UTILIZATION OF MCH HANDBOOK AND EXCLUSIVE BREASTFEEDING AMONG MOTHERS OF CHILDREN 6 TO 12 MONTHS OLD IN MANADO, INDONESIA

VONNY ELISABETH PANDARA

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF PRIMARY HEALTH CARE MANAGEMENT
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2006

ISBN 974-04-6944-2

Thesis
entitled

UTILIZATION OF MCH HANDBOOK AND EXCLUSIVE BREASTFEEDING AMONG MOTHERS OF CHILDREN 6 TO 12 MONTHS OLD IN MANADO, INDONESIA

.....
Mrs.Vonny Elisabeth Pandara
Candidate

.....
Assoc. Prof. Sirikul Isaranurug
M.D., Dip. Thai Board of Pediatrics
Major-Advisor

.....
Lect. Shafi Ullah Bhuiyan
Ph.D.
Co-Advisor

.....
Prof. M.R. Jisnuson Svasti
Ph.D.
Dean
Faculty of Graduate Studies

.....
Assoc. Prof. Sirikul Isaranurug
M.D., Dip. Thai Board of Pediatrics
Chair
Master of Primary Health Care Management
ASEAN Institute for Health Development

Thesis
entitled

UTILIZATION OF MCH HANDBOOK AND EXCLUSIVE BREASTFEEDING AMONG MOTHERS OF CHILDREN 6 TO 12 MONTHS OLD IN MANADO, INDONESIA

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Primary Health Care Management

on
March 16, 2006

.....
Mrs.Vonny Elisabeth Pandara
Candidate

.....
Assoc. Prof. Sirikul Isaranurug
M.D., Dip. Thai Board of Pediatrics
Chair

.....
Lect.Nipunporn Voramongkol
M.D., Dip. Thai Board of Pediatrics
Member

.....
Lect. Shafi Ullah Bhuiyan
Ph.D.
Member

.....
Prof. M.R. Jisnuson Svasti
Ph.D.
Dean
Faculty of Graduate Studies
Mahidol University

.....
Assoc. Prof. Sirikul Isaranurug
M.D., Dip. Thai Board of Pediatrics
Director
ASEAN Institute for Health Development
Mahidol University

ACKNOWLEDGEMENT

First at all, I would dedicate my heartfelt thanks to The Lord Jesus, Who gave me strength, wisdom and healthy to complete this study. My special thanks to my husband Lettu Laut (K) Dr. Anggiat Purba and my beloved baby Miracle Nauli Purba (butet) for the most sacrificed during this period, my father Mr. Luther M. Pandara, my mother Mrs. Marietje Peginusa (deceased), my brothers/sisters, and all my family whose pray and support me continuously in my study.

I would like to express my best regard to major advisor, Assoc.Prof. Sirikul Isaranurug, for the greatest guidance and care as well as both my ajarn and my mother. My appreciated to co-advisor; Lect.Dr. Shafi Ullah Bhuiyan for his kind attention and assistance. Moreover, many thanks to Emeritus Prof. Pantyp Ramasoota and Asst.Prof. Jiraporn Chompikul for their precious suggestions.

A special note of appreciation is extended to Mr. Collin Freestone, and Dr. Bonny Kalengsang, and also to Dr. Ny M.M. Tangel , Mrs. Maria Tuwaidan for the scholarship support and made me possible to join this study.

I would like to acknowledge the lectures, staff of AIHD especially MPHM office, ASEAN House, Library and computer laboratory for their cooperation and helpfulness during my study. In addition my respect and thanks for all participants, health center officers, ICC/DHS-ADB staff whose help me to conduct this study.

Finally, I am very lovely with the friendship among our 20th batch MPHM participants especially my sister Ayu and family. All of your kindness would be keep in my mind and hope that we will meet again.

Vonny Elisabeth Pandara

UTILIZATION OF MCH HANDBOOK AND EXCLUSIVE BREASTFEEDING AMONG MOTHERS OF CHILDREN 6 TO 12 MONTHS OLD IN MANADO, INDONESIA.

VONNY ELISABETH PANDARA 4838004 ADPM/M

M.P.H.M. (PRIMARY HEALTH CARE MANAGEMENT)

THESIS ADVISORS: SIRIKUL ISARANURUG, M.D., DIP.THAI BOARD OF PEDIATRICS, SHAFI ULLAH BHUIYAN, Ph.D.

ABSTRACT

A cross sectional study was conducted by interviewing 300 mothers of children 6 to 12 months old in Manado municipal, Indonesia. This study aimed to identify breastfeeding patterns, and the association between practicing exclusive breastfeeding and a range of variables; socio-demographic factors, level of use MCH (Maternal and Child Health) handbook, mothers' knowledge about breastfeeding, health provider support, prenatal class attendance and a number of other related factors . The instruments used for data collection were a structured questionnaire and a checklist.

The study respondents' ages ranged from 16 to 43 with an average age of 27.6. The majority of respondents worked inside, graduated from secondary school, had small family size and low to moderate family monthly income.

The results showed that the exclusive breastfeeding rate was 49.67 %. Only 22.22 % of mothers have high levels of using the MCH handbook. It was found that there were significant associations between the independent variables of education, occupation, family size, family income, previous experience of exclusive breastfeeding, child birth order, husband support and the dependent variable of practicing exclusive breastfeeding.

Mothers with low levels of using the MCH handbook were less likely to practice exclusive breastfeeding compared with those who had high levels. Those who have job outside are 0.34 times less likely to give exclusive breastfeeding compared to the inside job group.

Based on the study findings, health professionals need to develop a continual program to promote the MCH handbook, and how to use it as a basic source of health information including exclusive breastfeeding. Exclusive breastfeeding promotion should encourage mothers to breastfeed not only in health centers but also in the workplace.

KEY WORDS: MCH HANDBOOK/ EXCLUSIVE BREASTFEEDING

76P.ISBN 974-04-6944-2

CONTENTS

CONTENTS (Cont.)

Page

CONTENTS (Cont.)

Page

LIST OF TABLES

TABLE Page

LIST OF TABLES (CONT.)

TABLE Page

LIST OF FIGURES

FIGURE Page

CHAPTER 1
INTRODUCTION

1.1 Rational and justification

Maternal and Child Health Handbook (Buku KIA) has been developed since 1993 in Central Java and spread to other provinces in 1997. The book is designed for a whole family consumption as a source of maternal and child health care information, education and communication (1). Maternal and Child Health Handbook (MCH Handbook) also can be used as a simple medical record, minimal standard of basic MCH services and it is contain some information include maternal care during pregnancy, breastfeeding, delivery, immunization, family planning ,child nutrition, growth development, and general check up for newborn until five years of age (2).

MCH handbook and breastfeeding

Breastfeeding is more than the provision of nutrition; it is an opportunity for social, psychology, and even educational interaction between parents and infant. It also can establish a basis for developing good eating habits that last a lifetime. Its plays an essential and sometimes underestimated role in the treatment and prevention of childhood illness (3).

The key to encourage mother to breastfeed is education, beginning as early as possible during pregnancy and even before pregnancy. Prenatal breastfeeding classes are excellent vehicle to relay important information to expectant parents (4). Furthermore, some literature discuss about the main factor to have effective breastfeeding is knowledge of mother about breastfeeding (2, 3, 5, 6, 7).

As well as the source of information about maternal and child care especially breastfeeding , Buku KIA has been used by health provider to give education and promotion to pregnant/mothers how to feed newborn. The process of promotion and

teaching are done in mother class (prenatal class/group) at Health Centers and Integrated Health Service Department (POSYANDU). To improve the knowledge, attitude and practice of parents and others families member, the Ministry of Health distributes MCH handbooks to pregnant women about 5 million in 2003 to be used as a home based recording instrument and source of health information.

Situation of MCH handbook and breastfeeding in Manado,North Sulawesi

In global terms, Healthy People 2010 goals state that 75 % of women will breastfeed at birth, 50% will continue for six months, and 25% will breastfeed for one year.

In general, the proportion of infants under four months of age who are exclusively breastfed is highest on average in Asia (up to 82% in Nepal) and near East/North Africa (63% in Morocco).

In Indonesia exclusive breastfeeding practice's until four months in 1994 about 47.6 %(8).

Since 1996 MCH handbook has implemented in Central Java Province and in 1999 North Sulawesi, became a part of MCH handbook (1). A project of MCH handbook in North Sulawesi was begun in August 1999 in two districts and to the rest province in November 2000. It means using of MCH handbook in North Sulawesi has done for six year (4).

Table 1 The Distribution rates of MCH handbook in North Sulawesi in 2001

District/ Municipal	Number of target	Number of book distribution	Percentage
Manado	8,222	1,939	23.58
Bolmong	10,208	5,085	53.77
Bitung	2,947	1,938	63.76
Minahasa	14,723	4,217	23.79
Satal	5,408	2,226	41.16
Gorontalo kota	2,734	857	31.35
Gorontalo kab.	11,759	5,168	43.95
Boalemo	4,978	1,857	37.30

North Sulawesi is one of the 33 provinces in the Republic of Indonesia,with its capital city being Manado, with an area of 1,533,689 square kilometers. Since 2003 North Sulawesi is subdivided into Manado Municipality, Bolaang Mongondow District, Sangihe District, Talaud District, North and South Minahasa Districts, Bitung and Tomohon Municipalities. To the north this region borders on the Republic of Philippines, Sulawesi Sea and the Pacific Ocean. The eastern part is on the Maluku Sea and the southern side is the Tomini Gulf. The western part borders on Gorontalo province, which ever been a part of North Sulawesi until 2002 (9, 10).

Manado as a capital of North Sulawesi locates along the seaside of Manado Gulf. It is comprises 9 Sub districts and 87 commons/villages with total area about 15,876.65 km^2. The population of Manado is about 410,870 (2003), which population density is about 25.878/km^2. The education population level are vary range from illiterate 15.4 %, elementary school 23.7 % , junior high school 23.7 % , senior high school 18.5 %, bachelor 3.5 % and university 11.6 %. Number of infant mortality 2.3/ 1000 live births, child mortality rate 1.96/ 1000 live births, and maternal mortality rate was 32.92/ 100,000 live births.

The Distribution rates of MCH handbook in Manado Municipal in 2003 is about 68.3 % , whereas average exclusive breastfeeding rates (0-4 months) in 2003 is 66.7 % with range from 31.32 % to 100 % in nine Sub districts (11).

1.2 Research questions

1) What is the association between using of MCH handbook and exclusive breastfeeding among mothers of children 6 to 12 months old in Manado , Indonesia?
2) What are other factors related to exclusive breastfeeding practices among mothers of children 6 to 12 months who received MCH handbook in Manado, Indonesia?

1.3 Research objectives

1.3.1 General objective

To analyze the association between using of maternal and child Health handbook and exclusive breastfeeding among mothers of children 6 to 12 months old in Manado , Indonesia.

1.3.2 Specific objectives

1. To measure the level of using MCH handbook.
2. To determine the situation of exclusive breastfeeding among mothers of children 6 to 12 months who received MCH handbook.
3. To examine the association between level of using MCH handbook and exclusive breastfeeding.
4. To analyze the association between mothers' knowledge about breastfeeding based on MCH handbook and exclusive breastfeeding.
5. To examine the association between health provider support to give exclusive breastfeeding and exclusive breastfeeding.
6. To examine the association between prenatal class and exclusive breastfeeding.
7. To identify the association between other factors towards exclusive breastfeeding.

1.4 Hypothesis

1. There is an association between level of using MCH handbook and exclusive breastfeeding.
2. There is an association between mothers' knowledge about breastfeeding based on MCH handbook and exclusive breastfeeding.
3. There is an association between health provider support to give exclusive breastfeeding and exclusive breastfeeding.
4. There is an association between prenatal class and exclusive breastfeeding.
5. There are some association between other related factors and exclusive breastfeeding.

1.5 Conceptual framework

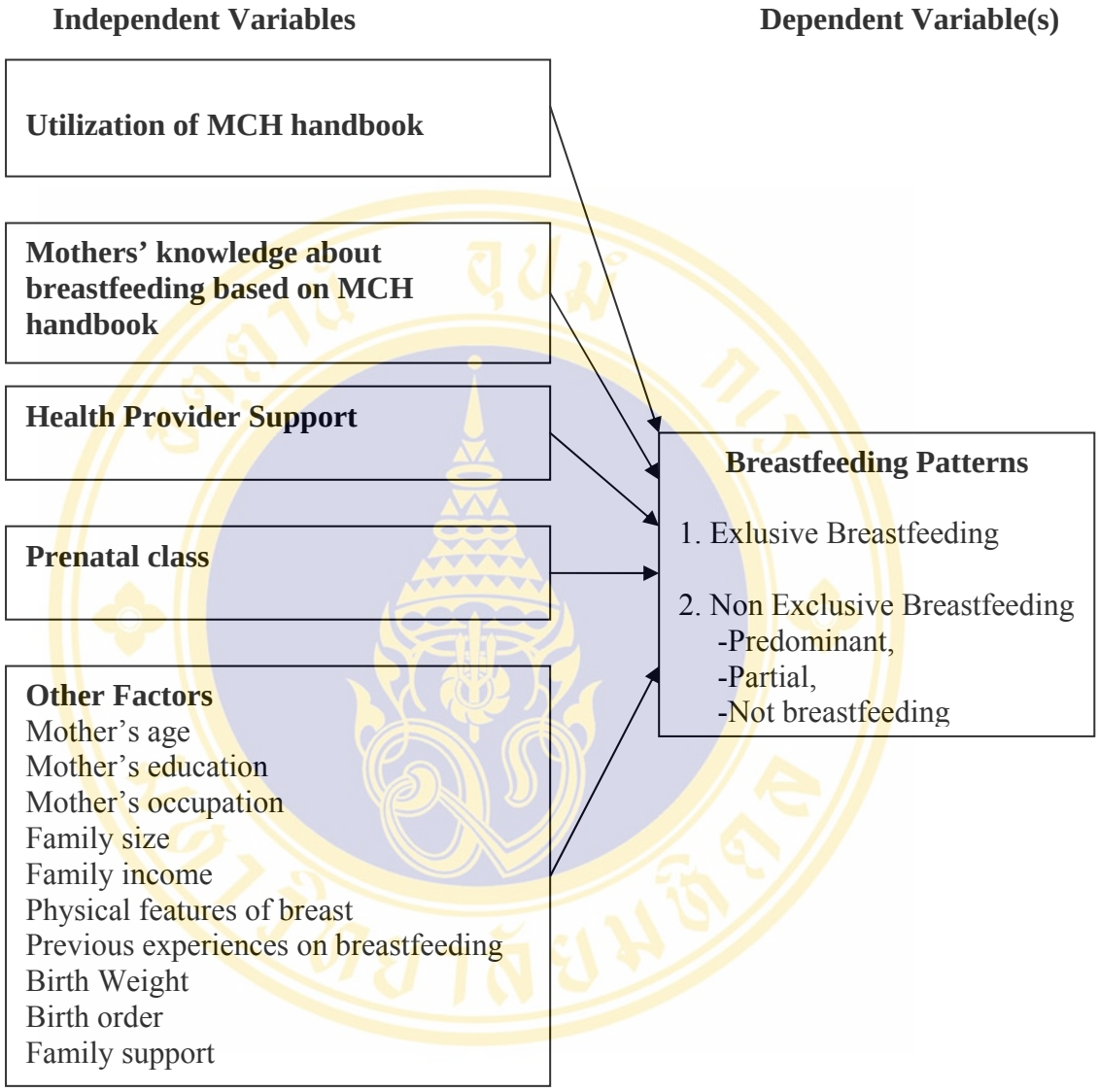

Figure 1 Conceptual framework

1.6 Variables and operational definition

1.6.1 Outcome variable

1. Exclusive Breastfeeding

Refers to the child has received breast milk(direct from the breast or expressed) during the first 4 months without other liquid or solid except medical syrup, if any. In Indonesia exclusive breastfeeding is given only mother's breast milk (ASI) to the infants since 0-4 months (3).

2. Predominant breastfeeding

   Means breastfeeding, which the infant's predominant source of nourishment is breast milk. However, the infants may also receive water and water based drinks (sweetened and flavored water, teas, infusion, and etc).

3. Partial breastfeeding

   Refers to give baby some breastfeeds, and some artificial feeding, either milk or cereal or other food (17).

4. Not breastfeeding

   As the way of feeding baby with liquid or semi-solid food from a bottle with a nipple or teat without breast milk

1.6.2 Independent variables

1. Utilization of MCH handbook.

   Refers level of using of MCH handbook by asking mothers 6 questions, and how they use MCH handbook (use check list for the completeness record in MCH handbook), and scoring them in range 0-18; whether is low = 0-8 , moderate = 9-13 and high = 14-18.

2. Mother's Knowledge

   Refer to Mother's knowledge about breastfeeding based on MCH handbook, measure by asking mother with 10 question about breastfeeding and giving score: Then, it is divided into: Good if correct answer more than 80 %, Fair if correct answer 60-80 % and Poor if the correct answer less than 60 %.

3. Health Provider Support

   Refers to the frequencies of health worker gives support and information about exclusive breastfeeding to the respondent during her last pregnant.

4. Prenatal Class

   Refers to the mother activities with other pregnant/mother based on MCH handbook in group or class ,which interactive learning process about pregnancy, breastfeeding,baby growth and others health information that different with pregnancy exam time (usually, they do it half one hour before or examining on the certain for once a month). It is divided into three groups: follow at least 4 times or less than 4 times and never ,according the minimum the examining time

for pregnant women.

5. Age

   Refers to age in years of mother of children 6-12 months old.

6. Education

   Refers to the degree of mother's education, include: Primary (1-6years), Secondary (7-13 years) and high education (>14 years), by ask the years of mother's education.

7. Occupation

   Refers to Mother's occupation, categorized as:

   a).Inside Full / Part time : those who have a job at home such as : Housewife, private teacher, shopkeeper and so on.

   b).Outside Full time: those who have work at another place for 8 to 12 hours per day like: manufacture employer, housekeeper,civil servant and army.

   c).Outside Part time: those who have job at another place for 6 to 8 hours per day.

8. Family Size

   Refers to the number of family members are living under one roof. It is divided into two groups according to Family Planning terms in Indonesia: < 4 members or small family (couple with two children) and more than 4 members or big family.

9. Family Income

   Refers to approximate income of hold house from all sources (both husband and wife) Based on the minimum standard worker salary in Indonesia (North Sulawesi)about RP.545,000,-- / months (current exchange rate US $ = Rp 9500)(10). There are three categorizes : low income = < Rp.545,000,- / month, moderate income =Rp 545,001,– Rp 1,500,000,- / month, high Income = more than Rp.1,500,000,- / month.

10. Physical Features of Breast

    Refers to the condition of mother breast after delivery or during the breastfeeding period include poor grasp nipple , mastitis or other diseases. It is categorized as, yes or no for abnormal features.

11. Previous Experience of Breastfeeding

    Refers to the experiences of mother to give exclusive breastfeeding to her previous baby, Fail ,success or no experience for the first baby. If fail , she should

clarify the causes whether by abnormal physical features, irritating baby, or others reasons.

12. Birth Weight

Refers to the weight of babies when she/he was born .Are the babies have low birth weight (less than 2500 grams) or normal Birth weight (≥ 2500 grams).

13. Birth Order

Refers to the ranking of infant born in family.

14. Family Support

Refers to somebody stay together in same house such as ;husband, mother/father, mother/ father in law, sister/brother whose support mother to give breastfeeding for her baby.

15. Formula Milk Advertising

Refers to the advertisement or marketing formula milk that expose to the mother during pregnancy and after delivery such as by TV, magazine, health personnel, sales representative.

1.5 The limitation of study

The collecting data method about exclusive breastfeeding practice only by interview and there is not report in MCH handbook that mother certainly practices it, thus recall bias could be come the limitation of this study.

It is considered that due to the geographic characteristic of this study area , researcher may not able to cover all part of this municipal, therefore the expectation may not generalized to other areas because of this study will not include maternal who live in islands, where accessibility is difficult.

The target population is limited to the mother in Manado Municipal services area, who has a last baby in age 6-12 months; therefore this population could not present the whole population in North Sulawesi Province, Indonesia.

CHAPTER 2
LITERATURE REVIEW

Concerning to the objectives of this study, the literature review will cover as below:

2.1 Exclusive Breastfeeding; Concept, definition, practices, advantages/disadvantage, and situation.

2.2 Theoretical Model.

2.3 Maternal and Child Health Handbook.

2.4 Factors related to the exclusive breastfeeding.

2.1 Exclusive breastfeeding

2.1.1 Concept of exclusive breastfeeding

No gift is more precious than breastfeeding; it is an unequalled way of providing ideal food for the healthy growth and development of infants ; also as an integral part of the reproductive process that impact to mother's health. Exclusive breastfeeding for six month is the optimal guide to feeding infants (5).

WHO and UNICEF recommend enabling mothers to establish and sustain exclusive breastfeeding for six month with:

a. Initiation of breastfeeding within the first hour of life.
b. Exclusive breastfeeding.
c. Breastfeeding on demand.
d. No use of bottles, teats or pacifiers (13).

2.1.2 Definition of exclusive breastfeeding

WHO defined of exclusive breastfeeding as; no other food or drink not even water except milk for at least 4 and if possible 6 months of life, but allow the infants to receive drops and syrups (vitamin, mineral, and medicines).

Predominant breastfeeding means that the infant's predominant source of nourishment has been breast milk. However, the infants may also have received water and water based drinks (sweetened and flavored water, teas, infusion, and etc).

Partial breastfeeding means giving baby some breastfeeds, and some artificial feed, either milk or cereal or other food.

Not breastfeeding as the way of feeding baby with liquid or semi-solid food from a bottle with a nipple or teat without breast milk (14).

2.1.3 Exclusive breastfeeding practices

Breastfeeding practices described according to timing and frequency. In terms of timing there are breastfeeding on demand (by the child) or on schedule (by a schedule of work or separation demands of the mother) (14).

Some literature convinced that the effective of breastfeeding practices related to:

-Mother's knowledge about breastfeeding technique.
-Mother's appropriate response to infant's feeding readiness cues.
-Mother's adequate fluid and caloric intake for breast feeding.
-Mother's ability to facilitate efficient breastfeeding.

Other factors can be barriers to have exclusive breastfeeding in many countries 94.9 % mother give breastfeeding to their infants such as:

-Lack of knowledge of the benefits of breastfeeding.
-Embarrassment and social reticence.
-Lack of interest/ negative perception of breastfeeding.
-Lack of support from partner and families members.
-The need to work or go to school.
-Aggressive marketing by infant's formula companies.

The continuation of breastfeeding is correlated with socio cultural, area of residence, work / occupation, feeling about pregnancy, age, education, medical and

health- care factors. Health education should not only focus on the promotion of exclusive breast feeding but also on changing the knowledge and attitudes of the communities (6).

2.1.4 Advantages and disadvantages of exclusive breastfeeding

For the children

Breast milk is digestible, save and in proper temperature. Enhances maturation of gastrointestinal tracts and contains specific antibodies and cell-mediated immunologic factors to protect infants from infectious disease (diarrhea, enterocolitis, corn disease, and celiac disease) and potential allergies (atopic dermatitis, asthma). It may enhance cognitive development, jaw development and can decrease the risk of childhood obesity, insulin-dependent diabetes, lymphoma, leukemia. There are no disadvantages to the breastfeeding if the mother is healthy and willing and the supply of milk is adequate (15).

For the mother

Breastfeeding induces uterine involution and is associated with a decreased risk of breast risk cancer and can delay the return of fertility and protective to development of
osteoporosis. The disadvantages are that regular nursing may restrict activities, developing of nipple tenderness or mastitis (3, 15).

For both mother and child

Bonding phenomena is a human process tendency to care their baby, which is triggered by a specific experience soon after birth Mother become bonded to her infants when the first initiation of breastfeeding given within 0 – 24 hours after birth (16). Breastfeeding can be a mutual pleasure for mother and child because mother become more calm, enjoyed, relax and comfort and patience to learn to give up its milk and the baby learn to suck and have good temperature after skin to skin care (17).

For family and society

Breastfeeding is convenient, cost nothing. It is increased the quality of life through psychological benefits for mother and infants, increased mothering behavior and more free time for family interaction (3,6,15,16).

2.1.5 Situation of exclusive breastfeeding

The WHO Global Data Bank on Breastfeeding presently covers 94 countries and 65 % of the world's infant population (< 12 months) estimated that 35 % of the populations are exclusive breastfeed between 0 -4 months of age. Rates of exclusive breastfeeding under 4 months of age are very low in a number of countries in the African Region. In Mediterranean Region, the exclusive breastfeeding rate in some countries is high compares to other countries in other regions (Egypt and Saudi Arabia about 68 % in 1995). In Latin America show that exclusive breastfeeding is considerable high in Dominican Republic 14 % (1996) compare with the other countries (18).

In South-East Asia Region, the ever-breastfeed rate has increased somewhat in recent years, for example in Thailand (90 % in 1987 and 99 % in 1993). The exclusive breastfeeding rate, though low, has increased from 0.2 % (1993) to 4 % (1996). The increases of this rate are due mainly to breastfeeding campaigns, and additional Baby-friendly Hospital and trained breastfeeding counselors (18).

The equal predicaments of breastfeeding practice in Indonesia, 95 -97 % of babies are initially breastfeed. However, only about 14 % of infants are breastfeed within the first 12 hours after birth. About 10 -20 % of mother express and discard colostrums believing that is dirty and/ or detrimental to the infant. Prelacteal feeding is also widely practiced and detrimental. Exclusive breastfeeding gives children a growth advantage of approximately 0.14 SD in weight for age 0 – 5 months (unfortunately, however, the percentage of infants who are exclusive breastfeeding declines rapidly with age) (19). The last data of exclusive breastfeeding in Indonesia from BKKBN July 26, 2004 is high decrease to 39.5 %.

2.2 Theoretical model

PRECEDE MODEL

The PRECEDE model is a framework for the process of systematic development and evaluation of health education programs. An underlying premise of this model is that health education dependent on voluntary cooperation and participation of the client in a process which allows personal determination of behavioral practices is directly related to the degree of participation of the client. Therefore, in this model appropriate health education is considered to be the intervention (treatment) for a properly diagnosed problem in a target population.

This model is multidimensional, founded in the social/behavioral sciences, epidemiology, administration and education. As such, it recognizes that health and health behaviors multiple causation, which must be evaluated in order to assure appropriate intervention. The comprehensive nature of PRECEDE allows for application in a variety of setting such as school health education, patient education, community health education, and direct patient care setting. The description of the model of this study includes 5 phases:

1. Social Diagnosis.
   To identify and evaluate the social problems which impact the quality of life of target population.
2. Epidemiological Diagnosis.
   To identify specific health problem and non health factors whish are associated with a poor quality of life.
3. Behavioral and Environmental Diagnosis.
   Focuses on the systematic identification of health practices and others factors which seem to be linked to health problems defined in phase 2.
4. Education and Organizational Diagnosis.
   This phase assesses the causes of health behaviors which were identified in phase 3
   The kinds of this phase are: Predisposing Factors- any characteristic of a person or population that motivates behavior prior to the occurrence of that behavior:
   -Knowledge

-Beliefs

-Values

-Attitude

Enablers- characteristic of the environment that facilitates action and any skill or resource required to attain specific behavior:

-Accessibility

-Availability

-Skills

-Laws(local, state ,federal)

Reinforces of rewards, or punishments following, or anticipated, as a consequence of a behavior. They serve to strengthen the motivation for behavior:

-Family

-Peers

-Teacher.

5. Administrated and policy Diagnosis.

This phase focuses on the administrative and organizational concern which must be addresses prior to program implementation (20)

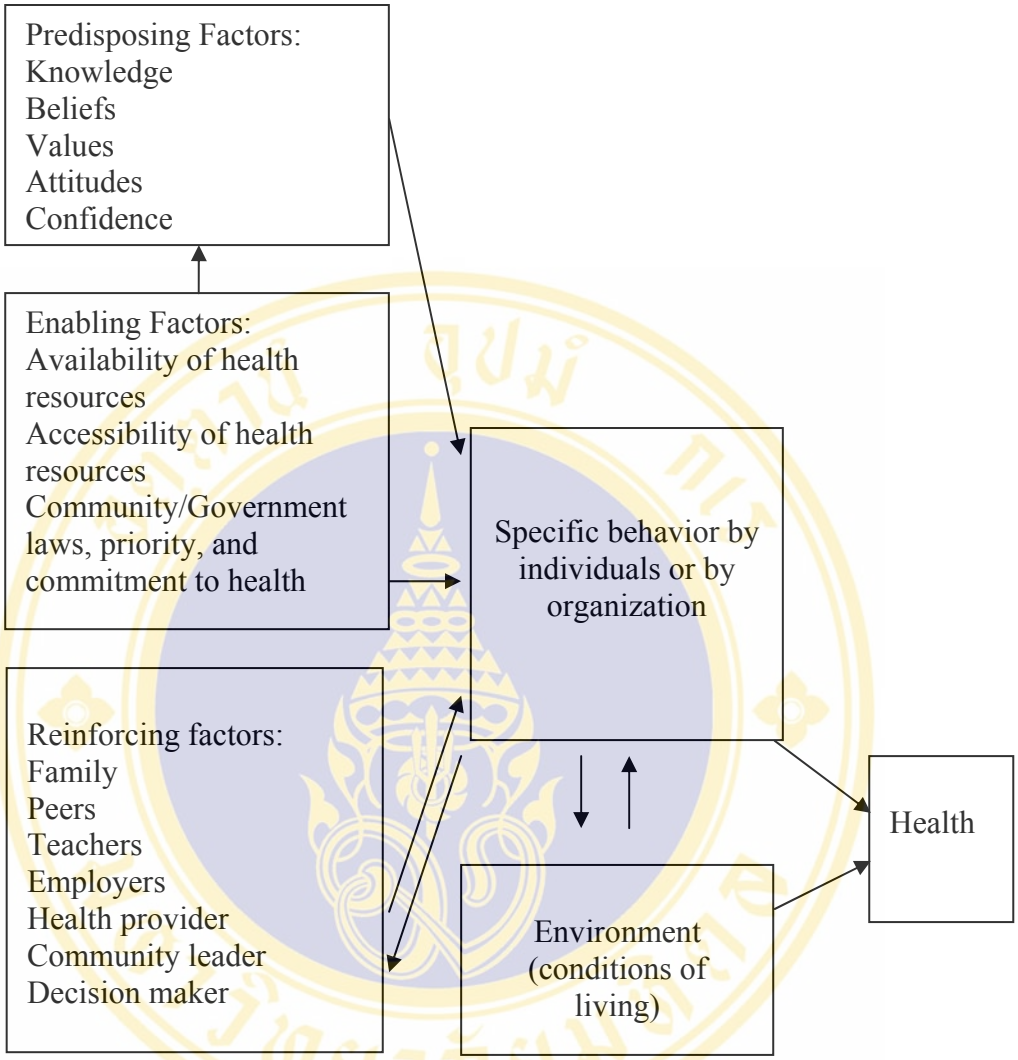

Figure 2 PRECEDE Model

Conclusion:

This study apply PRECEDE model to explore variant factors related to exclusive breastfeeding. It is an acronym for predisposing, reinforcing, enabling factor causes in educational diagnosis and evaluation. Therefore, the major outline of this model are the way of presentation to emphasize MCH handbook (level of using MCH Handbook, mother's breastfeeding knowledge based on MCH handbook, health provider support and prenatal class) as independent variables that influences exclusive breastfeeding as dependent variable(s), added by others as important factors to be considered have association with this theory.

2.3 Maternal and Child Health Handbook (Buku KIA)

2.3.1 Characteristic of MCH handbook in Indonesia

MCH handbook (Buku KIA) is the group of several health record, pregnant women card, and information of maternal – child health care. It is include national strategic issues: Making Pregnancy Safer, Motherhood Program (Gerakan Sayang Ibu), Reproduction Program, Nutrition Family Consider (Keluarga Sadar Gizi), Integrated Management Children Illness (Manajemen Terpadu Balita Sakit), Malaria Care (Gebrak Malaria), and Hepatitis B uniject. (Source: departemen kesehatan RI, Agustus 23, 2003)

Essential information in MCH Handbook (Buku KIA) included: a). Identity and background information of the family, b). Monitoring and information about newly mother and neonatal health, c). General information about child health, d). Monitoring and information about child health, and e).Notes about health of the mother and child (21).

The development of MCH handbook begins at 1994 with pilot project in one city in Central Java. Then in 1996 Indonesian version of MCH Handbook was develop, and in 1997 it was expanded to 4 new provinces: East Java, Bengkulu, South Sulawesi, and West Sumatera. In 1998 North Sulawesi Province joined the MCH Handbook program. Finally in 2001 there 24 provinces and 140 districts municipalities have implemented MCH Handbook program (21).

2.3.2 Benefit of MCH handbook

-As a tool to improve the knowledge of mothers on health.

-As a source of health information and references for the mother and family.

-As a recording book for all health matter for mother and child.

-As a simple manual to monitor physical as well as mental development of the child.

-As a health achieve for mother and family.

-As a means to improve communication with and also among health providers.

-As a tool to improve the efficiency of the program by simplify the many forms used (21).

2.3.3 Utilization of MCH Handbook

Many expectation and prospect with the utilization of MCH handbook and also numerous benefits of the handbook discovered; thus it will be improve the quality of MCH services and which will affect in reducing the maternal and child health problem (22).

In terms of exclusive breastfeeding according to the prior study in North Sulawesi province in 2001, there is 95.8 % mother always using MCH handbook, and from this proportion there is 94.9 % mother give breastfeeding to their infants and 71.3 % give it ≥ 4 months (1).

2.4 Factors related to exclusive breastfeeding

Naturally women are encouraging to breastfeed their babies, but each individual decision is based on many factors. These factors can manipulate the exclusive breastfeeding practice. Women who elect to breastfeed their infants most often do so because they aware of the benefits to the infant.

Even though there are many factors due to exclusive breastfeeding, only several of them are selected because they had been identified in prior studies as consider in effective breastfeeding practices (3, 5, 7).

2.4.1 Mother's characteristics

In USA, the characteristics of women most likely to breastfeed have remained consisted over the years are white, older than 30 years, college educated, with higher incomes, not employed outside the home or working only part time, resident of western states, and not participating in the WIC program. In other hands, the individually with typically young (younger than 25 years), lower income, African-America, primipara, with grade school education or less, employed full time outside

the home, mother of low birth weight infants, and enrolled in the WIC program tends to increase to give breastfeed to their children (3).

Mothers who have high incomes family tend to use artificial feeding more than those who have low incomes (26).

Most working women who want to breastfeed give up the idea of optimal breastfeeding and resort to partial, mixed or token breastfeeding, losing many of the benefit of exclusive breastfeeding because mothers have to return to work before six months, either in or out of the home (27). The previous study in Thailand, around half of the mothers worked at home, had good knowledge of breastfeeding, have positive attitude to it (26).

Mother's knowledge about breastfeeding based on MCH handbook is the one factor influenced to breastfeeding practices. A study conducted by Ministry of Health Research and Development Institute in 2001 in Central Java Province revealed that there was a significant different in the knowledge about pregnancy and neonate care between the mother who received and who does not received MCH Handbook ($p < 0.05$) (21).

Another reason to choose formula milk due to poor nipple grasps, mastitis and other abnormal features of breast (3, 15, 17, 24).

2.4.2 Infant's characteristic

Low birth weight babies grow well and are healthier when they are fed breast milk exclusively, but for the several days they need nutrition support before the baby's condition is stable so it why about 46 % chooses formula milk in this condition (24,25).

2.4.3 Reinforcing factors

Most decision about breastfeeding are made prior to birth and strongly influenced by the partner or the mother of the expectant mother (28).

In Bolivia, Guinea, India, and Nicaragua, NGOs such as Save the Children and Care mobilized the community by training health and community workers, involving grandmothers and fathers, men's group and mother's group. As the results exclusive breastfeeding rates increased from 11 % to 44 % in Guinea; 41 % to 71 % in India and 10 % to 50 % in Nicaragua. In Ghana, several methods of communication, workshops, and training were used to reach the wider community include grandmothers, fathers, and the media, and mother's support groups were formed. Within 2 years, the numbers of mother's breastfeeding exclusively at five months had increased from 44 % to 78 % (29).

The lack supports of doctor, midwife, health visitor, family and friend have impact to the mother's decision to give breastfeeding (30).

Aggressive marketing by Infant Formula Companies could be barrier to breastfeeding practices (5). The practice of giving away free and low costs supplies is one of the primary causes for women to choose bottle feeding as opposed to breastfeeding (31).

2.5 Conclusion

Exclusive breastfeeding as a part of mother and baby life could be influenced by many factors that can be categorized in three main factors; predisposing, enabling and reinforcing factor. The implementation of MCH Handbook program in Indonesia intends to increase the mother and child's quality of life. Therefore MCH Handbook may have contribution in exclusive breastfeeding practice.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study design

The study design was analytical cross sectional study, to identify the association of using maternal child health handbook on exclusive breastfeeding and the factors related to exclusive breastfeeding practices among mothers of children 6-12 months. This study was conducted in 9 sub districts under Manado Municipal services area, on January 9 to February 2, 2006.

3.2 Study area and target population

The study area divided into two groups according the characteristics of demography.

Urban area, where located around the centre of town. It can be access by walk, or car (microbus) in one way about 15 – 30 minute. Most of this population was trader, employer, and fabric worker.

Sub urban area, where located in the remote of center town, and can be access only by car at least twice way about more than 30 minute. Common people in this place have work as farmers, farm worker and fisherman.

Inclusion Criteria

The mothers of children 6-12 months in Manado Municipal services area during the months of data collection are being included in this study.

Exclusion criteria

The mothers of children 6-12 month those who absent/ move out from their residents on the day of data collection and who live in the islands.

3.3 Sample size

The sample size is calculated based on the following formula:

$$n = \frac{Z^2_{\alpha/2} \times P(1-P)}{d^2}$$

n = The desired sample size

$Z_{\alpha/2}$ = Level of statistical significance for two side test (1.96)

P = Anticipated proportion possessing on a characteristics of exclusive breastfeeding

average in Manado is 66,7 % (11) . So P = 0.67

d = Allowance for relative error 10 % from estimated proportion = 0.06

$$n = \frac{(1.96)^2 \times 0.67(1-0.67)}{(0.06)^2}$$

n = 235 the sample size is 235 respondents.

3.4. Sampling technique

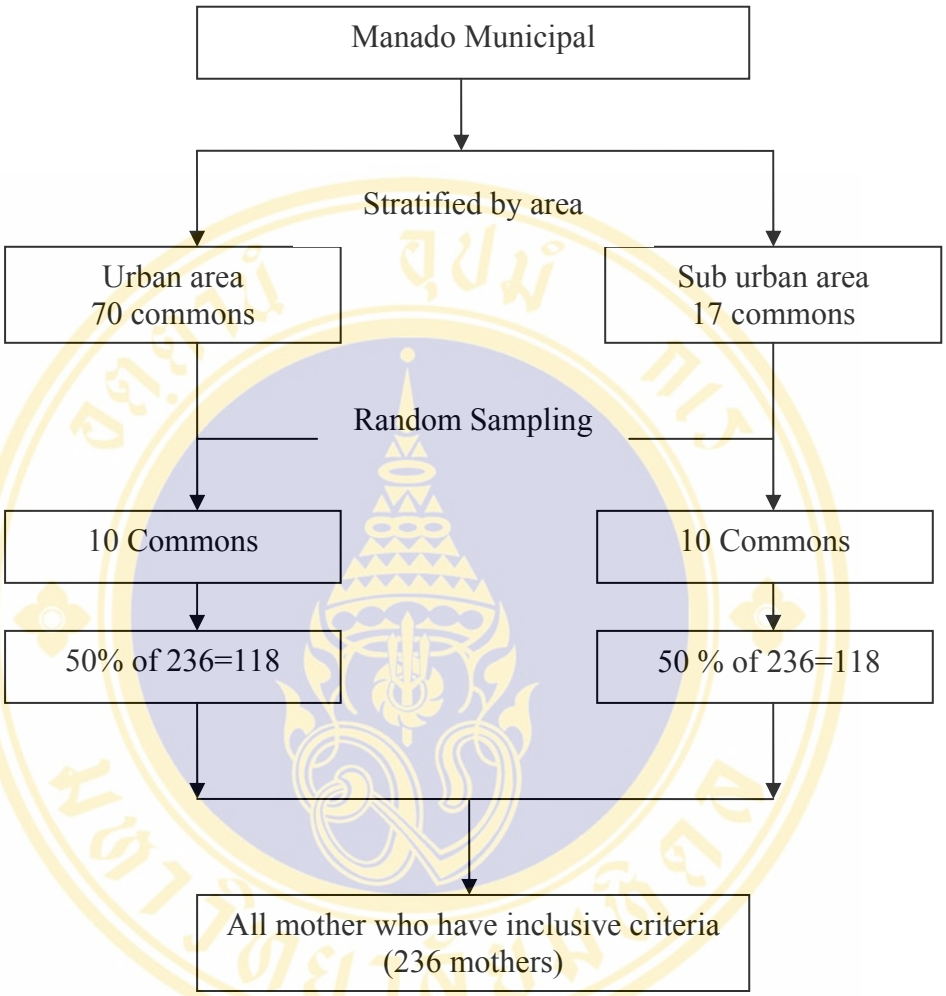

Figure 3 Sampling Frame

Manado municipal have 70 commons in urban and 17 commons in suburban areas. Out of these commons were selected 10 commons from urban and 10 commons from suburban areas. For this study the number of simple size was divided in two groups. 50 % for urban area and 50 % for sub urban area. Then the simple random technique was used in order to select the commons area where the target population would be found.

3.5 Research instruments

The structured questionnaire regarding study variables was used for this survey. The English versions questionnaire was translated to the local language. The questionnaires are consist of 5 parts (36 questions),which are list below:

Part 1. Mother's characteristic; 6 questions

Part 2. Infant's characteristic; 3 questions

Part 3. Mother's knowledge based on MCH handbook; 10 questions

Part 4. Level of using MCH handbook; 6 questions

Part 5. Prenatal class : 2 questions

Part 6. Breastfeeding practices; 9 questions

The check list of utilization of MCH handbook was used to measure the level of using MCH handbook in addition to the structured questionnaire

The methods to collect the data are interview and observation by using questionnaire and check list to asses the recording in MCH handbook.

3.6 Test for validity and reliability

Test for content validity.

Questionnaires sent to two experts to examine the correct, validity, and language clearness, then translated to Indonesia local language before running the pretest.

Test for reliability

The questionnaire was being pretest for the reliability in 30 cases. The respondents are mothers of children 6-12 months in Manado Municipal. The reliability method test was Kuder Richardson 20 Coefficient.

3.7 Data collection procedure

Firstly, researcher met the chief of the Manado Municipal Health office, to get her permission for this study and briefly described the aim of this study.

Secondly, a letter was sent to the head of the assured Health Centers under Manado Municipal services area to inform them about the aim of this study and to ask them for their permission if their services area population would participate in this study.

Thirdly, after got permission from the leader above, some assistant researcher was been selected and provided 1 day training.

Fourthly, the interviewers were divided into 2 groups, to conduct face to face interviewing with the sample population in two areas.

Then, the questionnaire was covered by a letter, informing the study objective to respondent and asking them to participate confidentially and anonymously.

After collecting data, the questionnaires sheet was immediately checked for its completeness and accuracy.

Finally, after finishing data collection, the interviewers have to allow the mothers to ask question if any.

3.8 Data Analysis procedure and statistical used

Questionnaire was coded and analyzed by using Minitab program. Descriptive statistic was used to explain the basic information of the respondents and distribution both variables; dependent and independent. Inferential statistic was used (p-value by chi square) to find out the relationship between independent and dependent variables. Odd ratio test was used to define the relationship between independent variables and dependent variable, which the significant level will be set at p-value 0.05 and 95 % confidence interval.

CHAPTER 4
RESULTS

This research was conducted in Manado municipal,Indonesia. The data were collected by interviewing 300 mothers of six to twelve months old infants who lived there. The breastfeeding pattern was identified and the association between socio demographic factors, level of using Maternal and Child Health Handbook (Buku KIA), mother's knowledge about breastfeeding, health provider support to give exclusive breastfeeding and prenatal class towards exclusive breastfeeding, other related factors and exclusive breastfeeding were explored. The reliability of knowledge was equal 0.612 in Kuder Richardson 20 coefficient. The results are presented in the 2 following parts;

Part 1: Descriptive analysis which describes the percentage and frequencies of each independent and dependent variables as follows:

1. Socio demographic characteristics of respondents
2. Mother's knowledge about breastfeeding
3. Level of using MCH handbook
4. Health provider support to give breastfeeding
5. Prenatal class
6. Other related factors
7. Breastfeeding pattern.

Part 2: Association analysis which presents odds ratio test to study the association between each independent variable and dependent variable as follow:

1. Association between socio demographic characteristics and practicing exclusive breastfeeding
2. Association between level of using MCH handbook and practicing exclusive breastfeeding
3. Association between mother's knowledge about breastfeeding and practicing exclusive breastfeeding
4. Association between health provider supports to give exclusive breastfeeding

and practicing exclusive breastfeeding

5. Association between prenatal class and practicing exclusive breastfeeding
6. Association between other related factors and exclusive breastfeeding.

4.1 Descriptive analysis

4.1.1 Socio demographic characteristics

Table 2 presents the distribution of respondents according to their socio-demographic characteristics such as; age, education, occupation, family size, family income.

The respondents' age is range from 16 to 43 years old which an average age is 27.56 years old. Most of them, 61.0 %, are in the middle reproductive age from 20-30 years old, 29.33 % have an age more than 30 years old and mother of less than 20 years old are 9.67 %.

Regarding educational level, the largest of mothers who are graduated from secondary school (63.67 %), followed by 22.0 % from university or college and 14.33 % from primary school respectively.

Majority of the respondents, 82.67 %, have job at home such as housewife, shopkeeper, sales, and others. Some of them go outside for work such as employee, civil servant, nurse, teacher, and industrial worker; among them; 13.67 % have full time job and 3.67 % have part job.

In terms of family size, respondents with family member less than or equal 4 persons are about 62.33 % and with more than 4 family members are 37.67 %.

Concerning the family income, the average of family income is Rp 878,017,- (US $ 92.42) per month, with the range from Rp 100,000,- (US $ 10.53) to Rp 3,000,000,- (US $ 315.79) per month. A half of respondents (54.33 %) have moderate

monthly family income, 36.67 % have low monthly family income and only 9.00 % have high monthly family income

Table 2 Socio demographic characteristics of the respondents

Characteristic	Number n=300		Percentage 100%
Mother's age(years)			
<20	29		9.67
20-30	183		61.0
> 30	88		29.33
Mean =27.56	SD=5.83	Min=16	Max=43.0
Education			
Primary level	43		14.33
Secondary level	191		63.67
College/University	66		22.0
Occupation			
Inside	248		82.67
Outside			
-Full time job	41		13.67
-Part time job	11		3.67
Family size (persons)			
More than 4	113		37.67
Less or equal to 4	187		62.33
Mean=4.4	SD=1.37	Min=3	Max=9
Family income			
Low (<Rp 545,000)	110		36.67
Moderate(Rp 545,001- 1,500,000)	163		54.33
High (>Rp 1,500,00)	27		9
Mean =878,017	SD=531,704	Min=100,000	Max=3,000,000

4.1.2 Level of using MCH handbook

Based on the criteria that mentioned in chapter 1, questions 20 to 25 and checklist 1 to 3 items are related to the level of using MCH handbook. During the

interview it is found that 90 % of respondents have MCH handbook. Among them 48.52 % have moderate level of using MCH handbook, followed by low level of using at 29.26 % and high level of using at 22.22 %.

Table 22 found that the utilization rates among mothers who have MCH hand book are different from items to items. For instance, there are 48.52 % of them always read the book and about 58.52 % read all parts of breastfeeding in the book. Only 6.3 % of mothers lost the book, and 80.37 % always bring the book when taking their children to the hospitals or clinics. The less utilizing activity are self recording, never record 65.93 %, completeness of self recording is only 22.59 %.

Table 3 Level of using MCH handbook by respondents

Level of using	Number		Percentage 100 %
Having MCH handbook	**n=300**		
Yes	270		90.00
No	30		10.00
Level of using MCH handbook (score 0-18)	**n=270**		
High	60		22.22
Moderate	131		48.52
Low	79		29.26
Mean= 10.678	SD=3.818	Min=0.000	Max=18.00

4.1.3 Mothers' knowledge about breastfeeding

Table 4 shows that 50.67 % of respondents have fair level of knowledge, while 47.00 % have good level of knowledge and the only 2.33 % have poor level of knowledge. The average score of correct answer is 8.2633 with the range correct answer between 4 and 10.

Table 4 Level of mother's knowledge about breastfeeding

Knowledge	Number n = 300		Percentage 100 %
Good	141		47
Fair	152		50.67
Poor	7		2.33
Mean =8.26333	SD=1.32407	Min=4.00	Max=10.00

Almost all of them answer correctly for question number 2,3,5,6 and 7. About half give correct answer of question number 9 and 10: babies still need water during breastfeeding (0-4 months) and it is better to give breast milk on schedule to discipline the child (Table 23)

4.1.4 Health provider support to give exclusive breastfeeding

Table 5 describes the number and frequency of health provider for information and support for breastfeeding exclusively. There are 67.67 % of mothers received high support from health providers, 17.00 % of them received fair support and 15.33 % poor supports.

Table 5 Health provider support on exclusive breastfeeding practice

Health provider support	Number n = 300		Percentage 100 %
High	203		67.67
Fair	51		17
Poor	46		15.33
Mean =1.52	SD=0.75	Min=0	Max=2

4.1.5 Prenatal class

Table 6 presents the distribution of respondents according to the prenatal class arrangement and the mothers' attendance in prenatal class activity. The results show

that 66.33 % of the respondent reports of no prenatal class arrangement in their community, 67.33 % of respondents do not attend the prenatal class. Only 21 % attend the class more than 4 times and 11.67 % attended 1-3 times during their pregnancy.

Table 6 Prenatal class among respondents

Prenatal class	**Number** n = 300	**Percentage** 100 %
Prenatal class arrangement		
Yes	101	33.67
No	199	66.33
Prenatal class attendance		
More than 4 times	63	21.00
1-3 times	35	11.67
Never	202	67.33

4.1.6 Other related factors

Table 7 provided other related factors include mothers and infants characteristics. The majority of respondents have normal physical features of breast (74.33%).while 25.67 % have abnormal features of breast during breastfeeding period.

Regarding previous experiences in exclusive breastfeeding, more than half of the respondents (61.66 %) have experience in breastfeeding, 38.33 % have no experience.

The infant's characteristics could be noted as birth weight and birth order. Almost all respondents (92, 0 %) have babies with normal birth weight and only 8 % of babies are low birth weight.

Regarding birth order, 43.33% of children are first born, 34.33 % are the second child and 32.33 % are the third or more order.

Table 7 Mothers and infants characteristics

Characteristic	Number n=300		Percentage 100%
Physical Features of nipple			
Normal	223		74.33
Abnormal	77		25.67
Previous experience of breastfeeding			
Fail	46		15.33
Success	124		41.33
No experiences	130		43.33
Child Birth Weight (kg)			
L B W(less than 2.5)	24		8.0
Normal (more than or equal 2.5)	276		92.0
Mean=3.12	SD=0.48	Min=1.30	Max=4.30
Child Birth Order			
First baby	130		43.33
Second baby	103		34.33
Three or more	67		32.33

Table 8 and 9 provided reinforcing factors include family support and formula milk advertising.

Table 8 illustrates the distribution of respondents who had support from their family member. Almost all mothers received support from their husband to give breast feeding (93.33 %). One fourth of them got support from their parents 25.67 %, 5.33 % from their sister, 3.67 % from parents in law and 2.67 % from brother.

Table 8 Family support to give breastfeeding

Family support *	**Number n=300**	**Percentage 100 %**
Husband	280	93.33
Parents	77	25.67
Parents in law	11	3.67
Sister	16	5.33
Brother	8	2.67

* Multiple answers

Regarding the formula advertising, table 9 describes that the highest expose are come from television (98.00 %), followed by magazine (51.67 %), health personnel (36.33 %) and sales representative (34.00 %).

Table 9 Source of formula advertising

Sources of formula advertising *	**Number n=300**	**Percentage 100 %**
TV advertising	294	98.00
Magazine	155	51.67
Health personnel	109	36.33
Sales representative	102	34.00

*Multiple answers

4.1.7 Breastfeeding pattern

Table 10 shows that 92 % of mothers give breast milk to their babies. Half of them (49. 67 %) breastfeed exclusively, 41.67 % of mothers give partial breastfeeding, and 0.67 % of them give predominant breastfeeding.

Table 10 Breastfeeding pattern among mothers

Breast feeding pattern	**Number n=300**	**Percentage 100 %**
Exclusive Breastfeeding	149	49.67
Partial Breastfeeding	125	41.67
Predominant Breastfeeding	2	0.67
No Breastfeeding	24	8.00

In terms of duration of breastfeeding practice, Table 11 shows that the average months of breastfed is 7.7 months with the range from 1 to 12 months. Most mothers, 51.09 % breastfeed for 7 to 12 months, 43.84 % for 4 to 6 months and 5.07 % for 1 to 3 months.

Table 11 Duration of breastfeeding among mothers

Duration	**Number n=276**		**Percentage 100 %**
1-3 months	14		12.67
4-6 months	121		40.33
7-12 months	141		47.00
Mean= 7.72	SD= 2.83	Min=1	Max=12

Table 12 explains the mother's reasons for not giving breastfeeding to her previous baby. The main reasons are lack of breast milk (52.17 %), working condition (21.74 %) and irritable baby (10.86 %). The other reasons are breast's problem, baby death, mother's illness and separation.

Table 12 Mother reason not give breastfeeding to her previous baby

Reason	Number n=46	Percentage 100 %
Lack of breast milk	24	52.17
Working mother	10	21.74
Irritable baby	5	10.86
Breast ‘s problem	2	4.34
Baby death	2	4.34
Mother ill/separated	2	4.34
Others	1	2.17

Almost half (43.33 %) of the respondents give artificial milk to their babies, 22.67 % give water, 14.67 % and 14.33 % give cereal and banana. A few of them give boiled rice (5.33 %), tea (4.33 %), sweet water (4.00 %), coffee (2.33 %), other food (1.67 %) and juice (1.00 %). (See Table 13)

Table 13 The kinds of food/drink that mother given to her baby during 0-4 months

Food/drink *	Number n=300	Percentage 100 %
Formula milk	130	43.33
Water	68	22.67
Cereal	44	14.67
Banana	43	14.33
Boiled rice	16	5.33
Tea	13	4.33
Sweet water	12	4.00
Coffee	7	2.33
Others	5	1.67
Juice	3	1.00

* Multiple answers

4.2 Association Analysis

In order to determine the association between socio-demographic characteristics, level of using MCH handbook, mother's knowledge about breastfeeding, health provider support , prenatal class, other related factors and exclusive breastfeeding ,the odds ratio test was performed for this analysis.

4.2.1 Association between socio-demographic characteristics and practicing exclusive breastfeeding

As shown in table 14 , mothers in the middle reproductive ages are more practices exclusive breastfeeding (51.91 %), followed by those less than 20 years old (48.28 %) and over than 30 years old (45.45%),respectively. It is found that there is no significant association between maternal age and exclusive breastfeeding (p-value 0.602).

The association between mother's education and practicing exclusive breastfeeding is significantly association (p –value <0.001). This result shows that 65.12 % those who have low education (primary level) give exclusive breastfeeding, followed by secondary level (54.97 %) and college/university (24.24 %) respectively. The odds ratio shows that the mothers with education of university level have 0.17 times to practice breastfeeding exclusively compare with the reference group (education of primary level).

Concerning the association between mother's occupation and exclusive breastfeeding, it was found that there is significant association between maternal occupation and exclusive breastfeeding (p-value 0.001). Mothers who have inside job are more frequent give exclusive breastfeeding (54.03 %) rather than those who have outside job (28.85 %).The odds ratio shows that the mothers who work outside have 0.34 times to practice breastfeeding exclusively compare with the mothers who work at home.

The family size was not significant associated with practicing exclusive breastfeeding (p-value 0.456). Half mothers with small family number (51.34 %) and 46.90 % mothers with big family number are give exclusive breastfeeding. The odds ratio shows that the mothers who with small family number have 1.19 times to give exclusive breastfeeding compare than those with big family number.

The association between family income and practicing exclusive breastfeeding is significant association with exclusive breastfeeding (p-value 0.032).Mothers with low income ranked the highest one (53.64 %), followed by the moderate income (50.92 %) and the high income is the lowest group (23.93 %). Tendency to practices exclusive breastfeeding by odds ratio examine shows that mothers who are moderately income family tends to give breastfeeding exclusively 0.90 times and highly income family 0.30times.

Table 14 Association between socio-demography characteristics of the respondents and practicing exclusive breastfeeding

Socio-demographic	Breastfeeding Practice				
	Exclusive n (%)	Non Exclusive n (%)	Odds ratio	95 % C I	p-value
Mother's age(years)					[a]**0.602**
<20	14 (48.28)	15 (51.72)	**1.12**	0.45-2.81	0.791
20-30	95 (51.91)	88 (48.09)	**1.30**	0.75-2.23	0.319
> 30	40 (45.45)	48 (54.55)	**1**		
Education					[a]**<0.001**
Primary level	28 (65.12)	15 (34.88)	1		
Secondary level	105 (54.97)	86 (45.03)	0.65	0.31-1.37	0.225
College/University	16 (24.24)	50 (75.76)	0.17	0.07-0.43	<0.001
Occupation					
Inside	134(54.03)	114 (45.97)	1		
Outside	15 (28.85)	37 (71.15)	0.34	0.17-0.69	0.001

[a] p-value for over all in one variable by chi-square test

Table 14 Association between socio -demography characteristics of the respondents and practicing exclusive breastfeeding (cont.)

Socio-demographic	Breastfeeding Practice				
	Exclusive n (%)	Non Exclusive n (%)	Odds ratio	95 % C I	p-value
Family size					
More than 4	53 (46.90)	91 (53.10)	1		
Less/equal 4	96 (51.34)	60 (48.66)	**1.19**	0.73-1.96	0.456
Family income					[a]**0.032**
Low (<Rp 545,000)	59 (53.64)	51 (46.36)	1		
Moderate (Rp 545,001-1,500,000)	83 (50.92)	80 (49.08)	0.90	0.54-1.50	0.660
High (>Rp 1,500,000)	7 (23.93)	20 (74.07)	0.30	0.11-0.84	0.009

[a] p-value for over all in one variable by chi-square test

4.2.2 Association between level of using MCH handbook and practicing exclusive breastfeeding practice

In this research, the association between level of using MCH handbook and exclusive breastfeeding practice was found that level of using MCH handbook is not significant associated with exclusive breastfeeding (p-value 0.203).However, the higher level of using MCH handbook is more likely practicing breastfeeding exclusively. Respondents who have high level of using MCH handbook (58.33%), the moderate level of using (49.62 %) and the low level of using(23.49 %) are give exclusive breastfeeding.

Table 15 Association between level of using MCH handbook and practicing exclusive breastfeeding

Level of using MCH handbook	Breastfeeding Practice		Odds ratio	95% C I	p-value
	Exclusive n (%)	Non exclusive n (%)			
High	35 (58.33)	25 (41.67)	1		[a]**0.203**
Moderate	65 (49.62)	66 (50.38)	0.70	0.36-1.36	0.262
Low	34 (43.04)	45 (56.96)	0.54	0.26-1.12	0.074

[a] p-value for over all in one variable by chi square

4.2.3 Association between mother's knowledge about breastfeeding and practicing exclusive breastfeeding

Table 16 illustrates that mother's knowledge about breastfeeding have no significant associated with practicing exclusive breastfeeding (p 0.649). It shows that the typical mothers who give exclusive breastfeeding have high level of knowledge (51.06 %) and low level of knowledge (48.43 %).

Table 16 Association between level of mother's knowledge about breastfeeding and practicing exclusive breastfeeding

Mother's knowledge	Breastfeeding Practice		Odds ratio	95% C I	p-value
	Exclusive n (%)	Non exclusive n (%)			
High (good)	72 (51.06)	69 (48.94)	1		
Low (fair+poor)	77 (48.43)	82 (51.57)	0.90	0.56-1.45	0.649

4.2.4 Association between health provider support to give breastfeeding and practicing exclusive breastfeeding

Table 17 presents, there is no significant association between health provider support and exclusive breastfeeding practice (p-value 0.552). Mother with low supported have high proportion to give exclusive breastfeeding (56.52%), followed by moderate (50.98 %) and high support (47.78 %) respectively.

Table 17 Association between health provider support to give breastfeeding and practicing exclusive breastfeeding

Health provider support	Breast feeding Practice Exclusive n (%)	Non exclusive n (%)	Odds ratio	95% C I	p-value
High	97 (47.78)	106 (52.22)	1		[a]**0.552**
Moderate	26 (50.98)	25 (49.02)	**1.14**	0.59-2.20	0.683
Low	26 (56.52)	20 (43.48)	**1.42**	0.71-2.84	0.285

[a] p-value for over all in one variable by chi square

4.2.5 Association between prenatal class and practicing exclusive breastfeeding

The table shows that there is no significant association between prenatal class arrangement and exclusive breastfeeding (p-value 0.654). Among the respondents who have prenatal class arrangement in their community, 51.49 % of them give exclusive breastfeeding to their baby and 48.74 % of those who have not it. In terms of prenatal class attendance there is no significant association with exclusive breastfeeding (p-value 0.111). It shows that the proportion of mothers who give exclusive breastfeeding is 65.71 % for those who attended less than 4 times, 48.51 % for those who never attended and 44.44 % for those who attended 4 times or more.

Table 18 Association between prenatal class and practicing exclusive breastfeeding

Prenatal class	Breastfeeding Practice Exclusive n (%)	Non exclusive n (%)	Odds ratio	95% C I	p-value
Prenatal class arrangement					
Yes	52 (51.49)	49 (48.51)	1		
No	97 (48.74)	102 (51.26)	0.9	0.54-1.49	0.654
Prenatal class attendant					
More than or equal 4 times	28 (44.44)	35 (55.56)	1		[a]**0.111**
Less than 4 times	23 (65.71)	12 (34.29)	**2.40**	0.94-6.19	0.071
Never	98 (48.51)	104 (51.49)	**1.18**	0.64-2.16	0.572

[a] p-value for over all in one variable

4.2.5 Association between other related factors and practicing exclusive breastfeeding

An association between other related factors and practicing exclusive breastfeeding is provided in table 19, 20 and 21.

Table 19 shows that there is no significant association between the physical features of breast and practicing exclusive breastfeeding (p-value 0.642). The result shows that 51.95 % of mothers who have abnormal appearance of breast and 48.88 % with normal breast give exclusive breastfeeding to their babies.

The previous experience of practicing exclusive breastfeeding is significantly associated with current practicing exclusive breastfeeding (p-value <0.001). It shows that those who have successful experience in exclusive breastfeeding (79.84 %) give exclusive breastfeeding to their babies. In contrast, mothers without experience and those who have fail experience in exclusive breastfeeding, practice breastfeeding exclusively 41.54 % and 13.04 %. The odds ratio shows that the fail experience group and no experience group have chance 0.05 and 0.25 times to give exclusive breastfeeding less than successful group.

The study found that there is no significant association between child birth weight and practicing exclusive breastfeeding (p-value 0.414). It shows that 50.36 % mothers who have children with normal birth weight, and 41.67 % of low birth weight child's mothers are practicing exclusive breastfeeding. It also shows there is no significant association between birth orders and practicing exclusive breastfeeding (p-value 0.083).The second baby is most likely to get exclusive breastfeeding (56.31 %).

Table 19 Association between mothers and infant's characteristics and practicing exclusive breastfeeding

Mother and infants characteristics	Breastfeeding Practice		Odds ratio	95 % C I	p-value
	Exclusive n (%)	Non Exclusive n (%)			
Physical features of breast					**0.642**
Normal	109(48.88)	114(51.12)	1		
Abnormal	40 (51.95)	37 (48.05)	1.13	0.65-1.96	
Previous experience of breastfeeding					[a]**<0.001**
Fail	6(13.04)	40(86.99)	0.05	0.02-0.15	<0.001
Success	99(79.84)	35(20.16)	1		
No experiences	54(41.54)	76(58.46)	0.25	0.14-0.44	<0.001
Child Birth Weight					
L B W	10 (41.67)	14(58.33)	0.70	0.28-1.76	0.414
Normal	139(50.36)	137(49.64)	1		
Child Birth Order					**0.083**
First baby	54(41.54)	76(58.46)	0.55	0.32-0.96	0.025
Second baby	58(56.31)	45(43.63)	1		
Three or more	37(55.22)	30(44.78)	0.96	0.49-1.86	0.889

[a] p-value for over all in one variable by chi square

Family support and formula milk advertising as reinforcing factors are provided in Tables 20 and 21. Table 20 shows that there is significant association between husband support and practicing exclusive breastfeeding (p-value <0.001). There are 52.50 % of respondents who receive husband support and 45.45 % mothers who receive support from her parents give breastfeeding exclusively. The odds ratio show that no husband support to the mothers in is only 0.1 times affect to practice breastfeeding exclusively than mothers with strongly support and mothers without parents support more likely to give exclusive breastfeeding about 1.26 times than those with parents support.

Table 20 Association between family support to give breastfeeding and practicing exclusive breastfeeding

Family Support	Breastfeeding Practice Exclusive n (%)	Non exclusive n (%)	Odds ratio	95% C I	p-value
Husband					
Yes	147 (52.50)	133 (47.50)	1		
No	2 (10.00)	18 (90.00)	0.1	0.02-0.46	<0.001
Parents					
Yes	35 (45.45)	42 (54.55)	1		
No	114 (51.12)	109 (48.48)	**1.26**	0.72-2.18	0.391

Table 21 shows that there is no significant association between formula milk advertising and practicing exclusive breastfeeding (p-value 0.537). It shows that the proportion of mothers who give exclusive breastfeeding is 54.44 % of those who have low formula milk advertising exposed, 48.13 % of them with moderately exposed and 46.00 % of them with highly exposed.

Table 21 Association between formula milk advertising and practicing exclusive breastfeeding

Formula Advertising	Breastfeeding Practice Exclusive n (%)	Non exclusive n (%)	Odds ratio	95% C I	p-value
					[a]**0.537**
High	23 (46.00)	27 (54.00)	0.71	0.34-1.51	0.338
Moderate	77 (48.13)	83 (51.88)	0.78	0.45-1.35	0.337
Low	49 (54.44)	41 (45.56)	1		

[a] p-value for over all in one variable by chi square

In conclusion

1. Exclusive breastfeeding rate in this study area is 49.67 %.

2. The study found that there are no significant association between level of using MCH handbook , mother's knowledge about breastfeeding, health

provider support, prenatal class arrangement, mother's age, family size, physical features of breast , child birth weight, parents support, formula milk advertising and practicing exclusive breastfeeding (p-value >0.05).

3. There are significantly association between education, occupation, family income, previous experience of exclusive breastfeeding, child birth order, husband support ,prenatal class attendance and practicing exclusive breastfeeding .(p-value <0.05).

4. Mothers with high education level, working outside, highly family income, fail or no experience of exclusive breastfeeding, have first baby and without husband supports are less likely to practicing breastfeeding exclusively.

CHAPTER 5
DISCUSSION

This study aimed at the utilization of Maternal and Child Care handbook (MCH handbook) and exclusive breastfeeding practice among mothers in Manado municipal, Indonesia. It was performing to use the outcomes as an input information for local professional to develop the quality of health promotion strategies and to encourage the maternity health care by using MCH handbook program. In this chapter, the discussion is presented as follows:

Part 1.Study design and research methodology
Part 2.Utilization of MCH handbook among mothers
Part 3.Exclusive breastfeeding practice among mothers
Part 4.Association between socio-demographic and practicing exclusive breastfeeding
Part 5.Association between level of using MCH handbook and practicing exclusive breastfeeding
Part 6.Association between mother's knowledge about breastfeeding and practicing exclusive breastfeeding
Part 7.Association between health provider support to give exclusive breastfeeding and practicing exclusive breastfeeding
Part 8.Association between prenatal class and practicing exclusive breastfeeding
Part 9.Association between other related factors and practicing exclusive breastfeeding.

5.1 Study design and research methodology

The study was a cross-sectional analysis which collected data from primary source. This study design was more appropriate due the limitation time and the aim of the study. Target population was mothers of children 6 to 12 months old in Manado

municipal, Indonesia. The data was collected by interviewed face to face with structured questionnaire and checklist as a guideline, which consist of 36 questions to cover all objectives of the study. By interviewing the respondents were explained clearly about the questions and the researcher could receive complete information. The questionnaire was not too long to be tired to answering.

Content validity was examined by three experts from MAHIDOL University and pretest was run among 30 mothers who attend the immunization clinic in Ranomuut Health Center at 2nd week of January 2006.

The reliability of knowledge about breastfeeding was calculated with Kuder Richardson 20 Coefficient. The reliability measurement for this part was 0.564. It was quite low reliability; therefore the revision for the questionnaire was done, especially for questionnaire number 10 then the reliability coefficient came out as 0.612.

Data collection was done from January 9 to February 2, 2006 by researcher, and 5 assistant researchers (1 doctor and 4 nurses from 4 health centers in Manado municipal). These assistants understood the questionnaire, checklist and the objectives of this study by one day training. Then data collection was run according to the integrated health post service schedule in the village and in the outpatient clinic in health center. By this approach the data collection was feasible and on time.

During the data collection, researcher kept closely supervises and support interviewers and tried to avoid missing data by re-asking to the respondents. The essential thing in the process of data collection was coordination and support from the health centre officers.

5.2 Exclusive breastfeeding practice among mothers

The study found that 92 % of respondents are giving breast milk to their baby but only 49.67 % of them give breastfeeding exclusively. This figure is slightly high than the annual report of NSS 2002 in Indonesia, which reported that 27-42 % of mothers

gave exclusive breastfeeding to their baby(31). It was understandable because this survey conducted among 70 % rural people in whole country, while this study carries out from urban area in one municipal. It also different proportion with the Manado municipal health annual report 2004 (66.7 %).That could be happen because some factor associated like modernization, city life style, work field improving in many sector that allow women to become employee.

This study also found low practice breastfeeding exclusively is caused by not enough breast milk (52.17%), working mother (21.7 %) and irritable baby/crying (9 %). That might be related with: Mothers did not know about the stimulate process of breast milk such us need more frequency, sucking position, mother should eat and drink enough to stimulate breast milk production. Misunderstanding of irritable baby that always interpretive as still hunger even the baby was given breastfeeding. Also the special difficult faced by working women like feeding time only 3 months sometimes 2 weeks for particular work.

5.3 Association between socio-demographic characteristics and practicing exclusive breastfeeding

Mother's age

It was found that there is no significant association between mother's age and practicing exclusive breastfeeding (p-value 0.602). However, it shows that younger mothers are more likely to give exclusive breastfeeding than elderly mothers. Dissimilar with the prior study in USA by Ryan, 1997(3) it showed that the characteristic of women who most likely to breastfeed was over than 30 years old.
In this study less than 30 years old have big chance to give it .The reason is that most of respondent in this study is the middle age of reproduction (20-30 years old) and have an inside job (Table 24). So that, age would be influencing factors due to job status for mothers to feel confident of exclusive breastfeeding and have more time to feed their baby.

Mother's education

Mother's education and exclusive breastfeeding was significantly associated (p-value <0.001) It shows that the high educated mothers are less likely to give breastfeeding exclusively compare with the low educated mothers with odds ratio equal to 0.07 for college/university and 0.31 for secondary level). It is different with previous study in USA that mother with college education were most likely to give breastfeed than those who with secondary grade school education or less (3).The reason is that there was different culture and norm. In USA, it is norm to give bottle feeding at low educate, low income and urban people for the reason that they would be seen as modern people. The situation in this study is dissimilar, generally low educated women more likely to be housewife caused by lacking knowledge and skill to work outside (see Table 25),then they have more time to breastfeed and easier to conducted by health care worker to promote breastfeeding exclusively.

Mother's occupation

In terms of job status, this study found that there is significant association between mother's occupation and exclusive breastfeeding (p-value <0.0001). It shows that mothers who have outside job less likely to give exclusive breastfeeding rather than mothers who have inside jobs with odds ratio is equal to 0.34.

The same thing as the national statistic (2004) report that the number of exclusive breastfeeding rates dropped to 39.5 % as more mothers were out working to help supplement the family income(11). It would be happen in this study because most of respondents work at home and they have moderate income family (See Table 26). That is the phenomena due to working condition that mothers who work inside have change or time more than those who go out working to take care their babies. Also moderately income make mother should not go out side to find additional income.

Family size

It was found that there is significant association between family size and exclusive breastfeeding (p-value <0.0001). It shows that mother with small family

more likely to give exclusive breastfeeding than mothers with big family with odds ratio equal to 2.75. It is different from Houghton's research, 2001; that the separation with mother's relative may as a factor of change in breastfeeding practices, which decreased in small family (3).

The distinguish might be came from the most respondents in this study was the mothers with small family size and the dominant occupation as inside job (house wife).In this study area, mostly mothers from small family size are young mother that still follow family pattern and have low income so they tends to give breastfeeding than artificial milk. While the big family size mothers are elders that might more exposing to others information, have someone to take care their babies, work outside and quite high income to buy formula milk. (See Table 28 and 29)

Family income

The result shows that there is significant association between family income and exclusive breastfeeding (p-value 0.032). It shows that mothers with high and moderate family's income are less likely to give exclusive breastfeeding than low income family (OR 0.22 and OR 0.9). Different pattern in develop countries that mothers with high income tend to give breast milk than low income (3). For the reason, that most respondents are moderate income and have inside jobs (Table 26 and 27). In addition, formula milk price in developing country is quite expensive that the low income families may not afford. Other reason is that most high income mothers have outside working, which after three months of delivery they must left their baby to work and they could pay more for formula milk.

5.4 Association between level of using MCH handbook and practicing exclusive breastfeeding

This study found that there is no significant association between level of using MCH handbook and exclusive breastfeeding practice (p-value 0.250). It could be happen because the utilizations rate in terms of quality is less in this study area. Most mothers who have MCH handbook never recorded by them selves and only a half

mothers always read MCH handbook (Table 22) It also related with the quality of health provider support to encourage mother to give exclusive breastfeeding. Most mothers have low expose of prenatal class in their community that might influence to exclusive breastfeeding rate.

It is different with prior study in Bolaang mongodow, 2001. It was reported that 98.8 % mother always using MCH handbook and among of them there were 71.3 % gave exclusive breastfeeding (1).It could be happen because the different study objectives, method and place in different socio demography. This study was run in rural area, and most of the population are agricultural based and the good quality of MCH handbook program implementation .Whereas this recent study only 22.22 % mothers who have high level of using MCH handbook. Most of them are working outside and have high level of education, which those who have not enough time to take care their baby and could pay more for formula milk .(See Table 30 and 31) .

5.5 Association between mother's knowledge about breastfeeding and practicing exclusive breastfeeding

This study found that there is no significant association between mother's knowledge about breastfeeding and practicing exclusive breastfeeding practice (p-value 0.649). It might be understandable because mothers may have knowledge but they are not always practice exclusive breastfeeding .For example, 41.7 % mothers say no for give water during breastfeeding at 0 to 4 months but half of them give water to their babies in this period.

However, the mothers with high level of knowledge are more likely to give exclusive breastfeeding than low level of knowledge in this place. It is reasonable since mother knows more the benefits of breastfeeding and they have chance to do it, they will be more aware and make decision to give it exclusively as Perry S mentioned that mother's knowledge about breastfeeding is the one factor influenced to have successful breastfeeding (3).

5.6 Association between health provider support to give exclusive breastfeeding and practicing exclusive breastfeeding

The significant association between health provider support and exclusive breastfeeding was not found in this study (p-value 0.552). This may caused by the percentage of mothers who exposed with formula milk advertising very high (Table 9).

In contrast with the previous study in Bristol 1998 report that there was significantly association between receiving enough support for breastfeeding from hospital staff (odds ratio was equal to 2.4; 95 % CI of OR=1.5-3.8) with breastfeeding (32). Mother with health provider support less likely to give breastfeeding exclusively, that could be happen because this study not too much explore how strong and what kind of support specifically.

5.7 Association between prenatal class and practicing exclusive breastfeeding

This study shows that there is no significant association between prenatal class and exclusive breastfeeding practice (p-value 0.654, for prenatal class arrangement and p-value 0.111, for prenatal class attendance). The less quality of antenatal care ,which prenatal class arrangement as the tools to encourage exclusive breastfeeding not run well in whole municipal so that why no different in exclusive breastfeeding practice. Mothers with low attended to prenatal class are less encouraging of exclusive breastfeeding and easy to expose of formula milk advertising.

It is not the same as the study in Hospital of Pontifical Catholic University of Chile; it was found a significant increase in exclusive breastfeeding at six months post partum among women who received prenatal group education (7). In this recent study, no prenatal class arrangement and no attended the prenatal class are covered two third of respondents therefore it might not significant.

5.8 Association between others factors and practicing exclusive breastfeeding

Physical features of breast

There is no significant association between physical features of breast and exclusive breastfeeding (p-value 0.642). It could be happen because the reason for did not give exclusive breastfeeding because of few cases of breast problems (poor nipple grasp, infection and other disease), it was only 4.4 % (See Table 11).

It was quite different with the American Dietetic Association Journal (1997) reported that the mother reason to gave formula milk because of poor grasp nipple was 35 % (25). It could be happen because the local people think that once mother give breast milk to her baby, she should not stop it even something wrong with the breast until the baby's growth or stop it by them selves.

Previous experiences in exclusive breastfeeding

Previous experiences in exclusive breastfeeding have significant association with practicing exclusive breastfeeding (p-value<0.001). Fail experience and no experience mothers are less likely to give exclusive breastfeeding than successful experience mothers (OR 0.06 and OR 0.25, respectively). It is relevant with theory that breastfeeding is a behavior that need to be learned for the survival of the species (33). It is reasonable because due to feel confident, fairness for current babies, and gets the mutual pleasure of breastfeeding process.

Child birth weight

There is no significant association between birth weight and practicing exclusive breastfeeding practice (p-value0.414). It could be happen because in this study there is less number of mothers with small baby (table 7).Other reason that might be influence is culture belief that mothers should not give other food or drinks to her small baby otherwise the babies will get diarrhea.

Kusin K et all studied in East Java 1984 showed that only 15 % of low birth babies were exclusively breastfed in the 1st 12 month (34). It was because the habit of

these population. Mothers should give supplement food to her small babies in order to increase baby's weight by the first week of their life.

Birth Order

There is significant association between birth order and practicing exclusive breastfeeding practice (p-value 0.083).Mother who have first baby are less likely to give exclusive breastfeeding compare those who have second baby (odds ratio equal to 0.55; 95 % of OR 0.32-0.96).It may be because most of respondents have second baby and third or more are success experience in exclusive breastfeeding. (See Table 32).

Family support

There is significant association between mothers with husband support to give breastfeeding and practicing exclusive breastfeeding (p-value<0.001).It might be happen because culture perceptive that good husband should allows mother to give breastfeeding to their baby , if not people will think badly about this man, and it would make both mother and her husband feel down.

There is no significant association between mothers with parents support to give breastfeeding and practicing exclusive breastfeeding (p-value 0.391). It may be happened because most of mothers who are working outside, live and get more support from theirs parents (Table 33).

Formula milk advertising

It was found that there is no significant association between formula advertising and exclusive breastfeeding (p- value 0.537). It may be happen because the proportion of mothers who get high exposed of formula advertising are receive strongly support too from health provider (Table 34) and mostly respondents with low income are meet the expense of artificial milk so even they think it might be good for baby growth but it not affordable.

It similar with study in Bangladesh, Poland, South Asia and Thailand (1996) concluded that commercial discharge packs have a detrimental effect on breastfeeding (35). Even though not significant statistically but this phenomena could be happen because the aggressiveness formula advertising in Indonesia is very high such as; formula milk initiation in the first week of life in hospital and clinic, and 20-35 % of 1-3 months old babies received commercial industry baby food according to the Nutrition and Health Surveillance System annual report 2002(31).

CHAPTER 6
CONCLUSION AND RECOMENDATION

6.1 Conclusion

This research was focused on utilization of MCH handbook and exclusive breastfeeding in Manado municipal. It was performed to study the exclusive breastfeeding characteristic and the association between socio demographic factors, level of using Maternal and Child Health Handbook (Buku KIA), mother's knowledge about breastfeeding, health provider support, prenatal class and other factors towards practicing exclusive breastfeeding.

Method of sampling is stratified random sampling .Data collection was gathered from 300 mothers of children 6 to 12 months old in Manado municipal, Indonesia by interviewed face to face with questionnaire and checklist as a guideline, which consist of 36 questions to cover all objectives of this study; during 9th of January to 2nd of February,2006. It was done by researcher, and 5 assistant researchers (1 doctor and 4 nurses from 4 health centers in Manado municipal).It was run according to the integrated health post service schedule in the village and in the outpatient clinic in health center.

Based on results and discussion, the conclusion was made as follows:

The exclusive breastfeeding rate in this study area is 49.67 %. Almost all respondents give breastfeeding in average duration 7 months, which 41.67 % give partial breastfeeding and 0.67 % predominant breastfeeding. Half mothers could not give exclusive breastfeeding to their previous babies because of thinking of not enough breast milk for baby growth, followed by working condition and irritable baby. Most mothers give formula milk, water, cereal and banana, and some of them give boiled rice tea, sweet water, coffee, juice and others as the additional food/drink.

Regarding to socio-demographic of mothers; the average age of mothers is 27.56 years old, with range of age 16 to 43 years old. Three fifth of them are in the middle reproductive age from 20-30 years old. The largest proportion is those who are graduated from secondary school, followed by university or college and primary school respectively. Majority of the respondents, have inside job. In terms of family size, respondents with family member less than or equal 4 persons are about 62.33 % .Concerning the family income, the average of family income was Rp 878,017,- (US $ 92.42) per month, with the range from Rp 100,000,- (US $ 10.53) to Rp 3,000,000,- (US $ 315.79) per month. A half of respondents have moderate monthly family income.

In terms of level of using MCH handbook; Most of respondent have MCH Handbook (90 %). The utilization rates among mothers who have MCH hand book are vary from low to high .There are 22.22% with high level, 48.52 % moderate level and 29.26 % low level of using.

Concerning to mother's knowledge about breastfeeding, half of respondents had fair level of knowledge, and only 2.33 % had poor level of knowledge. In average score of correct answer are 8.2633 with range correct answer between 4 and 10.

Regarding to health provider information and support for breastfeeding exclusively. There was 67.67 % of mothers received high support from health providers.

In terms of prenatal class, 66.33 % of the respondents reported of no prenatal class arrangement in their community and 67.33 % of mothers' did not attended in prenatal class activity. Only one fifth mothers attended the class more than 4 times and during their pregnancy.

The majority of respondent have normal physical features of breast during breastfeeding period. Regarding previous experiences in exclusive breastfeeding, more than half of the respondents have experiences in breastfeeding, Two third of

them gave breast milk to their babies more than 4 months. Almost all respondents had babies with normal birth weight and only 8 % of babies were low birth weight. Regarding birth order, 43.33% of children are first born, followed by the second child and the third or more.

Almost all mothers received support from their husband to give breast feeding. One fourth of them got support from their parents, and only small number got from their sister, parents in law and brother The highest exposed of formula milk advertisings came from television, followed by magazine, health personnel and sales representative .

The characteristics mothers who less likely to practicing exclusive breastfeeding in this study area are those who are over 30 years old, high educated mothers , working outside and high income, have big family, with fail experienced and the normal birth weight and first baby's mothers.

The characteristics mothers who tends to breastfed exclusively in this study area are those who are in mid reproduction ages, low educated mothers, housewife or working inside , with small family members and low income , succeed in exclusive breastfeeding experienced, and the second or more baby's mothers.

The study found that there is no significant association between level of using MCH handbook , mother's knowledge about breastfeeding, health provider support, prenatal class, socio-demographic and other related factors (mother's age, family size, physical features of breast, child birth weight) with exclusive breastfeeding (p-value >0.05).

There are significant association between study factors and exclusive breastfeeding as follows: education, occupation, family income, previous experience of exclusive breastfeeding and child birth order (p-value <0.05). Mothers who are graduated from secondary school and high school less likely to give exclusive breastfeeding than those who are graduated from primary school (OR 0.65 and 0.17).

Those who are working outside have chance only 0.34 times to give exclusive breastfeeding than mothers with inside job. Mothers with small family are more likely at 1.19 times to practice breastfeeding exclusively than those with big family. Those who have moderate and high income are less likely to practicing exclusive breastfeeding compare with low income mothers (OR 0.9 and 0.22).Mothers who are fail and no experience in exclusive breastfeeding tends to give it for their baby only 0.05 and 0.25 times less than those who are success. The first baby mothers less likely to give exclusive breastfeeding compare than those who have second baby (OR 0.55)

6.2 Recommendations

6.2.1 Recommendation for the implementation

From the outcomes of this study, some points of recommendations could be beneficial for the further implementation, regarding the utilization of MCH handbook and practicing exclusive breastfeeding that will give impact to mother and child health and society.

1. Health professionals in Manado municipal need to set the aggressive program to promote MCH handbook and how to use it as a basic source of health information including exclusive breastfeeding (reading breastfeeding part and self recording part) to improve mother's knowledge about breastfeeding.

2. Health personal in Manado municipal should maintain the exclusive breastfeeding by educate husband to continually support lactating mother, strongly support to first pregnant/lactating mother and small family, interferes mothers who had fail experience of breastfeeding and initiation of baby friendly hospital/clinic.

3. Health personal in Manado municipal should increase the exclusive breastfeeding promotion by campaign about exclusive breastfeeding in the workplace in their service area for industrials worker; the benefit, nutritional value, how to store the breast milk in refrigerator or cool pack when mother go out working and the advantages of breastfeeding corner for employer and owner of manufactory.

4. Health authority in Manado municipal should improve the prenatal class program as the way to give more intensively education to the mothers about; the nutrient value of breast milk compare with formula milk and the timing to give additional food/drink. In order to correct the misunderstanding about breastfeeding and bottle feeding because of the high advertised of formula milk.

5. Government facilitates the maternity leave for working from 4 months to 6 months and support health policy for breastfeeding corner in every workplace, and allow mothers to go back home during lunch time to feed their babies.

6. Health promotion strategies in Manado municipal concerning to exclusive breastfeeding should be emphasize on the target group those who are over 30 years old, high educated mothers , working outside and high income, have big family, with fail experienced and first baby's mothers.

6.2.2 Recommendation for the further research

1. Case-control study in the future to know more the effect of MCH handbook towards exclusive breastfeeding in different setting in Manado

2. Cross sectional study on exclusive breastfeeding in the workplace.

REFERENCES

1. Hernawati I. Evaluation of the utilization of maternal and child health handbook according to mother's perception in Indonesia. Proceedings of the2nd International Symposium on Maternal and Child Health Handbook; September 2001. North Sulawesi, Indonesia: [s.n.]; 2001.
2. Isaranurug S, Mekmok S. Satisfaction and systematic uses of the maternal and child health handbook: (experience from one province in Thailand). Proceedings of the 2nd International Symposium on Maternal and Child Health Handbooks; 5-7th; September 2001. North Sulawesi , Indonesia; 2001.
3. Alden RK. Newborn nutrition and feeding. In: Lowdermilk DL, Perry S,editors. Maternity and Women's Health Care. 8th ed. USA: Mosby; 2000. P. 755-87.
4. Umboh.A.S. MCH handbook project report North Sulawesi province Indonesia. Proceedings of the 2nd International Symposium on Maternal and Child Health Handbooks; 5-7th ; September 2001, North Sulawesi Indonesia; 2001.
5. Position of the American Dietetic Association:Promoting and supporting breastfeeding (From the Association). Journal of the American Dietetic Association. 2005; 105 (5): 810-8.
6. Weng S. Ethnic/racial and other disparities among New Mexican mothers. Annals of Epidemiology. 2002 ; 12 : 507.
7. Burkhalter BR, Marin PS. A demonstration of increased exclusive breastfeeding in Chile. International Journal of Gynecology and Obstetrics. 1991;34 (4):353-9
8. Breastfeeding and complementary feeding patterns and trends [online] 2001.Available from: http//www.usystem.org/scn/archives/rwnso4/ch28.htm [Accessed 2005 Jul 20].
9. Media informasi menuju e.goverment [online].2001. Available from: http// www. sulut. go .id [Accessed 2005 Aug 8]
10. Ministry Investments -regional potential [online]:.2001. Available from: http //www. bkpm .go.id/bkpm /detailcat.php. Annual [Accessed 2005 Aug 8].
11. Annual report of Health Municipal Office. Manado, North Sulawesi: [s.n.]; 2003;

p.3-31

12. Silalahi.L.; Upah minimun , depnakertrans [online].2004. Available from: http//www.tempointeractive.com/hg/narasi/2004 [Accessed 2005 Aug 15].
13. Nutrition/infant & young child – exclusive breastfeeding [online]. 2004. Available from: URL: http//www.who.int/child-adolescent-health/index.htm. [Accessed 2005 Aug 17]
14. Definition of breastfeeding and replacement feeding terms [online].1991. Available from: URL: http//www.who. int/ nut/ db-bfd.htm [Accessed 2005 Jul 20].
15. Benson RC, Pernoll ML. Handbook of obstetric and gynecology. 9th ed. Singapore: McGraw-Hill; 1994: 277-81.
16. Carlson NR. Physiology of behavior. 4th ed. USA: Allyn and Bacon; 1991: p. 351-57.
17. McLaren A, Davies L, editors. The new guide to women's health. London: Tiger Book Int ; 1990 : 128-130.
18. WHO. Nutrition data bank: Global data bank on breastfeeding [online]. 2003. Available from : URL : http//www.who.int/nut/db- bfd.htm. [Accessed 2005 Jul 21].
19. WHO. Regional Office for South-East Asia: Country fact files on maternal, newborn and child health situation: [ms-wd]Indonesia [online].1998 Available from: http//www.whosea.org/en/index.htm. [Accessed 2005 Aug5].
20. Green WG. The precede/proceed model. University of South Florida. Web address: http//hsc.usf.edu/kmbrown/PRECEDE_PROCEED_Overview.htm.
21. Azwar A. The experiences of using MCH handbook in Indonesia. Proceedings of the 3 rd International Symposium MCH Handbook; August 5-6, 2003, Bogor Indonesia. 2003.
22. Zainal E, Isaranurug S, Nanthamongkolchai S, Voramongkol N. Factor related to breastfeeding practices among mother in Singburi Province, Thailand. Nakhon Pathom: AIHD ; 2003.
23. Amin S. Mother-friendly workplace initiative. In nurturing the future our first five years. Penang : WABA ; 1996 : p.63-78.
24. WHO, Division of Child Health and Development. Hypoglycaemia of the

newborn :A review of the literature [online] 1997. Available from : http// www. who. int/chd/ publications/ imici / bf/ hypoglyc/htm. [Accessed 2005 Aug 27].

25. Breasfeeding and booklet. Journal of the American Dietetic Association. 1997: 97(9) supp 1: 68.
26. Wijono W. Family health and MCH handbook. Proceedings of the Second International Symposium on MCH Handbook; 2001 September,6 . Manado, Indonesia; 2001.
27. Ministry of the Health of Research of Indonesia in Cooperation with JICA. Management guidelines for MCH handbook. Jakarta: The Ministry; 2003.
28. Pollock C, Bustamamte FR, Giarrantanu G. Men of diverse culture: Knowledge and attitude about breastfeeding. Journal of Obstetric, Gynecologic, and Neonatal Nursing; 31(6): 673-79.
29. LINKAGES Project Country Activities Report [online]. 2003. Available from : http//www.linkages project.org/country /Ghana.php. [Accessed 2005 Aug 30].
30. Breastfeeding. In: The Marshall Cavendish illustrated encyclopedia of family health. Volume 3.[s.l.]: Marshall Cavendish House; 1984. P. 228.
31. Nutriotion and Health Surveillance System annual Report. Breastfeeding and complementary feeding practices in Indonesia; Dec 01-May 02. Available from: www.hki.org/research/pdf-zip-docs [Accessed 2005 Aug 15]
32.Breastfeeding in Bristol:teaching good positioning,and support from father and families. Midwifery. [online].2002;18(2): [87-101]. Available from: [Accessed 2006 Feb 8]
33. Lindebaum S,Lock M,eds. Knowlegde,power and practice: the anthropology of medicine. Berkeley,Calif.: University of California Press; 1993.
34. Kardjati S, et al. Low birth weight babies under village conditions: feeding pattern,growth and motor development. Paediatrics Indonesia. [online]. 1991; Mar-Apr; 31(3-4): 84-98. Available from: http//www.pubmed.gov [Accessed 2006 Feb 10].
35. Cattareo A, Romero SQ. Protection,promotion,and support of breastfeeding in low income countries. Seminar in Fetal and Neonatal Medicine. [online]. 28

November 2005; February 2006; 11(1): 48-53.

APPENDIX

APPENDIX A

Table 22 Utilization of MCH handbook among mothers

MCH handbook	Number n=270	Percentage 100 %
Reading whole book		
Always	130	48.15
Sometimes	131	48.52
Never	9	3.33
Reading breastfeeding part		
Never read	11	4.07
Some part	101	37.41
All Part	158	58.52
Lossing		
Yes	17	6.30
No	253	97.70
Bringing		
Always	217	80.37
Sometimes	48	17.78
Never	5	1.85
Self Recording		
Always	24	8.89
Sometimes	68	25.19
Never	178	65.93
Completeness of self recording		
Complete	61	22.59
Some complete	15	5.55
Incomplete	197	72.96

Table 23 Correct answer of knowledge about breastfeeding

Knowledge	Total	%
Breast milk and formula milk have the same nutritional value.	232	77.3
The breastfeeding make close relationship between mother and child.	300	100
Baby grows well is the one benefit of breastfeeding.	297	99.0
Colostrums is less nutrition, should not give to the baby.	215	71.7
Eating food combining/balance nutrition (empat sehat lima sempurna) is the one way to stimulate breast milk production.	293	97.7
Washing hand is the first thing to do before give breast milk	293	97.7
Touch your nipple to baby lips is the way to make baby open his/her mouth wider.	296	98.7
Mother should give water or cereal beside breast milk to her baby since 0-4 months.	251	83.7
Baby still need water during breastfeeding (0-4 months).	125	41.7
It is better to give breast milk on schedule to discipline your child	177	59.0

Table 24 Cross tabulation between age and occupation

Age	Occupation		
	Inside n (%)	Outside n (%)	Total n (100%
<20 years	27 (93.10)	2(6.90)	29
20-30 years	151(82.51)	32(16.49)	183
>30 years	70 (79.55)	18 (20.45)	88

Table 25 Cross tabulation between education and occupation

Education	**Occupation**		
	Inside	**Outside**	**Total**
	n (%)	**n (%)**	**n (100 %)**
Primary level	41 (95.35)	2(4.65)	43
Secondary level	170(89.01)	21(10.99)	191
College/university	37 (56.06)	29(43.94)	66

Table 26 Cross tabulation between income and occupation

Income/month	**Occupation**		
	Inside	**Outside**	**Total**
	n (%)	**n (%)**	**n (100 %)**
low	107(97.27)	3(2.73)	110
moderate	130(79.75)	33(20.25)	163
high	11 (40.47)	16(59.26)	27

Table 27 Cross tabulation between income and education

Income/month	**Education**			
	Primary	**Secondary**	**College/university**	**Total**
	n (%)	**n (%)**	**n (%)**	**n (100 %)**
low	26(23.64)	78(70.91)	6(5.45)	110
moderate	16(9.82)	107(65.64)	40(24.54)	163
high	1 (3.70)	6(22.22)	20(74.07)	27

Table 28 Cross tabulation between occupation and family size

Occupation	**Family size**		
	Less than or equal 4	**More than 4**	**Total**
	n (%)	**n (%)**	**n (100%)**
inside	147(59.27)	101(40.73)	248
outside	40(76.92)	12(23.08)	52

Table 29 Cross tabulation between mother's age and family size

Mother's age	Family size		
	Less than or equal 4 n (%)	More than 4 n (%)	Total n (100%)
<20 years	24(82.76)	5(17.24)	29
20-30 years	129(70.49)	54(29.51)	183
>30 years	34(62.33)	54(61.36)	88

Table 30 Cross tabulation between occupation and level of using MCH handbook

Occupation	Level of using MCH handbook			
	Low n (%)	Moderate n (%)	High n (%)	Total n (100%)
Inside	68(30.77)	108(48.87)	45(20.36)	221
Outside	11(22.45)	23(46.94)	15(30.61)	49

Table 31 Cross tabulation between education and level of using MCH handbook

Education	Level of using MCH handbook			
	Low n (%)	Moderate n (%)	High n (%)	Total n (100%)
Primary	16(40.00)	19(47.50)	5(12.50)	40
Secondary	45(26.47)	8(50.00)	40(23.53)	170
College/university	18(30.00)	27(45.00)	15(25.00)	60

Table 32 Cross tabulation between birth order and previous experience of exclusive breastfeeding

Birth order	**Previous experience**			
	Fail	**Success**	**No experience**	**Total**
	n (%)	**n (%)**	**n (%)**	**n (100 %)**
First	0(0.00)	0(0.00)	130(100)	130
Second	29(28.16)	74(71.84)	0(0.00)	103
Third or more	17(25.37)	50(74.63)	0(0.00)	67

Table 33 Cross tabulation between health provider support to give exclusive breastfeeding and formula milk advertising

Health Provider support	**Formula milk advertising**			
	Low	**Moderate**	**High**	**Total**
	n (%)	**n (%)**	**n (%)**	**n (100%)**
Poorly	17(36.96)	26(56.52)	3(3.45)	29
Moderately	16(31.37)	29(56.86)	6(11.76)	183
highly	57(28.08)	105(51.72)	41(20.20)	88

Table 34 Cross tabulation between parents support to give breastfeeding and occupation

Parents support	**Occupation**		
	Inside	**Outside**	**Total**
	n (%)	**n (%)**	**n (100 %)**
No	190 (85.20)	33(14.80)	223
Yes	58(75.32)	19(24.68)	77

APPENDIX B
QUESTIONNAIRES

UTILIZATION OF MCH HANDBOOK ON EXCLUSIVE BREASTFEEDING AMONG MOTHERS OF CHILDREN 6 TO 12 MONTHS OLD IN MANADO, INDONESIA

Date of registration_____/____/_____Registration No. ____/____/_____

Part 1 Mother's Characteristic

Please check (√) only one answer according to your understand and please completed answer in the blank underline.

1) Name of respondent _____
2) Mother's age _____years old
3) Mother's educational status
   □ a.Primary(1- 6 years) □ b. Secondary (7-13 years) years □ c. High (≥14 years)
4) Mother's occupation
   □ a. Inside: Housewife/shopkeeper/private teacher/handicraft/bakery/others
   □ b .Outside Full time : employer/housekeeper/babysitter/civil Servant/army/farm worker/industrial worker/others (work for 8 to 12 hours per day)
   □ c. Outside Part time : teacher/nurse/shopkeeper//others (work for less than 8 hours per day)
5) How many members in yours household now? _____persons
6) How much is monthly income in average (both husband and wife)
   Rp_____

Part 2 Infant's Characteristic

7) Infant's age _____months

8) Birth Weight _____ kg

9) Birth Order _____

Part 3 Mother's Knowledge Based on MCH Handbook

Please check (√) in column, yes or no to answer the following statement.

Mother's knowledge	Yes	No
10. Breast milk and formula milk have the same nutritional value.		
11. The breastfeeding make close relationship between mother and child.		
12. Baby grows well is the one benefit of breastfeeding.		
13. Colostrums is less nutrition, should not give to the baby.		
14. Eating food combining/balance nutrition (empat sehat lima sempurna) is the one way to stimulate breast milk production.		
15. Washing hand is the first thing to do before give breast milk.		
16. Touch your nipple to baby lips is the way to make baby open his/her mouth wider.		
17. Mother should give water or cereal beside breast milk to her baby since 0- 4 months.		
18. Baby still need water during breasfeeding (0 - 4 months).		
19. It is better to give breast milk on schedule to discipline the child.		

Part 4 Utilization of MCH Handbook

20) Do you have MCH handbook? □ a. Yes □ b. No

If the answer is no, please move to question number 26!

21) Have you ever read the contents of Maternal and Child Health Handbook?

□ a. Yes, I read all information. □ b. Yes, I read some information □ c. No, I never.

22) Have you ever read the guidelines about breastfeeding in Maternal and Child Health Handbook?

Breast feeding guideline	Yes	No
Nutrition to produces breast milk		
Preparing of nipple		
Good ways to give breast milk		
How to take care baby when sick (ISPA, Diarrhea)		
Baby growth		

23) Have you ever lost Maternal and Child Health handbook □ a. Yes □ b. No

24) Have you ever filled in record of maternal and child Health Handbook by yourself?

□ a. Yes, I always record b. I recorded some information □ c. I have never recorded.

25) Do you bring MCH Handbook when you take your child to hospital or clinic/ Primary Health Center?

□ a. Yes, I always bring it b. Yes, sometimes I bring it □ c. No, I never bring it.

Part 5 Prenatal Class

26) Is there a prenatal class arrangement in your community?

□ a. Yes, there is □ b. No, there is not.

27) If Yes, How many times did you attend this class during your pregnancy?

□ a. More than 4 times. □ b. 4 or, less than 4 times. □ c. never attended.

Part 6 Breastfeeding Practice

28) Do you give breast milk to your child ? □ a. Yes □ b. No.

29) If Yes, How long do you feed your baby? _____months

30) Did you give breast milk only to your child until 4 months old ?

□ a. Yes □ b. No.

31) What was other food or drink that you give beside breast milk?

Kind of food/drink	Yes	No
Water		
Sweet water		
Juice		
Tea		
Coffee		
Milk		
Cereal		
Bananas		
Pour/rice		
others		

32) During the period of your breastfeeding, have you ever had poor grasp nipple, infection or other diseases? □ a. Yes □ b. No.

33) How about yours previous baby, did you give him/her breast feeding for about 4 month without other food/drink ?

□ a. Yes, I did

□ b. No, I did not. Because_____

□ c. This is my first child.

34) How about your housemate/family, are they support you to give breast milk to your baby?

a. Husband? □ 1. Yes □ 2. No.

b. Parents? □ 1. Yes □ 2. No.

c. Parents in law □ 1. Yes □ 2. No.

d. Sister □ 1. Yes □ 2. No.

e. Brother □ 1. Yes □ 2. No.

35) How many time that you get information and support from health care worker about breastfeeding?

□ a Always(>3 times). □ b. Sometimes (1-3 times) □ c. Never.

36) Did you ever read/hear/see /receive formula milk during your pregnancy and after delivery from the following sources?

a. TV advertising □ 1. Yes □ 2. No.

b . Magazine □ 1. Yes □ 2. No.

c. Health personnel □ 1. Yes □ 2. No.

d. Sales representative □ 1. Yes □ 2. No.

CHECK LIST

For interviewer, please check (√) from Mother and Child Health handbook if record is filled in sections as follows;

Breastfeeding part in MCH Handbook (filled by mother/volunteer)

No	Sections	Complete	Some recorded	Never recorded
1	Baby's growth(0-30 Days)			
2	Baby's growth 1-4 months			
3.	Baby's growth 4-6 months			

Interviewed by: _____

APPENDIX C

Manado,North Sulawesi,INDONESIA

Figure 4 Manado,North Sulawesi ,Indonesia

BIOGRAPHY

NAME	Vonny Elisabeth Pandara
DATE OF BIRTH	March 28, 1974
PLACE OF BIRTH	Manado
INSTITUTION ATTENDED	SamRatulangi University,Indonesia, Medical Doctor (M.D.) 1999 ASEAN Institute for Health Development Mahidol University, Thailand. Master of Primary Health Care Management (MPHM) 2006
FELLOWSHIP/	
RESEARCH GRANT	Asian Development Bank Loan/ ICC
PRESENT POSITION	Medical Doctor (Officer on Public Health Center Paniki Bawah,Manado Municipal,North Sulawesi Province, Indonesia)