economic Characteristics of the Population under Study

4.1 Physical surroundings and the social environment.

4.1.1 The Northern region

4.1.1.1 *General description*

The northern region, including Nan and Chiengrai provinces, is populated by several ethnic groups. The major group, however, is represented by the descendants of the Lua' who are believed to have migrated down from China's Yunnan province approximately 400 years ago. At present, the people in the Northern region consider themselves *khon muang,* Northern Thai people, in contrast to *khon Thai* or the Central Thai people. The predominant religion in the North is Theravada Buddhism.

The *khon muang* have a distinctive culture which is reflected in their way of life, particularly regarding language, family structure, food habits, housing, dress, etc. The major occupation is wet rice farming which is mostly for home consumption only. Other cash crops cultivated are tobacco, groundnuts, mung beans, and soy beans.

4.1.1.2 *Housing*

The Northern Thai people in general build their houses approximately 1 to 2 meters above the ground. The roof is traditionally made of thatch, however, at present, tile and metal are gradually replacing the thatch. The floor and walls are generally made of wood. The house is usually divided into two bedrooms, one kitchen and one platform. The big bedroom is for the father, mother and young children. The other room is for unmarried daughters or a married daughter and her husband. An unmarried son will sleep on the platform outside of these rooms, beginning when he is 8-9 years old and lasting until he marries and moves out to his wife's parents' house.

The houses are clustered either around the temple, along a road, or along a canal, with villages usually being surrounded by rice-fields.

4.1.1.3 *Family structure*

The Northern Thai family in general can be classified into two main types : the stem family and the nuclear family. In actuality, however, these two types are simply reflections of the different stages in the family developmental cycle. Briefly, the Northern Thai have a matrilocal residence norm whereby a daughter and her husband reside with the woman's parents for a period of time after their marriage. This time interval varies and is dependent upon the woman's birth order, her age at marriage, the age of her parents, the needs of her family, as well as the stage in the developmental cycle her family is located. At this point, though, the married couple become members of a stem family. Later after the marriage of younger sister, the elder daughter and her husband move out from the family's original house and establish their own nuclear household usually nearby or within the same compound as the wife's parents. As for the youngest daughter, after marriage she and her husband remain in the original house to care for the woman's parents until they die, afterwhich, the youngest daughter inherits the original house and other properties affiliated with the house.

Even though matrilocal residence is the norm, the eldest male is the head of the household and thus the major authority figure in the family itself. Authority, as a result, is transferred by affinity from father-in-law or son-in-law.

4.1.1.4 *Food and food habits*

Glutinous rice is the main cultural super-food, and common side dishes accompanying it include meat (fish, beef, chicken, pork) and vegetables (chinese white cabbage, cabbage, morning glory and beans), although seafood is a rare dietary component. Though the majority of these foods are eaten in a cooked state, raw or undercooked foods such as fish, beef and pork are also consumed.

Food restriction are mostly for postpartum women and children. The postpartum women are supposed to eat only roasted sticky rice (glutinous rice), roasted beef and boiled water with herb.

Children are not allowed to eat spicy foods, and egg yolk is not fed until they are about 1 year old. Fish is not a dietary component until the children can feed themselves.

4.1.1.5 *Dress*

Northern Thai women usually wear sarongs, blouses and thong-style sandals (plastic or rubber). Working in the field, they would wear thick cloth and cover their faces with another piece of cloth to protect themselves from sunburn and heat. However, their feet are not covered since they only wear the thong-style sandals or go barefoot to work in a muddy field.

4.1.1.6 *Working schedule*

Village women wake up early in the morning, usually 4 to 5 a.m., preparing food for breakfast and sometimes lunch. After that they go and work in the field until four or five o'clock in the afternoon. They usually take their young children with them in the field if they don't have anybody to take care of them. If they have somebody, they would leave their children at home. Upon returning home from the field, they prepare and have supper around 6.00 or 6.30 p.m. This pattern of activities goes all year round since the farming activities require several types of work ranging from preparing the soil for the field, planting weeding and harvesting.

4.1.1.7 *Health facilities*

The medical service units have been organized by the Ministry of Public Health ever since 1942 and were made effective in the Northern region during the 1950's. In Nan province, the average distance from the research villages to local health centers is 3.8 kilometers. In the case of district hospitals, this distance is extended to 17.6 kilometers, on the average. Lastly, it is approximately 42 kilometers to the provincial hospital. Within the research villages, no private clinics or drugstores exist. However, one private clinic is located outside the research villages and it is not too far for the villagers to go for their treatment (approximately 4.6 kilometers).

In Chiengrai province, the average distance from each village to the health center is 2.7 kilometers, while the district hospital is 10.3 km. away and the provincial hospital is located at an average distance of 55 kilometers.

4.1.1.8 *School Facilities*

Both Nan and Chiengrai provinces have primary (grades 1-6) schools in most of the villages studied. None of the research villages has a high school. Those who want higher education must go to schools in other villages or towns.

4.1.2 The Southern region

4.1.2.1 *General description*

In general, the Southern region's population is largely comprised of Thai-Buddhists and Thai-Muslims with the Chinese representing the minority group. From village samples, it was noted that 80 % of the population are Thai-Buddhist with the remaining 20 % comprising Thai-Muslims. The language used among the Southern villagers entails the Southern dialect with an intermingling of Arabic in some areas.

The major occupations of rural villagers entail rubber plantation, rice farming and fruit groves. Rice farming is mostly for home consumption, while a cash income is earned through rubber production, fruit selling, and similar activities.

There is no difference between the Thai-Buddhists and Thai-Muslims in terms of occupation. In terms of animals kept, however, a distinction exists. Namely, Thai Buddhists raise ducks, chickens and pigs. Thai-Muslims, on the other hand, do not like raising animals and only a few families raise cattle or sheep.

4.1.2.2 *Housing*

In the South, especially in the study areas, most of the houses are not raised as in the North, and a few of them have earthen floors. Only the sleeping platform is elevated higher than ground level and either made of wood or bamboo. This kind of house construction is well-suited for withstanding the strong monsoons which come twice a year (one between May and October, another between September and February). However, it also has a major disadvantage since the floor during the rainy season is frequently damp or flooded. This is a major source of parasitic transmission (e.g., hookworm), particularly if they do not have sanitary latrine facilities.

4.1.2.3 *Family structure*

Southern Thai family structure is similar to that of the North in terms of post-marital residence and authority patterns. Inheritance practices, however, show a slight difference. In the North, legally speaking, the parents will divide their property equally amongst all of the children, both male and female. In actuality, however, daughters have a tendency to inherit more properties than sons due to the matrilineal orientation of the Northern Thai family structure. In the South, though, parents stated that ideally their property will be divided equally amongst both sons and daughters. But among Thai-Muslims, sons have an increased tendency to inherit more goods due to religious beliefs and values.

4.1.2.4 *Food and food habits*

Regular, non-glutinous rice is the staple among the Southern Thai with side dishes composed of mainly seafood, vegetables and meat. All of their foods are eaten in a cooked state except for vegetables which may be eaten raw.

Similar to their Northern counterparts, the food of postpartum women is restricted only to dried meat, dried fish and pepper. As for children, fish and meat are restricted due to the customary belief that fish would cause parasitic infections. Fish, in particular, is believed to cause ascariasis in children.

4.1.2.5 *Dress*

Working in the rubber plantation, Southern Thai women usually wear pants and long-sleeves shirts. They also wear hat and cover their faces with a piece of cloth. This type of dressing is to keep themselves warm during the cool weather in the early morning.

The soil in rubber plantations is always wet and muddy. Workers either wear thong-like sandals or go barefoot since it allows for freer movement. Wearing boots, though helping to protect people from soil contamination or from snake bite, is not, however, convenient for workers since it restricts movement.

4.1.2.6 *Working schedule*

Most of the time, the people would get up early in the morning (at 3.00 or 4.00 a.m.), going to work in the rubber plantation (tapping the rubber sap). They have to get up early in the morning because (1) the rubber sap will turn solid when it gets hot, and (2) some individuals must commute in order to get to and from the plantation (such individuals often must get up at 2.00 a.m.)

The children who are old enough to take care of themselves will be left home. Those who are small will be brought along to the plantation. They will be left in the platform near where their mothers work. The people will come home around 10.00 a.m. to make the rubber sheets and dry them under the sun. Lunch is prepared and served around noon. They would rest (taking nap, or sit and chat) in the afternoon. Around 6.00 p.m. they would cook and have supper. A get-together will occur again early in the evening before they retire to bed.

4.1.2.7 *Health facilities*

In Phang-Nga province, the average distance from each village to the health center is 36 kilometers; 22 kilometers to the district hospital; and approximately 20 kilometers from the municipal hospital. No private clinics are located in the research villages. On the average, however, there are about four private clinics outside of each village which are not too far for the villagers to travel in order to receive treatment (approximately 10.6 kilometers). There are three dry goods stores within each village and three outside which also sell medicines.

In Songkhla province, the average distance from each village to the health center is 1.2 kilometers. The district hospital is located 23 kilometers away. Distances to the municipal hospitals vary from 18 to 50 to 70 kilometers for Sadao, Haad Yai and Songkhla, respectively. There are no private clinics in the villages studied. However, on the average two private clinics are located outside of each village (approximately 5 kilometers away). Three dry goods stores are located within each village and three outside which also sell medicine.

4.1.2.8 *School facilities*

In the South, the location of the school is similar to the North. That is, most of the villages have a primary school (grades 1-6). None has a high school. Those who want to have higher education must go to school outside their home village.

4.2 Socio-economic status

A sample size of 1,267 currently married women of reproductive age was drawn for the North, while for the South the sample included 1,233 women. In total, the age structure of these respondents is roughly the same (Table 4.1), with 65 percent in the 20-34 year age group. The remaining 35 percent is divided into three other age groups, i.e., 15-19, 35-39 and 40-44 years, representing 6 percent, 16 percent and 13 percent of the sample, respectively.

4.2.1 Education

Levels of educational attainment of the women in the North and South samples differ slightly. On an overall basis the percentage of illiteracy in the South is slightly higher than in the North (Table 4.1). More specifically, those women who are literate but have not undergone formal schooling or have not completed primary school represent roughly equivalent sample groups (5.8 percent and 6.6 percent for the North and South respectively). The percentage of women who have completed primary but not secondary school is slightly higher in the North (88.4 percent) than in the South (78.3 percent). However, the South possesses a higher percentage of women who have completed secondary school and have gone on to attend college (2.1 percent in the South and 0.4 percent in the North). These data on educational attainment therefore suggest that greater heterogeneity exists among the Southerners whereas the Northerners exhibit a more homogeneous group with regard to education. That is, even though illiteracy is high in the South, this area is also characterized by a high proportion of higher educated individuals. Conversely in the North, the majority homogeneously had primary school education.

4.2.2 Occupation

In general, Northern respondents stated their main occupation as housewife with and without farm work more frequently (94.3 percent) than Southern respondents (65.2 percent). Southern women who work outside of their homes (e.g., agricultural workers, domestic service, professionals, clerks, government officials, skilled or unskilled workers) are more prevalent (34.8 percent) than their counterparts in the North (5.7 percent). Overall, these statistics reveal that Northern women tend to work more in household or in farm-related activities near their homes than Southern women.

On a more specific basis, though, Southern women classified themselves as solely housewives more often (11.4 percent) than the Northern respondents (3.8 percent). Of those housewives who also work on their family's farm and/or on their personally-owned farm, a greater percentage was evident for Northern women (61 percent) than Southern women (44 percent). The Northern sample also has a higher percentage of housewives who work on their family farm, personally-owned farm and a rented farm (11.8 percent) than does the Southern sample (0.6 percent). Lastly, of those women who are not housewives and whose primary occupation is away from their own home (i.e., agricultural workers), these individuals are more common to the South (28.5 percent) than to the North (3.1 percent). In fact, this is the primary occupational activity of Southern women who work outside of the home. These specific sets of information in addition to the more general patterns mentioned earlier indicate that Southern women, although largely housewives, tend more towards extra-household agricultural activities (when not solely housewives) than do Northern women who center themselves towards a more home-based activity pattern.

4.2.3 Income

The income data is justified and segregated into lowest, middle low, middle and high levels by total annual income which is comprised of two categories - annual income from the cultivation of land and income from salaries, wages, and other sources. The aforementioned levels of each household were determined with reference to income level in the village.

The data indicate that income levels among the Southern respondents are almost evenly distributed on a percentage basis, i.e., 20.2 (lowest), 23.4 (middle low), 29.5 (middle) and 26.8 (high), with the latter two levels - middle and low - being indicative of the majority of respondents. In the North, however, class differentiation based on income is more restricted than in the South. Most Northern respondents occupy the middle income levels (40.5 percent for the middle and 22.4 percent for the middle low). Again, the Northern women are more homogeneous than their Southern counterpart.

After comparing the North with the South within each category, the data suggest that the proportion of wealthy individuals is slightly higher in the North (29.4 percent) than in the South (26.8 percent). This information when coupled with the previous data on income implies that the number of poor people appears to be greater in the South than in the North.

4.2.4 Social class

Social class is determined by four factors, (1) education of the household head, (2) occupation of the household head, (3) income, and (4) housing. In general, though social class corresponds to income. The most prominent social class for both the Northern and Southern regions is the middle class (60.9 percent and 50.6 percent, respectively). The middle low is next with 24.9 percent characterizing the Northern sample and 27.7 percent for the South. The high class is equal for both regions at or about 8.4 percent. The major difference between regions as a whole and within the Southern region particularly lies in the lowest class. For the North, this class represents 6.0 percent of the population - the lowest of all categories. However, in the Southern region the lowest class comprises 13.3 percent of the sample. In addition, this category is also greater than the high class category in the South.

4.2.5 Housing conditions and material possessions

On the whole, the Northern respondents live in houses possessing thatched roofs more often than their Southern counterparts (29.1 percent and 15.7 percent, respectively). However, the percentage of Southern respondents' houses which have

earthen floors is greater than for the northern sample (10.1 percent and 0.1 percent, respectively).

With regard to household facilities and possessions, the houses of Northern respondents were found to have latrines much more often (91.6 percent) than houses belonging to Southern respondents (39.7 percent). The percentage of houses equipped with electricity, however, is roughly equivalent and at a high level (74.4 percent for the North and 77.1 percent for the South).

In reference to animals owned, Northern respondents possess more cattle (i.e., ox, buffalo) (47.9 percent) and pigs (48.1 percent) than the Southern respondents (i.e., cattle 15.3 percent; pigs 11.8 percent).

4.2.6 Personal transportation

While automobiles are uncommon in the rural North (4.0 percent) and South rural (6.0 percent) samples, a difference does exist in the use and possession of more economical, alternative forms of transportation. Basically, motorcycles are owned by Southern respondents at a higher percentage (64.6 percent) than by Northern respondents (26.1 percent). Conversely, bicycles are more common to members of the Northern sample (70.8 percent) than the Southern sample (50.5).

4.2.7 Source of water for domestic use and drinking

The survey data indicate that approximately half of the Northern respondents obtain their domestic water supply from covered dug wells, while the other half utilize uncovered dug wells (48.8 percent covered dug wells; 42.1 percent uncovered dug wells). For the drinking water, Northern respondents utilized covered dug wells at a higher percentage (58 percent) than uncovered dug wells (39 percent).

In the South, however, the majority of respondents (82 percent) obtain their domestic water supply from uncovered dug wells or from drilled wells (12 percent), unlike that of the North. Similarly, uncovered dug wells are used very frequently as a source of drinking water (81.2 percent) indicating a higher health hazard than in the North.

4.3 Chapter summary

The Northern and Southern regions of Thailand are distinctly different in terms of geography, history, ethnic groups, occupations and culture. Broadly speaking, it appears that the most apparent distinction between the North and the South at least as far as the sampled population is concerned, lies in the former's homogeneity and the latter's heterogeneity concerning socio-economic status. This status for both regions was determined through an examination of four main factors, i.e., education, income, social class and occupation. In the North, the greatest proportion of respondents have completed primary school, belong to a middle income level and middle social class, and participate in rice farming in addition to household activities. With regard to the South, however education and income levels reveal quite a diversity in socio-economic status, with both educational extremes being evident most often while all levels of income are segregated relatively evenly on a percentage basis. In addition, female occupational activities vary, centering not only on household and associated farming activities, but also a high degree of agricultural work and other occupational activities being conducted away from the home. This heterogeneity in the South and homogeneity in the North is also reflected to an extent in social class distinctions. As stated for the North, the majority of respondents belong to the middle class, while the upper and lower classes although small are roughly equivalent percentage-wise. In the South, however, although the middle class is once again large, the gap existing between the upper class and the lowest class (as expressed by frequency percentages) is greater, especially in comparison to the North.

Household facilities and possessions-as partial expressions of socio-economic status-also reflect the potential health conditions of families. If we center ourselves only on those specific facilities and possessions which promote disease at the household level, Northern families appear to have better health conditions through their majority use of covered dug wells for drinking water, latrines and non-earthen housefloors. For the South, though, the use of uncovered dug wells or drilled wells, non-use of latrines, and the existence of earthen floors may promote poor family health in this region, particularly for children, since each contibutes to the transmission of parasites within a household context.

Table 4 Selected socio-economic, demographic and health characteristics of the samples

Characteristics	North	South
Age		
15 - 19	6.2	6.4
20 - 24	20.8	18.7
25 - 29	25.7	25.5
30 - 34	20.0	19.7
35 - 39	15.0	15.8
40 - 44	12.3	13.9
Total	100.0	100.0
N	1267	1233
Education		
Illiterate	4.7	10.1
Literate, but no formal schooling or did not complete primary grades	5.8	6.6
Completed primary but not secondary	88.4	78.3
Completed secondary school	0.6	2.4
Attended college but did not graduate	0.4	2.1
Other	0.1	0.6
Total	100.0	100.0
N	1267	1233
Occupation		
Housewife	94.3	65.2
- Full time housewife	(3.8)	(11.4)
- Housewife who also works on family and/or own farm	(61.0)	(43.8)
- Housewife who also works on own farm and rented farm	(6.5)	(0.3)
- Housewife who also works on own farm family farm and rented farm	(11.8)	(0.6)
- Housewife who also works on rented farm	(8.1)	(0.3)
- Housewife who also works in family non-farm Enterprise (Business or shop, etc.) whether at home or away from home	(3.1)	(8.8)
Work outside home	5.7	34.8
- Primary occupation away from own home Agricultural worker	(3.1)	(28.5)
- Primary occupation away from own home : Domestic service	(0.9)	(1.1)
- Primary occupation away from own home : professional, clerical, government	(0.6)	(4.1)
- Skilled and unskilled worker	(1.0)	(0.7)
- No work	0.1	0.4
Total	100.0	100.0
N	1267	1233

(Cont.)

Table 4 : Continued

Characteristics	North	South
Income		
Lowest	7.7	20.2
Middle low	22.4	23.4
Middle	40.5	29.5
High	29.4	26.8
Total	100.0	100.0
N	1267	1233
Social class		
Lowest	6.0	13.3
Middle low	24.9	27.7
Middle	60.9	50.6
High	8.3	8.4
Total	100.0	100.0
N	1267	1233
Housing condition		
% Having thaatched roof	29.1	15.7
% Having earth floor	6.1	10.1
% Having running water	0.3	1.0
% Having latrine	91.6	39.7
% Having toilet in house	0.2	0.2
% Having gas piped to house	2.0	29.7
% Having electricity	74.4	77.1
% Having T.V.	13.4	46.1
% Having refrigerator	8.1	20.9
% Having stered	4.2	6.7
% Having electric fan	26.5	36.7
% Having electric rice cooker	5.4	47.4
% Having water pump	15.7	12.0
% Having car	4.0	6.0
% Having engine	3.0	2.2
% Having motor cycle	26.1	64.6
% Having bicycle	70.8	50.5
% Having ox	19.0	12.7
% Having buffalo	28.9	2.6
% Having pig	48.1	11.8
% Having ducks and hens	19.5	11.8
N	(1267)	(1233)

(Cont.)

Table 4 : Continued

Characteristics	North	South
Source of water for domestic use		
Open dug well	42.1	81.6
Dug well with cover and hand pump	0.6	0.6
Drill well	1.5	12.0
Piped water	0.6	0.5
Pond	2.0	1.3
River or klong	4.5	4.0
Dug well with cover	48.8	4.0
Total	100.0	100.0
N	1267	1233
Source of drinking water		
Open dug well	38.8	81.2
Dug well with cover and hand pump	0.7	0.5
Drilled well	1.3	12.3
Piped water	0.3	0.4
Rainwater	0.6	1.1
Dug well with cover	58.3	4.5
Total	100.0	100.0
N	1267	1233

PART II
FINDINGS

CHAPTER 5

Nuptiality, Fertility and the Health Consequences of Pregnancy

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5.4 Chapter summary

CHAPTER 5
Nuptiality, Fertility and the Health Consequences of Pregnancy

5.1 Nuptiality patterns

5.1.1 Age at first marriage

The mean age of women at their first marriage was 19.8 years for the Northern respondents and 20.2 years for Southern respondents. These ages in general are roughly equivalent and imply that, even though differences exist between regions particularly with regard to physical social, family and socio-economic structures (Chapter four), these differences on the whole do not appear to affect a woman's age at first marriage to any great extent. Also fertility difference (to be discussed below) between the two regions cannot significantly be explained by age at marriage.

5.1.2 Monogamous marriage

In both the Northern and Southern regions, monogamous marriages are the general norm (i.e., 99.8 percent in the North, 97.2 percent in the South). Overall however, a slight deviation from this norm is evident for the South where husbands may also have one other wife (2.8 percent). For the North, almost no polygamy was found in the survey. Again, fertility differentials between the North and the South to be discussed later had nothing to do with this marriage norm.

5.1.3 Mean duration of marriage

The mean duration of marriage of women in the reproductive age in the North and South was roughly equivalent at 10 years. This somewhat low figure is accountable by the fact that the majority of women interviewed (65 percent) belonged to the 20-34 year age group with the next largest percentage (16 percent) being represented by the 35-39 year age group. In addition, the age structure between both regions shown in Chapter four was roughly equivalent.

5.1.4 Marriage and first pregnancy

Of the women sampled in the North and South, the majority became pregnant within one year of marriage or immediately after marriage (approximately 70 percent for

both the Northern and the Southern women). Among those pregnant within one year, the Southern women became pregnant earlier than the Northern counterparts (25 percent as compared to 14 percent became pregnant immediately after marriage in the two regions respectively).

In general, there may be some evidence that there is a difference between the Northern and the Southern women in respect to the timing of their first pregnancy. Fertility differentials of the two regions to be discussed below may be explained by the timing of their first and subsequent pregnancies. The pregnancy interval will also be investigated later in this chapter.

5.2 Ideal and actual family size

5.2.1 Ideal family size

Each respondent was asked what she believed was the ideal number of children. The answers to this question differed markedly by region with an average of 2.8 children being characteristic of the South while 2.2 children were representative of the North. With regard to sex, male children in the North are desired only slightly more than female children, whereas in the South, female children are preferred over male children, but again only to a small extent.

5.2.2 Ideal family size by parity

The higher ideal family size among the Southern women is confirmed when parity is controlled. On the average, the actual family size exceeded ideal family size when the women in the North had three children and when the women in the South had four. For higher parity women i.e., those with four, five, six or more children, actual family size far exceeded ideal family size. Even in the South where fertility was higher, for example, those who had six or more children only wanted to have about 3.7 children on the average.

5.2.3 Actual family size : children ever born

Actual family size as measured by average number of children ever born alive, was higher among women in the South than those in the North (approximately 3.1 as compared to 2.3 respectively). Comparison by standardization also confirms this difference. Toward the end of the reproductive period, women aged 40-44 had the total family size of 5.2 in the South and 4.1 in the North. The higher family size among women in the South is confirmed for all age groups of women.

5.2.4 Actual family size : living children

Average number of living children was also higher among the Southern women. On the average, women in the South had about 2.8 living children (standardized and unstandardized figures are approximately the same) as compared to 2.1 in the North. Evidence of infant and child mortality in both regions is obvious when comparison between children ever born alive and living children is made.

5.2.5 Current fertility

Although direct information on current fertility as measured by age specific data is not available, other measures are indicative of the current fertility of the North and the South samples. The average number of children ever born alive among women of younger age i.e., ages 15-19 and 20-24 can reflect current fertility. It is shown in Table 5.2 again that, even among these young women, fertility was recently higher among women in the South than those in the North. (For example, the average number of children ever born alive is approximately 1.7 in the South as compared to 1.3 in the North among women aged 20-24.) Data on percent currently pregnant which roughly indicated current fertility also confirms this regional difference. It is revealed from the survey that among the 1,267 women in the North, 5.3 percent reported that they were currently pregnant at the time of the survey. The comparable figure is 9.7 percent (among 1,233 respondents) in the South. The open pregnancy interval is also longer in the North than the South, i.e., 72 months and 56 months respectively (Table 5.3) indicating the lower current fertility among the Northern women. It is therefore confirmed that fertility in the South is higher than the North not only in the past but also in the recent period under study.

5.3 Pregnancy history

5.3.1 Pregnancy interval

The data reveal that after marriage, the Northern Thai women waited longer than Southern women in becoming pregnant (9.5 and 8.5 months respectively). Second, pregnancy intervals for these two groups of women are however, approximately the same. The third, fourth and the fifth intervals, again, show a consistently longer period for the Northern women. As mentioned earlier, the open interval as well is longer among the Northern women than among the Southern women.

5.3.2 Pregnancy outcome

Information on pregnancy outcome was obtained by collecting from each eligible respondent a detailed sequential pregnancy history dating from her marriage to the time of the survey. Data was collected both in terms of live births and also pregnancy wastage, i.e., pregnancies resulting in stillbirths or abortions (spontaneous and induced).

For both regions, the percentage of livebirths decreased with pregnancy order, although more so for the North (pregnancy one at 91.0 percent; pregnancies seven and over at 80.3 percent) than the South (pregnancy one at 92.5 percent; pregnancies seven and over at 86.9 percent). In addition, the percentage of children still living decreases for the North by pregnancy order at a higher rate than the South. The percentages of children still living also are at higher levels in the South than in the North. Infant and child mortality increased with pregnancy order in both regions. This is, however, once again at a higher level in the North than in the South. For example, it is significant to note that percent infant death was as high as 13.1 percent for pregnancies seven and over in the North. This is not surprising since the North has been characterized by the highest infant mortality rate among all regions in Thailand at least during the 1970 and 1980 census periods (Chamratrithirong and Boonprathuang 1977 and Chamratrithirong and Petjaranonda, 1985).

Among all pregnancy wastages, which accounted for about nine percent of all pregnancies, spontaneous abortion ranked the highest. This is especially true for the South. In relation to pregnancy order, spontaneous abortion increasely substantially

with higher order of pregnancy. As for as induced abortion is concerned, the reported cases were very low in both regions (less than one percent of pregnancy outcomes).

5.3.3 Pregnancy complications

Women were asked whether they experienced any complications during each pregnancy. Complications with pregnancy are found to be much higher among women in the North than in the South (19.0 percent as compared to 5.6 percent respectively). For the Northern women, the incidence of complications of pregnancy was highest at fourth, sixth and seventh and greater pregnancies. In the South, pregnancy order seventh and greater was characterized by the highest incidence of complications. Higher pregnancy order therefore tends to be associated with complications although the pattern is not totally consistent throughout all pregnancy orders.

Specific complications of pregnancy can be further investigated. Women were asked whether they experienced specific symptom associated with their last pregnancy. These include swollen ankles and fingers, convulsions (fits), high blood pressure, severe headache and poor vision. Table 5.3.2 presents percent of women experiencing these complications with the last pregnancy distributed by total number of pregnancies.

5.3.4 Place of pregnancy outcome

The majority of women in both regions (58 percent in the North and 45 percent in the South) stayed home and had non-medical attentants with them at the time of delivery (Table 5.4). This practice of home delivery rose with pregnancy order in both study areas, that is, ranging from 54 to 61 percent for pregnancy one to pregnancy seven and higher in the North and ranging similarly from 41 to 54 percent in the South. Home delivery without attentants was also found to be popular in the North (13 percent in general) expecially among women of higher pregnancy order (33 percent for pregnancy order seven and higher). This may be due to the ease of delivery of subsequent pregnancies.

Delivery or pregnancy termination at medical facilities is found the minority of women in both regions. Deliveries at a health center or hospital were still under 20 percent in the North and under 30 percent in the South. This practice also declined

with higher pregnancy order. For example, in the North, 20 percent of first pregnancies were resolved at the hospital but only 5 percent of the pregnancies seven and higher did so. This may be one of the reasons for the more negative pregnancy outcomes among pregnancies of high order, discussed in the previous section.

In sum, therefore, the utilization of medical settings and medical attendance by pregnant Northern and Southern women for delivery consequently, increases.

5.4 Chapter summary

The data in this chapter indicate that the nuptiality patterns of the Northern and Southern women, regarding age at first marriage, type of marriage and mean duration of marriage, are similar. As expected, the actual and ideal family size is larger and current fertility is higher in the South than in the North.

Table 5.1 : Nuptiality pattern of the sample women

Nuptiality pattern	North	South
Age at first marriage	19.8	20.0
Number of other wives		
one other wife	0.1	2.8
two other wife	0.1	0.1
no other wife	99.8	97.2
Total	100.0	100.0
N	1267	1138
Mean duration of marriage (years)	9.9	10.0
N	1267	1233
Marriage and first pregnancy		
pregnant before marriage	0.0	1.6
pregnant immediately after marriage	14.0	25.0
pregnant within one year of marriage	56.9	45.1
pregnant during 1-2 year of marriage	12.9	13.4
pregnant during 2-5 year of marriage	5.3	6.0
pregnant after 5 year of marriage	0.4	0.6
not pregnant	10.5	8.3
Total	100.0	100.0
N	1127	1233

Table 5.2 Ideal and actual family size of sampled women

Family size	North		South	
Ideal family size				
Mean number of boys	1.12		1.38	
Mean number of girls	1.08		1.44	
Mean number of children	2.20		2.81	
N	(1203)		(1224)	
Ideal family size by parity				
Parity 0	1.91	(22)	2.40	(10)
Parity 1	1.96	(331)	2.18	(233)
Parity 2	2.14	(450)	2.51	(286)
Parity 3	2.57	(171)	3.05	(258)
Parity 4	2.66	(59)	3.43	(147)
Parity 5	2.88	(32)	3.53	(70)
Parity 6 and over	3.16	(25)	3.74	(100)
Total	2.22	(1090)	2.87	(1104)
Actual family size: Children ever born by age of women				
15 - 19	0.97	(37)	1.03	(40)
20 - 24	1.34	(211)	1.71	(190)
25 - 29	1.87	(305)	2.34	(291)
30 - 34	2.32	(244)	3.15	(234)
35 - 39	3.09	(182)	4.13	(190)
40 - 44	4.08	(154)	5.17	(168)
Total	2.34	(1133)	3.09	(1113)
Living children by age of women				
15 - 19	0.89	(37)	1.00	(40)
20 - 24	1.24	(211)	1.66	(190)
25 - 29	1.77	(305)	2.25	(291)
30 - 34	2.14	(244)	3.01	(234)
35 - 39	2.81	(182)	3.64	(190)
40 - 44	3.49	(154)	4.44	(168)
Total	2.12	(1133)	2.83	(1113)

* Numbers in parentheses are number of respondents

Table 5.3 : Average length of pregnancy interval (months) among the sample women

		North		South	
		Length in years	N	Length in year s	N
First interval	(0-1)	9.5	1146	8.5	1138
Second interval	(1-2)	32.4	455	32.4	669
Third interval	(2-3)	37.2	225	33.6	417
Fourth interval	(3-4)	38.4	63	31.2	163
Fifth interval	(4-5)	34.8	34	31.2	102
Open interval		72.0	1123	56.4	1101

Table 5.3.1: Selected pregnancy characteristics of the sampled women

Pregnancy characteristics	North	South
Percent ever been pregnant		
yes and gave live birth	88.5	89.6
yes but never gave live birth	1.0	0.6
no	10.5	9.7
Total	100.0	100.0
N	1,267	1,233
Percent currently pregnant		
yes	5.3	9.7
no	98.2	89.9
don't know /not sure	0.9	0.5
Total	100.0	100.0
N	1,267	1,233
Pregnancy that worsened mothers' health		
First	12.8	30.9
Second	5.9	7.3
Third	2.5	5.2
Fourth	1.9	3.9
Fifth	0.7	0.9
Sixth	0.3	0.7
Seven and after	0.6	1.9
No pregnancy that worsened mothers' health	84.2	55.7
Total	100.0	100.0
N	1,162	1,158

Table 5.3.2 : Specific complications of the last pregnancy by number of children ever born among the sampled women

Specific complications of pregnancy	Number of pregnancy							
	0	1	2	3	4	5	6+	Total
North								
Percent with swollen ankles and fingers	0.0	10.4	11.8	10.6	9.2	8.6	17.7	11.0
N	(11)	(317)	(434)	(198)	(87)	(35)	(51)	(1137)
Percent with convulsions (fits)	9.1	1.3	0.7	0.5	1.2	2.9	0.0	1.0
N	(11)	(317)	(434)	(198)	(87)	(35)	(51)	(1137)
Percent with high blood pressure	0.0	2.5	2.1	2.5	0.0	2.9	2.0	2.1
N	(11)	(317)	(434)	(198)	(87)	(35)	(51)	(1137)
Percent with severe headache	27.3	21.5	14.1	11.6	16.1	11.4	13.7	15.8
N	(11)	(317)	(434)	(198)	(87)	(35)	(51)	(1137)
Percent with blurred vision	27.3	10.7	12.9	16.2	20.7	17.1	21.6	14.2
N	(11)	(317)	(434)	(198)	(87)	(35)	(51)	(1137)
South								
Percent with swollen ankles and fingers	12.5	13.2	12.4	14.1	10.8	14.7	14.6	13.1
N	(8)	(220)	(283)	(249)	(148)	(75)	(130)	(1114)
Percent with convulsions (fits)	0.0	0.9	1.4	1.6	1.4	1.3	3.1	1.5
N	(8)	(220)	(283)	(249)	(148)	(75)	(130)	(1113)
Percent with high blood pressure	0.0	1.4	2.5	2.8	4.1	0.0	6.9	2.9
N	(8)	(220)	(283)	(249)	(148)	(75)	(130)	(1113)
Percent with severe headache	12.5	15.5	15.9	12.1	12.2	5.3	20.0	14.2
N	(8)	(220)	(283)	(249)	(148)	(75)	(130)	(1113)
Percent with blurred vision	12.5	14.6	12.0	13.3	16.2	5.3	17.7	13.6
N	(8)	(220)	(283)	(249)	(148)	(75)	(130)	(1113)

Table 5.4 : Pregnancy outcome of the sampled women by pregnancy order

Pregnancy outcome	Pregnancy order							
	1	2	3	4	5	6	7+	Total
North								
livebirth	91.0	92.6	90.4	89.9	87.0	88.1	80.3	90.8
still living	(83.4)	(84.5)	(82.6)	(78.9)	(80.0)	(73.2)	(59.0)	(82.3)
died before age one	(6.1)	(5.9)	(5.6)	(7.0)	(6.1)	(10.4)	(13.1)	(6.3)
died after age one	(1.5)	(2.2)	(2.2)	(4.0)	(0.9)	(4.5)	(8.2)	(2.2)
stillbirth	3.4	1.9	2.6	0.4	2.6	1.5	6.6	2.6
spontaneous abortion	5.3	5.1	5.7	7.9	8.7	9.0	13.1	5.9
induced abortion	0.4	0.5	1.3	1.8	0.9	1.5	0.0	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of pregnancies	1134	850	459	228	115	67	61	2914
South								
livebirth	92.5	92.2	91.5	88.5	88.3	89.0	86.9	91.0
still living	(87.5)	(88.1)	(87.5)	(83.0)	(83.3)	(84.1)	(76.0)	(86.0)
died before-age one	(3.9)	(2.7)	(3.1)	(2.4)	(2.7)	(3.1)	(3.8)	(3.2)
died after-age one	(1.1)	(1.4)	(0.9)	(3.1)	(2.3)	(1.8)	(7.1)	(1.8)
stillbirth	1.6	1.2	1.2	0.7	0.4	0.6	2.5	1.3
spontaneous-abortion	5.6	6.3	6.9	9.8	10.5	9.2	10.5	7.2
induced abortion	0.3	0.3	0.4	1.0	0.8	1.2	0.0	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of Pregnancies	1113	921	669	417	257	163	199	3739

Table 5.5 : Pregnancy characteristics of the sampled women by pregnancy order

Pregnancy characteristics	pregnancy order							
	1	2	3	4	5	6	7+	Total
Pregnancy outcome								
North								
livebirth	91.0	92.6	90.4	89.9	87.0	88.1	80.3	90.8
still living	(83.6)	(84.5)	(82.6)	(78.9)	(80.0)	(73.1)	(73.5)	(90.7)
died before age one	(6.1)	(5.9)	(5.7)	(7.0)	(6.1)	(10.4)	(16.3)	(6.9)
died after age one	(1.5)	(2.2)	(2.2)	(3.9)	(0.9)	(4.5)	(10.2)	(2.4)
stillbirth	3.4	1.9	2.6	0.4	2.6	1.5	6.6	2.6
spontaneous abortion	5.3	5.1	5.7	7.9	8.7	9.0	13.1	5.9
induced abortion	0.4	0.5	1.3	1.8	0.9	1.5	0.0	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1134	850	459	228	115	67	61	1134
South								
Livebirth	92.5	92.2	91.5	88.5	88.3	89.0	86.9	91.0
still living	(87.6)	(87.9)	(87.4)	(83.0)	(83.3)	(84.0)	(87.5)	(94.5)
died before age one	(3.9)	(2.7)	(3.1)	(2.4)	(2.7)	(3.1)	(4.3)	(3.5)
died after age one	(1.1)	(1.4)	(0.9)	(3.1)	(2.3)	(1.8)	(8.2)	(2.0)
stillbirth	1.6	1.2	1.2	0.7	0.4	0.6	2.5	1.3
spontaneous abortion	5.6	6.3	6.9	9.8	10.5	9.2	10.5	7.2
induced abortion	0.3	0.3	0.4	1.0	0.8	1.2	0.0	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1113	921	669	417	257	163	199	1113
Pregnancy complications								
North								
complications	18.5	18.7	19.2	21.1	16.5	22.4	21.3	19.0
no complications	81.5	81.3	80.8	78.9	83.5	77.6	78.7	81.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1134	850	459	228	115	67	61	2914
South								
complications	5.9	4.1	5.1	5.5	7.0	4.9	11.6	5.6
no complications	94.1	95.9	94.9	94.5	93.0	95.1	88.4	94.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1113	921	669	417	257	163	199	3739

(cont.)

Table 5.5 : Continued

Pregnancy characteristics	pregnancy order							
	1	2	3	4	5	6	7+	Total
Place of pregnancy outcome								
North								
health center[1]	4.2	4.0	1.7	0.0	0.9	0.0	0.0	3.2
hospital, med. attend[2]	20.0	14.9	10.7	9.6	4.3	3.0	4.9	14.9
hospital, paramedical	0.5	0.7	0.4	0.0	0.9	1.5	0.0	0.5
home, medical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
home, paramedical	7.6	6.1	5.0	3.5	1.7	1.5	0.0	5.9
home, nonmedical	53.8	57.6	64.3	65.8	67.8	61.2	60.7	58.4
home, alone	8.0	11.6	14.2	18.9	22.6	29.9	32.8	12.5
traditional[3]	5.8	4.9	3.7	1.8	1.7	3.0	1.6	4.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1134	850	459	228	115	67	61	2914
Place of pregnancy outcome (cont.)								
South								
health center[1]	13.4	13.6	15.8	11.8	9.3	8.0	11.6	13.1
hospital, med. attend[2]	16.3	12.2	11.1	12.5	6.2	6.7	8.5	12.4
hospital, paramedical	2.0	1.8	1.6	1.4	1.6	0.0	1.0	1.7
home, medical	0.6	0.5	0.6	0.2	0.0	0.0	0.0	0.4
home, paramedical	7.3	8.4	7.8	8.4	10.5	11.7	8.5	8.2
home, nonmedical	40.5	44.7	44.5	45.6	51.4	55.8	53.8	45.0
home, alone	4.9	5.1	5.2	9.1	10.9	9.2	10.0	6.3
traditional[3]	15.1	13.7	13.3	11.0	10.1	8.6	6.5	12.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1113	921	669	417	257	163	199	3739

[1] health center, midwifery, maternal & child health center
[2] hospital medical attendance
[3] at home of traditional birth attendant

Table 5.6 : Pregnancy with most complications by total number of pregnancy among the sampled women

Pregnancy with complications	Total pregnancies						
	1	2	3	4	5	6+	Total
North							
First	100.0	60.2	29.4	33.3	26.7	32.1	51.6
Second	-	39.8	25.5	22.9	13.3	3.6	23.3
Third	-	-	45.1	6.3	20.0	0.0	10.2
Fourth	-	-	-	37.5	20.0	7.1	8.1
Fifth	-	-	-	-	20.0	17.9	2.8
Sixth	-	-	-	-	-	39.2	3.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	43	98	51	48	15	28	283
South							
First	100.0	66.1	61.8	50.0	58.9	42.0	61.5
Second	-	33.9	14.5	10.9	3.6	10.0	14.1
Third	-	-	23.7	13.0	12.5	6.0	10.0
Fourth	-	-	-	26.1	12.5	9.0	7.2
Fifth	-	-	-	-	12.5	4.0	2.0
Sixth	-	-	-	-	-	29.0	5.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	68	112	131	92	56	100	559

Table 5.7 : Source of prenatal care of last pregnancy among the sampled women who had ever been pregnant

Source of prenatal care of last pregnancy	North	South
Prenatal care at health center		
yes	27.3	36.8
no	2.7	63.2
Total	100.0	100.0
N	(1133)	(1115)
Prenatal care by seeking advice from other sources		
1. Doctor in Government hospital or private clinic	49.3	35.3
2. Non-medical personnel[1]	1.6	45.4
3. Paramedical personnel[2]	20.9	8.8
4. Medical personnel outside clinic or hospital	0.5	0.0
5. Combination including medical personnel	14.7	4.8
6. Combination excluding medical personnel	4.6	2.1
7. Husband / The husband's parents own parents/ neighbour	8.0	3.7
8. No, didn't seek advice from other sources	0.0	0.0
9. Don't remember	0.5	0.0
10. No prenatal care or advice	0.0	0.0
Total	100.0	100.0
N	(436)	(626)

[1] Non-medical personnel (e.g. indigenous doctor, traditional birth attendant

[2] Paramedical personnel (Auxilary nurse, nurse-midwife, midwife)

CHAPTER 6

Family Planning Practice

6.1 Knowledge and use of family planning
6.2 Current method used
6.3 Timing of first thought about birth control
6.4 Reason of use
6.5 Perceived health after contraception
6.6 Chapter summary

CHAPTER 6
Family Planning Practice

6.1 Knowledge and use of family planning

Whatever the health benefits of small family size are they can only be achieved through effective fertility control. Thus the mother's knowledge and experience with contraception will contribute to her success in child spacing and limiting. At the same time however, contraceptive methods can impair health as well through side effects and complications.

The knowledge and use of family planning is found to be very widespread in the two regions under study especially among the Northern women. Knowledge of selected major contraceptive methods is almost universal (Table 6.1). Approximately 76 percent of women in the North were currently using some form of contraception and an additional 13 percent had ever used some methods (Table 6.2). Only about 11 percent of the married women in the reproductive age never used a method. Comparable data is also found for the South. The level of current use was however clearly lower in this region and the higher level of 18 percent of women had never used a method. In the North, the majority of ever-married women practiced contraception as early as when they were 15 to 19 years old. Fifty-seven percent of these women were already using family planning. The level of use was highest (87 percent) when these women were 30 to 34 years old. The same age pattern of family planning practice is also found in the South although the level of use in general is clearly lower than that in the North

6.2 Current method used

Methods of family planning currently used by women in the two regions are shown in Table 6.2. The most popular methods are female sterilization (45.0 percent in the North and 30.8 percent in the South). The second most popular method is cral pills which accounts for 31.8 percent in the North and 28.4 percent in the South.

Injectables are found to be quite popular among Northern women in contrast to their counterparts in the South (only 5.6 percent). On the contrary, withdrawal and rhythm accounted for as high as 16.3 percent and 9.5 percent respectively among contraceptive users in the South whereas in the North none reported withdrawal as a method used and less than one percent used rhythm. Vasectomy was practiced by 6 percent in the South. Other methods were much less popular. None reported the use of sub-dermal implants. Condoms and vaginal method were found to be rare.

In general, findings on the method popularity (and/or availability) supported other studies in Thailand (Chamratrithirong et. al.1986). That is, sterilization has become the most popular method followed closely by the pill. Injections are common in the North where a long history of injectable use is known there. Prevalence of withdrawal in the South is also not surprising and confirms its popularity as found in past studies. The underlying factor of its popularity is also related to both religious teachings and way of life in the South.

6.3 Timing of first thought about birth control

Women in the sample were asked whether they ever thought of using birth control method and when they did so. It is revealed in Table 6.3 that only about 6 percent of all women, in both regions, never considered using any form of family planning method. The concept of contraception therefore is quite established among these women. The timing of first thought about contraception is also broken down by number of pregnancies in Table 6.3. Quite a number of women who had had fewer pregnancies, and were probably younger, had thought about family planning methods very early. This may reflect the fact that family planning methods are used for spacing as well as limiting especially among the new generation of women. In the North and South the timing of first thought of family planning are quite similar. Approximately 20% in both samples had begun thinking of contraception before marriage or the first pregnancy.

6.4 Reason for use

Indeed, spacing is an important reason for contracepting among these woman as nearly one-third of both samples cited spacing as the reason for current or ever use (Table 6.4)

The majority of the women i.e., 50 percent in the North and 40 percent in the South used family planning primarily to limit their pregnancies. An additional group of women started contraception to space then decided to limit their pregnancies (8.1 and 11.6 percent among the Northern and Southern women respectively). Other users primarily wanted to space pregnancies (about 30 percent for both regions). The desire to limit family size therefore was found to be substantial especially among the Northern women.

6.5 Perceived health after contraception

The user's perception of the health effects of contraception can be more important as the actual effects themselves. Table 6.6 shows that the vast majority in both North and South samples felt that the contraceptive had no effect on their health. However, among those southern women who perceived a health effect more thought their health was worsened by the contraceptive for each method. The northern women report both positive and negative effects except for vasectomy which is perceived as having no negative effect at all.

6.6 Chapter summary

In sum, contraception is well accepted by both samples and high percentages are current users, although the method mix is different. Northern women have high rates of use and rely on more modern contraception than their southern counterparts. Contraception is used primarily for limiting births but spacing is becoming more numerous. No health effects of contraception are perceived by the majority of the sample but where their is a perceived impact it is negative for southern women and

mixed for northern respondents. Thus the sample women have enough knowledge and experience with contraception to take full advantages of it to meet their desired family size.

Table 6.1 : Knowledge and use of fertility control methods among sampled women by selected methods

Knowledge and Use	Method				
	IUD	Oral Pills	Tubectomy	Vasectomy	Injectables
North					
Never heard of	1.4	0.6	0.1	0.3	0.9
Heard of and used	4.9	43.7	0.2	0.1	10.8
Heard of and using	3.2	24.2	34.2	1.7	12.3
Heard of and never use	90.5	31.5	65.6	97.9	76.0
Total	100.0	100.0	100.0	100.0	100.0
N	1267	1267	1267	1267	1267
South					
Never heard of	1.0	0.1	0.2	0.1	0.2
Heard of and used	2.4	27.3	0.0	0.2	6.9
Heard of and using	1.1	19.5	21.2	4.1	3.8
Heard of and never use	95.5	53.2	78.7	95.6	89.1
Total	100.0	100.0	100.0	100.0	100.0
N	1233	1233	1233	1233	1233

Table 6.2 : Use of family planning among the sampled women

Use of family planning method	North		South	
Current family planning status				
Ever used	13.3		14.0	
Currently using	75.6		68.3	
Never use	11.1		17.7	
Total	100.0		100.0	
N	1267		1233	
Percent currently using by age of women				
		N		N
15 - 19	57.0	79	32.9	79
20 - 24	65.5	264	62.8	231
25 - 29	80.3	325	71.2	313
30 - 34	87.0	253	79.4	243
35 - 39	78.9	190	75.9	195
40 - 44	72.4	156	64.0	172
Current method used				
Condom	0.3		1.1	
Withdrawal	0.0		16.3	
Rhythm	0.2		9.5	
Vaginal method	0.0		0.1	
IUD	4.2		1.7	
Oral pills	31.8		28.4	
Female sterilization	45.0		30.8	
Vasectomy	2.3		6.0	
Abortion	0.0		0.2	
Injectables	16.2		5.6	
Sub-dermal implants	0.0		0.0	
Other	0.0		0.4	
Total	100.0		100.0	
N	962		845	

Table 6.3 : The timing of first thought about birth control among the sampled women (who had ever been or who were currently pregnant) by total number of pregnancies by region

Timing and Region	Number of Pregnancies						
	1	2	3	4	5	6+	Total
North							
Before marriage or before 1st pregnancy	40.8	28.2	12.8	12.4	0.0	9.0	24.4
After 1st pregnancy	49.6	34.3	15.9	6.2	0.0	0.0	28.2
After 2nd pregnancy		34.0	24.3	13.3	13.0	4.5	19.0
After 3rd pregnancy			40.3	25.7	10.9	7.5	11.5
After 4th pregnancy				38.1	19.6	9.0	5.1
After 5th pregnancy					45.7	32.3	2.7
After 6th pregnancy and over						49.3	2.9
Never consider family planning	9.6	3.5	6.6	4.4	10.9	6.0	6.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	285	397	226	113	46	67	1134
South							
Before marriage or before 1st pregnancy	38.5	22.4	19.7	14.6	15.1	4.4	20.3
After 1st pregnancy	49.2	42.0	28.2	18.5	14.0	7.5	29.5
After 2nd pregnancy		30.8	23.2	20.4	17.2	8.8	18.1
After 3rd pregnancy			25.1	24.2	20.4	15.1	13.2
After 4th pregnancy				16.6	16.1	11.9	5.6
After 5th pregnancy					12.9	15.7	3.3
After 6th pregnancy						29.6	4.2
Never consider family planning	12.3	4.8	3.9	5.7	4.3	6.9	5.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	195	250	259	157	93	159	1113

Table 6.4 : Reason for use of contraception among the sampled women

Reason for use	North	South
Primarily to space pregnancies	31.7	30.5
At first to space then to limit	8.1	11.6
Primarily to limit pregnancies	48.9	40.0
Hadn't thought about it	11.1	17.6
Neither to space nor limit pregnancies	0.2	0.3
Total	100.0	100.0
N	1267	1231

Table 6.5 : Perceived health after using current contraceptive method among the sampled women who were current users by selected methods of contraception

Region and Report	IUD	Pill	Female Sterilization	Vasectomy	Injectables
North					
better	10.0	6.2	6.5	4.5	6.5
worse	5.0	6.6	10.2	0.0	5.2
same	85.0	87.2	83.3	95.5	88.4
Total	100.0	100.0	100.0	100.0	100.0
N	40	305	431	22	155
South					
better	14.3	15.0	12.4	6.0	12.8
worse	14.3	23.8	30.1	20.0	29.8
same	71.4	61.2	57.5	74.0	57.4
Total	100.0	100.0	100.0	100.0	100.0
N	14	240	259	50	47

CHAPTER 7

Family Formation and Maternal Health

Introduction

7.1 Gynaecological findings

7.2 Sickness

7.3 Blood pressure

7.4 Status of anemia

7.5 Nutritional status

7.6 Parasitic Infestation

7.7 Chapter summary

CHAPTER 7
Family Formation And Maternal Health

Introduction

The effects of family formation patterns on maternal health, cover a wide range of conditions. In this study it was decided to concentrate on the following areas:

1) history of gynaecological conditions and sickness,
2) blood pressure,
3) anaemia which is indicated by haematocrit level,
4) measurement of the women's weight for height to identity "maternal depletion syndromes" and protein-energy malnutrition (PEM) (Jelliffe, 1966 : 210-211,240-241) and
5) stool parasitic infestation

The gynaecological symptoms during the three months preceding the interview were asked. The eligible women who had experienced any of a list of the symptoms were further questioned whether or not the conditions were diagnosed. The standard questionnaire form permitted the recording of any conditions. Then the diagnosis was classified according to the International Classification of Diseases (World Health Organization, 1967).

In fact, there was a proportion of women who reported conditions but were not clinically examined. These cases are classified into the groups according to the authors' judgement from the oral complaints such as Procidentia Uteri and unspecified conditions etc.

The anemic condition is measured by percentage of Haematocrit level lower than 33 percent which is equivalent to 11 g/100 ml Haemoglobin.

7.1 Gynaecological findings

Regarding the gynaecological examination in the year preceding the interview, only about one fourth of the women reported that they had been examined (see Table 7.1).

Table 7.1 shows that only 6.0 and 5.6 percent of the Northern and Southern women respectively were breast examined in the past year. Of those there were no cases of abnormality or suspicions.

History of Pap smear is rare among the sample of this study. Most women never had a gynaecological examination (70.5 and 74.4 in the North and South respectively). Of those who had had a gynaecological examination, few received a Pap smear (Table 7.1).

Table 7.2 shows the correlation between age-group and gynaecological findings. It reveals that the older age group had more positive findings than the younger ones, especially with infections. On the other hand, the incidence of venereal diseases occur more among the younger than the older age group.

The opposite direction of correlation is found between gynaecological findings and number of living children. The larger family size tended to have less abnormal signs (see Table 7.3).

A direct consequence of a woman's fertility is her gynaecological health. Thus, Table 7.14 explores whether minor signs and symptoms of gynaecological stress are more prevalent in higher parity women. Menstrual irregularities are uncommon for women of both parity groups in each region and no clear pattern of the incidence of these symptoms is evident. Pain before, during or after menstruation is common however and Southern women of lower parity experience this more than women of higher parity.

Complaints . of vaginal discharge, itching and prolapsed mass are much more prevalent among Southern women than Northern women but there is no difference between parity groups. Problems with urination are reported by about one-quarter of the sample in each sub-group.

7.2 Sickness

The history of mother's sickness for one day or more shows no clear relationship with number of living children in the North. In the South it seems that the mothers of larger families had more frequent sickness than of the smaller families. (Table 7.5).

7.3 Blood Pressure

More sampled women in the South have high systolic and diastolic blood pressure than sampled women in the North (see Table 7.6).

Regarding the assessment of B.P. status by age group and by the number of live births, the increase of systolic blood pressure occurs with the increase of age and parity. The Southern women were slightly higher in proportion (16.8 percent) than the Northern women (12.1 percent) in the high blood pressure - high parity category (see Table 7.7 and 7.8). The same marked difference is evident also with the assessment of diastolic blood pressure (Tables 7.9 and 7.10).

7.4 Status of Anemia

The haematocrit value of the sampled women was examined next and the findings reveal that, with the Northern women, a high proportion of anemic subjects was noted in the parity 3-4 group. However, in the South, an increase in the proportion of anemic women was associated with an increase in parity (Table 7.11).

Correspondingly, the number of "normal" women, i.e. those with a haematocrit value of more than 33 percent, decreased with the increase in the number of live births. It may be said that there is an inverse relationship between haematocrit value and number of live births.

7.5 Nutritional Status

The universal standard of anthropologic assessment of weight for height for adult female (Jelliffe, 1966) was used for this variable. It was observed that, with this standard, the majority of the subjects were found to be underweight (see Table 7-12). However, as it has been ascertained that the chosen sample are average Thai women, a modified standard appropriate for Thai women was employed.

With this subsequent measurement, it could be seen that the major proportion, in both regional groups, fell into the "normal" category. Therefore, it may be said that a modified standard (i.e. reduction by 5 k.g.) is more appropriate for the Thai population.

The findings state that there is a higher nutritional status among Southern women as compared to the Northern ones (i.e. 95.9 percent to 87.4 percent normal and above standard).

7.6 Parasitic Infestation

The incidence of parasitic infestation was examined in terms of both age and parity (Tables 7.13-7.14). It was observed that the Northern women had a higher incidence of both hookworms and liver fluke infections. This is an interesting finding when associated with the earlier observation that the Southern children had a higher incidence of parasitic infection.

However, in the "others" category, a higher proportion was noted among the Southern sample. No marked difference could be concluded here, regarding the increase in age and parity. Therefore, there may be other factors involved such as food handling behaviour and hygienic practices.

7.7 Chapter summary

In sum maternal rural health among the sampled women is within the expected range. Some differentials by family size are suggested for anemia and parasitic infestation: these conditions worsen with parity. However, overall, no strong or consistent differences were found either between regions or between women with small and large families.

Table 7.1 Gynaecological examination in the past year

	North	South
Gynaecological Examination	28.6	23.2
N	1267	1233
Breast Examination	6.0	5.6
N	1267	1233
Pap Smear		
Pap Smear not done	23.3	20.0
Test done-negative result	6.1	5.3
Test done-suspicious	0.2	0.2
Test done-malignant	0.0	0.2
Never had exam	70.5	74.4
Total	100.0	100.0
N	1267	1233

Table 7.2 Gynaecologicae findings by age group

Age group	Gynaecological findings								
	Infections	Tumor	Procidentia	Current age	V.D.	Unspecified	None	Total	N
North									
15-19	2.5	0.0	0.0	0.0	1.3	1.3	94.9	100.0	79
20-34	9.3	0.4	0.4	1.7	0.5	1.9	85.2	100.0	842
35-44	5.8	1.2	0.0	1.2	0.3	1.7	89.9	100.0	346
Total	8.0	0.6	0.2	1.5	0.6	2.1	87.1	100.0	1267
South									
15-19	3.0	0.0	0.0	0.0	0.0	0.0	96.2	100.0	79
20-34	10.5	0.8	0.0	3.0	0.8	0.8	84.3	100.0	771
35-44	10.2	2.3	0.3	1.7	0.3	0.6	84.7	100.0	353
Total	10.0	1.2	0.1	2.4	0.6	0.7	85.2	100.0	1203

Table 7.3 Gynaecological findings by number of living children

No. living Children	Gynaecological findings								
	Infections	Tumor	Procidentia	Current age	V.D.	Unspecified	None	Total	N
North									
0-2	8.6	0.3	0.4	2.0	0.8	1.8	86.1	100.0	758
3-4	8.1	1.1	0.0	1.4	0.0	1.8	87.7	100.0	285
5 and over	4.7	1.2	0.0	0.0	0.0	2.3	91.9	100.0	86
Total	8.1	0.5	0.3	1.7	0.5	1.9	87.0	100.0	1129
South									
0-2	11.4	1.2	0.0	3.6	0.6	0.2	83.0	100.0	501
3-4	9.5	0.5	0.0	1.6	0.5	0.5	87.3	100.0	379
5 and over	6.7	2.1	0.5	1.5	1.0	0.5	87.7	100.0	195
Total	9.9	1.1	0.1	2.5	0.7	0.4	85.4	100.0	1075

Table 7.4 : Gynaecological symptoms of sampled women by fairely size by region

Symptoms	North			South		
	No. of children			No. of children		
	≤2	>2	Total	≤2	>2	Total
Irregular menstruation	9.4	7.0	8.4	2.0	2.2	2.1
N	596	429	1025	391	597	988
Heavy menstrual bleeding	2.5	3.3	2.8	4.6	3.7	4.0
N	596	429	1025	391	597	988
Inter-menstrual bleeding	5.5	6.1	5.8	6.4	5.2	5.7
N	596	429	1025	391	597	988
Dysmcuorrhea	63.1	64.5	63.7	56.2	48.5	51.7
N	759	504	1263	511	722	1233
Vaginal discharge	22.3	22.7	22.5	65.0	65.8	65.5
N	761	503	1264	511	722	1233
Itching around genitalia	11.2	14.1	12.3	21.5	22.7	22.2
N	761	504	1265	511	722	1233
Prolapsed mass through vagina	3.0	3.2	3.1	10.1	12.3	11.4
N	755	504	1259	505	718	1233
Difficulty controlling urination, pain during urination, increased frequency of urination	22.0	26.9	24.0	22.1	26.4	24.6
N	1688	136	304	113	190	303

Table 7.5 Mother's sickness days by number of living children

No living Children	Mother's sickness					
	None	one sickness	two sickness	three sickness	Total	N
North						
0-2	75.9	11.4	11.0	1.7	100.0	762
3-4	76.8	12.3	10.5	0.4	100.0	285
5 and over	76.7	8.1	14.0	1.2	100.0	86
Total	76.2	11.4	11.1	1.3	100.0	1133
South						
0-2	70.6	11.9	17.0	0.4	100.0	511
3-4	71.5	11.1	16.6	0.8	100.0	397
5 and over	66.8	15.1	17.1	10.0	100.0	205
Total	70.3	12.2	16.9	0.6	100.0	1133

Table 7.6 Percentage distribution of mother's systolic and diastolic blood pressure by region

Blood pressure	North	South
Systolic (m.m.Hg)		
< 100 (low)	9.5	5.2
101 - 140 (normal)	82.6	86.5
141 and over (high)	7.9	8.3
Total	100.0	100.0
N	851	769
Diastolic		
< 50 (low)	1.5	0.2
51 - 90 (normal)	92.7	81.7
91 and over (high)	5.7	18.0
Total	100.0	100.0
N	851	769

Table 7.7 Systolic blood pressure by age group

Age	Systolic (m.m. Hg)				
	< 100	101-140	>141	Total	N
North					
15 - 19	11.8	84.3	3.9	100.0	51
20 - 34	8.4	85.8	5.8	100.0	569
35 - 44	11.7	74.5	13.8	100.0	231
Total	9.5	82.6	7.8	100.0	851
South					
15 - 19	2.6	94.9	2.6	100.0	39
20 - 34	5.7	89.4	4.9	100.0	491
35 - 44	4.6	79.1	16.3	100.0	239
Total	5.2	86.5	8.4	100.0	769

Table 7.8 Systolic blood pressure by number of live births

No. live birth	Systolic (m.m. Hg)				
	< 100	101-140	>141	Total	N
North					
0 - 2	9.0	85.0	6.0	100.0	480
3 - 4	6.8	82.5	10.7	100.0	206
5 and over	16.7	71.2	12.1	100.0	66
Total	9.0	83.0	7.9	100.0	752
South					
0 - 2	4.9	90.0	5.1	100.0	329
3 - 4	7.1	84.1	8.7	100.0	252
5 and over	2.4	80.8	16.8	100.0	125
Total	5.3	86.2	8.5	100.0	706

Table 7.9 Diastolic blood pressure by age group

Age group	Diastolic (m.m Hg)			
	41-91	>91	Total	N
North				
15 - 19	100.0	0.0	100.0	51
20 - 34	95.4	4.6	100.0	566
35 - 44	90.5	9.5	100.0	231
Total	94.3	5.7	100.0	848
South				
15 - 19	100.0	0.0	100.0	39
20 - 34	85.5	14.5	100.0	491
35 - 44	71.1	28.9	100.0	239
Total	81.7	18.3	100.0	769

Table 7.10 Diastolic blood pressure by number of live births

No live birth	Diastolic (m. m. Hg)			
	41 - 90	>91	Total	N
North				
0 - 2	94.5	5.5	100.0	477
3 - 4	91.3	8.7	100.0	206
5 and over	95.9	4.5	100.0	66
Total	93.8	6.2	100.0	749
South				
0 - 2	84.5	15.5	100.0	329
3 - 4	79.8	20.2	100.0	252
5 and over	72.0	28.0	100.0	125
Total	80.6	19.4	100.0	706

Table 7.11 Haematocrit level by number of live birth

No live births	Percent Haematocrit				
	<30 (severe anemia)	30-33 (moderate anemia)	>33 (Normal)	Total	N
North					
0 - 2	1.4	2.4	96.2	100.0	506
3 - 4	1.9	4.3	93.8	100.0	198
5 and over	1.4	2.9	95.7	100.0	69
Total	1.5	2.9	95.5	100.0	786
South					
0 - 2	6.0	6.9	87.1	100.0	349
3 - 4	7.6	11.0	81.4	100.0	263
5 and over	7.7	11.5	80.8	100.0	130
Total	6.9	9.2	84.0	100.0	742

Table 7.12a Mother weight for height as compared to a standard by region

Weight/Height of Mother	North	South
Below	47.5	26.4
Normal	39.6	39.1
Above	12.8	34.5
Total	100.0	100.0
N	850	769

Table 7.12b Modified mother weight for height as compared to a standard by region

Weight/Height of Mother (Thin)	North	South
Below	12.6	4.1
Normal	74.6	61.6
Above	12.8	34.3
Total	100.0	100.0
N	850	769

Table 7.13 Parasitic infestation by mother's age

Mother's age	Parasitic Infestation						
	None	Hw	Lf	Hw+Lf	Others	Total	N
North							
15 - 19	39.2	5.9	37.3	17.6	0.0	100.0	51
20 - 34	26.3	6.7	31.3	18.6	1.2	100.0	566
35 - 44	30.9	15.5	35.6	16.3	1.7	100.0	233
Total	33.6	14.4	32.8	17.9	1.3	100.0	850
South							
15 - 19	65.8	13.2	0.0	0.0	21.1	100.0	38
20 - 34	71.6	9.5	0.0	0.0	18.9	100.0	486
35 - 44	74.7	8.0	0.0	0.0	17.3	100.0	237
Total	72.3	9.2	0.0	0.0	18.5	100.0	761

Table 7.14 Parasitic Infestation by number of live births

No live birth	Parasitic Infestation						
	None	Hw	Lf	Hw+Lf	Others	Total	N
North							
0 - 2	32.7	16.1	33.1	17.2	0.8	100.0	477
3 - 4	33.8	11.6	32.9	19.3	2.4	100.0	207
5 and over	28.4	17.9	35.8	17.9	0.0	100.0	67
Total	32.6	15.0	33.3	17.8	1.2	100.0	751
South							
0 - 2	72.3	10.8	0.0	0.0	16.9	100.0	325
3 - 4	72.8	7.6	0.0	0.0	19.6	100.0	250
5 and over	71.0	8.1	0.0	0.0	21.0	100.0	124
Total	72.2	9.2	0.0	0.0	18.6	100.0	699

CHAPTER 8

Family Size and Child Health

8.1 The results of health examination
8.2 Nutritional status
a) Weight and height by age
b) Skinfold thickness and arm circumference
8.3 Some factors influencing childhood weight for age
8.4 Some factors influencing childhood height for age
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CHAPTER 8
Family Size and Child Health

Thailand as a developing country, has faced the problems of child morbidity and mortality concerning malnutrition and/or infections for a long period of time. The prevalence and degree of malnutrition are dependent on food beliefs and eating habit of the parents. Besides, malnutrition is likely to increase as family growth reduces the resources and attention that can be devoted to each child. Moreover lack of safe-water supply and poor environmental sanitation due to economic reasons aggravate child morbidity and mortality. Child mortality and pregnancy wastage may also be related independently to birth order if this in turn affects childhood susceptibility to the hazards of their environment.

This study has found that childhood (under five years old) health and growth are related to family size : the more siblings a child has, the more slowly he is likely to grow and the more prone he will be to malnutrition and infection.

The specific aspects of growth, nutritional status and health examined in this study are indicated by height, weight, arm circumference, skin fold at mid-arm level, history of infections during the past month and intestinal parasites.

The data were derived from clinical examination of the eligible women's children under five years of age, and from stool examination for ova and parasites. In addition the eligible women were asked whether each of their children under five years has experienced fever and/or diarrhoea during the month preceding interview. These two symptoms were used as indicators of infection.

8.1 The results of health examination

Stool test results for parasitic infection revealed that a much higher rate of infection among children in the South compared to those in the North (32 % versus 3 %) (Table 8.1). The former suffer mostly from ascarisis and/or whipworm (25.2 percent) and hook worm.

Quite different from their mothers, most of the Northern children are infected with hookworm (1.9 percent), while only two cases (0.2 percent) are infected with liver fluke.

Regarding family size or number of living children the Southern children who live in large families (more than 4 children) are more prone to parasitic infection (see Table 8.2). Moreover Table 8.3 reveals that the children were infected mostly during the age of two to four.

It is noteworthy that the Southern children started to have intestinal parasites as early as 8 months of age.

The ecological factors (i.e. soil condition, temperature, moisture, etc.) play very important roles on children's parasitic infections. Hookworm and ascarisis are associated with agricultural households where disposal of human feces is unsanitary. In addition the soil, moisture and temperature favor development of infective larvae.

As in the case of the Southern children, it is found that those who had parasitic infections were mainly rubber plantation workers, those in groups of households with no toilets and who are situated far from large household groups.

Also, it is evident that Northern children are almost parasite-free due to two ecological factors:

1) dry soil condition with low moisture prevails which is unfavorable for development of infective larvae, and
2) children are not allowed to eat raw or uncooked fish.

8.2 Nutritional status

a) Weight and height by age

The Northern children are underweight and underheight more than the Southern children. However, when a comparison is made between acute and chronic malnutrition as indicated by weight-for-age and height-for-age, it is found that in both regions the children are suffering from chronic more than acute malnutrition (see Table 8.4).

b) Skinfold thickness and Arm circumference

The skin fold thickness indicates proportion of sub-cutaneous fat. The physical exam revealed that the Northern children has substantially lower sub-cutaneous fat than the Southern children. Less than one fourth (22.7 percent) of the Northern children have normal levels while over half (63.2 percent) belong to third degree below standard. In contrast, about half of the Southern children have normal skin fold level and the percentages of first, second and third degree below standard are almost equally distributed (i.e. 15.1, 15.8 and 12.7 percent respectively).

The arm circumference at mid arm indicates both muscle and sub-cutaneous fat together. Again, Northern children have shown higher percentages of small arm circumference (or below standard) than the Southern children. Most children of both regions are either normal or have first degree below standard (93.3 and 97.2 percent respectively). Very few are in second and third degree categories (see Table 8.4)

The measurements of skin fold and mid arm circumference of the studied population reveal that the children are thin mostly because their muscles are underdeveloped with a lack of sub-cutaneous fat. This may be the result of *Protein-Energy Malnutrition (PEM).* It must be said that children in the North suffer from conditions of *low calorie reserve* (Jelliffe, 1966) denoted by a high percentage (63.2 %) who have skin fold thickness of the third degree below standard. This may be due to the culture and dietary behaviour in the North where the food intake is less and there is

an imbalance of food composition where people consume large quantities of rice and relatively less of fat and protein sources.

8.3 Some factors influencing childhood weight for age

Family size appears to influence childhood weight for age (see Table 8.5). The larger the family size the higher proportion of first degree malnutrition. However, this correlation did not apply to the second and third degree malnutrition probably because other more influential factors are operating such as repeated history of diarrhoea or other infectious diseases.

In terms of the correlation between weight for age and family size when controlling for the intestinal parasitic infestation there is no definite pattern of correlation. This suggests that the parasites do not cause malnourishment (see Table 8.6).

The childhood weight-for-age pattern is similar in the two regions. The percentage of children who are currently malnourished are concentrated in ages of two to four years (see Table 8.7). In general, about one fourth of the children aged one to five years are also under weight in this sample.

8.4 Some factors influencing childhood height for age

Table 8.8 clearly suggests that severe malnutrition when measured by childhood height-for-age is associated with larger family size. And, as with weight-for-age, the most vulnerable age for malnutrition is between 2 and 4 (Table 8.9).

Regarding the skinfold and mid-arm circumference by family size, no correlation between the two variables was found (Tables 8.10 and 8.11).

8.5 History of childhood sickness, fever and diarrhoea

During the month preceding the interview the mothers responded that about half of the children had been sick for one day or more in both regions (Table 8.12). The same pattern is found for history of fever. The Northern and Southern children who had fever for 1 day or more were 37.1 percent and 34.4 percent respectively.

On the other hand, the Southern sample have substantially higher proportion of reported diarrhoea (88.7 percent) while only 18.2 percent of the Northern children had diarrhoea (Table 8.12).

8.6 Childhood sickness and nutrition grade by family size

Tables 8.13 and 8.14 reveal that there is no effect of family size on childhood sickness at different degrees of malnutrition as indicated by weight-for-age.

8.7 Chapter summary

In sum, of the child health variables examined here, parasitic infestation, first degree malnutrition (as measured by weight-for-age) and second-third degree malnutrition (as measured by height-for-age) worsen as the number of siblings increases.

Table 8.1 Childhood parasitic infections by region

Parasite	North	South
None	97.3	67.9
Hookworm	1.7	6.9
Liver fluke	0.2	0.0
Hookworm and liver fluke	0.2	0.0
Other	0.6	25.2
Total infected	2.7	32.1
Total	100.0	100.0
N	408	548

Table 8.2 Childhood parasitic infestation by number of living children of mother and region

Parasite of children	Number of living children		
	<2	3-4	>4
North			
None	97.6	94.9	100.0
one or more	2.4	5.1	0.0
Total	100.0	100.0	100.0
N	338	78	12
South			
None	77.6	62.3	54.4
one or more	22.4	37.7	45.6
Total	100.0	100.0	100.0
N	286	199	90

Table 8.3 Childhood parasitic infestation by age and region

Age of children	Parasite of children			
	None	One or more	Total	N
North				
0 year	100.0	0.0	100.0	32
1 year	100.0	0.0	100.0	80
2 year	97.8	2.2	100.0	92
3 year	94.0	6.0	100.0	94
4 year	95.6	4.4	100.0	83
5 year	100.0	0.0	100.0	45
South				
0 year	87.5	12.5	100.0	56
1 year	82.2	17.8	100.0	101
2 year	72.5	27.5	100.0	109
3 year	57.8	42.2	100.0	128
4 year	60.7	39.3	100.0	122
5 year	62.1	37.9	100.0	58

Table 8.4 Nutritional status as indicated by weight, height skinfold and arm circumference/age by region

	North	South
Weight/age		
Normal	58.1	63.2
First degree below standard	36.3	32.5
Second degree below standard	4.6	4.1
Third degree below standard	0.9	0.2
Total	100.0	100.0
N	432	581
Height/age		
Normal	31.5	42.3
First degree below standard	44.7	39.8
Second degree below standard	19.9	13.9
Third degree below standard	3.9	4.0
Total	100.0	100.0
N	432	581
Skinfold		
Normal	22.7	56.3
First degree below standard	4.6	15.1
Second degree below standard	9.5	15.8
Third degree below standard	63.2	12.7
Total	100.0	100.0
N	432	581
Arm Circumference		
Normal	42.3	63.6
First degree below standard	51.1	33.6
Second degree below standard	5.8	2.3
Third degree below standard	0.5	0.5
Total	100.0	100.0
N	432	580

Table 8.5 Childhood weight for age by number of living children of mother and region

Weight/Age	Number of living children		
	<2	3-4	>4
North			
Normal	59.7	51.9	53.8
First degree	34.1	44.3	46.2
Second degree	5.3	2.1	0.0
Third degree	0.9	1.3	0.0
Total	100.0	100.0	100.0
N	340	79	13
South			
Normal	65.4	63.5	55.1
First degree	30.8	31.5	40.4
Second degree	3.4	5.0	4.5
Third degree	0.3	0.0	0.0
Total	100.0	100.0	100.0
N	292	200	89

Table 8.6 Weight for age by intestinal parasite infestation and number of living children of mother

Intestinal Parasite / Wt/Age	Regional Family Size							
	North				South			
	<2	3-4	>4	Total	<2	3-4	>4	Total
None								
Normal	59.1	51.8	60.0	58.2	68.0	64.3	62.8	66.2
First Degree	34.8	44.6	40.0	36.3	27.6	29.4	34.9	28.9
Second Degree	5.2	1.8	0.0	4.6	4.0	6.3	2.3	4.6
Third Degree	0.9	1.8	0.0	1.0	0.4	0.0	0.0	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	345	56	10	411	225	126	43	394
Hw								
Normal	100.0	50.0	0.0	85.7	80.0	64.7	66.7	71.1
First Degree	0.0	50.0	0.0	14.3	20.0	29.4	16.7	23.7
Second Degree	0.0	0.0	0.0	0.0	0.0	5.9	16.7	5.3
Third Degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0
N	5	2	0	7	15	17	6	38
Lf								
Normal	100.0	0.0	0.0	100.0	56.6	55.6	47.1	53.9
First Degree	0.0	0.0	0.0	0.0	43.4	42.6	47.1	44.0
Second Degree	0.0	0.0	0.0	0.0	0.0	1.9	5.9	2.1
Thrid Degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
N	1	0	0	1	53	54	34	141
Other								
Normal	100.0	0.0	0.0	100.0	-	-	-	-
First Degree	0.0	0.0	0.0	0.0	-	-	-	-
Second Degree	0.0	0.0	0.0	0.0	-	-	-	-
Third Degree	0.0	0.0	0.0	0.0	-	-	-	-
Total	100.0	0.0	0.0	100.0	-	-	-	-
N	1	0	0	1	-	-	-	-

Table 8.7 Nutrition grade (weight for age) by child's age and region

Age of children	Weight/Age					
	Normal	1st degree	2nd degree	3rd degree	Total	N
North						
0 year	72.2	19.4	5.6	2.8	100.0	36
1 year	60.5	30.9	7.4	1.2	100.0	81
2 year	48.9	45.7	4.3	1.1	100.0	94
3 year	55.9	39.8	4.3	0.0	100.0	93
4 year	56.6	41.0	2.4	0.0	100.0	83
5 year	70.5	22.7	4.5	2.3	100.0	44
South						
0 year	80.4	14.3	5.4	0.0	100.0	56
1 year	68.3	27.9	2.9	1.0	100.0	104
2 year	55.0	40.4	4.6	0.0	100.0	109
3 year	57.7	39.2	3.1	0.0	100.0	130
4 year	56.9	38.2	4.9	0.0	100.0	123
5 year	77.6	17.2	5.2	0.0	100.0	58

Table 8.8 Children's height for age by number of living children of mother region

Height/Age	Number of Living Children		
	<2	3-4	>4
North			
Normal	34.1	21.5	23.1
First degree	42.1	58.2	30.8
Second degree	20.0	17.7	30.8
Third degree	3.8	2.5	15.4
Total	100.0	100.0	100.0
N	340	79	13
South			
Normal	46.6	39.0	36.0
First degree	40.8	38.5	39.3
Second degree	11.0	17.0	16.9
Third degree	1.7	5.5	7.9
Total	100.0	100.0	100.0
N	292	200	89

Table 8.9 Chronic malnutrition (height for age) by child's age and region

Age of children	Height/Age					
	Normal	1st degree	2nd degree	3rd degree	Total	N
North						
0 year	83.3	11.1	5.6	0.0	100.0	36
1 year	39.5	43.2	12.3	4.9	100.0	81
2 year	22.3	41.5	30.9	5.3	100.0	94
3 year	11.8	53.8	30.1	4.3	100.0	93
4 year	24.1	54.2	16.9	4.8	100.0	83
5 year	50.0	43.2	6.8	0.0	100.0	44
South						
0 year	82.1	14.3	0.0	3.6	100.0	56
1 year	54.8	37.5	6.7	1.0	100.0	104
2 year	37.6	46.8	11.0	4.6	100.0	109
3 year	26.9	46.2	23.8	3.1	100.0	130
4 year	29.3	45.5	17.9	7.3	100.0	123
5 year	51.7	29.3	15.5	3.4	100.0	58

Table 8.10 Childhood skinfold thickness by number of living children of mother and region

Skinfold Grade of Children	Number of Living Children		
	<2	3-4	>4
North			
Normal	21.5	27.8	23.1
First degree below standard	4.4	3.8	15.4
Second degree below standard	9.4	11.4	0.0
Third degree below standard	64.7	57.0	61.5
Total	100.0	100.0	100.0
N	340	79	13
South			
Normal	56.5	53.0	62.9
First degree below standard	14.7	15.5	15.7
Second degree below standard	15.1	19.0	11.2
Third degree below standard	13.7	12.5	10.0
Total	100.0	100.0	100.0
N	292	200	89

Table 8.11 Childhood arm circumference by numbers of living children of mother and region

Arm circumference of children	Number of Living Children <2	3-4	>4
North			
Normal	43.8	35.4	53.8
First degree below standard	50.0	58.2	38.5
Second degree below standard	5.9	5.1	7.7
Third degree below standard	0.3	1.3	0.0
Total	100.0	100.0	100.0
N	340	79	13
South			
Normal	64.0	63.5	62.5
First degree below standard	33.6	33.5	34.1
Second degree below standard	1.4	3.0	3.4
Third degree below standard	1.0	0.0	0.0
Total	100.0	100.0	100.0
N	292	200	98

Table 8.12 Childhood sickness, fever and diarrhoea in the preceeding month by region

	North	South
Sickness		
No	52.7	51.3
Yes	47.3	48.7
Total	100.0	100.0
N	636	905
Fever 1 day or more		
No	62.9	65.6
Yes	37.1	34.4
Total	100.0	100.0
N	636	905
Diarrhoea over 1 day		
No	81.8	11.3
Yes	18.2	88.7
Total	100.0	100.0
N	636	905

Table 8.13 Childhood sickness by number of living children of mother

Sickness of children	Number of Living children <2	3-4	>4
North			
No	59.1	50.5	58.8
Yes	40.9	49.5	41.2
Total	100.0	100.0	100.0
N	518	105	17
South			
No	60.3	62.5	55.2
Yes	39.7	37.5	44.8
Total	100.0	100.0	100.0
N	473	293	143

Table 8.14 Childhood sickness by weight for age and number of living children of mother

Weight/Age Sickness	North				South			
	Number of live children				Number of live children			
	<2	3-4	>4	Total	<2	3-4	>4	Total
Normal								
No sickness	52.6	74.2	85.7	56.2	62.9	65.0	66.0	64.0
Sickness	47.4	25.8	14.3	43.8	37.1	35.0	34.0	36.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	213	31	7	251	197	123	47	367
First degree								
No sickness	53.2	24.1	50.0	47.8	57.6	72.3	62.5	63.5
Sickness	46.8	75.9	50.0	52..2	42.4	27.7	37.5	31.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	124	29	4	157	92	65	32	189
Second degree								
No sickness	47.4	0.0	0.0	45.0	60.0	50.0	25.0	50.0
Sickness	52.6	100.0	0.0	55.0	40.0	50.0	75.0	50.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	19	1	0	20	10	10	4	24
Third degree								
No sickness	66.7	0.0	0.0	50.0	100.0	0.0	0.0	100.0
Sickness	33.3	100.0	0.0	50.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3	1	0	4	1	0	0	1

CHAPTER 9

The Effects of Reduced Family Sige on Maternal and Child Health

9.1 Effeat on maternal health

9.2 Effect on child helth

CHAPTER 9
The Effect of Reduced Family Size on Maternal and Child Health

The effect of reduced family size on MCH is investigated here by multiple classification analysis (Table 9.1). Selected health indicators of women and children are compared between small families of less than three children and larger families in both the North and the South. The analysis is done adjusting for socio-economic status of women, their age and child age and selected health related factors (see chapter 9 footnotes). The test of significance is also made separately for the two regions.

9.1 Effect on maternal health

The effect of reduced family size on maternal health measured by the haematocrit level is found to be statistically significant at the .05 level for both regions, after controlling for age of mother and socio-economic status. Women with smaller families had higher haematocrit level than those who had larger families. However, health status as measured by parasitic infection, malnutrition (percent under-weight) and incidence of sickness in the previous month was not found to be any worse among women with larger families. As far as the pregnancy complications are concerned, the percent of last pregnancies with certain complications was found to be significantly lower among women with smaller families. In the North, women with small families tended to have a lower incidence of poor vision during their last pregnancy. In the South, complications related to blood pressure during pregnancy were also more prevalent among women of large families. Other complications including swollen ankles and fingers and fits were not found to be statistically related to family size in the analytical model. In addition, surprisingly, the percent having severe headache was higher among women of smaller family size in the South.

Thus the multivariate analysis of the effects of family size on maternal health revealed only a moderately strong and selective impact of small family size toward better health of the mother generally and during pregnancy. The findings are equivocal in the South which shows both significant by positive as well as negative impacts of parity on maternal health indices.

9.2 Effect on child health

Selected indicators of child health are compared between children under five who belonged to small and large families. Controlled for socio-economic status of mothers and age of children and selected environmental factors, the prevalence of parasitic infection, malnutrition and sickness among children of small and large families in the North and the South are investigated. In the South, parasitic infection including round worm and hook worm was significantly more prevalent among children of larger families. This relationship is however not found in the North. Selected indicators of child malnutrition were also significantly related to family size. In the North, malnutrition among children as measured by childhood height was at a very high level especially among large families. Malnutrition as measured by the arm circumference of children was also significantly more prevalent among children of large family size in the South. Other indicators of malnutrition as measured by weight and skinfold thickness, although at a high level, were not found to be related to family size. Lastly, sickness among children in the previous month before the survey was not significantly associated with family size.

Table 9.1 : Maternal health status by family size and region, unadjusted and adjusted for age of woman and socioeconomic and related health conditions

Maternal health	Small Family		Large Family	
	unadj	adj	unadj	adj
North				
Haematocrit[1]				
percent haematocrit	38.83	38.85**	38.11	38.08**
Parasitic infection[2]				
percent round worm	0.64	0.88	0.37	-0.07
percent hook worm	32.55	31.98	32.21	33.22
percent liver fluke	50.21	50.25	52.81	52.73
Malnutrition[3]				
percent under weight	11.62	15.7	17.61	11.91

(Cont)

(Table 9.1 Cont)

Maternal health	Small Family		Large Family	
	unadj	adj	unadj	adj
Blood pressure[4]				
percent systolic	14.9	16.7	20.2	17.0
percent diastolic	7.2	8.2	8.6	6.7
Sickness[5]				
percent sickness in previous month	27.69	26.92	25.47	26.82
Pregnancy complications[6]				
percent last pregnancy with complication				
percent swollen ankles &fingers	10.90	10.93	11.08	11.02
percent fits	1.05	0.97	0.81	0.97
percent blood pressure	2.23	1.85	1.89	2.67
percent severe headache	17.22	14.86	12.98	17.82
percent blurred vision	12.22	11.71***	18.11	19.17***
South				
Haematocrit[1]				
percent haematocrit	37.32	37.11**	36.24	36.43**
Parasitic infection[2]				
percent round worm	17.84	17.16	21.21	21.82
percent hook worm	10.86	11.46*	7.53	6.99*
percent liver fluke	a	a	a	a
Malnutrition[3]				
percent under weight	4.98	4.85	3.62	3.73
Blood pressure[4]				
percent systolic	10.2	12.9	16.8	14.4
percent diastolic	16.0	21.1	23.1	18.7
Sickness[5]				
percent sickness in previous month	30.53	32.54	28.97	27.18
Pregnancy complications[6]				
percent last pregnancy with complication				
percent swollen ankles & fingers	12.72	13.16	13.46	13.09
percent fits	1.18	1.28	1.83	1.75
percent blood pressure	1.96	1.74*	3.66	3.85*
percent severe headache	15.66	16.47*	12.96	12.27*
percent blurred vision	13.11	13.12***	13.96	13.95***

Significant
* 0.1
** 0.05
*** 0.01
**** 0.001
a No case having liver fluke in the South.

1 This model is adjusted for age and education of women,household SES level and parasitic infection. Excluded are a small number of cases with malaria infection. Total cases are 835 and 748 in the North and the South. The normal level of percent haematocrit is 33 percent.

2 This model is adjusted for age and education of women household SES level and sanitation index (including information on safe drinking water and possession of latrine in house). Excluded are a small number of cases with malaria infection. Total cases are 835 and 748 in the North and the South.

3 This model is adjusted for age and education of women, household SES level and parasitic infection of any kind. Excluded are a small number of cases with malaria infection. Total cases are 835 and 748 in the North and the South.

4 This model is adjusted for age and education of women household SES level and blood pressure (systolic and diastolic). Excluded are a small number of cases with malaria infection. Total cases are 835 and 748 in the North and the South

5 This model is adjusted for age and education of women and household SES level. Excluded are a small number of case with malaria infection. Total cases are 737 and 688 in the North and the South.

6 This model is adjusted for age and education of women and household SES level and parasitic infection of any kind. Total cases are 1131 and 1113 in the North and the South.

Table 9.2 : Child health status by family size and region, unadjusted and adjusted for age of child and socio-economic and related health conditions.

Child health	Small Family		Large Family	
	unadj	adj	unadj	adj
North				
Parasitic infection[1]				
percent round worm	0.19	0.19	0.82	0.81
percent hook worm	1.00	1.05	1.68	1.47
Malnutrition[2]				
percent 1st, 2nd and 3rd degree malnutrition measured by				
Weight	39.76	39.57	46.59	47.31
Height	65.66	66.08**	78.41	76.78**
Arm circumference	79.52	79.27	72.73	73.69
Skinfold	56.02	55.97	62.50	62.69
Sickness[3]				
percent of sickness in previous month	46.73	46.30	50.56	52.16
South				
Parasitic infection[1]				
percent round worm	12.16	13.26****	23.45	22.26****
percent hook worm	2.56	2.84**	5.97	5.67**
Malnutrition[2]				
percent 1st, 2nd and 3rd degree malnutrition measured by				
Weight	33.68	34.83	39.23	58.09
Height	52.99	55.52	61.81	59.30
Arm circumference	42.81	40.12*	43.75	46.41*
Skinfold	35.44	35.61	36.93	36.76
Sickness[3]				
percent of sickness in previous month	38.24	38.03	34.60	34.82

Significant * 0.1
** 0.05
*** 0.01
**** 0.001

1 This model is adjusted for age of children, education of women, household SES level and sanitation index (including information on safe drinking water and possession of latrine in house). Excluded are a small number of cases with malaria infection. Total cases are 640 and 909 in the North and the South.

2 This model is adjusted for age of children, education of women, household SES level and parasitic infection of any kind. Excluded are a small number of cases with malaria infection. total caes are 420 and 573 in the North and the South.

3 This model is adjusted the same way as Footnote 2. But total cases are 640 and 909 in the North and the South.

CHAPTER 10

Conclusion

CHAPTER 10
Conclusion

This study set out to explore the health impacts of parity on maternal and child health. Sample communities from Thailand's north and south regions were chosen to examine these relationships in low and high fertility environments (respectively). In summary, there is concrete evidence to show that a larger family tends to be associated with poor health of women and their children. Pregnancy outcomes including pregnancy wastage, infant and child mortality, were unfavorable for higher parity of pregnancy. This is true for both the North where fertility had been declining for decades but where mortality is still a problem, and the South where fertility had just begun its decline. Health advantages reflected in pregnancy outcomes from lowering fertility level are observed and seem to be greater in the North.

Some positive and direct effects of reduced family size on MCH were proven to be significant in both regions where fertility situations are quite different. Women of smaller families had better health as measured by haematocrit level and suffered less from certain pregnancy complications. Malnutrition among children of smaller family size was also less prevalent. In the South, children with fewer siblings were less likely to have an parasitic infection

However, other aspects of MCH, including malnutrition and parasitic infection among the women and the sickness in the family, were not found to be related to family size. These unfavorable health conditions were still very serious in these rural areas of the country among either small or large families. It is suggested that family planning programs in rural Thailand still need to be more thoroughly integrated into MCH programs. Family planning campaigns alone are not sufficient in bringing about the ultimate goal of good health of the rural Thai family. Success in contraceptive prevalence would be shallow without the concomitant improvements in maternal and child health.

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Appendix A
Questionnaire

Appendix A1

QUESTIONNAIRE FORM 1

COMMUNITY LEVEL BACKGROUND VARIABLES

(Village Profile)
The Effect of Reduced Family Size on the
Status of MCH in Thailand
1986

1. Number of households in this village _____

2. Total population of the village _____
   2.1 Percentage who are Muslims _____
   2.2 Percentage who are Buddhist _____

3. Distance to nearest hospital _____ kilometres
   00 = hospital in the village
   99 = hospital more than 98 kilometres from village centre

   3.1 Number of hospital beds _____
   99 = more than 98 beds

4. Distance to nearest health centre _____ kilometres
   00 = centre in middle of village
   99 = no health centre within one day's travel of the village

5. Distance to nearest midwifery centre _____ kilometres
   00 = centre in middle of village
   98 = upgraded to health centre status
   99 = no centre within one day's travel of the village

6. Private clinics in or near the village
   Number in village _____
   Number outside but near the village _____
   Distance to nearest village _____ kilometres

7. Drugstores in or near the village
   (the nearest is walking about 1 hour:)
   Type A Prescription drugstores or drugstores which have potentially dangerous drugs for sale.
   Type B Drugstores which sell packaged drugs with no dangerous drugs for sale.
   Type C Local village grocery stores which also sell drugs.
   Type D Village medicine cooperatives

8. Is there a primary school in the village ?
   1. Yes
   2. No

9. Is there a secondary school in the village ?
   1. Yes
   2. No

10. Does the village have electricity ?
   1. Yes, all or nearly all households have electricity
   2. Yes, about half of all households have electricity
   3. Yes, but only a few households have electricity
   4. No.

11. Where do people in the village get their drinking water from?

	all or nearly all people take their drinking water from this source	many or most people use this source	some use this source, no one or few people use this source
1. Open dug well			
2. Dug well with cover and handpump			
3. Drilled well			
4. Public piped water to households and/ or standpipes			
5. Pond			
6. River or klong			
7. Rain water			
8. Bottled water			
9. Other (specify ___)			

12. Where do people in the village usually get their water for domestic use (such as cooking and washing) from ?

	all or nearly all people take their drinking water from this source	many or most people use this source	some use this source, no one or few people use this source
1. Open dug well			
2. Dug well with cover and handpump			
3. Drilled well			
4. Public piped water to households and/ or standpipes			
5. Pond			
6. River or klong			
7. Rain water			
8. Bottled water			
9. Other (specify ___)			

13. Do people in the village normally use latrines ?
    1. Yes, all or nearly all people do
    2. Yes, about half of them do
    3. Yes, but only a few do
    4. No
    5. Other (specify _____)

14. How would you rate the availability of family planning services in the village ?
    1. readily availability
        1.1 Health volunteer/village medicine cooperatives
        1.2 Mobile unit (Government)
        1.3 Meechai volunteer
        1.4 Tambol paramedic

1.5 Health centre
reason _____
_____
_____

2. availability but inconvenient or difficult to obtain
reason _____
_____
_____

3. not availability in the village or within a convenient distance
nearest family planning centre _____
distance to the village _____ kilometres.

15. Interviewer's assessment of availability of family planning services
1. readily availability
1.1 Health volunteer/village medicine cooperatives
1.2 Mobile unit (Government)
1.3 Meechai volunteer
1.4 Tambol paramedic
1.5 Health centre
reason _____
_____
_____

2. Availability but inconvenient or difficult to obtain
reason _____
_____
_____

3. not availability in the village or within a convenient distance
nearest family planning centre _____
distance to the village _____ kilometres.

16. Interviewer's assessment of social class standing of the village as a whole (Using criteria given in Questionnaire for Eligible women)

1. L_1	=	Lowest
2. L_2	=	Middle low
3. M	=	Middle
4. H	=	High

Appendix A2

QUESTIONNAIRE FORM 2

Household Questionnaire
The Effect of Reduced Family Size on the
Status of MCH in Thailand
1986

Address _____ No. of Muu-Ban _____ Ban _____ Tambon _____
Amphoe _____ Changwat _____ Region _____
Respondent's name _____
Number of persons in this household _____
Total _____ male _____ female _____
Status in this household _____
Number of eligible women _____

No.	Name	Status in household	Sex	Date/ month/ year at birth	Age	Education	Occupation	Status of married
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								

Interviewer's name _____ Date of interview _____ month ____ year _____
Respondent's name _____ Date of interview _____ month ____ year _____
Start of time _____ ended of time _____ total _____ minutes
Supervisor's name _____ Date of work _____ month ____ year _____
Editor's name _____ Date of edit _____ month ____ year _____
No. of eligible women (MED*) _____ No. of children (MED*) _____
Name of eligible women
1. _____ Age _____
2. _____ Age _____
3. _____ Age _____
Name of children age 0 - 5 years
1. _____ Age _____
2. _____ Age _____
3. _____ Age _____
4. _____ Age _____

MED* = MEDICAL EXAMINATION

Appendix A3

ELIGIBLE WOMEN QUESTIONNAIRE (FORM 3.)

1. Age of eligible woman (in completed years) _____
   Date of Birth (year/month) _____/_____

2. Literacy and education of eligible woman
   1 = illiterate
   2 = literate, but no formal schooling or did not complete primary grades
   3 = completed primary but not secondary (or high school)
   4 = completed secondary school (high school graduate)
   5 = attended college but did not graduate
   6 = college graduate
   7 = other (specify) _____
   9 = unknown

3. Occupation of eligible woman
   1 = full time housewife
   2 = housewife who also works on family farm
   3 = housewife who also works in family non-farm enterprise
   (business or shop, for example) whether at home or away from home
   4 = primary occupation away from own home : agricultural worket
   5 = primary occupation away from own home : domestic service
   6 = primary occupation away from own home : skilled or unskilled industrial labour
   7 = primary occupation away from own home : professional, clerical, government
   8 = other (specify). _____

4. Literacy and education of husband of eligible woman Repeat list under 2.

5. Occupation of husband of eligible woman
   1 = farmer (own farm)
   2 = farmer (tenant)
   3 = farm laborer
   4 = skilled or unskilled non-farm worker
   5 = businessman, shopkeeper
   6 = professional, clerical, government worker
   7 = other (specify) _____

6. Age of (current) husband in completed years _____

7. What is your religion ?
   1 = moslem
   2 = buddhist
   3 = christian
   4 = other (specify) _____
   9 = none or refused to answer

8. What is your husband's religion ?
   1 = moslem
   2 = buddhist
   3 = christian
   4 = other (specify) _____
   9 = none or refused to answer

9. How many people, of all ages, usually/normally live in your household ?
   9.1 How many of these people are married women between the ages of 15 and 44 ?

10. For how long have you been married ?
    (PROBE AND FILL OUT TABLE)
    If Married more than once ask the same question
    for each marriage enter year and month of each marriage and each divorce/widowhood

Marriage	Beginning	Ending	Duration
1st			
2nd			
3rd			
4th			
5th			

record total years of marriage
code actual number and code oo for less than one year

11. Does your husband have or has he ever had another wife at the same time in addition to you ?

(if yes proble for number)

No	Code b.
Yes	
Don't known of refused Code 9	

if yes how many ?
1 - One other wife
2 - Two other wives
3 - Three other wives
4 - Four other wives
5 - Five or more other wives
9 - Not applicable

12. What is the appropriate (ideal) number of children for a family like your?
PROBE UNTIL YOU GET AN ANSWER
How many boy ? //
How many girls ? //
CODE 99 FOR NO ANSE.WER: 98 FOR DOES NOT MATTER:AND 97 FOR IT IS CODS WILL

13. How many months after (first) marriage did you miss your periods and get pregnant ?
BE SURE SOMETHING IS WEITTEN.
RECORD ACTUAL NUMBER OF MONTHS.
00 - Pregnant before marriage
01 - Pregnant immediately aftaer marriage
97 - 97 months and more
99 - Don't know

Coding instructions

(1) 1 = male
2 = female
3 = unknown

(2) 1 = yes
2 = No, died before first birthday
3 = no, died after reaching age 1

(3) Maternal age in completed years at the time pregnancy was terminated

(4) 1 = gestation period of normal length
2 = short gestation; premature
3 = cannot remember, unknown

(5) 1 = livebirth
2 = stillbirth
3 = spontaneous abortion
4 = induced abortion
5 = abortion, unspecified

(6) 1 = hospital, medical attendance
2 = hospital, paramedical
3 = home, medical
4 = home, paramedical
5 = home, nonmedical
6 = home, alone

(7) Code for each line:
1 = yes
2 = no
3 = don't
4 = no response

(8) 1 = condom
2 = vaginal methods
3 = oral pill
4 = IUD
5 = injectables
6 = sterilization
7 = abortion
8 = other (specify _____)
9 = No answer, doesn't remember or not applicable

(9) 98 = 98 months or more
99 = doesn't remember, no answer, or not applicable

14. Now I would like to take down some details about, each of your pregnancies, Let us begin with your first pregnancy.

Pregnancy history - include all live births whether or not the children are still living, since first pregnancy of eligible woman.

15. Have you ever been pregnant ?
1 = yes, and gave birth to live child
2 = yes, but never gave birth to live child
3 = no
15.1 If answer 1 above, what is the total number of live-born children you have had (applying WHO definition of live birth) ?
15.1.1 How many were males ?
15.1.2 How many were females ?
15.2 Of the ____ live born children you have had, how many are still living ?
15.2.1 How many males ?
15.2.2 How many females ?
In other words, _____ of your sons and ____ of your daughters died, is that correct ?

16. Have you ever had an abortion (under 7 months of gestation) or a stillbirth (over 7 month 5 of gertation) ?
1 = yes
2 = no
16.1 If yes, give the number of each:
16.1.1 Spontaneous abortions
16.1.2 Induced abortions
16.1.3 Stillbirths

17. Are you pregnant now ?
1 = yes
2 = no
3 = don't know, not sure
17.1 Age you still having your regular monthly period ?
1 = yes
2 = no, currently pregnant

3 = no, suspected pregnancy
4 = recent birth or abortion
5 = menopause
6 = amenorrhoea for other reasons
7 = suspected seondary infertility
(if answer to 18.2 exceeds 2 years)
9 = don't know

17.2 What was the date of your last mentrual period ?
(Enter month and year. If the woman has not menstruated since last pregnancy before this one, use code 8888; if date of last period is unknown code 9999 and explain below. If a menstrual date prior to the last previous pregnancy can be obtained, write it in the space below.) Period before last pregnancy _____ (month/year) Reason why no date can be determined _____

17.3 How many months has it been (without getting pregnant) since your last pregnancy termination ?
IF R. IS CURRENTLY PREGNANT, ASK: How many months between last termination and the time you first realized you were Pregnant ?
RECORD ACTUAL NUMBER OF MONTHS: CODE 999 FOR DON'T REMEMBER

17.4 If currently pregnant, how many months have you been pregnant ? (Use 99 for not applicable)

18. Now I would like to ask you some questions about your last pregnancy.
(not counting current pregnancy,if the woman is pregnant now)

18.1 During your last pregnancy did you attend any health center for pre-natal care ?
INTERVIEWER MAY EXPLAIN: "attend a health centre before the baby was born?"
1. Yes
2. No

18.2 Did you seck advice from other sources ?
1. Yes
2. No (skip to Q 19)

18.3 Whom did you consult ? (can give more than/answer)
1. The doctor in the Government hospital or private clinic
2. Non-medical personnel
(eg. indigenous doctor, traditional birth atendant)
3. Paramedical personnel
(Auxilary nurse, nurse-midwife, Midwife)
4. Medical personnel outside clinic or hospital
5. Combination including medical personnel
6. Combination excluding medical personnel
7. Husband/The husband's parents own parents/neighbour
8. No, didn't seek advice from other sources
9. Don't remember

19. I will read you a list of conditions which some women many experience during pregnancy. Will you please tell me whether or not you developed any of these conditions during your last regnancy or within one month of your last delivery or miscarriage.

Symptoms	Yes	No	Don't know
Swollen ankles and fingers			
Convulsions (fits) PROBE			
High blood pressure cin case she is told so by physician			
Severe headache			
Poor vision			

Code:
1. Severe headache
2. Combination of any two of the first three symptoms, or all three
3. Convulsions (fits) alone
4. High blood pressure alone
5. Poor vision
6. Severe headache, poor vision

7. Others, (specify .....)
8. None (skip to Q 21)
9. Don't know

20. Whom did you consult for treatment of this symptom (or condition) ?
    1. Hospital or medical personnel
    2. Paramedical personnel
    3. Non-medical personnel (including TBAS, traditional village healers, etc.)
    4. Combination including medical personnel
    5. Combination excluding medical personnel
    6. Did not consult anybody
    8. Not applicable
    9. Don't remember

21. Did any of the pregnancies make your health worse
    1. Yes (RECORD VERBATIM AND CODE EARLIEST PREGNANCY)
    2. No (skip to Q 22)
    8. Never pregnant (skip to Q 23)

    21.1 If yes, after which pregnancy
        1. First
        2. Second
        3. Third
        4. Fourth
        5. Fifth
        6. Sixth
        7. Seventh and after
        8. Not applicable
        9. Don't know

22. Did you breast-feed your last child ?

    1. Yes, but no longer breast-feeding
    2. Yes, still breast-feeding(Skip to Q 23)
    3. No (Skip to Q 22)

    22.1 How many months did you breast-feed your last child ? _____ Months (Skip to Q

    23)

        RECORD ACTUAL NUMBER OF MONTHS

        88 Less than one month
        97 Still breast-feeding
        98 Never
        99 Don't remember now many months.

    22.2 Why did you not breast-feed your last child.

        01 for health reasons
        02 for working mother
        03 for separation mother and child
        04 child death
        05 insufficient milk
        06 still breast-feeding
        07 Don't remember
        08 Child refused
        09 Mother refused.

23. Do you think that breast-feeding could keep a woman from becoming pregnant ?

    1. Yes
    2. No
    3. Don't know

24. Do you feel that your last pregnancy come sooner than you wanted ?

1. Yes
2. No
3. No Answer
4. Didn't want to become pregnant
5. Never pregnant

25. Have you ever though about doing something to plan your family, that is, to keep from getting pregnant ?

00 = yes, before marriage or before first pregnancy
01 = yes, after first pregnancy
02 = yes, after second pregnancy
03, etc., coding the birth order at which she though of it.
22 = woman has never been pregnant
88 = no, never considered family planning
99 = don't remember

25.1 Have you or your husband ever used or are currently using Family Planning ?

1. ever used
2. currently using
3. never used (skip to Q 26)

25.2 FOR THOSE REPORTING USE OF FAMILY PLANNING METHOD

Would you say that your primary objective for using a birth control method was to space or to limit pregnancies ?

1 - Neither
2 - Primarily to space pregnancies
3 - At first to space then to limit
4 - Primarily to limit pregnancies
5 - Hadn't though about it
9 - Don't know

26. I would like to read you a list of methods which can be used to limit or plan your pregnancies.

(a) Have you ever heard of or used, or are you currently using, any of the following methods ?
(b) If you stopped using a birth control method, why did you stop ?
(c) How long (in months) did the couple use the method ?

QUESTION	a) Have you ever heard of or used or are you currently using any of the following methods ?	b) If you stopped using a birth control method why did you stop ?	c) How long did you use this method ?
CODING INSTRUCTION	**CODE:** 1-Never heard of 2-Heard of & used 3-Heard of & using 4-Heard of & never 5-No answer	**CODE:** 0-Wanted more children 1-Complicated to use 2-Found a better method 3-Husband did not like it 4-Husband went away 5-Heard it would be dangerous 6-Does not apply 7-Not effective, became pregnant 8-Menopause 9-Cannot afford	**Record** months of use

Method	IBM Col		IBM Col		IBM Col	
Condom						
Withdrawal (coitus Interruptus)						
Rhythm (safe period)						
Vaginal methods : Diaphragm,cream & jelly, foam talets						
IUD						
Oral pills						
Tubectomy (women's tubes tied off)						
Vasectomy						
Abortion						
Injectables						
Norplant						
Other (specify)						

27. I am now going to read you a list of possible reasons why a woman might went to have a pregnancy interrupted (have an abortion). Would you give me your option as to whether or not it would be all right for a women to do this ?

IEM COL. No.	REASONS FOR HAVING AN ABORTION	1 all Right	2 Not all Right	9 Don't know	3 Nothing justifies abortion
	If pregnancy seriously endengers the woman's health				
	If the couple could not affors another child				
	If the couple did not want any more children				
	If the couple had good reason to think the baby would be deformed, or that something else would be wrong with the baby				
	If the couple had been using birth control, and the pregnancy had occurred in spite of it.				
	If woman is not married				
Other (specify)					

28. Where do you (or your husband) go, or where did you (or your husband) obtain your most recent method of contraception ?

Condoms _____
Vaginal methods _____
Coil or IUD _____
Oral pills _____
Tubectomy _____
Vasectomy _____
Abortion _____
Injectable _____
Nor plant _____

Codes:

01 = Tambon Health Center
02 = District Health Center
03 = Hospital
04 = Private Clinic
05 = Drugstore
06 = Government Health volunteer
07 = Mechai Volunteer
08 = Local Practitioner
09 = Mobile Unit (government)
10 = MCH Center
11 = Mechai Office
12 = Other (specify)
99 = Don't know/not sure

29. Now I would like to ask you if you have had any side effects associated with the use of contraceptives. (Repeat the list of contraceptives as a doble check that they have or have not been used, referring back to question 37 to assure consistency, but only complete those sections of the table below which are applicable. Check the not applicable (NA) colum for all others.)

Method, possible side-effect and reasons for not using or disliking	No side effects	Yes, but continues method	Yes, dis-continued method	Don't know	Not applicable or no response
29.1 Condom:					
Unpleasant					
Husband doesn't like					
Itching					
Other (specify)					

Method, possible side-effect and reasons for not using or disliking	No side effects	Yes, but continues method	Yes, dis-continued method	Don't know	Not applicable or no response
29.2 Vaginal methods:					
Too much bother					
Itching					
Other					
(specify)					
29.3 Oral pills:					
Headaches					
Bleeding problems					
Weight gain or loss					
Blood pressure					
Vascular disease					
Face pigmentation					
Other					
(specify)					
29.4 Injectables:					
Headaches					
Bleeding problems					
Weight gain or loss					
Blood pressure					
Vascular disease					
Face pigmentation					
Other					
(specify)					
29.5 IUD:					
Back pains					
Bleeding problems					
Expulsion					
Other					
(specify)					
29.6 Tubectomy:					
Loss of strength					
Weight gain					
Regret operation/want more children					
Other					
(specify)					
29.7 Vasectomy:					
Loss of libido					
Loss of physical power					
Local pain or infection					
Other					
(specify)					

Method, possible side-effect and reasons for not using or disliking	No side effects	Yes, but continues method	Yes, dis-continued method	Don't know	Not applicable or no response
29.8 Abortion:					
Bleeding problems					
Infection					
Pain					
Guilt feelings, social disapproval					
Other (specify)					

30. How for to you have to go to obtain supplies of the contraceptive you are currently using ? Record distance in time between home and supplier.

30.1 Is this a convenient distance ?
1 = yes
2 = no

30.2 Are you satisfied with the services of the suppliers ?
1 = yes, and contraceptive supplies always available
2 = yes, but supplies not always available
3 = no, (explain)

30.3 Is this supplier the one from whom you originally obtained the method you are currently using ?
1 = yes
2 = no

30.4 If the last answer was no, how long had you been using your present method before swithching to the current supplier ?
Record in months; proble for accuracy.

30.5 How long have you been obtaining supplies from the present clinic or centre ?

30.6 Did the original provider of your current method explain possible side effects ?
1 = yes
2 = no
3 = connot remember

30.7 Do the people who provide your contraceptives ask you if you have experienced any side effects ?
1 = yes, every visit
2 = yes, occasionally
3 = no
4 = cannot remember

30.8 If you complain of possible side effects, what do the clinic or other staff do ?
1 = nothing
2 = tell me to ignore problems and they will go away
3 = conduct a physical examination
4 = tell me to stop using the method for a while
5 = tell me to switch methods
6 = other (specify) _____

30.9 In general, do you feel thay your physical health has been better, worse or about the same since you have been using your current contraceptive method ?
1 = better
2 = worse

3 = about the same
4 = don't know
5 = no response

31. Now I would like to ask you some Questions about your feminine health (gynaecological questions). If PREGNANT. INQUIRE ABOUT HER FEMININE HEALTH BEFORE THIS PREGNANCY.

code for 31.1-31.7	1 yes	8 no	5 Don't know

31.1 During the last three months has your period been irregular ? ☐
31.2 During the last three months, have you had any excessive bleeding ? ☐
31.3 Was there bleeding in between periods during the last three months ? ☐
31.4 Do you usually have any pain before, during or after your period ? ☐
31.5 Have you noticed any discharge during the last three months ? ☐
31.6 Did you have any itching around the genitalia during the last three months ? ☐
31.7 Have you noticed any (prolapse) mass coming through vagina ? ☐
31.8 During the last three months, did you have any of the following: ☐

Difficulty controoling urination Yes ☐ No ☐
Pain during urination Yes ☐ No ☐
Increased lrequency of urination Yes ☐ No ☐

Code : 1 - NONE
2 - DIFFICULTY IN CONTROLLING URINATION
3 - PAIN DURING URINATION
4 - INCREASED FREQUENCY OF URINATION
5 - COMBINATION

31.9 How many gynaecological surgical operations other than tubectomy have you had ? RECORD ACTUAL NUMBER ☐

32. How many children do you want ? (For women who already have children, this is the total number they want, including those they have had. Probe until you get an answer.) Record the numbers wanted or use alternative codes below.
32.1 Boys _____ Alternative codes: 97 = God's will
98 = Does not matter
32.2 Girls ____ 99 = No answer

Household characteristics

33. Please tell me about the construction of your house, amenities and possessions:

33.1 House: Floor 1 earth
2 other (specify)
walls 1 mud
2 brick, stone, etc.
3 combination
4 other (specify)
roof 1 thatch

2 metal
3 tile
4 other (specify)

33.2 How many separate rooms do you have in your house, not counting kitchen, bath and toilet ?

_____(a)

How many people normally sleep in your house each night ?

_____ (b)

Calculate number of people per room: a/b= _____

33.3 Amenities: running water Code 1 = yes
latrine 2 = no
toilet in house
gas piped to house
(or bottled)
electricity

33.4 Possessions: electrical appliances Code 1 = yes
(List them) 2 = no
machinery (list them)
livestock (list them)

34. If household does not have running water, what is the source of drinking water ?
1. Open dug well
2. Dug well with cover and handpump
3. Drilled will
4. Piped water
5. Pond
6. River or klong
7. Rainwater
8. Bottled water
9. Other (specify) _____

35. What is the usual source of water for domestic used such as washing and cooking ?
Same list as for 47 except for 8, bottled water.

36. Now I would like to ask you some questions about your social conditions. This is a research project not connected with the government or anybody else other than our institute. Your answers will be kept confidential. Will you please tell me.

1) Whether you cultivate land owned by you or rented from others and if so. What is the income from these lends.
2) Who are the earning members in the household who earn wages or salaries and what is the monthly income of each ?

SOURCE OF INCOME	INCOME	
	MONTHLY	ANNUAL
1. Annual income from cultivation of land owned by him or rented from others properties such as building, etc.		
2. Income from salaries, veages, etc., of earning members. Earning members 1. 2. 3. 4.		
TOTAL ANNUAL INCOME		

FOR CODING PURPOSES ONLY	
INCOME	1. LOW 2. MIDDLE 3. HIGH

37. **PROCEDURES FOR DETERMINING SOCIAL SCORE**

TO DETERMINE SOCIAL SCORE FOR EACH ELIGIBLE WOMEN CIRCIE ONE LETTER IN THE APPROPRIATE COLUMN FOR EDUCATION INCOME AND HOUSING. ADD UP THE TOTAL NUMBER OF CIRCIES UNDER EACH COLUMN OF H, M AND L OR THOSE WHO GET 3 OR MORE H CLASSIFY AS HIGH. THOSE WHO GET 3 OR MORE L, CLASSIFY AS LOW. ALL OTHERS TO BE CLASIFIES AS MIDDLE

SOCIAL SCORE CRITERIA	HIGH	MIDDLE	LOW
EDUCATION OF HEAD HOUSEHOLD (Household Composition Chart)			
Illiterate Literate with no schooling..			L
Primary Secondary		M	
College Graduate	H		
OCCUPATION OF HEAD HOUSEHOLD (Household Composition Chart)			
Unskilled Labour (Agriculture Others) Land or Business Owners-Small			L
Skilled Workers Clerican Workers Teacher Nurse/Land or Business Owners-Medium...		M	
Physician Lawyer Manager Banker Land or Business Owner-Large	H		
INCOME (P.23)			
Low			L
Middle		M	
High	H		
HOUSING (P.23)			
More than 4 persons per room			L
2 to 4 persons per room		M	
Less than 2 persons per room	H		
TOTAL NUMBER			

SOCIAL CLASS 1. Low
2. Middle
3. High

Appendix A4

QUESTIONNAIRE FORM 4

The Effects of Reduce Family Size
on the Status of MCH in Thailand

Institute for Population and Social Research
Mahidol University

ID
☐☐ ☐☐☐☐☐☐☐

Name of eligible women (Age 15-44)
1. ..... Age ....

Name of the children Age 0-5 years
1. ..... Age .....
2. ..... Age .....
3. ..... Age .....
4. ..... Age .....

MEDICAL EXAMINATION FORM

Identification number ☐☐ ☐☐☐☐☐

Name of examiner .....

Date of examination .....

Remark .....

1. Age of women in completed years .....
2. Children :
   2.1 Number of children ever born (alive) .....
   2.2 Number of children now living .....
   2.3 Number of children 0-5 years of age .....
3. Please provide the following information for the woman and each of her children

0 - 5 years of age :

Name of Mother and her living children 0-5 years	Morbidity experience during the past month (30 days)					Medical examination						STOOL TEST
	Pregnancy order	sickness days	fever over 1 day	Diarrhoea over 1 day	Medical Attention past month	HAEMATOCRIT %	WEIGHT in Kilo-grams	HIGHT in C.M.	SKINFOLD (CM)	ARM Cir Cum fer-ence (CM)	Nutri-tion grade	
1. Mother 2. Children 3. ..... 4. ..... 5.												

4. Supplementary examination of mother :
   4.1 Blood Pressure :
   Systolic (90-200,999 = no examination)
   Diastolic (50-100,999 = no examination)
   4.2 Gynaecological Diagnosis Experiences in the hospital or clinic during the past eight years.
   1. Yes .....
   2. None .....
   4.3 Gynaecological Exam
   1. Exam not done
   2. Exam done

4.4 Breast Exam
1. Breast exam not done
2. Breast exam done

4.5 Papanicolou Smear Test:
1. Pap. test not done
2. Pap. test done - negative
3. Pap. test done - suspicious
4. Pap. test done - malignant

5. Gynaecological Findings
(use the coding in the International Classification of diseases 8th edition)
Maximum of the conditions per woman, listed as follows.
If no condition, leave blank.
1. First Condition _____
2. Second Condition _____
3. Third Condition _____
4. Fourth Condition _____
5. Fifth Condition _____

Appendix B

Appendix B

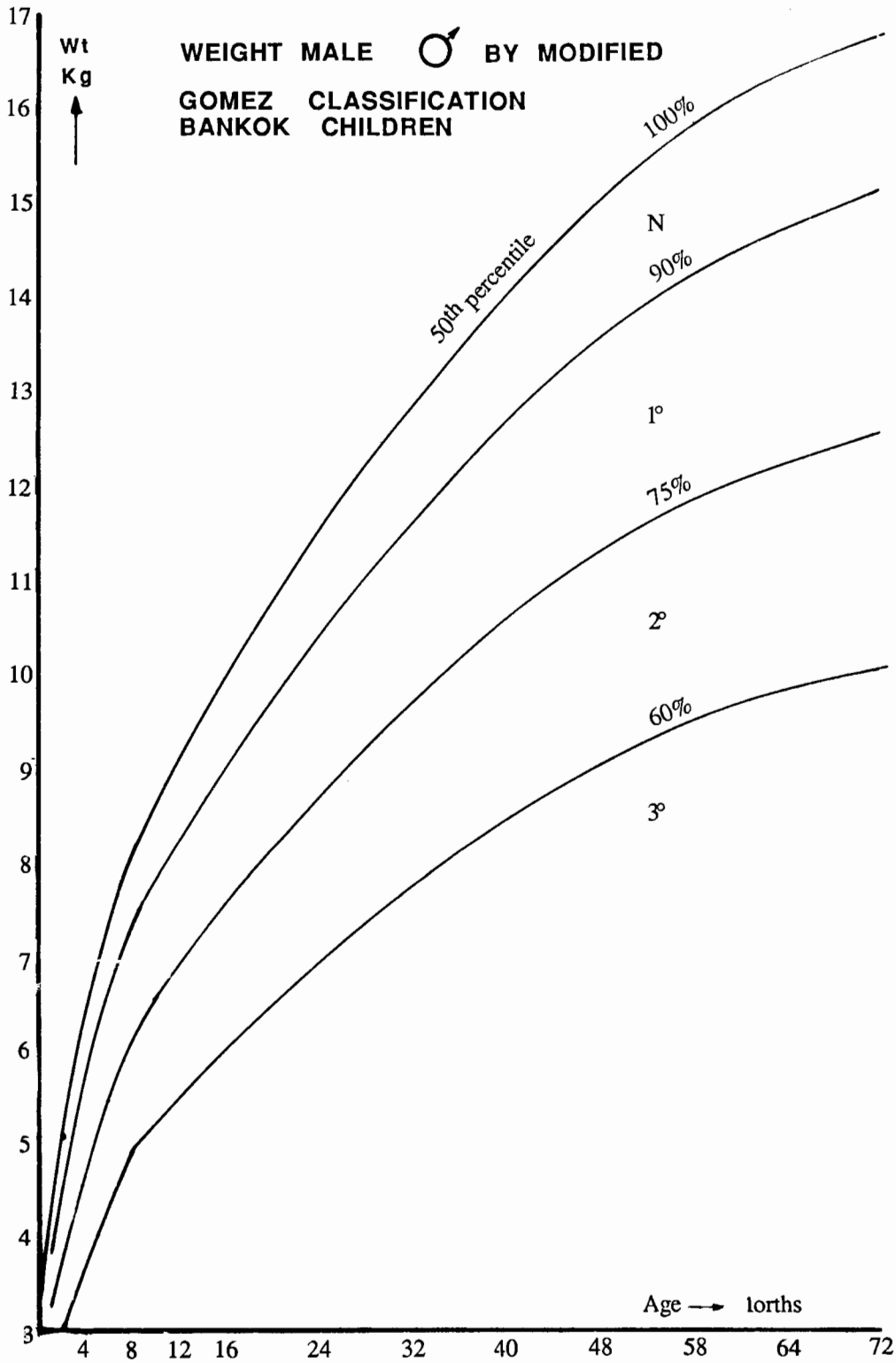
List of Villages under study and Number of Case Interviewed and Cases with Physical Examination

Region	Changwat	Amphoe	Tambol	Village's name	No.of village	Number of cases Inter-viewed	Number of cases with Physical Examination	
							mother	child
Norht	Nan	Sa	Tanchum	Tud	2	69	-	-
				Pasak	3	94	-	-
				Labmuntai	5	54	-	-
				Nakuen	6	105	-	-
				Pangsa	10	44	-	-
	Chiengrai	Thoeng	Ngew	Saktai	3	250	236	119
				Khonsung	4	73	72	40
				Paphai	6	100	96	38
				Ngewkao	7	134	130	76
				Tumnuoe	8	205	196	114
				Ngewpattana	13	128	121	52
South	Phang Nga	Takua Thung	Law yung	Law Yung	1	138	-	-
				Bangpa	2	54	-	-
				Thonglang	4	78	-	-
				Leamhin	6	56	-	-
				Naiyong	8	51	-	-
	Songkhla	Sadao	Phangla	Teenna	8	42	41	37
				Wangpring	9	133	127	73
			Tha-pho	Songpeenong	1	77	73	58
				Thapho oak	2	61	59	36
				Thapho tog	3	103	103	81
				Kogneum oak	4	34	32	24
				Kogneum tog	5	53	51	42
				Nakog	6	44	41	42
				Khoawangching	7	107	96	73
			Thung mho	Klongsai	2	31	29	26
				Tonko	3	17	15	11
				Klongrum	4	114	104	77

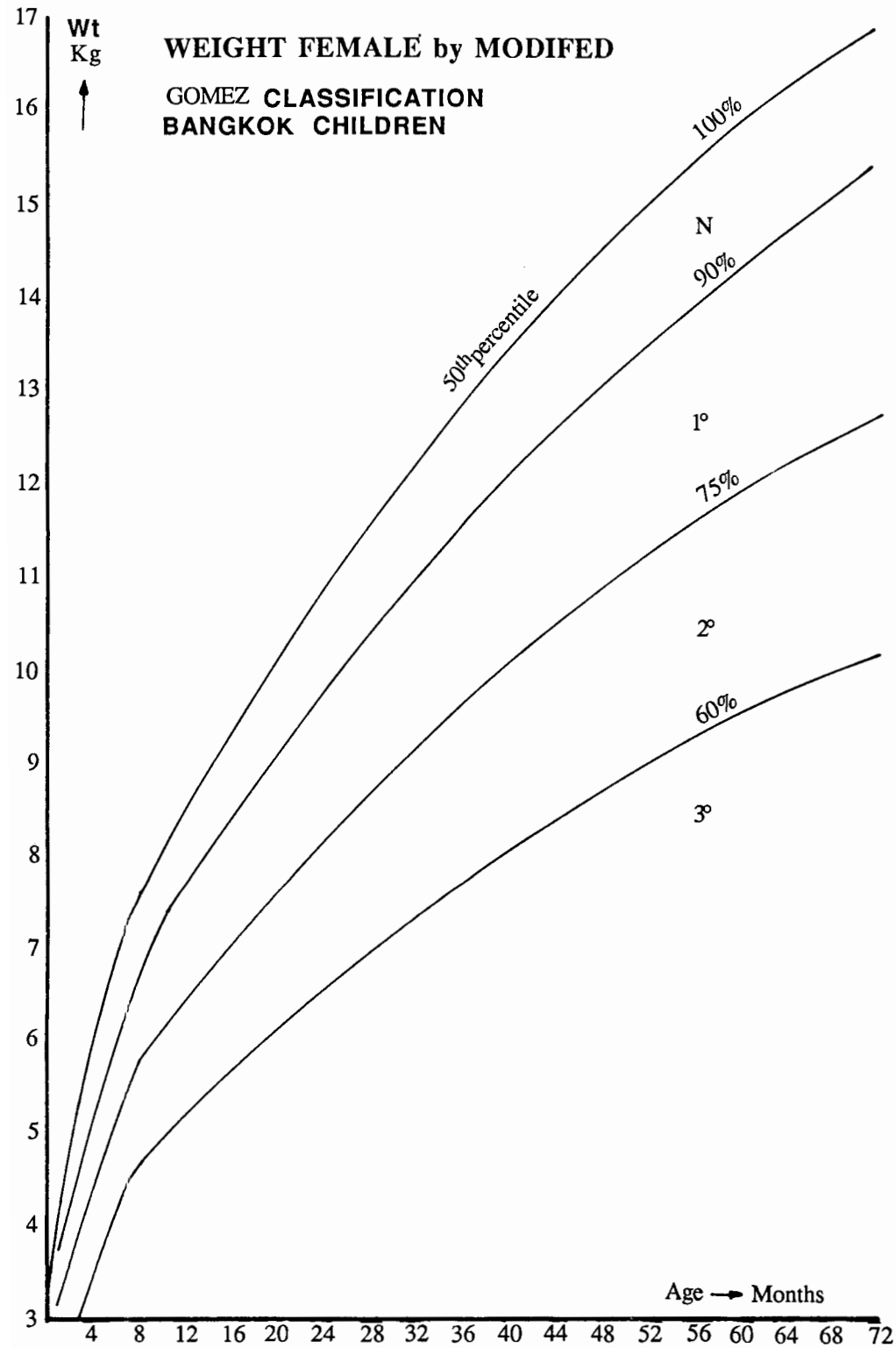
Appendix C

Standard Growth Chart of Thailand Used in this Study

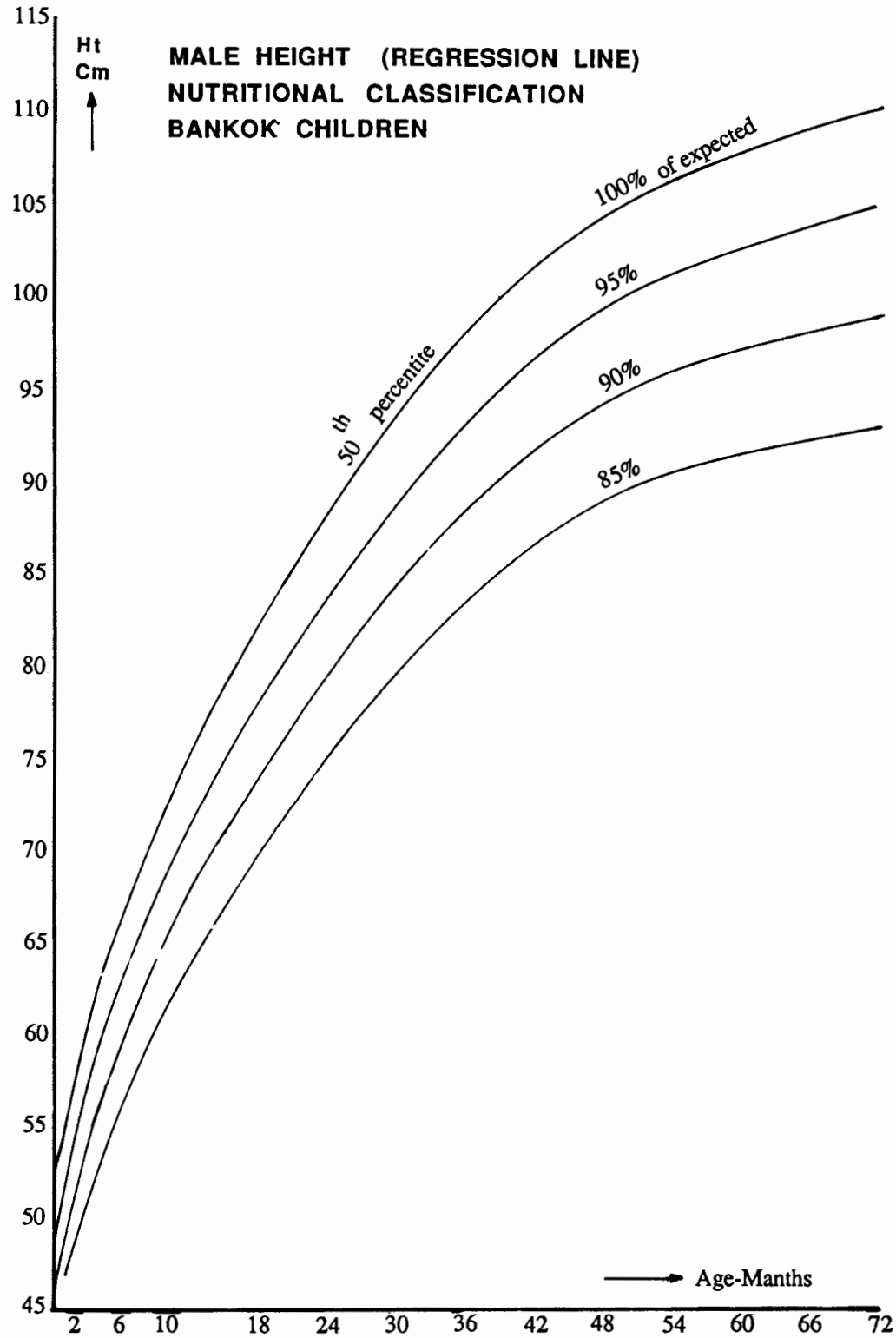
Graph I Thai standard growth chart :
Weight/Age of boys age 0-6 years



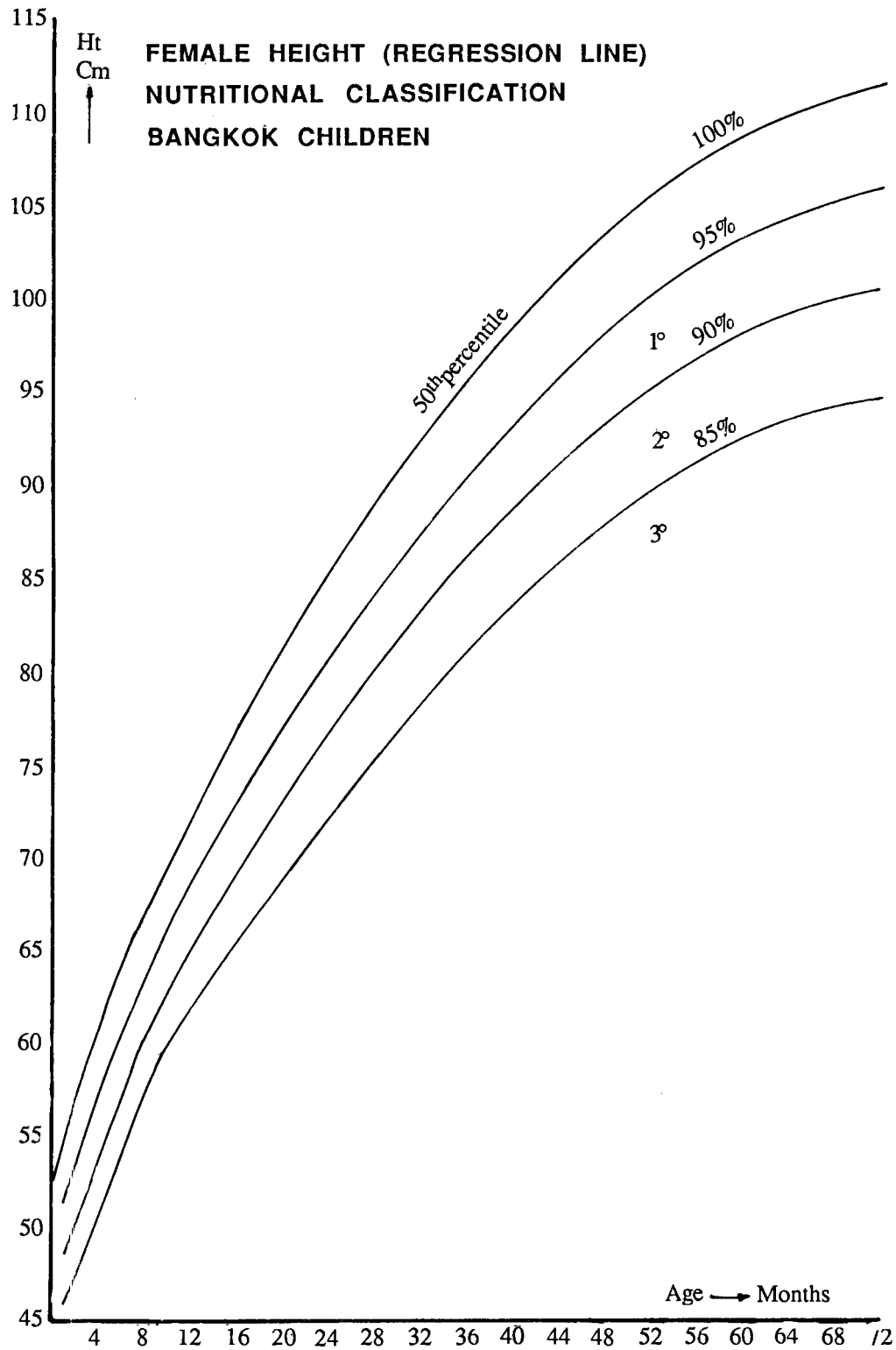
Graph II Thai Standard growth chart :
Weight/Age of girls 0-6 years



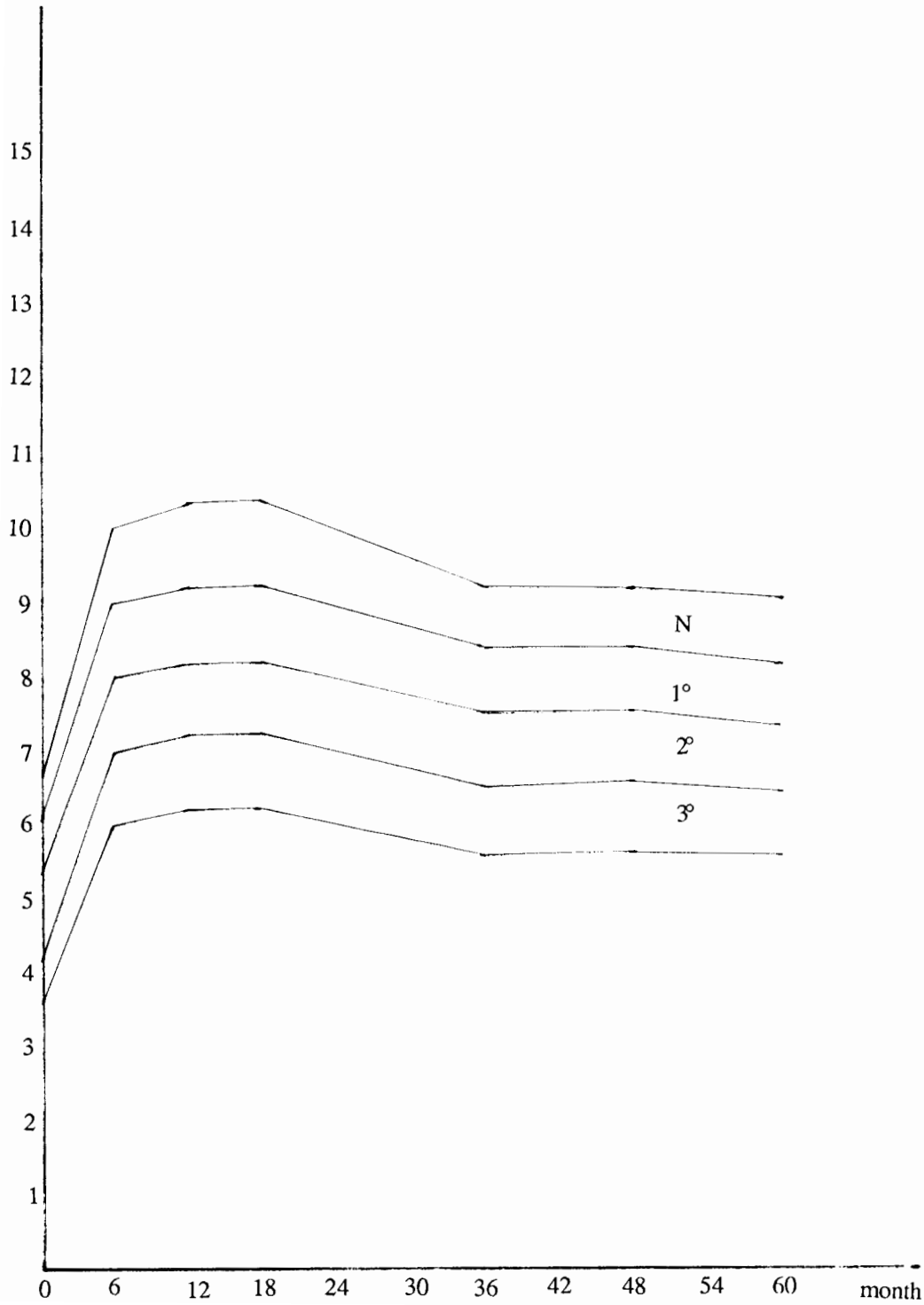
Graph III Thai Standard growth chart :
Height/Age of boys 0-6 years



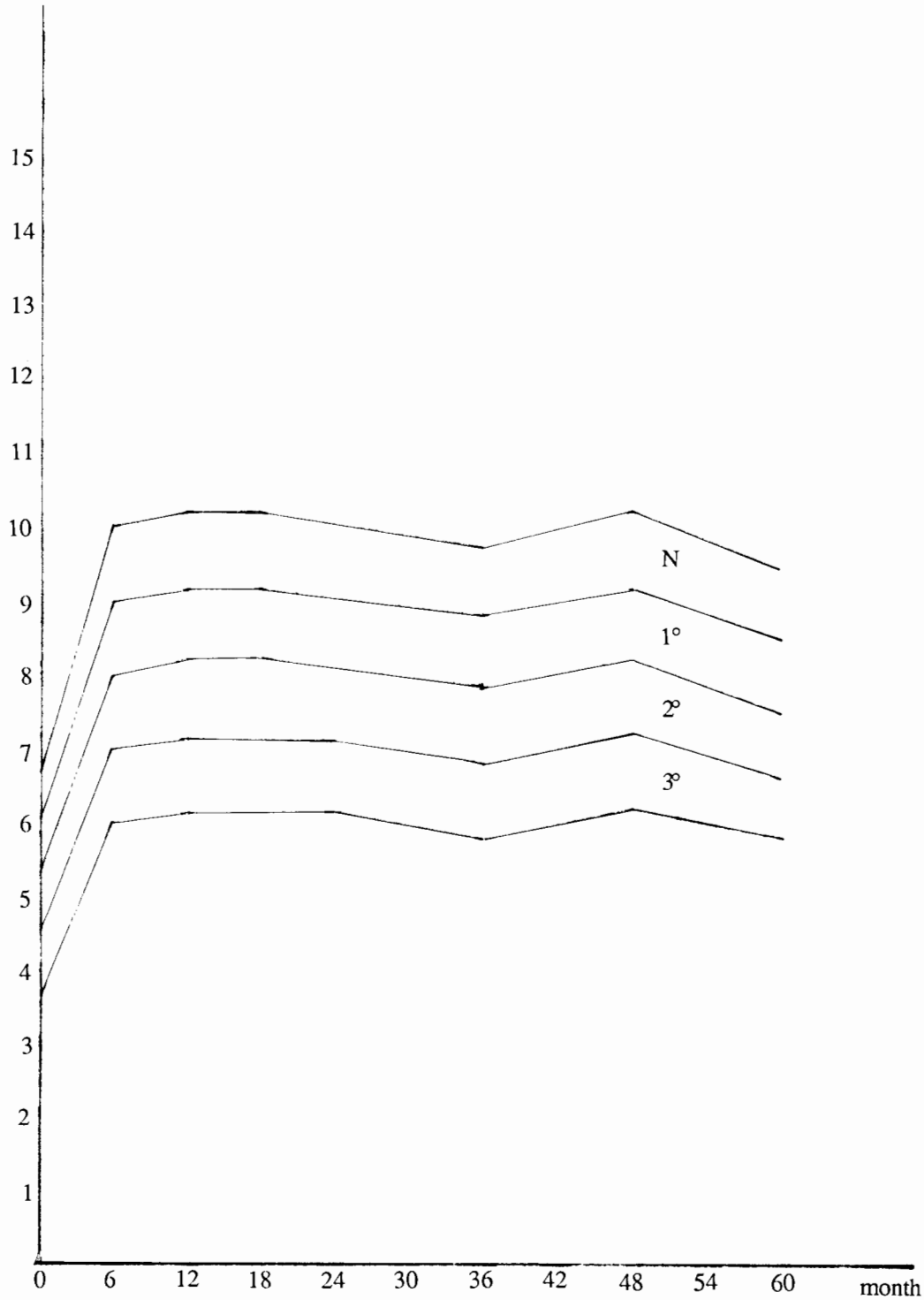
Graph IV Thai Standard growth chart :
Height/Age of girls 0-6 years



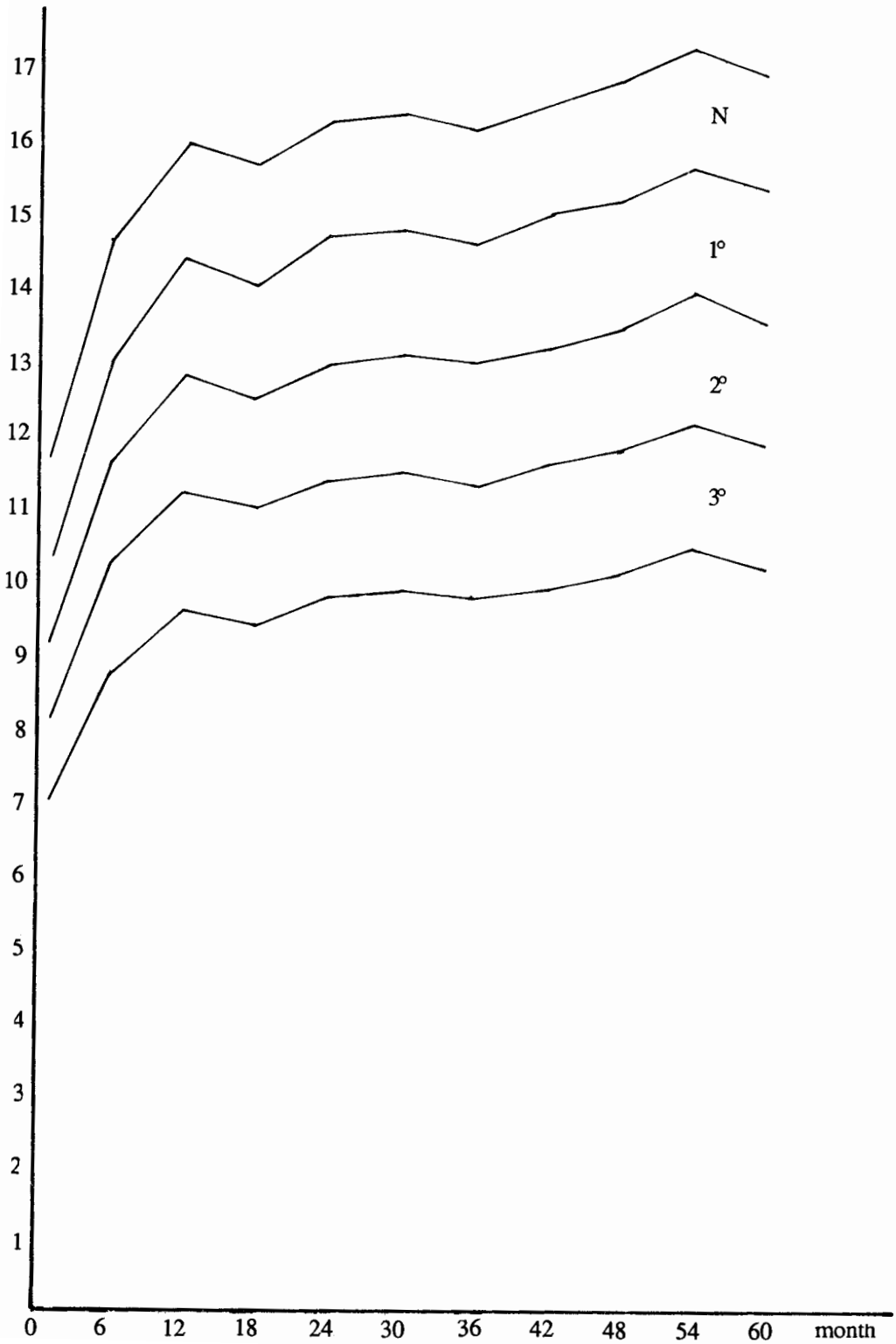
Graph V Standard Triceps skin fold of girls age 0-5 years



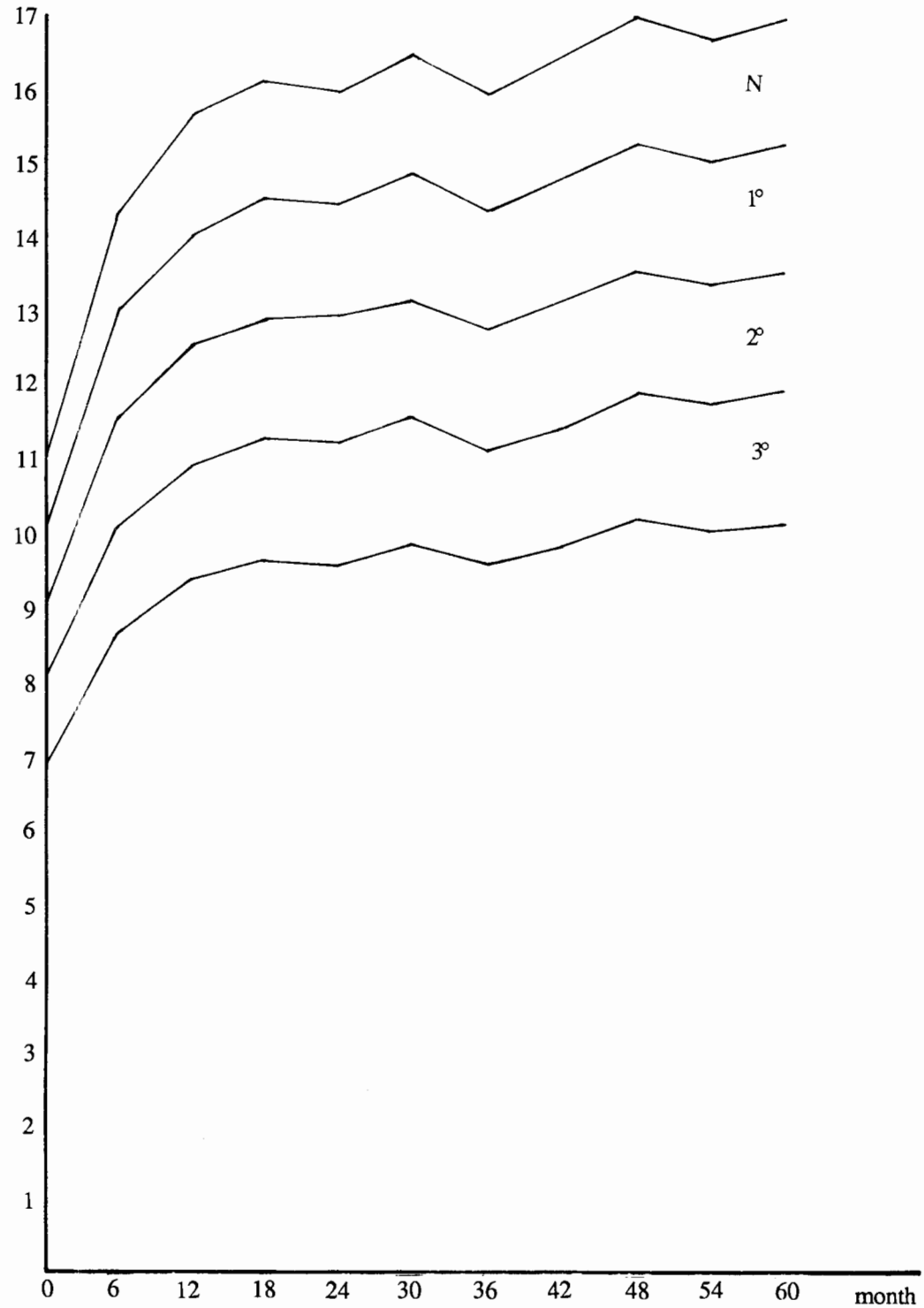
Graph VI Standard Triceps skin fold of boys age 0-5 years



Graph VII Standard Arm Circumference of boys age 0-5 years



Graph VIII Standard Arm Circumference of girls age 0-5 years



Appendix D

Number Diagnosed of Parasitic Infection

The result of mother's Parasite Screening : Tambol Ngew, Amphoe Thoeng, Changwat Chiengrai
May1985, January1986

Village's name	Village No.	Mother Total samples	Mother no. actual exam.	(OV)	(HW)	(Tsp)	(Tt)	(Ev)	(OV+HW)	(OV+Tsp)	(HW+Tsp)	(OV+T+)	(OV+Ev)	(OV+HW+ Tsp)	positive cases	Neg.	no.# treated
Saktai	3	250	236	104	4	-	-	-	9	-	3	-	-	-	120	116	120
Khonsung	4	73	72	19	19	-	-	-	22	1	-	-	-	3	64	8	64
Paphai	6	100	96	31	21	-	-	-	6	-	1	1	-	1	61	35	61
Ngewkoa	7	134	130	27	26	1	-	-	20	-	1	-	-	-	75	55	75
Tumnuoe	8	205	196	61	34	1	1	-	48	-	2	1	-	2	150	46	150
Ngewpattana	13	128	121	36	15	-	1	-	38	1	1	-	-	-	92	29	92
Total	6	890	851	278	119	2	2	-	143	2	8	2	-	6	562	289	562

The result of Parasite Screening for children 0-5 years : Tambol Ngew, Amphoe Thoeng, Changwat Chiengrai
May 1985, January 1986

Village's name	Village No.	Children 0-5 years Total samples	Children 0-5 years no. actual exam.	(OV)	(HW)	(Tsp)	(Tt)	(Ev)	(OV+HW)	(OV+Tsp)	(HW+Tsp)	(OV+Tt)	(OV+Ev)	(OV+HW+ Tsp)	positive cases	Neg.	no.# treated
Saktai	3	125	119	-	-	-	-	1	-	-	-	-	-	-	1	118	1
Khonsung	4	40	40	1	4	-	-	-	-	-	-	-	-	-	5	35	5
Paphai	6	40	38	-	-	-	-	-	-	-	-	-	1	-	1	37	1
Ngewkoa	7	78	76	-	-	-	-	-	-	-	-	-	-	-	-	76	-
Tumnuoe	8	122	114	-	4	-	-	1	-	-	-	-	-	-	5	109	5
Ngewpattana	13	57	52	1	-	-	-	-	-	-	-	-	-	-	1	51	1
Total	6	462	439	2	8	-	-	2	-	-	-	-	1	-	13	426	13

Remark : **Treatment** : - Hook worm (HW), Trichinella spiralis (Tsp), Threadworm (T+) and Enterobius vermicularis (Ev) : PDA staff administered anti-parasite treatment
- Opisthorchis Viverrini ()V): Thoeng district hospital, Chieng Rai province administered anti-parasite treatment

Parasitic infection among eligible women who received health examinations : Amphoe Sadao, Changwat Songkhla

Tambol	Village's name	Village No.	Eligible Women													Infected	Not Infected	Not Screened	Moved away	Refused Screening	Total Women
			Hw	Tt	Rw	Ev	S	Tsp	Tt+Rw	Tsp+ Rw	Hw+Rw	Hw+Ev	Ev+Rw	Tt+Hw +Rw	Ev+Rw +S						
Pangla	Teenna**	8	1	-	8	-	-	-	1	-	-	-	-	-	-	10	31	-	1	-	4
	Wangpring**	9	6	2	13	2	1	-	1	-	-	-	-	-	-	25	102	-	6	-	133
Tha-pho	Songpeenong*	1	4	5	5	3	-	-	5	-	1	-	1	1	1	26	42	5	3	1	77
	Thapho oak**	2	6	-	6	1	-	1	-	-	-	-	-	-	-	14	45	-	2	-	61
	Thapho tog*	3	14	2	5	1	-	-	1	-	1	-	-	-	-	24	79	-	-	-	103
	Kogneum oak*	5	2	1	14	-	-	-	1	-	-	-	-	-	-	18	32	1	2	-	53
	Kogneum tog*	4	-	-	12	-	-	-	-	-	-	-	-	-	-	12	20	-	2	-	34
	Namcok*	6	5	-	4	-	-	-	1	1	1	-	-	-	-	12	28	1	3	-	44
	Khoawangching**	7	5	9	5	3	-	-	-	-	-	-	-	-	-	22	74	-	11	-	107
Thung mho	Klongsai**	2	2	2	-	-	1	-	-	-	-	-	-	-	-	5	24	-	2	-	31
	Tonko**	3	1	1	1	-	-	-	-	-	-	-	-	-	-	3	12	-	1	1	17
	Klongrum**	4	13	7	14	4	1	-	-	-	-	1	-	1	-	41	63	-	10	-	114
Total	12 Village		59	29	87	14	3	1	10	1	3	1	1	2	1	-	-	-	-	-	-
percent			(7.2)	(3.6)	(10.7)	(1.7)	(0.4)	(0.1)	(1.2)	(0.1)	(0.4)	(0.1)	(0.1)	(0.3)	(0.1)						
															212 (26.0)	212 (26.0)	552 (67.6)	7 (0.9)	43 (5.3)	2 (0.2)	816 (100.0)

Remark : * First Health Exam (11-30 May, 1985)
** Second Health Exam (14 January - 3 February 1986)
*** S = Strongyloid lava

Parasitic infection among eligible children who received health examinations : Amphoe Sadao, Changwat Songkhla

Tambol	Village name	Village's No.	Eligible Children																Infected	Not Infected	Not Screened	Moved away	Died	Refused Screening	Total Children
			Hw	Tt	Rw	Ev	S	Tt+Rw	Tt+Tsp +Rw	Tt+Hw	Tt+S	Hw+Rw	Hw+Ev	Ev+S	Ev+Rw	Ev+Tt +Rw	Tt+Hw +Rw								
Pangla	Teenna**	6	-	1	12	-	-	5	-	1	-	-	-	-	-	1	-		20	17	-	1	-	-	38
	Wangpring**	9	2	5	5	1	-	1	-	1	-	-	-	-	-	-	-		15	58	-	1	-	-	74
Tha-pho	Songpeenong*	1	1	4	8	-	-	6	1	1	-	-	1	-	-	-	-		22	31	5	5	-	-	63
	Thap ho oak*	2	2	-	2	-	-	-	-	1	-	1	-	-	-	-	-		6	30	-	-	-	-	36
	Thapho tog*	3	2	2	2	-	1	-	-	-	-	2	-	-	-	-	-		9	72	-	-	-	-	81
	Kogneum oak*	5	-	3	15	-	-	2	-	2	-	-	-	-	-	-	-		22	18	1	1	-	-	43
	Kogneum tog*	4	-	1	8	-	-	1	-	-	-	-	-	-	-	-	-		10	14	-	2	-	-	26
	Namcok*	6	-	1	7	-	-	-	-	-	-	1	-	-	-	-	-		9	31	2	2	-	-	44
	Khoawangching**	7	5	4	5	1	-	1	-	-	1	-	-	1	-	-	-		18	55	-	8	-	-	81
Thung mho	Klongsai**	2	1	-	3	-	-	-	-	-	1	-	-	-	-	-	-		5	21	-	-	-	-	26
	Tonko**	3	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1		3	8	-	-	-	1	12
	Klongrum**	4	5	7	17	-	-	2	-	3	1	1	-	-	1	-	-		37	40	-	8	-	-	85
Total 12 percent	Village	-	18 (2.9)	28 (4.6)	86 (14.1)	2 (0.3)	1 (0.2)	18 (2.9)	1 (0.2)	9 (1.5)	3 (0.5)	5 (0.8)	1 (0.2)	1 (0.2)	1 (0.2)	1 (0.2)	1 (0.2)		- -	- -	- -	- -	- -	- -	- -
												176 (28.9)							176 (28.9)	395 (64.9)	8 (1.3)	28 (4.5)	1 (0.2)	1 (0.2)	609 (100.0)

Remark : * First Health Exam (11-30 May, 1985)
** Second Health Exam (14 January - 3 February 1986)
*** S = Strongyloid larva

Parasitic infection among eligible mothers and children was received health examinations : Amphoe Sadao, Changwat Songkhla

Tambol	Village name	Village's No.	Eligible Mothers and Children																	Infected	Not Infected	Not Screened	Moved away	Refused Screening	Child died	Total Children
			Hw	Tt	Rw	Ev	S	Tsp	Tt+Rw	Tsp+ Rw	Tt+S	Tt+Hw	Hw+Rw	Hw+Ev	Ev+S	Ev+ Rw+	Tt+Hw +Rw	Ev+Tt +Rw	Ev+Rw +S							
Pangla	Teenna**	8	1	1	20	-	-	-	6	-	-	1	-	-	-	-	-	1	-	30	48	-	2	-	-	80
	Wangpring**	9	8	7	18	3	1	-	2	-	-	1	-	-	-	-	-	-	-	40	160	-	7	-	-	207
Tha-pho	Songpeenong*	1	5	9	13	3	-	-	11	1	-	1	1	1	-	1	1	-	1	48	73	10	8	1	-	140
	Thapho oak*	2	8	-	8	1	-	1	-	-	-	1	1	-	-	-	-	-	-	20	75	-	2	-	-	97
	Thapho tog*	3	16	4	7	1	1	-	1	-	-	-	3	-	-	-	-	-	-	33	151	-	-	-	-	184
	Kogneum tog*	4	-	1	20	-	-	-	1	-	-	-	-	-	-	-	-	-	-	22	34	-	4	-	-	60
	Kogneum oak*	5	2	4	29	-	-	-	3	-	-	2	-	-	-	-	-	-	-	40	50	2	3	-	1	96
	Namcok*	6	5	1	11	-	-	-	1	1	-	-	2	-	-	-	-	-	-	21	59	3	5	-	-	88
	Khoawangching**	7	10	13	10	4	-	-	1	-	1	-	-	-	1	-	-	-	-	40	129	-	19	-	-	188
Thung mho	Klongsai**	2	3	2	3	-	1	-	-	-	1	-	-	-	-	-	-	-	-	10	45	-	2	-	-	57
	Tonko**	3	1	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	20	-	1	2	-	29
	Klongrum**	4	18	14	31	4	1	-	2	-	1	3	1	1	-	-	1	-	-	78	103	-	16	-	-	199
Total percent	12 Village	-	77 (5.4)	57 (4.0)	173 (12.1)	16 (1.1)	4 (0.3)	1 (0.1)	28 (2.0)	2 (0.1)	3 (0.2)	9 (0.6)	8 (0.6)	2 (0.1)	1 (0.1)	1 (0.1)	2 (0.1)	1 (0.1)	1 (0.1)	- -	- -	- -	- -	- -	- -	- -
													388 (27.2)							388 (27.2)	947 (66.5)	15 (0.1)	71 (4.9)	3 (0.2)	1 (0.1)	1,425 (100.0)

Remark : * First Health Exam (11-30 May, 1985)
** Second Health Exam (14 January - 3 February 1986)
*** S = Strongyloid larva

ATTENTION

During our fieldwork, we happened to find out that there were so many Thai women who were forced to work as prostitutes and who needed help. Intellectuals who read this report, please try to help them in whatever way you can.