FACTORS RELATED TO BREAST FEEDING PRACTICES AMONG MOTHERS IN SINGBURI PROVINCE, THAILAND

ENTOS

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E n t o s

FACTORS RELATED TO BREAST FEEDING PRACTICES AMONG MOTHERS IN SINGBURI PROVINCE, THAILAND

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ABSTRACT

The objective of this study was to determine the factors related to breast feeding practice among mothers in Singburi Province. The sample was 130 mothers who came to well baby clinics in two general hospitals and four community hospitals in Singburi province, Thailand, during 9th January to 6th February 2004. Chi-square analysis was applied to measure the relationship between breast feeding practices and related factors.

Around half of the mothers worked at home, had good knowledge of breast-feeding, a positive attitude to it, and family incomes of less than 6,000 bath a month. Almost all had easy access to health services. However, they did not feel that there were many places available for breast-feeding, and almost half felt a lack of social support. Nearly 70% used artificial feeding, while only 12% breast-fed exclusively. Mothers who had higher incomes tended to use artificial feeding more, and those who worked at home tended to breast-feed exclusively.

More places need to be made available for women to feel comfortable breast-feeding and women need to be made aware of the advantages of breast-feeding. Occupation and family income would be critical factors to be considered for increasing exclusive breast feeding.

KEY WORDS : BREAST FEEDING PRACTICES/THAILAND

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CHAPTER I
INTRODUCTION

1.1 Rationale and justification

The best food for infants is breast feeding. Breast feeding is all that an infant needs for at least the first 4-6 months (1). It is contains the nutrients that the baby needs, well packaged, free of dangerous organisms, cheap, and is usually easily at hand ready for the baby to consume. Breast feeding arouses agreeable physical sensations, initiates mother-child bonding, has contraceptive virtues, and helps the infant to integrate with its family and its society (2). Appropriate feeding practices are fundamental importance for the survival, growth, development, health and nutrition of infants and children everywhere (3).

World Health Organization (WHO) recommended that wherever possible infants should be fed exclusive breast feeding birth until 6 months of age. For a lot of the world, this recommendation equates to current practice and it is important to maintain good practice (4). The duration of exclusive breast feeding in the past time or before 2001 based on the Declarations of Innocenti were 4-6 months of age.

Exclusive breast feeding means the infant has received only breast milk (from his/her mother or a wet nurse, or expressed breast milk) and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplement or medicine (5). Another type of breastfeeding practices was predominant breastfeed. It is means that the baby breastfeeds part of the time, but has some drinks or food or artificial feeds. Also there is the practice artificial feeding that infants feed only bottle feeding or artificial feeding without breast feeding.

The best and safest way to feed a baby is exclusive breastfeeding. Babies do not normally need anything other than breast milk, even in the first few days after they are

born. They do not need to drink water, even in a hot climate. However, predominant breast feeding is better than not breast feeding at all (1).

The advantage of exclusive breast feeding is breast feeding contains exactly the nutrients that a baby needs. It is enough and easily digested and efficiently used the infant. Colostrums, content of breast feeding, will protected a baby against infection. Exclusive breast feeding also will help mother and baby to bond and help mother to delay a new pregnancy.

Human milk is dilute and thus resembles the milk of the marsupials and hibernating bears, whose offspring feed constantly. It is therefore not surprising that the human baby demands to be feed frequently. The nutrient contents per liter are energy 680 kcal, protein 10.50 g, fat 39 g, lactose 72 g and completed all of vitamins and minerals which infants need (6).

Observations of completely breast-fed babies who appear to be thriving suggest that daily volume of breast consumption ranges from 340 to over 1,000 ml/day. (6). According to the recommended nutrient intake for infants 0-6 months are energy 108 kcal/day and protein 2.2 g/day that the exclusive breast feeding enough for the infants 0-6 months of age (7).

Exclusive breast feeding reduced episode of diarrhea (8). It was also reduced prevalence middle ear infection (9). Infants who were not being breast feeding were 17 times more likely than those being breast feeding exclusive to be admitted to hospital for pneumonia (10). The incidence of any infection and sepsis/meningitis are significantly reduced in human milk fed Low Birth Weight (LBW) compared with exclusive formula feeding VLBW infants (11).

Until recently, it was believed that the protective of breast feeding against many infections, notably diarrhoea, was related to the fact that it is clean and usually uncontaminated. This is true, but recent studies have shown that breast feeding contains large number of white cells and increasingly recognized range of protective

substances, including, for example lysozyme, lactoferrin, secretory IgA, etc. These are especially effective against enteral infections by bacteria, e.g. *Escherichia coli* or *Vibrio cholerae*, or some viruses, or some parasites, notably *Giardia lamblia* (12)

In other mammals, it has long been recognized that bonding between mother and baby occurred at a particular sensitive time resulting from, and leading to, specific mother-newborn behaviour. Some investigation have also shown that a similar pattern of behaviour occurs in the human and that this can facilitate bonding, initiating the best chance of harmonious relationship between mother and baby, as well as facilitating breast feeding. This bonding process is initiated most easily at the immediate postpartum period and is facilitated by close contact between mother and baby immediately after delivery. This is, of course, one reason for the modern move towards encouraging the baby to breastfeed as soon after birth as possible (12).

Other advantage breast-feeding is bonding between mother and child. A mother who breast feeds finds it easier to developed a close, loving relationship with her child than a mother who bottle feeds. This close relationship helps the child to developed normally. If a mother bottle feeds her baby, it is easier to give the baby to someone else to feed or to leave the bottle beside the baby, so that he has to feed himself. The baby then gets less affection and stimulation (1).

Thailand had a long tradition of breast feeding but the recent rate of breast feeding is not high. According to a study conducted by the Health Department in 1991, breast feeding up to 3 months is 81.9%, with 56.5% in urban areas and 87.5% in rural areas. Another study carried out by the Provincial Health Promotion Centre found that 4.5% of the children were breast feeding exclusive without any supplements for 3.4 months and 60.9% were breast feeding up to 6 months (13).

Previous study about breast feeding practices in 12 provinces in Thailand, shown that average of exclusive breast feeding were 16.3% with the higher in the northeast of Thailand were 24.4% and the lower in the central of Thailand were 8.3%,

and average of predominant breast feeding were 28.4% (14). While most of the studies showed 3.6% of exclusive breast feeding for four months (15).

World Health Organization (WHO) report show, that no more than 35% of infants worldwide are exclusive breastfeeding during the first four months of life (16). The report of multi country study on infant and young child feeding assessment: practices, policies and programs, showed the achieving exclusive breast feeding in India was 55.2%, Indonesia was 52.0% and Sri-Lanka was 65.0% (15).

So far, the condition of exclusive breast feeding in Thailand which is lower than some countries in South East Asian Region Organization (SEARO) may be caused that complementary feeding practice at an early age. It has been the tradition to give fruit especially banana to babies within the first days of life. Although much effort has been done to stop this practice, and educate the mothers not to give anything except breast milk after delivery and early suckling for its bonding effect (15).

In order to promote breast feeding successfully, every year on World Breast feeding Week (WBW), Thailand conducting some activities. On WBW 2003 was launched the campaign about breast feeding practice including breast feeding room in work places and in department stores or malls (17). In the rural areas, there are volunteer groups supporting mothers to breastfeed their children, but this groups is weak and not much recognized. In urban areas, there are very minimal support group (15).

Since July 2003, the policy of exclusive breast feeding in Thailand had been adopted WHO recommendation were duration exclusive breast feeding was first until six months. While the ideal duration is 6 months but the actual situation may need further understanding. To apply exclusive breast feeding during 6 months mothers needs a lot of support, especially social support, from family, friends, health professionals, etc.

In order to increase the coverage of exclusive breast feeding practice among mothers, some information about factors related to breast feeding practices are in need. It could become considered inputs for the government to select and conduct the priority of activities for promoting exclusive breast feeding.

1.2 Research Question

What are the factors related to breast feeding practices among mother?

1.3 Research Objective

1.3.1 General objective

To determine the factors related to breast feeding practice among mothers in Singburi Province, Thailand.

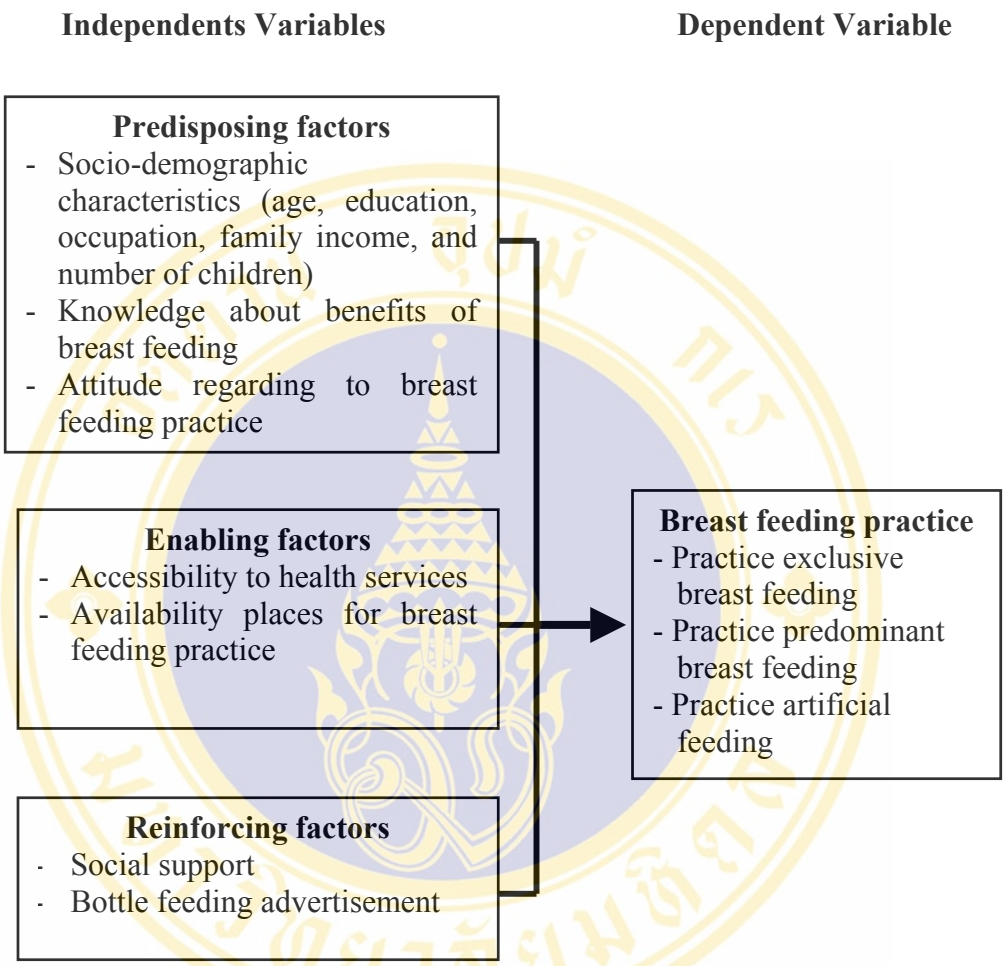
1.3.2 Specific objectives

1. To identify the breast feeding practices among mothers who had children less than 6 months old.

2. To describe predisposing factors (socio-demographic characteristic, knowledge, and attitude), enabling factors (accessibility and availability of services), and reinforcing factors (social factors and bottle feeding advertisement factors) among mother who had children less than 6 months.

3. To identify the relationship between predisposing factors, enabling factors, reinforcing factors, and breast feeding practices among mothers who had children less than 6 months.

1.4 Conceptual framework



1.5 Research hypothesis

1. Socio-demographic characteristics of mothers (age, occupation, education, family income, and number of children) have relationship to practice breast feeding.

2. Mothers' knowledge relates to practice breast feeding.

3. Mother's attitude towards breast feeding practices relates to practices breast feeding

4. Accessibility to health facilities relates to practice breast feeding of mothers.

5. Availability of special room for breast feeding practice in work place or public facilities relates to practice breast feeding of mothers.

6. Social support from family members, relatives and health care providers relates to practice breast feeding of mothers.

7. Exposure to bottle feeding advertisement relates to practice breast feeding of mothers.

1.6 Operational definition

Practice exclusive breast feeding : it is means that infants received only breast feeding (from his/her mother or a wet nurse, or expressed breast milk) with the exception of drops or syrup consisting of vitamins, mineral supplement or medicine. Practices exclusive breast feeding will be find by the methods of 24 hour recall with 4 questions. Practice exclusive breast feeding mean the mother will be get yes answered for questions giving only breast milk and answered no for another questions,

Practice predominant breast feeding : it is means that infants received breast feed part of time, but has some drinks as water. It is mean the mother will get yes answered for questions giving breast milk and yes answered for question about water.

Practice artificial feeding : It is means that infants received breast feeding, water, bottle feeding or artificial feeding, and another foods or only bottle feeding, water and another foods.

Socio-demographic characteristics : it is refers to age, occupation, education, family income, and number of children of respondents.

Age : it is refers to the age mother's in years when the research carry out. The values were categories into three groups; lower than 20, 20-30, and more than 30.

Occupation : it is refers to the type of mother's occupation. It is mainly categories into two groups: **Indoor** (house wife and home business) and **Outdoor** (Government, Private, laborer, and farmer).

Education : it is refers to the level of education attained by mother's. Five levels of values in these variables were: **Primary school** it means the level of education from grade 1 to grade 6, **Lower secondary school** it means the level of education from grade 7 to grade 9, **Upper secondary school or high school** it means the level of education from grade 10 to grade 12, **Vocational education**, and **University level** it means the level of education graduate from university.

Family income : it is refers to the total monthly income earned by all family members of the respondent. **:** It was categorized into three groups: less than 6,000 bath, 6,000 - 12,000 bath and more than 12,000 bath/month (according to information that the limited of low income in Thailand is 2.000 bath per person. Assumed was one family had minimal 3 family members).

Number of children. It is refers to the number of children of the respondent with categories one child, two children, and more than two children.

Knowledge about benefits of breast feeding practices : it is refers to knowledge of mother's about the benefits of breast feeding practice. with categories : **High knowledge**: mother who are able to correctly answer $\geq$ 80 %, **Moderate knowledge**: mother who are able to correctly answer 60-79 %, and **Less knowledge;** mothers who only can answer correctly < 60%.

Attitude : it is refers to a pattern of mental view, feeling, opinion or beliefs of mothers towards breast feeding practice**.** The categories of attitude based on the mean of data were **Positive attitude** were mothers who are able to can correctly answered more than or equal than mean value of the data concerning the agree and disagree statement about attitude towards breast feeding practice, and **Negative attitude** were mothers who are able to can able correctly answered less than mean value of the data concerning the agree and disagree statement about attitude towards breast feeding practice.

Accessibility : it is refers to mother's perceptions or opinion about how easily or difficulty to get mother and child health care services in term of its distances, transportation, traveling cost, waiting times, the service given by health personal, with categories :**Very easy**: ≥ 80% answered is good**, Quite easy** : 60-79% is good**,** and **Difficult**: less than 60% answered is good

Availability : it refers to mother's perception or opinion to the provided appropriate room for breast feeding practices in work place and public facilities such as in the hospital, supermarket and airport, bus or train terminal. The categories are **Good availability** : ≥ 80% answered is good, **Moderate availability** : 60-79% answered is good, and **Low availability** : less than 60% answered is good.

Social support : it is refers to varieties of support regarding breast feeding which mother got such as husband support, relatives support, friends support, health volunteer and health personnel support. The categories are **High social support** ≥ 80%, **Moderate social support** : 60-79%, and **Low social support** : less than 60%.

Bottle feeding advertisement: it is refers to the perceived advertisement through TV, magazine, health personal and personal approach of milk formula salesman. The categories are **High exposed mothers**: mother's who can accurately answer more than 3 out of 7 "Yes" and "No" statement, and **Low exposed mothers:** mother's who can accurately answer less than or equal with 3 out of 7 "Yes" and "No" statement.

1.7 The limitation of study

Due to the limitation of time and budget, this study will be by cross-sectional study with focus on breast feeding practice by 24 hours recall. Ideally, this study is to be carried out by cohort prospective study. There will be also limitation that the result of this study only representative for the Singburi province by the hospital based.

CHAPTER II
LITERATURE REVIEW

2.1 The Benefits of Breast Feeding

Malnutrition has been responsible, direct or indirect, for 60% of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. For the solved the problems as the mentioned in above, breast feeding is the importance ways (16).

Breast milk contains all the nutrients that a baby needs, almost always in exactly the right compositions. The nutrients in breast feeding can be more easily digested and absorbed than the nutrients in artificial milks, and there are more efficiently used by the baby's body. The nutrients of breast feeding as such as lactose, fats, proteins, vitamins, minerals, water, anti-infective factors, and growth factors (1).

Breast milk is dilute and thus resembles the milk of the marsupials and hibernating bears, whose offspring feed constantly. It is therefore not surprising that the human baby demands to be feed frequently. The nutrient contents per liter are energy 680 kcal, protein 10.50 g, fat 39 g, lactose 72 g and completed all of vitamins and minerals which infants need (6).

Observations of completely breast-fed babies who appear to be thriving suggest that daily volume of breast consumption ranges from 340 to over 1,000 ml/day. (6). According to the recommended nutrient intake for infants 0-6 months are energy 108 kcal/day and protein 2.2 g/day that the exclusive breast feeding enough for the infants 0-6 months of age (7). Table 1 shows the nutrient content of mature human milk.

Table 1 Nutrient Content of Mature Human Milk

Constituents (per liter)	Human Milk	Constituents (per liter)	Human Milk
Energy (kcal)	680.00	Minerals	
Protein (g)	10.50	Calcium (mg)	280.00
Fat (g)	39.00	Phosphorus (mg)	140.00
Lactose (g)	72.00	Sodium (mg)	180.00
Vitamins		Potassium (mg)	525.00
Vitamin A (RE)	670.00	Chloride (mg)	420.00
Vitamin D (μg)	0.55	Magnesium (mg)	35.00
Vitamin E (mg)	2.30	Iron (mg)	0.30
Vitamin K (μg)	2.10	Iodine (μg)	110.00
Thiamin (mg)	0.21	Manganese(μg)	6.00
Riboflavin (mg)	0.35	Copper (mg)	0.25
Niacin (mg)	1.50	Zinc (mg)	1.20
Pyridoxine (μg)	93.00	Selenium (μg)	20.00
Folic acid (μg)	85.00	Fluoride (μg)	16.00
Cobalamine (μg)	0.97	Chromium (μg)	50.00
Ascorbin acid (mg)	40.00		

Data from Institute of Medicine, 1991. Nutrition during lactation. Washington DC: National Academy Press in Worthington Bonnie S and Williams Sue R., Nutrition throughout the life cycle2000.

Lactose is the special sugar which is found only in milk. It is the only carbohydrate in milk. Lactose provides energy and helps the absorption of calcium. Breast feeding contains more lactose than any other milk. Babies and young children have a special enzyme *lactase* in the intestine to digest lactose. But in the first few months of life babies do not have enough of the enzyme *amylase* needed to digest starch. So it is difficult for every young babies to digest feeds made from cereals (1).

Fat is the main source of energy in breast feeding and artificial milks, but breast feeding contains more polyunsaturated and essential fatty acids. Soft foods made from cereals do not contain enough fat, so they provide too little energy. The amount of different fatty acids in breast feeding depends partly on the mother's diet, and there

are may be slightly less fat if the mother is severely malnourished. The fat in breast feed is easier to digest because:

1. The fatty acids are arranged differently in the triglycerides than those in cow's milk.
2. Breast feed contains an enzyme (lipase) which helps to digest fat. Animal milks do not contains lipase.

The protein in breast milk forms soft curds which are easy to digest. The protein in artificial milk forms thick curds in the baby's stomach which are difficult to digest. Breast feed contains enough essential amino acids, while artificial milks often do not contains enough. For example, breast feed contains a large amount of the amino acid *taurine* which may be important for growth of the baby's brain. Cow's milk does not contain enough taurine for a baby, and formula manufacturers have to add extra (1).

Many whey proteins act as enzymes, including lysozyme, which is bacteriostatic, and lipase, alpha amylase, antiproteases and lactoperoxidase. Other minor whey proteins bind corticosteroids, thyroxine, folate, vitamin D and vitamin B12. The all of protein completed in breast feeding (18).

The vitamins and minerals of breast feed enough for babies. Babies do not need extra vitamins, although a mother is undernourished. A baby who is artificially fed may need extra vitamins. Breast feed contains the right amount of salt, calcium, phosphate for a baby. Cow's milk contains too much of these mineral. Breast milk and cow's milk both contain about the same amount of iron. But the iron from breast feed is well absorbed, while the iron from cow's milk is not well absorbed (1).

Breast feed babies do not become anemic (unless they are low birth weight and lack iron stores), but artificially feed babies may become anemic. Manufacturers often add extra iron to formula to prevent anemia, but added iron helps bacteria to grow, and may increase the risk of infection. Breast feed iron does not help bacteria to grow (1).

Breast milk contains enough water for a baby. It is not necessary to give a baby extra water, even in a hot dry climate. If a baby is thirsty, he can breastfeed more often. Artificially feed babies may need extra water, to help them to excrete the extra salt and wasted amino acids in animal milk (1).

Breast milk contains living anti-infective factors which protect a baby against infection. These are :

- Living white blood cells, which help to kill bacteria and viruses;
- Antibodies which cover the surface of the gut and prevent micro-organisms getting into the blood; when a mother has infection, her milk soon contains antibodies against that new infection also;
- Other factors, or example, the *bifidus* factors which helps harmless bacteria called *Lactobacillus bifidus* to grow the baby's gut. L. bifidus prevents the growth of more harmful bacteria and gives the faeces of breast feed babies 'yohurtly'smell.

Breast milk is always safe and clean. It never goes bad in the breasts, even if the mother does not breast feed for some days. Expressed breast feed remains safe for at least 8 hours, even in a hot climate, and even if it is not in a refrigerator. Artificially feeds do not contain these living anti infective factors, so they do not protect babies against infection (1).

Breast milk contains growth factors which help the baby's intestine to grow and developed so that it is able to digest and absorb others food. If a baby has feeds of artificial milk before he can digest it, undigested protein molecules may pass into his blood and cause allergies. Babies who are given artificial feeds are more likely to develop allergic conditions such as eczema (1).

A mother who breast feed finds it easier to develop a close, loving relationship with her child than mother who bottle feeds. This close relationship helps the child to develop normally. If a mother feeds her baby, it is easer to give the baby to someone else to feed or to leave the bottle beside the baby, so that he has to feed himself. The baby then gets less affection and stimulation (1).

Breast feeding can be useful methods of family planning, if women know how to use it. The baby must breastfeed frequently during the day and during the night-at least 8-10 times in 24 hours. There should be no interval of more than 6 hours between breastfeeds (1). The mechanism of breast feeding on contraception is when baby suckles, the mother's body secretes a hormone called prolactin and oxytocin which makes the uterus contracted and it is become contraception (1).

However, so long as her periods have not returned, and provided she continues to breastfed frequently, during the day and during the night, she has some protection. This may be helpful if she is unable to use another method. If her periods have returned, breastfeeding does not protect her (1).

Artificial feeding is expensive. Buying enough milk to provide a baby with all the nutrients she needs can take a large part of family's income. The cost of breastfeeding is the cost of a few extra nutrients for the mother plus her time. If a mother works away from home to earn money, her time is not free. If she stays home to feed the baby, she losses income (1).

However, many women earn only the minimum wage or below. To feed a baby artificially can cost a large part of earn. If a mother can find a way of breastfeed and work or if she can breastfeed at least partially, she can save the money (1).

Based on both laboratory and clinical studies, human milk feeding appears to have protective effect against development of necrotizing enterocolitis (19). In the first year of life the incidence of diarrhoeal illness among breastfeed infants was half that of formula feed infants (20). Short duration of breast feeding involved another significant risk of recurrent respiratory infections and otista media (21).

Feeding practices in infancy may affect the development of various autoimmune diseases later in life. Thyroid alterations are among the most frequently encountered autoimmune conditions in children. A detailed history of feeding practices was obtained in 59 children with autoimmune thyroid disease, their 76 healthy sibling, and

54 healthy non related control children. The frequency of feedings with soy-based milk formulas in early life was significantly higher in children with autoimmune thyroid disease, prevalence 31% as compared with their siblings, prevalence 12%, and healthy non related control children, prevalence 13% (22).

Breast feeding neonates demonstrate gastroesophageal reflux episodes of significantly shorter duration than formula fed neonates (23). During the first 6 months of life, breast feeding has a protective effect of against respiratory illness, gastrointestinal illness and all illnesses (24). There is an inverse relationship to breast feeding to morbidity. This was most prominent in first year of life, but it was also present in the first three years (25).

There is association between breast feeding up to 6 months of age and survival of infants throughout the first year of life. The younger the infant and the longer the breast feeding, the greater the estimated benefits in term of death averted (26). Human milk contains gonadotropin releasing hormone, which may affect the maturation of neonatal testicular function. This case-control study showed breastfed infants had a significant dose response reduction in inguinal hernia (27).

Infants who were breastfed for three or more months were significantly less likely to have three or more episodes of wheezing in the first six months after birth (28). Children who had ever been breast feeding had a lower incidence of wheeze than those who had not (59% and 74% respectively). The effect persisted to age 7 years in the non-atopics only, the risk of wheeze being halved in the breast fed children (29).

2187 children were followed to age 6 years to study the association between duration of exclusive breast feeding and asthma or atopy. After adjustment for confounders, the introduction of milk other than breast milk before 4 months of age was a significant risk factor for all asthma and atopy related outcomes in children aged 6 years. A significant reduction in the risk of childhood asthma at age 6 years

occurs if exclusive breast feeding is continued for at least the 4 months after birth (30).

The factors most important in the pathogenesis of allergic symptoms were: (i) formula implementation begun in the first week of life; (2) early weaning (< 4 months); (iii) feeding beef (< 6 months); (iv) early introduction of cow's milk (, 6 months); and (v) parental smoking in the presence of the babies and early day care admission (< 2 years of life). All the preventive measures used in this study (exclusive breast feeding and/or hydrolyzed milk feeding, delayed and selective introduction of solid foods, and environmental advice) were effective at the third year of follow-up, greatly reducing allergic manifestations in high atoptic risk babies in comparison with those not receiving these interventions (31).

Increasing duration of breast feeding was associated with consistent and statistically significant increases in (1) intelligence quation assessed at 8 and 9 years; (2) reading comprehension, mathematically ability, and assessed during the period from 10 to 13 years; (3) teacher ratings of reading and mathematics assessed at 8 and 12 years; and (4) higher levels of attainment in school leaving examinations. Breast feeding associated with small but detectable increases in child cognitive ability and educational achievement. These effects are (1) pervasive, being reflected in a range of measures including standardized tests, teacher ratings, and academic outcomes in high school; and (2) relatively long-lived, extending throughout childhood into young adulthood (32).

Hormones, growth factors, cytokines and even whole cells are present in breast milk and act to establish biochemical and immunological communication between mother and child. In addition, milk nutrients such as nucleotides, glutamine and lactoferrin have been shown to influence gastrointestinal development and host defense (33).

Children who had consumed mother's milk by tube in early weeks of life had a significantly higher IQ at 7.5 to 8 years, than those who received no maternal milk,

even after adjustment for differences between groups and mothers' educational and social class (34).

Infants were exclusively breast feeding for 4 months and then randomly assigned to continue exclusive breast feeding until six months or receive high-quality, hygienic solid foods in addition to breast milk between 4 and 6 months. Infants who were exclusive breast feeding for 6 months crawled sooner and were more likely to be walking by 12 months than infants who started solid foods at 4 months (35).

In this study of 330 8-years children from Southern Tasmania, those who were breast feeding had higher bone mineral density at the femoral neck, lumbar spine and total body compared with those were bottle-fed. This association remained significant after adjustment for size, lifestyle factors and socio economic factors. Breast feeding for less than 3 months was not associated with increased bone mass at any site (36).

Women who were breastfeed as infants, even if only for a short time, showed an approximate 25% lower risk of developing premenopausal breast cancer, compared to women who were bottle feeding as an infant (37). This review of 9 published case-control studies suggest that children who are never breastfed or are breastfed short-term have a higher risk than those breastfed for >6 months of developing Hodgkin's disease, but not non-Hodgkin's lymphoma or acute lymphoblastic leukemia (38).

Exclusive breast feeding seems to have a protective effect against some risk factors for cardiovascular disease in later life. In this study of 625 adults aged 48-53 years, those who were bottle fed had higher mean plasma glucose concentration after standard oral glucose tolerance test than those who were exclusive breast feeding. They also had higher plasma low density lipoprotein (LDL) cholesterol concentration, a lower high density lipoprotein (HDL) cholesterol concentration, and a higher LDL/HDL ratio. Systolic blood pressure and body mass index were not affected by the method of infant feeding (39).

Children who were either never breast-fed or only until three months exhibited a significantly higher caries prevalence than those breast-fed a longer time (40). Lack of breast feeding in infancy was associated with an increased risk of ulcerative colitis or chronic inflammatory disorder of the colon and Crohn's disease or chronic inflammatory disorder affecting any part of the gut, aggravated by food intolerance (41).

A German study of 9357 children aged 5-6 years of age found that infants fed only breast-milk until 3-5 months were more than a third less likely to obese than infants fed formula from the start (42). The Swedish study examined the relations between length pattern of breast feeding, growth, and body composition in a group of 781 adolescents. Data on feeding pattern in infancy and on weight and height from birth up to 18 years were collected. Both boys and girls who were exclusively breast-fed for more than 3 months were leaner and showed a trend towards lower skinfold values (43).

Cases 20-69 years of age with a recent diagnosis of epithelial ovarian cancer (767 cases) were compared with community controls (1367 persons). A number of reproductive and contraceptive factors that suppress ovulation, including gravidity, breast feeding, and oral contraception, reduced the risk of ovarian cancer. Environmental factors and medical conditions that increased risk included talc use, endometriosis, ovarian cysts, and hyperthyroidism. Gynecoloc surgey including hysterectomy and tubal ligation were protective (44).

Significantly changes occur in women's personality during pregnancy and lactation. The trend toward a life style interpreted as more relaxed and tolerant to monotony. In this study of 161 women during pregnancy and 3-6 months after delivery, women who had breastfed for at least 8 weeks differed significantly from those who had not. They had lower scores on the Somatic impulsiveness scale and higher scores on the socialization scale (45).

Breast feeding decreased insulin requirements in diabetic women. Reduction in insulin dose postpartum was significantly greater in those who were breast feeding than those who were bottle feeding (46). The odds ratio that women with osteoporosis did not breastfed her baby was 4 times higher than for control woman (47).

Infants were exclusively breastfed for 4 months and then randomly assigned to continue exclusive breast feeding until 6 months or to receive solid foods in addition to breast milk between 4 and 6 months. Maternal weight loss between 4 and 6 months was significantly greater in the exclusive breast feeding group than in the group given solid foods (48).

2.2 The Situation of Breast Feeding Practices

Thailand had a long tradition of breast feeding but the recent rate of breast feeding is not high. According to a study conducted by the Health Department in 1991, breast feeding up to 3 months is 81.9%, with 56.5% in urban areas and 87.5% in rural areas. Another study carried out by the Provincial Health Promotion Centre found that 4.5% of the children were breast feeding exclusive without any supplements for 3.4 months and 60.9% were breast feeding up to 6 months (13).

The statistics on breast feeding from the Health Department's, Ministry of Public Health, Thailand, 1995, showed that exclusive breast feeding are : for 4 months is 3.6% (the percent is higher in the rural than in the urban areas), for 1-2 months is 15% and for 2-3 months is 7%. Predominant breast-feeding with food supplements is 31% with the percent being lower in urban and semi urban than in rural areas. Continued breast feeding up to 1 year of age is 55% with the percent being higher in the rural than the urban areas, and continued breast feeding up to 2 year of age is 26% with the percent being higher in the rural than the urban areas (13).

Previous study about breast feeding practices in 12 provinces in Thailand, shown that average of exclusive breast feeding were 16.3% with the higher in the northeast of Thailand were 24.4% and the lower in the central of Thailand were 8.3%,

and average of predominant breast feeding were 28.4% (14). While most of the studies showed 3.6% of exclusive breast feeding for four months (15)

Percentage of babies breast feeding within one hour of birth 55.6%. Percentage of babies 0 – 4 months of age exclusive breast feeding was 16.3%, percentage of breast feeding babies less than 12 month old are receiving food or drink from bottles was 59.6%. There is not data percentage of babies 0-6 months of age exclusively breast feeding. Percentage of predominant breast feeding 0-4 months was 28.4% (15).

Percentages Baby Friendly hospitals was 97% and birth in health facility was 96.7%. Percentage of babies delivered vaginally were breast feeding within one hour was 91.55% and percentage of babies delivered by cesarean were breast feeding within one hour was 74% (15).

In India, percentage of babies breast feeding within one hour of birth 15.8%, exclusive breast feeding 0 – 4 months of age was 55.2% and 0 – 6 months of age was 19.4% and breast feeding babies less than 12 month old are receiving food or drink from bottles was 14.4%. Baby Friendly hospitals was 1,400 hospitals certified “Baby Friendly” but there is not data percentage of Baby Friendly hospital. The birth in health facility was 34% (15).

In Indonesia, percentage of babies breast feeding within one hour of birth 8.3%, exclusive breast feeding 0 – 4 months of age was 52% and 0 – 6 months of age was 42.3% and breast feeding babies less than 12 month old are receiving food or drink from bottles was 10.7%. Baby Friendly hospitals 31% and birth in health facility was 27% (15).

In Sri-Lanka, percentage of babies breast feeding within one hour of birth 36.1%, exclusive breast feeding 0 – 4 months of age was 65.0% and 0 – 6 months of age was 8.4% and breast feeding babies less than 12 month old are receiving food or drink from bottles was 45.8%. Baby Friendly hospitals 16% and birth in health facility was 94% (15).

Data from the Americas show that ever breastfed rates are high in some country, in Colombia 95% in 1995, and Ecuador 96% 1994 but exclusive breast feeding under 4 months decreased in Bolivia, 59% in 1989 and 53% in 1994. In Sweden, breastfed rates are 98% in 1990 and in Poland exclusive breast feeding increased from 1.5% in 1988 to 17% in 1995. In Pakistan shows exclusive breast feeding increased from 12% in 1988 to 25% in 1992 (49).

The practice of exclusive breast feeding is not widespread, but the practice of predominant breast feeding and water supplementation is more usual in Uzbekistan. Some mothers use predominant breast feeding longer than necessary, through the child's seventh or ninth month. Many women state that it is all right to breast feeding a child exclusively, provided that the quantity and quality of the breast milk are sufficient to satisfy the child's needs. But some mothers may give their babies supplementation. The first additional fluid most mothers give is water. Mothers gave the following reasons for giving water to infants: Breast milk is food, but water is needed as a fluid for better digestion. Although breast milk already contains 90% water, breast milk is still too sweet and fatty; there for, extra water is necessary. Infants become thirsty just like adults, especially in a hot climate. Water helps prevent rashes and infections in a baby's mouth (50).

2.3 The theory of Precede-Proceed Model

Currently, the best known and most often used model for health promotion programming is the Precede-Proceed model. The Precede model was developed by Lawrence Green and Kreuter to help health educators to evaluate all factors involved in planning a community wide health program. The precede model was named the Precede-Proceed model because its acts with the implementation and evaluation of the program. The precede model is an acronym for predisposing, reinforcing, and enabling constructs in educational/ecological diagnosis and evaluation (51).

Precede-Proceed is a model in which all students should become very familiar. It is considered “the model” by most people in the health profession and has been the basic for many professional projects at the national level. Precede-Proceed model is well received because it is theoretically grounded and comprehensive in nature; it combines a series of phase in the planning, implementation, and evaluation process.

The Proceed framework was developed in the 1980s and is essentially an elaboration and extension of the administrative diagnosis step of Precede, which was the final and least developed link in the Precede framework. It was influenced by the participation of Green and Kreuter in national policy initiatives and development of community health promotion programs such as Planned Approach to Community Health.

Through the basic component of the Precede-Proceed model have stayed the same over the years, the model has been revised and update as the practice of health promotion has advanced. For example, as precede was used in the 1980s, it became apparent that the model needed to be expanded and thus the addition of the Proceed. One subtle change to the most recent presentation of the model and replacing it with assessment. Though Green & Kreuter still feel diagnosis to be the appropriate denotation, this change came as the result of many of the users of the model feeling uncomfortable with the term diagnosis, associating the model with clinical procedures. It also suggest that all assessments must start with or fond a problem, which is not also the case. As Green and Kreuter (1999) point out, in assets-based approach to community assessment, planners build on the strengths of the community.

The Nine Phases of PRECEDE-PROCEED

As can be seen in figure 1. Precede-Proceed is composed of nine phases or steps. At first glance, the model seem overly complicated, but on close examination, the continuous series of steps reveals a very logical sequence for health promotion programming. The underlying approach of this model is to begin by identifying the desired outcome, to determine what causes it, and finally to design an intervention

aimed at reaching the desired outcome. In order words, PRECEDE-PROCEED begins known, an intervention can be designed to ideal with them.

Phase 1 in the model is called **social assessment** and seeks to subjectively define the quality of life (problems and priorities) of those in the target population. The designers of his model suggest that this is best accomplished by involving individuals in the target population in a self-study of their own needs and aspirations. Some of the social indicators of quality of life include absenteeism, alienation, crime, discrimination, happiness, illegitimacy, riots, self-esteem, unemployment, and welfare.

Phase 2, **epidemiological assessment,** is the step in which the planners use data to identify and rank the health goals or problems that may contribute to the needs identified in phase 1. Those data might include disability, discomfort, fertility, fitness, morbidity, mortality, and physiological risk factors and their dimensions (distribution, duration, functional level, incidence, intensity, longevity, and prevalence). It is important to note that ranking the health problems in this phase is critical, because there are rarely, if ever, enough resources to deal with all or multiple problems. Also, this phase of the model is used to plan health programs.

Phase 3, **behavioral and environmental assessment,** involves determining and prioritizing the behavioral and environmental risk factors or risk conditions that might be linked to the health problems selected in phase 2, the behavioral factors could be the behavior or actions of individuals, groups, or communities. Behavioral indicators include such things as compliance, consumption pattern, coping, preventive actions, self-care, and utilization. These indicators can be expressed in the dimensions of frequency, persistence, promptness, quality, and range. Environmental factors are those determinants outside an individual that can be modified to support behavior, health, and quality of life. Example for environmental indicators include economic, physical, services, and social, and their dimensions (access, affordability, and equity). Not that in figure 2, arrows connect both of the boxes in phase 3 with phase 1 and 2.

The arrows from phase 3 to phase 1 represent the skipping of phase 2 if the models is applied to something other than a health problem.

Once identified, the risk factors and / or risk conditions need to prioritize. This can be accomplished by first ranking the factors / condition by importance and changeability and than using the 2 x 2 matrix presented in figure 1.

	More important	**Less important**
More changeable	High priority for program Focus (Quadrant 1)	Low priority except to Demonstrate change for Political purpose (Quadrant 3)
Less changeable	Priority for innovative Program; evaluation crucial (Quadrant 2)	No program (Quadrant 4)

Figure 1: Prioritization Matrix
Source : from Health Promotion Planning: An Educational and Ecological Approach, by Lawrence W. Green and Marshall W. Kreuter, 1999.

Phase 4, **educational and ecological assessment,** identifies and classifies the literally hundreds of factors that have the potential to influence a given behavior into three categories: predisposing, reinforcing, and enabling. **Predisposing factors** include knowledge and many effective traits such as a person' attitude, value, beliefs, and perceptions. These factors can facilitate or hinder a person's motivation to change and can be altered through direct communication. Barriers or vehicles created mainly by societal forces or system make up **enabling factors**, which include access to health care facilities, availability of resources, referrals to appropriate providers, enactment of rules or laws, and the development of skill. These factors thus include all those that make possible a change in behaviour on in the environment that people want.

Reinforcing factors comprise the different types of feedback and rewards that those in the target population receive after behavior change, which may either encourage or discourage the continuation of the behavior. Reinforcing behavior can be delivered by, but not limited to, family, friends, peers, teacher, self, and others ho control rewards. Social benefits such as recognition; physical benefits such as economic benefits or avoidance of cost; imagined or vicarious rewards such as improved appearance, self –respect, or association with an admired person who demonstrates the behavior-all reinforce behavior. As with the previous phase, planners must set priorities. The prioritized factors identified in this phase become the focus of the intervention that will be planed.

Phase 5 consists of an **administrative and policy assessment**, in which planners determine if the capabilities and resources are available to develop and implement the program. It is between Phase 5 and 6 that PRECEDE (the assessment portion of the model) ends and PROCEED (implementation and evaluation) begins. However, there is not a clean break between the two phases; they really run together, and planners can move back and forth between them.

The four final phases of the model – Phase 6,7,8, and 9-make up the Proceed portion. In phase 6-**implementation** – with appropriate resources in hand, planners select the methods and strategies of the intervention and implementation begins. Phase 7, 8, and 9 focus on the **evaluation, process, impact**, and **outcome**, respectively, and are based on the earlier phase of the model, when objectives were outlined in the assessment process. Whether all three of these final phases are used depends on the evaluation requirements of the program. Obviously, he resources needed to conduct of evaluation of impact (Phase 8) and outcome (Phase 9) are much greater than those needed to conduct process evaluation (Phase 7).

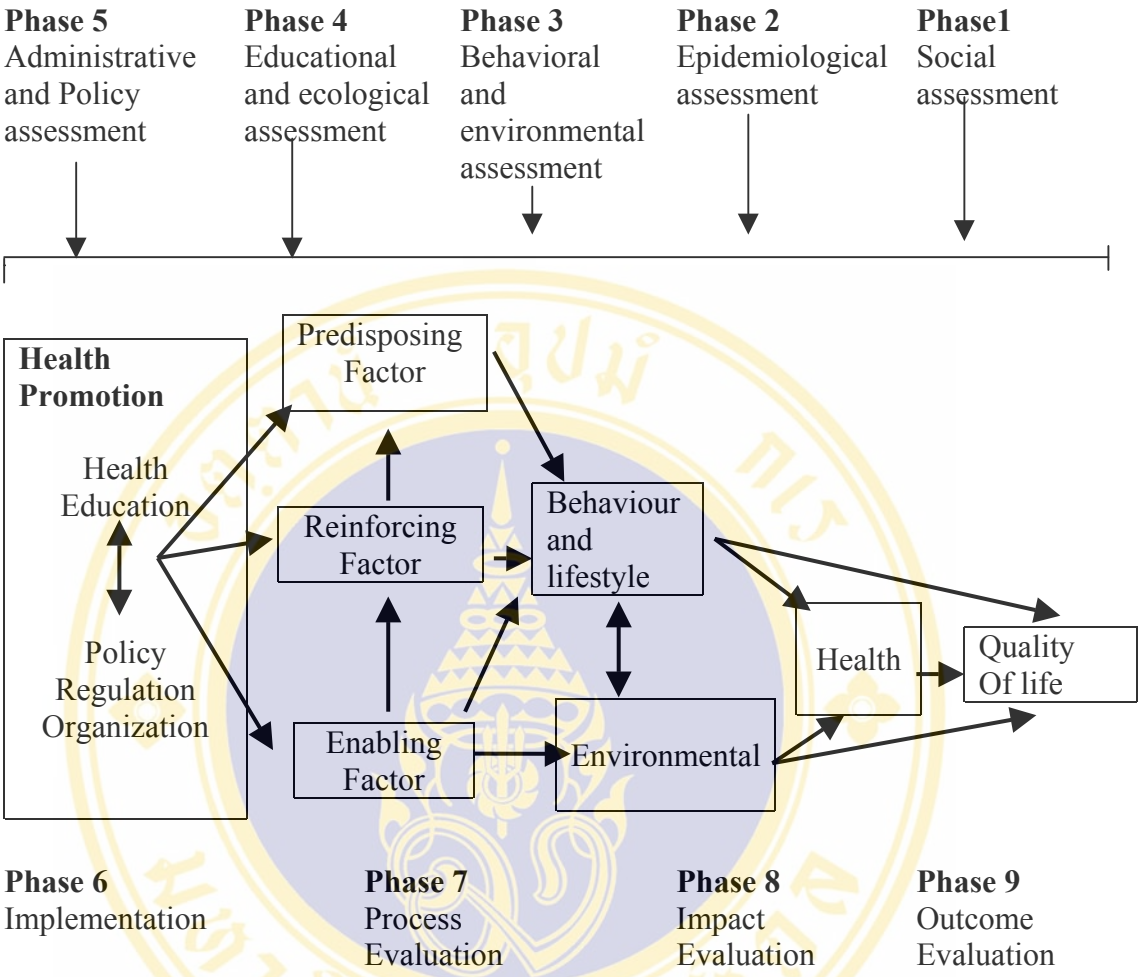


Figure 2: The PRECEDE-PROCED Model for Health Promotion Planning and Evaluation

Sources: Health Promotion Planning; An Educational and Ecological Approach, by Lawrence W. Green and Marshall W. Kreuter, 1999

From 9 phase, this study focus only at phase 4 or educational and ecological assessment and phase 3 or behavioral and life style. Phase 4 was independent variables and will be related to phase 3 was dependent variable. According to phase 3 will be doing some programs to achieving healthy.

2.4 Literature regarding the outcome variable

2.4.1 Exclusive Breast Feeding

Exclusive breast feeding means the infant has received only breast milk (from his/her mother or a wet nurse, or expressed breast milk) and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplement or medicine.

The best breast feeding way to feed a baby is exclusive breast feeding. Babies do not normally need anything other than breast milk, even in the first few days after they are born. They do not need drink of water, even in a hot climate. During periods of exclusive breast feeding, only breast milk enough for baby.

2.4.2 Predominant Breast Feeding

Predominant breast feeding means that baby breast feeds part of the time, but has water. It is have some consequences babies were more likely to become sick and die than exclusive breast feeding, but less likely than babies who are artificial feeding or not breast feed.

2.4.3 Artificial Feeding

Artificial feeding means that infants received breast feeding, bottle feeding, water, and another foods or only bottle feeding or artificial feeding with water and another foods. The dangers of artificial feeding are, 1) the mother and baby may not developed such a close, loving, and relationship, 2) the baby is more likely to become ill with diarrhoea, respiratory, ear, and other infections, 3) the baby may get too little artificial milk and become malnourished, 4) the baby is more likely to die than a breastfed baby, 5) the baby may developed allergic conditions such as eczema, and 6) the baby may get too much artificial milk and become overweight.

2.4.4 Age.

It has been claimed that older mothers are less likely to breast-feed successfully. The evidence for this is the result of analysis of milk from women seven days postpartum. Mother over thirty years of age had a lower average milk yield with a lower fat content than mother s about twenty. This may simple mean that the older women take longer to obtain a full milk yield. It is therefore incorrect and dangerous to conclude that all older women have difficulty breast feeding. Possibly there are may be a few more failures at his age, but there is no reason to suppose that the majority cannot breast feeding successfully (52).

2.4.5 Occupation.

Investigations have been undertaken to study whether women working outside their home breast feed less than non-employed women. The result have so far been inconclusive. It may be that women to varying degrees are able to adapt to difficult living conditions, and that if they are really eager to breast feed they will go to considerable personal sacrifice to do so even if they have to be away from the baby for long periods during the day. The may make up for lack of suckling stimulus during the day by letting the baby suckle often at night (52).

Mothers employed outside the home face special problems when breast-feeding their infants. A survey of employed breast-feeding mothers by Auerbach and Guss (1984) shows that excessive fatigue, the logistics of pumping and storing milk, the excessive time spent traveling to and from the baby during the workday, and concern about having an adequate milk supply were common problems in this group. These problems were compounded by lack of time to complete work duties and the eat properly (55).

In another study, Barber-Madden and colleagues (1987) reviewed published research as well as policy statement of professional group such as the

American Academic Pediatrics (AAP, 1982) and identified six types of barriers to breast-feeding for the employed mothers. These include (1) lack of child care at or near workplace, (2) work environment that do not provide a place for pumping and storing milk, (3) restrictive employer policies that fail to provide adequate maternity leave and job security, (4) social attitudes of employer and coworkers towards breast-feeding that result in disapproval and harassment, (5) inadequate maternal knowledge about breast-feeding, and (6) lack of knowledge concerning breast-feeding on the part of health professionals, especially those in occupation health (55).

2.4.6 Education :

A women's education and social class affect her motivation to breast feed but they way it is affected is different in different parts of the world. In many industrialized countries in the West, breast feeding nowadays is becoming more common among educated and upper class women. On the other hand, in Third World countries the educated and upper class women are more likely to feed their infants artificially. However, in some socialist countries, a woman's education apparently has no effect either way (52).

2.4.7 Family income.

The study conduct in Soongnern Distict, Korat Proince, Thailand, shown that mothers with low-income continuously breast feeding their babies 2.64 times more than mothers with high income. This could be due to the reason that those with low-income had inadequate financial support to by bottle feeding. This result sustains the research done by the Institute of Nutrition and Department Pediatrics Ramathibodi Hospital, Mahidol University (53).

2.4.8. Number of living children

Mothers who had a greater number of children demand more concern with their children. This will increase the conflict between the motherhood and work role, and lead to the barrier of the breast-feeding practice (56).

2.4.9 Knowledge

Regarding to result of above study shown that initially the data did not reveal any significant association between knowledge on benefits of breast feeding and breast feeding practice. However after adjusting mother's educational level and family income or above two variables, the result showed significant association between mother's knowledge an their breast feeding practice. Thus it seems that mother's educational level has greater effect on breast feeding practice than mothers knowledge on benefits of breast feeding (53).

2.4.10 Attitude

Regarding to result of above study shown that there is not any significant association between mother's attitude towards breast feeding and their breast feeding practice. Even after adjusting mother's educational level and family income there was still no significant association between mother's attitude and their breast feeding practice. This study showed that mother's attitude towards breast feeding did not play an important role in determining mother's practice for breast feeding (53).

2.4.11 Accessibility

When the mothers have problems with breast feeding practices should be they visits hospital, clinic or health center to find services toheir problems. The distances and traveling cost from home to place of services (clinic, hospital, health center, etc) were factors have to considered and have related to easy or difficult to achieve the services. The difficult service will make the mothers lazily to find services

and they will self reliance or stop to give breast feeding. Other factor is lack of personal health service in this place.

Even the mothers coming to place of services but there is not health personal to give service or waiting times for receiving health services and appropriate times to get health services were affecting factors to visits place of service and fond service for their breast feeding problems. Most of mothers did not find a good service for their breast feeds problems and then their decided to stop breast feeding practice.

2.4.12 Availability

Working away from home is a common reason for a woman to feed a baby artificially. Many people are concern about improving women's working conditions so that they can breast feed their babies. But improvements will not happen quickly, and many women need support to do the best they can now.

If the work place is near where family live, the mother may be able to go home during the day to breast feed. If the work place is too far, it is best if the mother can take the baby work with her. But there are often no childcare facilities, and it is often difficult to travel to work with the baby.

However, even when breast feeding during working hours is not possible, there are ways in which a mother can feed her child partly or completely on breast milk. The availability about facilities for breast feeds practices in the public facilities such as super market and airports were very important to success breast feeding practice.

2.4.13 Social support of mothers

Breast feeding is the best way for to feed the baby, if there is a way to do it. It is often best if the mother and baby can stay together and supported as a family.

Then she can breast feed at least partially. Social support from family to mother is very important especially from her husband.

The results of the study conduct by Bui Huu Tri (2001) showed that the patterns of correlation in total duration of breast feeding and social support were nearly the same as that in duration of breast feeding and social support. In overall social support and duration of total breast feeding with p-value<0.001 and correlation of 0.408 it could be concluded that the higher level of social support mothers received from others, the longer duration of total breast feeding they could give to their babies (54).

2.4.14 Bottle feeding advertisement.

Advertisement for baby formula encourage bottle feeding. These advertisements often suggest to women that they may not have enough milk, and this makes them lose confidence. Advertisements make people believe that formula is rally very good and that, if the have problem and if they have to use formula, then their baby will be perfectly healthy. This makes it easy for young woman to decide that it is safe to use formula. Pretty picture of babies on tins of formula also encourage women to buy it (1).

Some manufactures give free sample of formula to hospitals or to midwives or even to mothers. If a mothers is given a free sample, she is more likely to fail breast feed. In 1981, the WHO produced the ‘International Code of Marketing of Breast-milk substitutes’. The aim of the code is to control the promotion and advertising of formula. Many countries have now adopted similar codes (1).

CHAPTER III
RESEARCH METHODOLOGY

3.1 Study design

The study design was cross sectional study, to examine the breast feeding practices and relationship between predisposing factors, enabling factors, reinforcing factors and the breast feeding practices among mothers who had children first six months of age. The study will be conduct during one month in two General Hospital and four District Hospital in Singburi Province, Thailand.

3.2 Study population

The study population will be the mothers who had children first six months of age visiting the well child clinics in two general hospitals and four community hospitals in Singburi Province, Thailand. The well child clinics in Singburi Province were purposively selected for this study.

3.3. Sample size

$$n = \frac{Z^{2}_{\alpha/2}\, pq}{d^{2}} \qquad n = \frac{(1.96)^2 * 0.08 * 0.92}{(0.05)^2}$$

The formula for sample size calculation : n = 113

n = is the desired sample size

Z = standard normal score at significant level of 0.05 (two side test) = 1.96

d = allowance for relative error = 0.05

q = 1-p

p = anticipated proportion possessing a characteristic of interest is the percentage of exclusive breast feeding coverage in the year 2001 = 8.3% (14).

3.4 Study instrument

The data was collected by the use of a structured questionnaire that related to factors related to breast feeding practices among mothers with children first six months of age. The questionnaire were divided into four parts as follows :

Part 1. Predisposing factors

1. Socio-demographic characteristics

Socio-demographic characteristics : it is refers to age, occupation, education, family income, and number of children of respondents.

Age: calculate in year. The values were categories into three groups; lower than 20, 20-30, and more than 30.

Occupation : This variable was values categorized into two groups: **Indoor** (house wife and home business) and **Outdoor** (Government, Private, labourer, and farmer).

Education : Five levels of values in these variables were: **Primary school** it means the level of education from grade 1 to grade 6, **Lower secondary school** it means the level of education from grade 7 to grade 9, **Upper secondary school or high school** it means the level of education from grade 10 to grade 12,

Vocational education, and **University level** it means the level of education graduate from university.

Family income: It was categorized into three groups: less than 6,000 bath, 6,000 - 12,000 bath and more than 12,000 bath/month (according to information that the limited of low income in Thailand is 2,000 bath per person. Assumed was one family had minimal 3 members).

Number of children : it was categories to have 1 children, 2 children, and more than 2 children.

2. Knowledge: There are 12 questions from question number 6 to 17, regarding to benefits of breast feeding. The answer was two rating of scales were yes and no. For the correct answered was given 1 (one) points and 0 (zero) point for the incorrect answered. The total score varied from 0 to 12 points. The categories: **High knowledge** were mothers who are able to correctly answer $\geq$ 80 % (10 to 12) of total 12 points, **Moderate knowledge** were mothers who are able to correctly answer 60-79 % (7 to 9) of total 12 points, and **Less knowledge** were mothers who only can answer correctly < 60% (0 to 6) of total 12 points.

3. Attitude : There are 12 questions from question number 18 to 29, about attitude of mother's. The answer was three rating scales: agree, not sure, and disagree. For positive statements, agree was given 3 points, not sure 2 points, disagree 1 point, and vice versa for the negative statement. The total score varied from 0 to 36 points. The categories of attitude based on the mean of data were **Positive attitude** were mothers who are able to can correctly answered more than or equal than mean value of the data concerning the agree and disagree statement about attitude towards breast feeding practice, and **Negative attitude** were mothers who are able to can able correctly answered less than mean value of the data concerning the agree and disagree statement about attitude towards breast feeding practice.

Part 2 Enabling factors :

1 Accessibility: There are **5** questions from question number **30 to 34**, about distances, transportation, traveling cost from home to place of services, waiting times for receiving health services, and service given by health personal. The answer was two rating of scales were yes and no. For the no answered was given 1 (one) points and 0 (zero) point for the yes answered. The total score varied from 0 to 5 points. The categories were **Very easy**: ≥ 80% or 4 to 5 of total 5 points**, Quite easy** : 60-79% or 3 of total 5 points, and **Difficult**: less than 60% or 0 to 2 of total 5 points.

2 Availability: There are **6** questions from question number **35 to 40,** about provided appropriate room for breast feeding practices in public facilities such as in the hospital, supermarket, and airport or bus or train terminal. The answer was two rating of scales were yes and no. For the yes answered was given 1 (one) point and 0 (zero) point for the no answered. The total score varied from 0 to 6 points The categories were **Good availability** : ≥ 80% or 5 to 6 of total 6 points, **Moderate availability** : 60-79% or 4 of total 6 points, and **Low availability** : less than 60% or 0 to 3 of total 6 points.

Part 3. Reinforcing factors

1. Social support : There are **9** questions, from question number **41 to 49**. The answer was two rating of scales were yes and no. For the yes answered was given 1 (one) point and 0 (zero) point for the no answered. The total score varied from 0 to 9 points. The categories were **High social support** : ≥ 80% or 8 to 9 of total 9 points, **Moderate social support** : 60-79% or 6 to 7 of total 9 points, and **Low social support** : less than 60% or 0 to 5 of total 9 points.

2 Bottle feeding advertisement: There are 7 questions, from question 50-56. The answer was two rating of scales were yes and no. For the yes answered was given 1 (one) point and 0 (zero) point for the no answered. The total score varied from 0 to 7 points. The categories were **High exposed mothers**: mother's who can accurately

answer more than 3 out of 7 agree and disagree statement, and **Less exposed mothers**: mother's who can accurately answer less than or equal with 3 out of 7 agree and disagree statement.

Part 4. Breast feeding practice : There are 4 questionnaires, with categories : **Exclusive breast feeding** its mean will be get yes answered for questions giving only breast milk and answered no for another questions, **Predominant breast feeding** its mean will get yes answered for questions giving breast milk and yes answered for the question give water, and **Artificial feeding** its mean will get yes answered for questions giving breast milk and yes answered for the giving bottle feeding, water, and the another food or no answer for the breast feeding and yes answer for the another food. The data will be collect by the method of 24 hour recall.

3.5. Validity and Reliability testing

Before processing to the data collecting process, the researcher submitted questionnaire sheet to thesis advisors in order to check the content validity. Then, the questionnaire was adapted in according to the commend and suggested of thesis advisor and proceeded to the questionnaire pre-tested with 30 mothers who had children one to six months in are similar to the target area of the research.

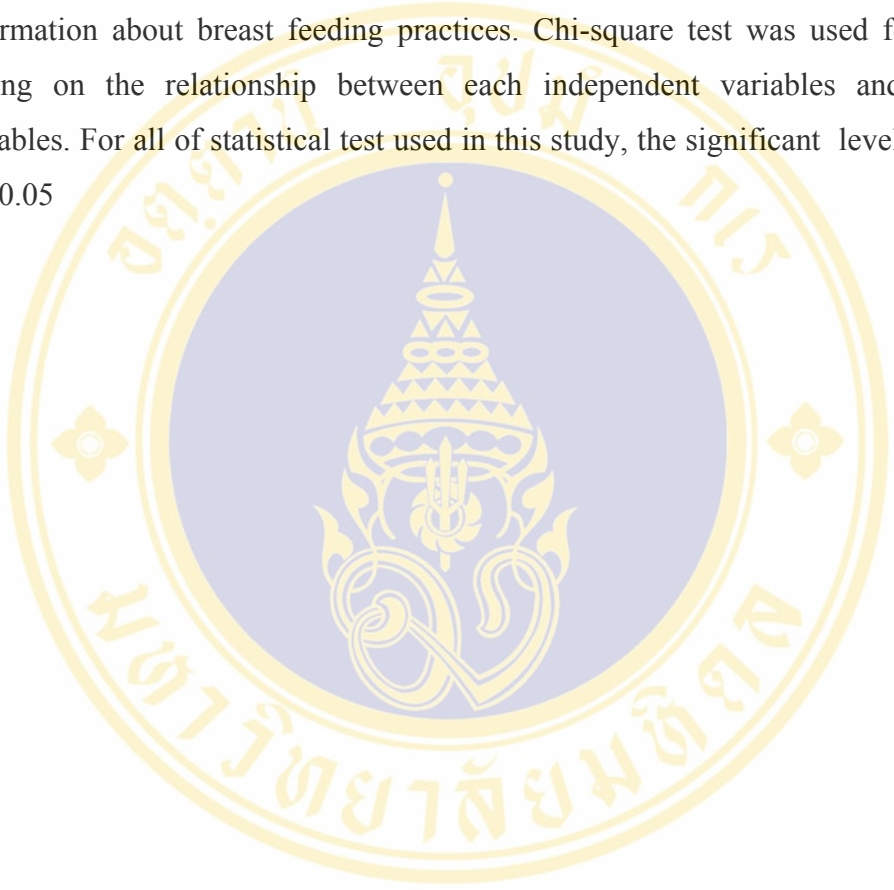
The questionnaires were pre-tested for its reliability by using Cronbach's Alpha method for part of attitude and knowledge. The alpha of reliability was 0.67 for the attitude and 0.61 for the knowledge.

3.6. Data collection procedure

Before data collection, the researcher gets area research from AIHD office. The original questionnaires were in English. The, it was translated into Thai version. There were some persons who had trained for interviewers and filled up the questionnaires in the hospital. Trained interviewers interviewed 130 mothers who had children less than 6 months old.

3.7 Data analysis procedure

Questionnaires were recorded and after collected data were entered in Minitab for window program. Then these data editing and verification were done. After that descriptive statistic such as number and percentage was been used to describe basic information about breast feeding practices. Chi-square test was used for statistical testing on the relationship between each independent variables and dependent variables. For all of statistical test used in this study, the significant level was set at $\alpha = 0.05$



CHAPTER IV
RESULTS

This study was conducted by interviewing 130 mothers who have child aged from 1 to 6 months to investigate their breast-feeding practices and their relationship between predisposing factors, enabling factors, reinforcing factors and breast-feeding practices. Respondent selected in this study were the mothers who visited well baby clinics in two general hospitals and four community hospitals in Singburi Province during 9th January to 6th February 2004.

The study results were presented in five sections as follows:

Part 1 : Characteristic of predisposing factors, such as
1. The socio-demographic characteristics of respondents
2. Knowledge of respondents about benefits of breast-feeding practices
3. Attitude of respondents regarding to breast feeding practices

Part 2 : Characteristic of enabling factors, such as:
1. Accessibility to health services
2. Availability places for breast-feeding practice

Part 3 : Characteristic of reinforcing factors, such as:
1. Social support
2. Bottle feeding advertisement

Part 4 : Characteristic of breast-feeding practices, such as:
1. Practice exclusive breast-feeding
2. Practice predominant breast-feeding
3. Practice artificial feeding

Part 5 : The relationship between breast-feeding practice and predisposing factors, enabling factors, and reinforcing factors.

4.1. Predisposing factors

4.1.1 Socio-demographic characteristics

Table 2 presented the distribution of respondents according to their socio-demographic characteristics, such as age, education, occupation, family income and number of children.

The age of total number of 130 respondents range from 16 to 41 with mean age of 27.2 years old. 55.4 percent of the respondents were in the middle reproductive age, ranging 20 – 30 years old. The age group less than 20 years old and age group more than 30 years old 13.1 percent and 31.5 percent, respectively.

In term of education, respondents who got primary school level was taking the largest proportion (26.9 percent) among educational distribution of the respondents, followed by 22.3 percent for secondary school (grade 7 to 9), 19.2 percent for vocational school, 16.2 percent for secondary school (grade 10 to 12), and 15.4 percent for bachelor education or above.

Regarding occupation of the respondents, indoor and outdoor working groups almost equally divided in the sample (50.8 percent and 49.2 percent). Most of the respondents (43.1 percent) were housewives and then private employees (13.8 percent), labourer (13.1 percent), self-business outdoor (10.0 percent), government employees (8.5 percent), home business (7.7 percent), and farmer (3.8 percent).

Concerning the family income, the average of family income of the total respondents really has wide gap, ranging from 2,000 bath to 100,000 bath per month. Nearly half of the respondents (48.5 percent) had the family income less than 6,000 bath per month, followed by the family income from 6,000 – 12,000 bath per month (31.5 percent) and there were 20 percent respondents had family income more than 12,000 bath per month.

Half of the respondents had number of living children was 1 children (50.0 percent), followed the respondents had 2 children (39.2 percent), and only 10.8 percent respondent had children more than 2. The minimum children was one, maximum children which respondents had was 6 children.

Table 2 Number and percentage of respondents classified by socio-demographic characteristics

Socio-demographic characteristics	Number	Percentage
Age group (years old)	**(N = 130)**	
< 20	17	13.1
20 – 30	72	55.4
> 30	41	31.5
Mean ±SD = 27.2±6.2, Median = 26.5	**Min = 16**	**Max = 41**
Educational level	**(N = 130)**	
Primary school (grade 1 – 6)	35	26.9
Secondary school (grade 7 – 9)	29	22.3
Secondary school (grade 10 – 12)	21	16.2
Vocational education	25	19.2
Bachelor education or above	20	15.4
Occupation	***(N = 130)***	
Indoor:		
House wife and home business	66	50.8
Outdoor:		
Employees, labourer, Farmer, and business	64	49.2
Family income (bath per month)	**(N = 130)**	
< 6,000	63	48.5
6,000 – 12,000	41	31.5
> 12,000	26	20.0
Mean = 10,221, Median = 6,000	**Min = 2,000**	**Max = 100,000**
Number of living children	***(N=130)***	
1 children	65	50.0
2 children	51	39.2
> 2 children	14	10.8
Mean = 1.67, Median = 1.50	**Min = 1**	**Max = 6**

4.1.2 Knowledge of respondents about breast-feeding

Based on the criterion mentioned in chapter 3, from 12 questions related to respondents knowledge on benefits of breast-feeding asked during the interview it was found that 53.1 percent respondents had high knowledge on benefits of breast-feeding. The second highest was the respondents had moderate knowledge 40.0 percent, and 6.9 percent of the respondents had less knowledge (Table 3).

Table 3 Number and percentage of level of knowledge of respondents about benefits of breast-feeding

Level of Knowledge	Number (N=130)	Percentage
High knowledge (10 to 12)	69	53.1
Moderate knowledge (7 to 9)	52	40.0
Less knowledge (0 to 6)	9	6.9
Mean $\pm$ SD = 9.4$\pm$1.7	**Min = 5**	**Max = 12**

According to the questionnaires of knowledge of mother about breast-feeding (Table 3.1 in appendix B), there are four questions which respondents good correct answered more than 90 percent; 1) question number 11 about the breast feeding cheaper than bottle feeding (96.2 percent), 2) question number 5 about the breast feeding can protect the baby from ARI (92.3 percent), 3) question number 9 about the bottle feeding more easily digested by the baby as compared with breast feeding (90.8 percent), 4) question number 10 about the breast feeding always clean (90.8 percent).

For the questionnaires which very few mothers gave correct answer were 1) question number 3 about the baby first to six months who receiving only breast milk needs water (34.6 percent) and 2) question number 7 about the breast feeding can protect the mother from being pregnant (62.3 percent). The completed result showed in Table 3.1 in appendix B.

4.1.3 Attitude of mothers regarding breast-feeding

According to the results of this study, 55.4 percent respondents were positive attitude and 44.6 percent were negative attitude (Table 4).

Table 4 Number and percentage distribution of respondents by level of attitude regarding to breast-feeding

Level of attitude	Number (N=130)	Percentage
Positive attitude (29 to 36)	72	55.4
Negative attitude (0 to 28)	58	44.6
Mean±SD = 28.8±4.6, Median = 30.0	**Min = 18.0**	**Max = 36.0**

According to the questionnaires of attitude of mother regarding breast-feeding (Table 4.1 in appendix B), there are two questions which respondents had positive attitude more than 90 percent; question number 5 about breast- feeding is normal practice and it is according to the norm (98.4 percent), and question number 6 about breast-feeding is more suitable for mother even though you have money to buy formulated infant feeding (95.4 percent).

4.2 Enabling factors

4.2.1 Accessibility of health services

The accessibility to health services was showed by the problems of respondents about the distance, transportation and travelling cost between health services (hospital) and their houses, the problem about waiting times to get health services in hospital and the problem about the services given by health personal.

Table 5 showed that 93.8 percent respondents were very easy to access to health services, 4.6 percent respondents were quite easy to access to health services and only 1.5 percent were difficult to access to health services.

Table 5 Number and percentage distribution of respondents by the accessibility to health services

Level of accessibility	Number (N=130)	Percentage
Very easy (4 to 5)	122	93.8
Quite easy (3)	6	4.6
Difficult (0 to 2)	2	1.5
Mean±SD = 4.7±0.7, Median =5.0	**Min =0**	**Max =5**

The most problem was about waiting time were 19.5 percent of respondents felt that it was problem. The less problem for the accessibility was travelling cost, only 0.8 percent of respondents felt that it was problem (Table 5.1 in appendix B).

4.2.2 Availability of the appropriate room

For availability, six items were used to know the level of availability, such as, appropriate room/place for breast feeding in hospital, supermarket, and bus terminal or train station or air port, and the utility of these place. According to the criteria in chapter 3, all of respondents (100 percent) were low availability. For each items, 15 (11.5) percent respondents answered that there was appropriate room/place for breast feeding in the hospital, but only 5 respondents ever used it. For the appropriate room for breast feeding in the supermarket, only two (1.5 percent) respondents answered it was available but only one respondent ever used this room. For the appropriate room in the terminal, one (0.8 percent) respondent answered it was available but never used this room (Table 6).

Table 6. Number and percentage distribution of availability appropriate room/place for breast feeding in hospital, supermarket, and bus terminal/train station/air port.

Item questions	Number	percentage
Appropriate room/place in hospital	15	11.5
Ever using	5	3.8
Appropriate room/place in supermarket	2	1.5
Ever using	1	0.8
Appropriate room/place in terminal	1	0.8
Ever using	0	0.0

What the respondents do if there is not appropriate room when their babies need breast feeding? 56.9 percent of respondents answered that they will give breast feeding any where, 39.1 percent of respondents will give bottle feeding instead breast feeding, 1.6 percent go to corner and give breast feeding, 1.6 don't know how to do, and 0.8 percent don't give breast feeding (Table 6.1 in appendix B).

4.3 Reinforcing factors

4.3.1 Social support

According to the results of this study in table 7, 42.3 percent of respondents received low social support, 29.2 percent received high social support, and 28.5 percent received moderate social support. The strong social support came from husband, 86.9 percent of husband's did the household chores letting the respondents to practice breast-feeding and 74.6 percent of husband encouraged to exclusive breast-feeding, but a few husband's told about disadvantages of bottle feeding (38.5 percent).

Social support also came from the relatives, of which 71.5 percent of relatives encouraged to exclusive breast feeding and 56.2 percent of relatives told about

disadvantages of bottle feeding. For the friends, 62.3 percent of friends gave information about the advantages of exclusive breast feeding and 50.8 percent of friends told about the disadvantages of bottle feeding. Additionally, 83.1 percent of respondents answered that health volunteer/health personnel gave information about the advantages of exclusive breast feeding and 70.8 percent of health volunteer/health personnel told about disadvantages of bottle feeding. The completed result showed in Table 7.1 in appendix B.

Table 7 Number and percentage distribution of respondents by level of Social support

Level of social support	**Number (N=130)**	**Percentage**
High social support (8 to 9)	38	29.2
Moderate social support (6 to 7)	37	28.5
Low social support (0 to 5)	55	42.3
Mean±SD = 5.95±2.1, Median = 6.0	**Min = 1**	**Max = 9**

4.3.2 Bottle feeding advertisement

According to result of bottle feeding advertisement as showed in Table 8, 45.4 percent of respondents were high exposed by bottle feeding advertisement and 54.6 percent were less exposed.

In the Table 8.1 in appendix B showed that the highest of exposed came from television (75.4 percent), then magazine/news paper (70 percent). Half of respondents (57.7 percent) exposed bottle feeding information from friends, 36.9 percent from milk company and 43.1 percent from health staff. Table 8.1 also showed, that 36.9 percent respondents got sample powder milk from milk companies and 18.5 percent got from health staff.

Table 8 Number and percentage distribution of respondents by bottle feeding advertisement

Bottle feeding advertisement	Number (N=130)	Percentage
High exposed mother (4 to 7)	59	45.4
Less exposed mother (0 to 3)	71	54.6
Mean±SD = 3.3±1.8, Median = 3.0	**Min = 0**	**Max = 7**

4.4 Breast feeding practices

As mentioned in chapter 3 that breast-feeding practices had categories to 3 types, practice exclusive breast feeding, practice predominant breast-feeding and practice artificial feeding. Table 9 showed that there were 12.3 percent respondents were exclusive breast-feeding, 20.8 percent respondents were practice predominant breast-feeding, and 66.9 percent respondents were practice artificial feeding.

Table 9 Number and percentage distribution of respondents by breast feeding practice

Breast-feeding practice	Number (N=130)	Percentage
Practice exclusive breast feeding	16	12.3
Practice predominant breast feeding	27	20.8
Practice artificial feeding	87	66.9

According to age of children, children who had age 0 to 2 months, 12.5 percent were practice exclusive breast feeding, 37.5 percent were practice predominant breast feeding, and 50 percent were practice artificial feeding. Children who had age 2 to 4 months, 10.8 percent were practice exclusive breast feeding, 13.5 percent were practice predominant breast feeding, and 75.7 percent were practice artificial feeding. Children who had age 4 to 6 months, 13.5 percent were practice exclusive breast feeding, 2.7 percent were practice predominant breast feeding, and 83.8 percent were practice artificial feeding (Table 9.1 in appendix B).

Table 9.2 in appendix B showed that beside the practice exclusive breast feeding 12.3 percent, other types of breast feeding practices were breast feeding with water 20.8 percent, breast feeding with food or bottle feeding or combination 28.5 percent, and bottle feeding alone or bottle feeding with food 38.4 percent.

4.5 The relationship between factors related and breast-feeding practices

In order to determine the relationship between predisposing, enabling and reinforcing factors and breast-feeding practice, cross tabulation and chi-square tests were carried out in this analysis.

4.5.1 Predisposing factors

4.5.1.1 Relationship between socio-demographic characteristics of mothers and breast feeding practices

As seen in table 10 that mothers who had age under 20 years old, 20 – 30 years old, and more than 30 years old, mostly practice artificial feeding, 52.9 percent, 66.6 percent, and 73.2 percent respectively. It was found that relationship between age of mothers and breast-feeding practice was not significant (p-value 0.122).

Table 10 was found that mothers who had level of education primary school, secondary school, and high school, mostly practice artificial feeding, each percentage 51.4 percent, 68.0 percent, and 77.8 percent, respectively. Statistical analysis shown that relationship between education of mothers and breast-feeding practice was not significant (p-value 0.119).

Table 10 also described that mothers who had occupation indoor and outdoor mostly practice artificial feeding, but proportion in indoor group less than the outdoor group, 56.1 percent and 78.1 percent, respectively. Statistical analysis was shown that relationship between occupation of mothers and breast-feeding practice was significantly (p-value 0.015).

Family income as described in table 10 that mothers who had family income less than 6,000 Bath per month, 6,000 – 12,000 Bath per month, and more than 12,000 Bath per month mostly practice artificial feeding, but less proportion in low income group, 54.0 percent, 75.6 percent, and 84.6 percent, respectively. Statistical analysis shown that relationship between family income of mothers and breast-feeding practice was significant (p-value 0.025).

Table 10 also showed that mothers who had one, two, and more than two children were practice artificial feeding, 63.1 percent, 70.6 percent, and 71.4 percent, respectively. Statistical analysis shown that relationship between number of living children and breast-feeding practice was not significant (p-value 0.506).

Table 10 Relationship between breast-feeding practices and socio-demographic characteristics

Socio demographic Characteristics	Breast feeding practice						$\chi 2$ (df)	P-Value
	Exclusive		Predominant		Artificial			
	N	%	N	%	N	%		
Age								
< 20	1	5.9	7	41.2	9	52.9	7.271	0.122
20 – 30	12	16.7	12	16.7	48	66.6	(4)	
> 30	3	7.3	8	19.5	30	73.2		
Educational level								
Primary school	5	14.3	12	34.3	18	51.4	7.338	0.119
Secondary school	6	12.0	10	20.0	34	68.0	(4)	
High school	5	11.1	5	11.1	35	77.8		
Occupation								
Indoor	9	13.6	20	30.3	37	56.1	8.423	**0.015***
Outdoor	7	10.9	7	10.9	50	78.1	(2)	
Family income								
< 6,000	9	14.3	20	31.7	34	54.0	11.156	**0.025***
6,000 – 12,000	5	12.2	5	12.2	31	75.6	(4)	
> 12,000	2	7.7	2	7.7	22	84.6		
Number of living children								
1 children	7	10.8	17	26.1	41	63.1	3.319	0.506
2 children	8	15.7	7	13.7	36	70.6	(4)	
> 2 children	1	7.2	3	21.4	10	71.4		

* = Significant different at p-value < 0.05

4.5.1.2 Relationship between knowledge of respondents about breast-feeding and breast-feeding practice

Statistical analysis of the knowledge used two categories as low knowledge by combined moderate and less knowledge, and high knowledge. Table 11 showed that mothers who had high of knowledge about benefits of breast-feeding mostly practice artificial feeding, but less proportion in the high knowledge group, 75.4 percent and 59.4 percent, respectively. Statistical analysis showed that relationship between knowledge of mothers about benefits of breast-feeding and breast-feeding practice was not significant (p-value 0.149).

Table 11 Relationship between breast-feeding practices and knowledge of respondents about benefits of breast feeding

Knowledge of mothers	Breast feeding practice						$\chi 2$	P-Value (df)
	Exclusive		Predominant		Artificial			
	N	%	N	%	N	%		
Low knowledge	6	9.8	9	14.8	46	75.4	3.809	0.149
High knowledge	10	14.5	18	26.1	41	59.4	(2)	

4.5.1.3 Relationship between attitude of respondents regarding breast-feeding and breast-feeding practice

Table 12 showed that mothers who had the positive attitude and negative attitude mostly practice artificial feeding, both groups were similar, 66.2 percent and 67.7 percent. Statistical analysis showed that relationship between attitude of mothers regarding breast-feeding and breast-feeding practice was not significant (p-value 0.890).

Table 12 Relationship between breast-feeding practices and attitude of respondents regarding to breast feeding practice

Attitude of mothers	Breast feeding practice							
	Exclusive		Predominant		Artificial		$\chi 2$ (df)	P-Value
	N	%	N	%	N	%		
High positive attitude	9	12.5	16	22.2	47	65.3	0.234	0.890
Moderate positive attitude	7	12.7	11	19.0	40	68.9	(2)	

4.5.2 Enabling factors

4.5.2.1 The relationship between accessibility and breast-feeding practices

Due to the homogenous of accessibility data which 93.8 percent respondents answered very easy to access health services, so it could not done the statistical analysis. According to the cross tabulation between accessibility to health services and breast-feeding practice, mothers who had very easy to access health services were 12.3 practice exclusive breast-feeding, 22.1 percent practice predominant breast-feeding, and 65.6 percent practices artificial feeding (Table 13).

Table 13 Cross tabulation breast-feeding practices and accessibility to health services of respondents

Breast Feeding Practices	Accessibility to health services					
	Very Easy		: Difficult		Total	
	No	%	N	%	N	: (%)
Exclusive Breast Feeding	15	12.3	1	12.5	16	12.3
Predominant Breast Feeding	27	22.1	0	0.0	27	20.8
Artificial Feeding	80	65.6	7	87.5	87	66.9
Total	**122**	**100.0**	**8**	**100.0**	**130**	**100.0**

For availability, all respondents indicated less availability (100 percent). Thus, the statistical analysis for relationship and also for cross tabulation was omitted.

4.5.3 Reinforcing factors

4.5.3.1 Relationship between social support and breast-feeding practice

As shown in table 14 mothers who had high social support, moderate social support, and low social support mostly practice artificial feeding, 69.1 percent, 67.6 percent, and 63.2 percent, respectively. Statistical analysis found the relationship between social support and breast-feeding practice was not significant (p-value 0.270)

Table 14 Relationship between breast-feeding practices and level of social support

Level of Social support	Breast feeding practice							
	Exclusive		Predominant		Artificial		$\chi 2$ (df)	P-Value
	N	%	N	%	N	%		
High social support	8	21.0	6	15.8	24	63.2	5.169	0.270
Moderate social support	2	5.4	10	27.0	25	67.6	(4)	
Low social support	6	10.9	11	20.0	38	69.1		

4.5.3.2 Relationship between bottle feeding advertisement and breast-feeding practice

As shown in table 15 mothers who exposed and non exposed of bottle feeding advertisement mostly practice artificial feeding, each percentage 64.4 percent and 69.0 percent. Statistical analysis found the relationship between bottle feeding advertisement and breast-feeding practice was not significant (p-value 0.443)

Table 15 Relationship between breast-feeding practice and bottle feeding advertisement

Bottle feeding advertisement	**Breast feeding practice**							
	Exclusive		Predominant		Artificial		$\chi 2$	P-Value
	N	%	N	%	N	%	(df)	
Exposed mother	6	10.2	15	25.4	38	64.4	1.630	0.443
Non exposed mother	10	14.1	12	16.9	49	69.0	(2)	

In conclusion:

1. Characteristics of breast feeding practices were exclusive breast-feeding 12.3 percent, predominant breast-feeding 20.8 percent, and artificial feeding 66.9 percent.

2. Relationship between variables of occupation of mothers and family income and breast feeding practice among mothers in Singburi province had significant (p-value < 0.05)

3. Relationship between variables age, education, number of children, accessibility to health services, availability of place for breast feeding, social support, bottle feeding advertisement, and breast feeding practice among mothers in Singburi province had not significant.

CHAPTER V
DISCUSSION

This study was conducted by interviewing 130 mothers who had children aged from 1 to 6 months who came to well-baby clinics in Singburi province during 9th January to 6th February 2004. The finding discussion as follows ;

5.1 Breast-feeding practice among mothers

In regard to breast-feeding practice, it was found that 12.3 percent of them practiced exclusive breast-feeding, 20.8 percent practiced predominant breast-feeding, and 66.9 percent practiced artificial feeding. In previous study (2001) in Thailand, it was found that the average of exclusive breast-feeding was 16.3 percent with higher in the northeast of the country 24.4 percent, and the lower in the central 8.3 percent. Average predominant breast-feeding were 28.4 percent (12). Singburi province located in central of Thailand, the estimated of exclusive breast-feeding was 8.3 percent.

According to age of children in Table 9.1 in appendix B showed that there was 5 children (13.5 percent) who had age 4-6 months were practice exclusive breast-feeding practice. It was indicated that the new policy about duration of exclusive breast-feeding which adopted by Thailand since 2003 had been apply by the communities.

One of problem on breast feeding practice was misunderstanding about water while the mothers giving water to their infants during breast-feeding practice. It was indicated that 20.8 percent of mothers were giving breast-feeding and water together and it was supported by the question number 3 of the knowledge about the baby first to six months who receiving only breast milk needed water (65.4 percent). Even though there was misunderstanding but the increased 4 percent of practice exclusive

breast-feeding was a success, and it was indicated that some of the mothers have been accepted the government programs concerning breast-feeding.

The practice of giving water was not matter only in Thailand. Research conduct in the outskirts of Lima, Peru showed that 83 percent of infants received water and teas in the first month. Studies in several communities of the Gambia, the Philippines, Egypt, and Guatemala reported that over 60 percent of newborns were given sugar water and/or teas (57).

The another thing was about attitude of mothers regarding to breast feeding. For the question number 7 about your baby will get same benefits whether you breast feeding or bottle feeding were 33.1 percent mothers disagree, 16.1 percent not sure, and 50.8 percent agree. Its mean that more than half of mothers (50.8 percent) agree that benefits of breast feeding same with bottle feeding.

5.2 The relationship between breast-feeding practice and predisposing factors

5.2.1 Age of mothers

The statistical analysis found that the relationship between age of the mothers and breast-feeding practice was not significant (p-value 0.122). It was because most of the mothers who has age more than 30 years old had worked outdoor (73.2 percent) and most of the mothers who had worked outdoor were artificial feeding (Table 10.1 in appendix B).

The important thing to take attention is the woman who married in young of age or adolescent mothers. 13.1 percents of mothers were young or less than 20 years old and it was more than standard of adolescent mothers in Thailand was 10 percent. Mostly adolescent mothers was lacks of knowledge about take keeper of infants include how to give breast-feed.

5.2.2 Education of mothers

Same as age, the relationship between educational level of mothers and breast-feeding practices was not having significant different (p-value 0.119). It was because the education of mothers had related to the occupation which most of the mothers who had high education working outdoor (71.1percent) while the mothers who had low education (54.3 percent) working indoor (Table 10.2 in appendix B).

This result relevance to Elisabeth Helsing and F. Savage King (52) found that relationship between education of mothers and breast-feeding depended on the situation in this country. In many industrialized countries in the west, breast-feeding nowadays is becoming more common among educated and upper class women. On the other hand, in third world countries the educated and upper class women are more likely to feed their infants artificial (52). If we look at the condition in Thailand today is transition era from the developing to developed state.

5.2.3 Occupation of mothers

The mothers who had occupation indoor as house wife and home business more likely to practice exclusive breast-feeding (13.6 percent) than mother who had occupation out door as like government employ, private, laborer, farmer, and business (10.9 percent). Statistical analysis found that the relationship between occupation of mothers and breast-feeding practice was significant difference (p-value 0.015).

It was because the mothers who working outdoor had less time with her baby and also less frequency to give the breast-feeding. Therefore, some of them used the artificial feeding and it was have two consequence, 1) infants will not like sucking the breast because they experienced already with drops of the bottle, and 2) because of using bottle feeding, breast of mothers will not produce milk due to lack of stimulation of the baby

Some previous study had shown that there was strongly significant difference in the median duration of full breast-feeding between indoor and outdoor working groups (54). Mothers employed outside the home face special problems when breast-feeding their infants. A survey of employed breast-feeding mothers by Auerbach and Guss (1984) showed that excessive fatigue, the logistics of pumping and storing milk, the excessive time spent traveling to and from the baby during the workday, and concern about having an adequate milk supply were common problems in this group. These problems were compounded by lack of time to complete work duties and the eat properly (55).

In another study, Barber-Madden and colleagues (1987) reviewed published research as well as policy statement of professional group such as the American Academic Pediatrics (AAP, 1982) and identified six types of barriers to breast-feeding for the employed mothers. These include (1) lack of child care at or near workplace, (2) work environment that do not provide a place for pumping and storing milk, (3) restrictive employer policies that fail to provide adequate maternity leave and job security, (4) social attitudes of employer and coworkers towards breast-feeding that result in disapproval and harassment, (5) inadequate maternal knowledge about breast-feeding, and (6) lack of knowledge concerning breast-feeding on the part of health professionals, especially those in occupation health (55).

5.2.4 Family Income

Mothers who had family income which less than 6,000 Bath per month more likely practice exclusive breast-feeding than mothers who had income 6,000 – 12,000 Bath per month and mother who had income more than 12,000 Bath per month. Statistical analysis found, that the relationship between family income and breast-feeding practice were significant difference (p-value 0.025).

It was because the mothers who had high family income had a large opportunity to buy artificial feeding. Most of the mothers who had family income also exposed by the advertisement bottle feeding (53.9 percent). For the mothers who had

family income and exposed by bottle feeding advertisement, they had high possibility to practice artificial feeding. It could be become big problems, because the mothers who having low income usually like to pretend the upper class or high income (Table 10.3 in appendix B).

Result of this study almost the same with the study conducted in Soongnern District, Korat Province, Thailand, where mothers with low income continuously breast-feeding their babies 2.64 times more than mothers with high income. This could be due to the reason that those with low income had inadequate financial support to buy bottle-feeding. This result sustains the research done by the Institute and Department Pediatrics Ramathibodi Hospital, Mahidol University (53).

A relationship between family income and breast-feeding practices especially the practice artificial feeding needs the attention, because the economic growth in Thailand seemed well. Therefore, it needs the good strategy to the changing knowledge and attitude of mothers through advertising in television and other mass media.

5.2.5 Number of living children

Statistical analysis showed that relationship between number of living children and breast-feeding practice were not significant (p-value 0.506). In the beginning assumed that number of living children had related to breast-feeding practice, but due to the income indicated that all of the group of the children (one child, two children, and more than two children) most of them had low family income, 49.2 percent, 41.2 percent, and 71.4 percent, respectively (Table 10.4 in appendix B). Therefore, number of children had not related to the breast-feeding practice because effect of the family income.

5.2.6 Knowledge of mothers about benefit of breast-feeding

Statistical analysis had shown that relationship between level of knowledge of mothers about benefits of breast-feeding and breast-feeding practice were not significant difference (p-value 0.149). It was because that most of the mothers who had high knowledge (50.7 percent) working outdoor (Table 10.5 in appendix B) and most of the mothers who working outdoor were not practice exclusive breast-feeding (Table 10).

Previous study about continuous breast-feeding practice had shown that initially the data did not reveal any significant relationship between knowledge of mothers about benefits of breast-feeding and breast-feeding practice (53). Even though there were 53.1 percent of mothers who had very adequate knowledge but it was not enough to increase the awareness of mother what else to make them to adopted the practice exclusive breast-feeding.

The number of high knowledge (50.7 percent) were not grantee that the mothers would be practice exclusive breast-feeding, because there was the important knowledge about breast-feeding practice but very few mothers had corrected answered. This knowledge for the question number 3 about the baby first to six months who receiving only breast milk needs water, only 34.6 percent of mothers had the corrected answered.

The knowledge and behavior that infants need water as like some one after eat needs drink water or water needs for the clean mouths of infants were the incorrect belief. It is necessary the appropriate methods to give understanding to community about the water and breast-feeding for the infants 0 – 6 months.

5.2.7 Attitude of mothers towards breast-feeding

Statistical analysis had shown the relationship between attitude of mothers towards breast-feeding and breast-feeding practice was not significant

(p-value 0.890). It was mean that attitude of mothers towards breast-feeding practice did not play an important role in determining mothers practice for the breast-feeding practice.

It was because there was some items of attitude that the mothers did not agree but the items very important to successful exclusive breast-feeding. For example question number 2 about it is more prestigious to bottle feeding than breast-feeding your baby where 64.6 percent of mothers were agree. It means that the things and they agree that bottle-feeding more prestigious than breast-feeding. During the have attitude that bottle feeding more prestigious than breast-feeding as long as this time they will like artificial feeding. Another example is 84.6 percent the mothers agree with question number 4 about it is shameful to breast feed babies in the public. If they are shameful and there were not special room/place for the breast-fed, most possible the will not give breast-fed to their children.

5.3 The relationship between breast-feeding practice and enabling factors

5.3.1 Accessibility

The hospital closed to the community, transportation available, easy to access, and not expensive, health services quickly and health personnel helpful mothers were the reasons why 93.8 percent mothers answered that accessibility to get health services were very easy. The result was homogeneous, so it was not to be statistical analysis.

The health services very easy to access were the important thing to the increased the public health. The facility of health closed to the community is the opportunities to make the programs to be success include the exclusive breast-feeding efforts. Even though almost there was not problem, but from the five items to assess the accessibility, waiting time was the most problem (18.5 percent).

5.3.2 Availability

For the availability of the appropriate room/place for the breast-feeding practice in hospitals, supermarket, and terminal bus or station train or airport was low availability (100 percent). Even though there were 11.5 percent mothers answered that in hospital available appropriate room for the breast-feeding, but only 3.8 percent were using this place. It was make mothers giving breast-feeding any where (56.9 percent) and mother giving bottle feeding instead breast-feeding (39.1 percent). Therefore, the available of the room for breast-feeding practice may be will make mother confidence to give their baby breast-feed.

5.4. The relationship between breast-feeding practice and reinforcing factors

5.4.1 Social support

Mothers who had high social support was 21.0 percent more likely to practice exclusive breast-feeding than mothers who had low social support was 10.9 percent, and mothers who had moderate social support was 5.4 percent (Table 14). Statistical analysis had shown the relationship between social support and breast-feeding practice was not significant (p-value 0.270).

It was not significant due to the occupation of mothers, because 50 percent of mothers who had high social support working outdoor, so the affecting of outdoor working more strong than social support (Table 10.6 in appendix B). But if the social support very strong may be it will be affect to the breast-feeding practice, even though they had working outdoor.

The most problem of social support was only 38.5 percent husband told to their wife about disadvantages of bottle feeding. Even though husband did the household chores for letting a time to practice breast-feeding but it did not mean that they have promoted breast-feeding. That is way, for the program needs not only to promote exclusive breast-feeding for the mothers but also to the husband.

Health volunteer/health personnel were active to promoted exclusive breast-feeding can show that 83.1 percent of them said about advantages of exclusive breast-feeding and 70.8 percent told about disadvantages bottle feeding. Social support from the friends also need to increased because only 50.8 percent friends told about the disadvantages of bottle feeding.

Social support for encouraging the practice exclusive breast-feeding was needed, as some theory of the change a behavior like diffusion theory and social network theory, explained the importance of social support. The methods like person to person, by way of particular channels, interaction between two or more people. Social networks are defined in term of family relationships, friendships, or commercial relationships (58).

5.4.2 Bottle feeding advertisement

Relationship between mothers who were exposed to bottle feeding advertisement and mothers who were not exposed to bottle feeding advertisement there was not significant. It was because the percentages mothers who exposed bottle feeding advertisement and mothers who not exposed bottle feeding advertisement almost similar, 45.4 percent and 54.6 percent, respectively (Table 8). Another reasons were different proportion between exposed and non exposed bottle feeding advertisement and low family income almost the same. (Table 10.7 in appendix B).

It was also related to the occupation, because the proportion of exposed and not exposed by bottle feeding advertisement not high different between indoor and outdoor occupation (Table 10. 8 in appendix B)

The another important related to the some questions in Table 8.1 in appendix B, that the mothers who got information bottle feeding by milk factory also got samples bottle feeding from company. It was indicated that Milk Company not only promotes but also providing bottle-feeding.

Activity of health staff for providing information regarding bottle feeding (43.1 percent) and giving sample bottle feeding (18.5 percent) to the mothers, was the barrier for the success of the exclusive breast-feeding effort. Because most of the mothers instead the health staff and when the health staff promoted this product usually they followed. They are not only adopted themselves but also carried the message to their friends, relative, etc.

Free sample by milk factory was happened in some countries. Some manufactories give free sample of formula to hospitals or to midwives or even to mothers. If a mother is given a free sample, she is more likely to fail breast-feed. In 1981, the WHO produced the "International Code of Marketing of Breast-milk Substitutes". The aim of the code is to control the promotion and advertising of formula. Many countries have now adopted similar code (1).

The advertisement from mass media as such as television (75.4 percent) and magazine (70.0 percent) needs to take attention. These advertisement often suggest to women that they may not have enough milk, and this makes them lose confidence. Advertisements make people believe that formula is rally very good and their baby will be perfect healthy. This market is easy for young woman to decide that it is safe use formula. Pretty picture of babies on tins of formula also encourage women to buy it (1).

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The objective of this study was to determine the factors related to breast feeding practice among mothers in Singburi Province. A structured questionnaire was used for data collection of 130 mothers who came to well baby clinics in two general hospitals and four community hospitals in Singburi province, Thailand, during 9th January to 6th February 2000. Chi-square analysis applied to measure the relationship between predisposing factors, enabling factors, reinforcing factors and breast-feeding practices. Based on the results of the study and interpretation, the conclusion could be made as follows:

Among total 130 mothers who became sample of this study had age from 16 to 41 with mean age of 27.2 years old. 55.4 percent of the respondents were in the middle reproductive age, ranging 20 – 30 years old. The age group less than 20 years old and age group more than 30 years old 13.1 percent and 31.5 percent, respectively.

In term of education, respondents who got primary school level was 26.9 percent, 22.3 percent secondary school (grade 7 to 9), 19.2 percent vocational school, 16.2 percent secondary school (grade 10 to 12), and 15.4 percent bachelor education or above. Regarding occupation of the respondents, indoor and outdoor working groups almost equally divided in the sample (50.8 percent and 49.2 percent).

Concerning to the family income, 48.5 percent of respondents had the family income less than 6,000 bath per month, 31.5 percent had family income from 6,000 – 12,000 bath per month, and 20 percent respondents had family income more than 12,000 bath per month. Half of the respondents had number of living children was 1

children (50.0 percent), 39.2 percent had 2 children, and 10.8 percent respondent had children more than 2.

According to the knowledge of mothers benefits of breast-feeding, 53.1 percent had high knowledge, 40.0 percent had moderate knowledge, and 6.9 percent had less knowledge. About the attitude of mothers, 55.4 percent were positive attitude and 44.6 percent were negative attitude.

Accessibility to health services, 93.85 percent respondents were very easy, 4.6 percent were quite easy, and only 1.5 percent was difficult to access health services. The availability of place/room for breast-feeding practice, 100 percent of respondents were low availability.

According to the social support, 42.3 percent of respondents received low social support, 29.2 percent received high social support, and 28.5 percent received moderate social support. About bottle feeding advertisement, 45.4 percent of respondents were exposed by bottle feeding advertisement and 54.6 percent did not exposed.

Concerning to the breast-feeding practice, 12.3 percent of mothers had practice exclusive breast-feeding, 20.8 percent were practice predominant breast-feeding, and 66.9 percent were practice artificial feeding. The relationship between breast-feeding practice and predisposing factors such as age of mothers, education of mothers, number of living children, knowledge of mothers, and attitude of mothers were not significant.

Statistical analysis for the relationship between breast-feeding practice and enabling factors such as accessibility to health services and availability of special place/room for breast-feeding were not done, because homogenous sample. The relationship between breast-feeding practice and reinforcing factors such as social support and bottle feeding advertisement were not significant.

There were two variables those had significant relationship with breast-feeding practice i.e. occupation of mothers and family income, with a p-value of 0.015 and 0.025, respectively.

6.2 Recommendation

6.2.1 Recommendation for the implementation

From the findings in the study, the following points of recommendations could be advantageous for the further implementation regarding the breast-feeding practices.

1. Regarding to the significant relationship between occupation of mothers and breast-feeding practice, recommendation :

   a. It is kindly recommended for the company owner to prepare the facilities of breast-feeding for the mothers in working place, such as place for the infants and appropriate room/place for the breast-feeding practice. Also the provide room for the mothers to take their breast-milk and the containner for the stored In order to encourage the company owner needs the specially approach from the government concerning from the Ministry of Public Health. For the example, giving the recogzinized appreciated to the company who have high attention for the breast-feeding practice. The time of giving this recognized is the breast-feeding week or 1 to 7 Agust every year

   b. It is kindly recommended that the government to facilitated the maternity leave from three months to four months, because even though the policy of exclusive breast-feeding was six months but with the new policy the chance of mothers to breast-feed have long time. Initiative of the maternity leave could be come together from between Ministry of Public Health and Ministry of laborer.

c. It is kindly recommended to create the lactation clinic in hospital/health care unit in order to introduce and teach the mothers how to express breast milk after maternity leave.

2. Regarding to the significant relationship between family income of mothers and breast-feeding practice, recommendation :

a. It is kindly to the government to continuously the programs and campaigns about mother and child health included the breast-feeding practice and to the strengthen the code of marketing.

b. It is kindly recommended to the Milk Company to recognize and follow the code of marketing and active together with government to promotes the exclusive breast-feeding.

c. It is kindly recommended to the professional association such as Pediatrics association, some foundation, marketing association, and soon, to collaboration in term of promote the exclusive breast-feeding.

3. Regarding to the promotion of exclusive breast-feeding, it is kindly recommended to use the mass media to build public recognition and appreciation of women about exclusive breast-feeding. For the family who had high family income or upper class needs the special methods to make them very emphatics and they do not buy bottle-feeding even though they have money for it.

The promotion of breast-feeding should be set within the context of overall maternal and child health practice, national nutritional policies and primary health care. Supporting breast-feeding mothers could include cuddle, sing to, play with, and bath the baby, look after other sibling. Family members should understand the need to help with house hold chores when a mother was breast-feeding, they are also must realize during breast-feeding that mothers need extra food and extra rest.

6.2.2 Recommendation for future research

1. It is very important and interesting to conduct the research prospective design for the breast-feeding practice in Thailand.

2. It is very important and interesting to conduct research about breast-feeding practice according to the social-culture perspective.

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APPENDIX

APPENDIX A
QUESTIONNAIRES

FACTORS RELATED TO BREAST FEEDING PRACTICES AMONG MOTHERS IN SINGBURI PROVINCE, THAILAND

BACKGROUND INFORMATION

Name of mother : …….. Interviewer : ……

Name of children : …….. Date interview: ……

Age of children : ……months Date of birth : ……..

Hospital : ……..

Part 1. Predisposing factors :

1. Socio-demographic characteristic of mother

1. Age: ……years.

2. Education :

❑ 1. Primary School (grade 1-6)

❑ 2. Secondary school (grade 7-9)

❑ 3. Secondary School or High School (grade 10-12)

❑ 4. Vocational education

❑ 5. Bachelor education or above

3. Occupation:

❑1. House wife

❑ 2. Home business

❑ 3. Government employ

❑ 4. Private employ

❑ 5. Laborer

❑ 6. Farmer

❑ 7. Others …….

4. Total income of family. ……. Bath/month

5. Number of living children? …… children

2. Knowledge of mother about benefits of breast feeding

No	Knowledge of mother about benefits of Breast feeding	Yes	No
6	The nutrition of breast feeding enough for your baby during 0-6 months years old.		
7	The colostrums is not important for your baby, you should discard.		
8	The baby first to six months who receiving only breast milk needs water.		
9	When baby gets diarrhoea, you should stop breast feeding		
10	The breast feeding can protect the baby from ARI?		
11	The breast feeding will protect the baby from milk allergy the same as bottle milk.		
12	The breast feeding can protect the mother from being pregnant?		
13	The breast feeding can protect mother from developing breast cancer		
14	The bottle feeding more easily digested by the baby as compared with breast feeding		
15	The breast feeding always clean		
16	The breast feeding cheaper than bottle feeding		
17	The breast feeding is not enough for baby age 4-6 months.		

3. Mother's attitude regarding breast feeding

No	Mother's attitude regarding breast feeding practice ***What do you feel or think?***	Agree	Not Sure	Dis-agree
18	When the baby has sick have to still receive breast feeding			
19	It is more prestigious to bottle feeding than breast feeding your baby.			
20	Bottle feeding is more convenient for you than breast feeding.			
21	It is shameful to breast feed babies in the public.			
22	Breast feeding is a normal practice and it is according to the norm and custom.			
23	Breast feeding is more suitable for mother even though you have money to buy formulated infant feeding.			
24	Your baby will get same benefits whether you breast feeding or bottle feeding.			
25	After delivery you should not immediately breast feeding your baby, because you are still tired during that time.			
26	Breast feeding is just as good as milk formula if bottle feeding is prepared cleanly.			
27	Mixing feeding, breast feeding and bottle feeding is a			

	good choice for the baby less than 6 months old.			
28	If mother delivery her baby by operation (caesarian), it is possible to practice breast feeding during the first week after the operation.			
29	It is not practical to breast feeding the baby if mother works outside her house.			

PART II: Enabling factors :

1. Accessibility :

Do you have any problem regarding the following items ?

No	Variable of Accessibility	Yes	No
30	The problems about the distance between this hospital and your house		
31	The problems about the transportation from your house to this hospital?		
32	The problems about traveling cost from your house to this hospital?		
33	The problems about waiting times to get health services in this hospital		
34	The problems about the service given by health personal		

2. Availability :

35. Are there any appropriate room/place for breast feeding practice in the hospital?

( ). Yes ( ). No (skip to 38)

36. If yes, do you ever using this room/place ?

( ). Yes ( ). No

37. Are there any appropriate room/place for breast feeding practice in the supermarket?

( ). Yes ( ). No (skip to No. 40).

38. If yes, do you ever using this room/place ?

( ). Yes ( ). No

39. Are there any appropriate room/place for breast feeding practice in the bus terminal or train station or air port?

( ). Yes ( ). No (skip to No.40.1)

40. If yes, do you ever using this room/place ?

( ). Yes ( ). No

40.1. If you have to take your children out and have no room especially to give breast-feeding, how did you?

1. Can give breast-feeding any where
2. Give bottle feeding instead breast-feeding
3. Not give breast-feeding to my children
4. Other, specify ……..

PART III : Reinforcing factors :

1. Social support :

41. Did your husband's told you the disadvantages of the bottle feeding ?

( ). Yes ( ). No

42. Did your husband's encourage you to exclusive breast feeding practice?

( ). Yes ( ). No

43. Did your husband do the household chores for letting you a time to practice breast feeding?

( ). Yes ( ). No

44. Did your relatives told you the disadvantages of the bottle feeding

( ). Yes ( ). No

45. Did your relatives encourage you to exclusive breast feeding practice?

( ). Yes ( ). No

46. Did your friend's told you the disadvantages of the bottle feeding ?

( ). Yes ( ). No

47. Did your friend's give information to you about the advantages of exclusive breast feeding practice?

( ). Yes ( ). No

48. Did health volunteer/health personnel told you the disadvantages of the bottle feeding

( ). Yes ( ). No

49. Did health volunteer/health personnel give you information about the advantages of exclusive breast feeding practice?

( ). Yes ( ). No

2. Effect of bottle feeding advertisement :

No	Bottle feeding advertisement	Yes	No
50	Get information bottle feeding from television		
51	Get information bottle feeding from magazine or news paper		
52	Get information bottle feeding from friends		
53	Get information bottle feeding from milk company		
54	Get information bottle feeding from health staff		
55	Get sample bottle feeding from company advertisement		
56	Get sample bottle feeding from health staff		

PART IV : Breast Feeding Practices by 24 hours recall

57. Did you give breast feeding to your baby yesterday?

( ). Yes ( ). No

58. Did you give bottle feeding to your baby yesterday?

( ). Yes ( ). No

59. Did you give water to your baby yesterday?

( ). Yes ( ). No

60. Did you give fruits, food, breads, etc to your baby yesterday?

( ). Yes ( ). No

Inclusion : Mother is :

( ) Practice Exclusive Breast Feeding if mother's give breast feeding without bottle feeding, water and another food

( ) Practice Predominant Breast Feeding if mother's give breast feeding and water.

( ) Artificial or mixing feeding if mother's give breast feeding bottle feeding, water, and another foods or only bottle feeding, water and another food.

Just for researcher

APPENDIX B
SUPPORTING DATA

Table 3.1 Number and percentage of respondents by the correct answer based on questionnaires of knowledge about benefits of breast-feeding

Questionnaires answered		
Sample = 130	***Number***	***Percentage***
1. The nutrition of breast-feeding enough for your baby during 0-6 months years old	116	89.2
2. The colostrums is not important for your baby, you should discard.	100	76.9
3. The baby first to six months who receiving only breast milk needs water.	45	34.6
4. When baby gets diarrhoea, you should stop breast-feeding	94	72.3
5. The breast-feeding can protect the baby from ARI	120	92.3
6. The breast-feeding will protect the baby from milk allergy the same as bottle milk.	112	86.2
7. The breast-feeding can protect the mother from being pregnant	81	62.3
8. The breast-feeding can protect mother from developing breast cancer	112	86.2
9. The bottle feeding more easily digested by the baby as compared with breast-feeding	118	90.8
10. The breast-feeding always clean	118	90.8
11. The breast-feeding cheaper than bottle feeding	125	96.2
12. The breast-feeding is not enough for baby age 4-6 months.	86	66.2

Table 4.1 Number and percentage level of attitude mothers regarding to breast-feeding based on questionnaires.

Questionnaires Number 130	Level of attitude (%) Dis agree	 Not sure	 Agree
1. When the baby has sick have to still receive Breast-feeding.	5.4	14.6	80.0
2. It is more prestigious to bottle feeding than breast-feeding your baby.	25.4	10.0	64.6
3. Bottle feeding is more convenient for you than breast-feeding.	38.5	10.0	51.5
4. It is shameful to breast feed babies in the public.	10.8	4.6	84.6
5. Breast-feeding is a normal practice and it is according to the norm and custom.	0.8	0.8	98.4
6. Breast-feeding is more suitable for mother even though you have money to buy formulated infant feeding.	3.8	0.8	95.4
7. Your baby will get same benefits whether you Breast-feeding or bottle feeding.	33.1	16.1	50.8
8. After delivery you should not immediately breast-feeding your baby, because you are still tired during that time.	12.3	15.4	72.3
9. Breast feeding is just as good as milk formula if bottle feeding is prepared cleanly.	43.8	16.9	39.2
10. Mixing feeding, breast feeding and bottle feeding is a good choice for the baby less than 6 months old.	40.8	15.4	43.8
11. If mother delivery her baby by operation (caesarian), it is possible to practice breast feeding during the first week after the operation.	15.4	34.6	50.0
12. It is not practical to breast feeding the baby if mother works outside her house.	57.7	10.8	31.5

Table 5.1 Number and percentage distribution of accessibility to health services based on questionnaires with answered no problems

Item of questions	Number (130)	Percentage
No problems about distance	127	97.7
No problems about transportation	125	96.1
No problems about travelling cost	129	99.2
No problems about waiting time	106	81.5
No problems about services by health personnel	120	92.3

Table 6.1 Number and percentage distribution of breast-feeding habits if there is not special room for breast-feeding

Item questions	Number	percentage
Give breast-feeding any where	74	56.9 percent
Give bottle feeding instead breast-feeding	51	39.1 percent
Not give breast-feeding	1	0.8 percent
Go to corner and give breast-feeding	2	1.6 percent
Don’t know how to do	2	1.6 percent

Table 7.1 Number and percentage distribution of Social support based on questionnaires

Social support	Number	Percentage
Husband's told about disadvantages of bottle feeding	50	38.5
Husband's encourage to exclusive breast feeding	97	74.6
Husband's do the household chores for letting a time to practice breast feeding	113	86.9
Relatives told about disadvantages of bottle feeding	73	56.2
Relatives encourage to exclusive breast feeding	93	71.5
Friend's told about the disadvantages of bottle feeding	66	50.8
Friend's given information about the advantages of exclusive breast feeding	81	62.3
Health volunteer/health personnel told about Disadvantages of bottle feeding	92	70.8
Health volunteer/health personnel give information About the advantages of exclusive breast feeding	108	83.1

Table 8.1 Number and percentage distribution of Resources of exposed

Resources	Number	Percentage
Get information bottle feeding from television	98	75.4
Get information bottle feeding from magazine/news paper	91	70.0
Get information bottle feeding from friends	75	57.7
Get information bottle feeding from milk company	48	36.9
Get information bottle feeding from health staff	56	43.1
Get sample bottle feeding from company advertisement	48	36.9
Get sample bottle feeding from health staff	24	18.5

Table 9.1 Cross tabulation between breast-feeding practice and age of children

Breast-feeding Practices	Age of children (months)							
	1 – 2		2 – 4		4 – 6		Total	
	n	%	n	%	n	%	n	%
Exclusive breast feeding	7	12.5	4	10.8	5	13.5	16	12.3
Predominant breast feeding	21	37.5	5	13.5	1	2.7	27	20.8
Artificial feeding	28	50.0	28	75.7	31	83.8	87	66.9
Total	**56**	**100.0**	**37**	**100.0**	**37**	**100.0**	**130**	**100.0**

Table 9.2 Number and percentage distribution of Type of breast feeding practices

Type breast feeding	Number (130)	Percentage
Only breast feeding	16	12.3
Breast feeding with water	27	20.8
Breast feeding with others	37	28.5
Bottle feeding with others	50	38.4

Table 10.1 Cross tabulation between age of mothers and family income

Age of mothers (years)	Occupation (%)		
	Indoor	Outdoor	Total
< 20	82.3	17.6	100.0
20 – 30	56.9	43.1	100.0
> 30	26.8	73.2	100.0

Table 10.2 Cross tabulation between education of mothers and occupation

Education Of mothers	Occupation (%) Indoor	Outdoor	Total
Primary school	54.3	45.7	100.0
Secondary school	68.0	32.0	100.0
High school (university)	28.9	71.1	100.0

Table 10.3 Cross tabulation family income of mothers and bottle feeding advertisement

Family Income	Bottle feeding advertisement (%) Less exposed	High exposed	Total
Low family income	69.1	38.1	100.0
Moderate family income	48.8	51.2	100.0
High family income	46.1	53.9	100.0

Table 10.4 Cross tabulation between number of children and family income

Number of children (years)	Family income (%) Low	Moderate	High	Total
1 child	49.2	30.8	20.0	100.0
2 children	41.2	37.2	21.6	100.0
more than 2 children	71.4	14.3	14.3	100.0

Table 10.5 Cross tabulation between knowledge of mothers and occupation

Level Of knowledge	Occupation (%) Indoor	Outdoor	Total
Low knowledge	52.5	47.5	100.0
High knowledge	49.3	50.7	100.0

Table 10.6 Cross tabulation between social support and occupation

Social support	Occupation (%) Indoor	Outdoor	Total
High social support	50.0	50.0	100.0
Moderate social support	45.9	54.1	100.0
Low social support	54.5	45.5	100.0

Table 10.7 Cross tabulation between bottle feeding advertisement and family income

Bottle feeding advertisement	Family income (%) Low	Moderate	High	Total
Exposed mother	40.7	35.6	23.7	100.0
Non exposed mother	54.9	28.2	16.9	100.0

Table 10.8 Cross tabulation between bottle feeding advertisement and occupation

Bottle feeding advertisement	Occupation (%)		
	Indoor	Outdoor	Total
Exposed mothers	44.1	55.9	100.0
Non exposed mothers	56.3	43.7	100.0

BIOGRAPHY

NAME	Entos
DATE OF BIRTH	April 9, 1966
PLACE OF BIRTH	Paraman Ampalu, Indonesia
INSTITUTION ATTENDED	Bogor Agricultural University, Indonesia
FELLOWSHIP	
RESEARCH GRANT	DTEC – JICA
PRESENT POSITION	Staff of Directorate of Nutrition, Ministry of Health (MoH), Republic of Indonesia