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**An IEC Package For Promoting
Breastfeeding in Three Cities of
Mindanao, Philippines**

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(Final Report Submitted to the
International Development Research Centre)

**AN INFORMATION, EDUCATION AND COMMUNICATION (IEC)
PACKAGE FOR PROMOTING BREASTFEEDING IN THREE
CITIES OF MINDANAO, PHILIPPINES**

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and Western Mindanao State University
Philippines**

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Executive Summary

The "Information, Education and Communication (IEC) Package for Promoting Breastfeeding in Three Cities of Mindanao, Philippines" was a pilot project designed to motivate working expectant mothers to practice breastfeeding in the urban areas of Cotabato, Davao and Zamboanga. It was a joint project developed by three academic institutions (Ateneo de Davao University, Notre Dame University and Western Mindanao State University) and implemented by the nurses or midwives assigned in urban health clinics of the Ministry of Health, and some nurses and midwives of the city and regional hospitals.

The pilot project had two major components: (a) preparation of IEC print materials and the effective transmission of the IEC messages through interpersonal communication; and (2) an evaluation of the IEC Package.

Two forms of communication were employed in the IEC Package namely, print materials and interpersonal communication. The print materials used were the leaflet and brochure. These were prepared by the research team from the three academic institutions with the aid of technical consultants. Findings on common breastfeeding misconceptions derived from the baseline study were considered in the preparation of the materials. The preparation and printing of materials covered May to October 1984.

The two-page leaflet contained motivational messages on the benefits of breastfeeding, working mothers can breastfeed their children even when they are at work, and breastfeeding is a good start in life.

The brochure prepared for instructional purposes, contained comprehensive information on why and how working mothers can practice pure breastfeeding even when they are back at work, common problems associated with breastfeeding and their remedies.

The interpersonal communication strategies consisted of the small group discussions and the home visits. These were conducted by nurses or midwives of urban barangay health centers and city hospitals who attended a training program on the different aspects of breastfeeding and the utilization of communication strategies.

A total of eighteen (18) health workers were recruited from the three survey areas, as follows: three (3) from Cotabato, ten (10) from Davao, and five (5) from Zamboanga. They conducted face-to-face communication with the clients in the form of group discussions and home visits.

The health workers considered the training program to be beneficial, necessary and important in motivating mothers to breastfeed their babies. It enabled them to review the anatomy and physiology of lactation, to learn how to communicate their knowledge about the need and importance of breastfeeding and regarded the IEC materials as interesting, simple and highly applicable in promoting breastfeeding.

Most of the health workers (94%) assessed the Guidebook used in the training to be very useful. They suggested that illustrations on the physiology of lactation be included in the Guidebook and that the IEC materials be reproduced in larger quantities and translated into major dialects.

Data for the evaluation of the IEC Package were derived from surveys. The respondents were selected from urban barangays in the central district or poblacion of the cities of Cotabato, Davao and Zamboanga. The respondents or clients numbering 277 working mothers were recruited from sampled government and private hospitals, clinics and health centers. However, the research team likewise recruited clients working in banks, offices and department stores due to the slow recruitment turn-out in the aforementioned recruitment centers.

The recruited mothers had to fulfill the following criteria in order to become eligible respondents for the study: (1) they had to be residents of the cities of Cotabato, Davao or Zamboanga; (2) were in their 4th to the last month of pregnancy; (3) were engaged in gainful occupations outside the home; and (4) had at most two children.

The respondents were interviewed on four occasions. This survey technique was used to evaluate the effectiveness of the IEC Package in promoting breastfeeding in terms of: (a) changes in the knowledge and attitude after exposure to the IEC Package; (b) the extent of breastfeeding practice (incidence and duration of breastfeeding); and (c) the relationship between selected socio-demographic variables (i.e., education, income, type of work, number of children, age and breastfeeding experience) and practice of breastfeeding.

The first interview schedule (Pre-test/ T_1) was administered to the client-mothers before they were given the leaflet on breastfeeding. Post-test I or T_2 was administered to the client-mothers' after their attendance at the group discussion sessions. Post test II or T_3 was conducted a few weeks after the client-mothers' deliveries, and Post-test III or T_4 was conducted six months after the respondents had given birth.

Data elicited from the interviews were analyzed using descriptive statistics and statistical tests for association. The findings showed a positive evaluation of the IEC Package by the clients. All of them suggested the expansion of the breastfeeding educational campaign to other areas.

Significant changes in breastfeeding knowledge and attitude towards breastfeeding among clients were observed in all three survey areas. Increase in knowledge was found to be significantly related with education, type of work, and breastfeeding experience. Whereas, significant changes in attitude were manifested in the following attitudinal items: (a) breastfeeding is no longer fashionable; (b) breastfeeding causes the breast to sag; and (c) baring the breast in public while breastfeeding is embarrassing.

Almost all of the clients (96%) practiced breastfeeding at birth. Of this proportion, 54 percent practiced pure breastfeeding. The major reasons given for breastfeeding were: breastfeeding is good for the baby and it is economical.

More than half (58%) of those who initiated the use of pure breastfeeding continued to do so until the end of the third month and a number of them (43%) had tried expressing and storing breast milk.

Of the 253 respondents who breastfed, 89 or 35 percent encountered problems while breastfeeding namely, diminishing milk supply or lack of breast milk, breast engorgement, sore nipples and flat or inverted nipples. However, about three-fourths of these mothers were motivated to continue breastfeeding by taking possible steps to remedy the problems.

Two variables, education and breastfeeding experience were significantly related to duration of pure breastfeeding. The correlation values indicated that working women with higher educational attainment tend to practice pure breastfeeding less and women who have experienced breastfeeding will more likely practice pure breastfeeding.

Education, worktype, breastfeeding experience and income were found to be significantly correlated with the practice of any breastfeeding type. The data implied that working women with higher educational attainment, who work in the formal sectors of employment and belong to higher income levels tend to practice breastfeeding of any type less. While urban working women with breastfeeding experience will more likely practice any type of breastfeeding.

From the foregoing findings, it may be surmised that the IEC Package positively changed the knowledge levels of the clients on breastfeeding and their attitudes towards breastfeeding. It also showed the relatively high incidence of breastfeeding at birth with 96 percent of the clients in the project practicing breastfeeding at birth.

To maximize the use of the IEC Package for replication purposes recommendations drawn from the study are presented in this report.

CHAPTER I

INTRODUCTION

Background of the Study

International studies have borne out that breastfeeding has positive consequences for the health of the child and is often more practical economically (cf. Baer, 1981; Population Reports, 1981). In addition, breastfeeding affects ovulation and consequently delays pregnancy (cf. Simpson, Huffman and Huffman, 1981).

Despite the beneficial effects of breastfeeding on the health of the mothers and their infants, the practice of breastfeeding remains relatively low. A study conducted by the World Health Organization in nine countries reported that the lowest percentage of mothers initiating breastfeeding was found in the Philippines and Guatemala (cf. Clavano, 1981).

Although Filipino mothers basically practice breastfeeding, a review of literature on infant feeding in the Philippines shows that it is practiced within an indigenous health belief system that is not wholly positive to breastfeeding. Beliefs interfere with complete breastfeeding and often lead to early termination.¹

Another study conducted in the Philippines show that the low practice of breastfeeding seemed more pronounced among economically advantaged mothers in urban communities (cf. Clavano, 1981). This trend was also found in a recent study conducted in Mindanao, Philippines (cf. Costello and Palabrica-Costello, 1982).

In collaboration with the regional cabinet office chiefly concerned with the health welfare of the Filipinos, a pilot project designed to motivate urban working expectant mothers to practice breastfeeding was proposed to be carried out in the cities of Cotabato, Davao and Zamboanga by researchers of three academic institutions (Notre Dame University, Ateneo de Davao University, and Western Mindanao State University) together with the nurses or midwives assigned in urban health clinics of the Ministry of Health.

The project consisted of two components: (1) an Information-Education-Communication (IEC) campaign on breastfeeding and (2) an evaluation of the effectiveness of the IEC campaign.

Specifically, the research sought to answer the following questions:

1. Does the designed IEC Package affect the knowledge of breastfeeding, attitude towards breastfeeding and practice of breastfeeding among working mothers?
2. What socio-demographic factors affect practices of breastfeeding among working mothers?
3. Does the designed IEC Package help working mothers overcome physiological, cultural and psychosocial problems associated with breastfeeding?

¹ Mayling Simpson-Hebert, "Infant Feeding in the Philippines 1955-1983 and Its Effects on Infant Health: A Literature Review" (Manila: Ateneo de Manila University, July 12, 1983), p. 72 (Draft).

A. Research Objectives

The pilot project aimed to increase the practice of breastfeeding among urban working mothers through the use of an IEC Package. Specifically, it endeavored to :

1. develop IEC materials (leaflet and brochure) for promoting breastfeeding;
2. train government midwives or nurses as motivators in promoting breastfeeding;
3. evaluate the effectiveness of the IEC Package in promoting breastfeeding in terms of:
 - a) changes in the knowledge and attitude after exposure to the IEC Package;
 - b) the extent of breastfeeding practice (incidence and duration of breastfeeding); and
 - c) the relationship between selected socio-demographic variables (i.e., education, income, type of work, number of children, age and breastfeeding experience) and practice of breastfeeding.

B. Conceptual Framework

Research in both developed and developing countries has shown a number of medical and economic advantages of infant breastfeeding, as compared to the use of artificial (formula) feeding (cf. Population Reports, 1975; 1978; 1981).

Notwithstanding the many beneficial effects of breastfeeding, and the apparent increase in breastfeeding practices in the more developed countries, Third World Nations seem to have suffered from a trend towards increased reliance upon artificial feeding (cf. Baer, 1981; Knodel and Debavalya, 1980).

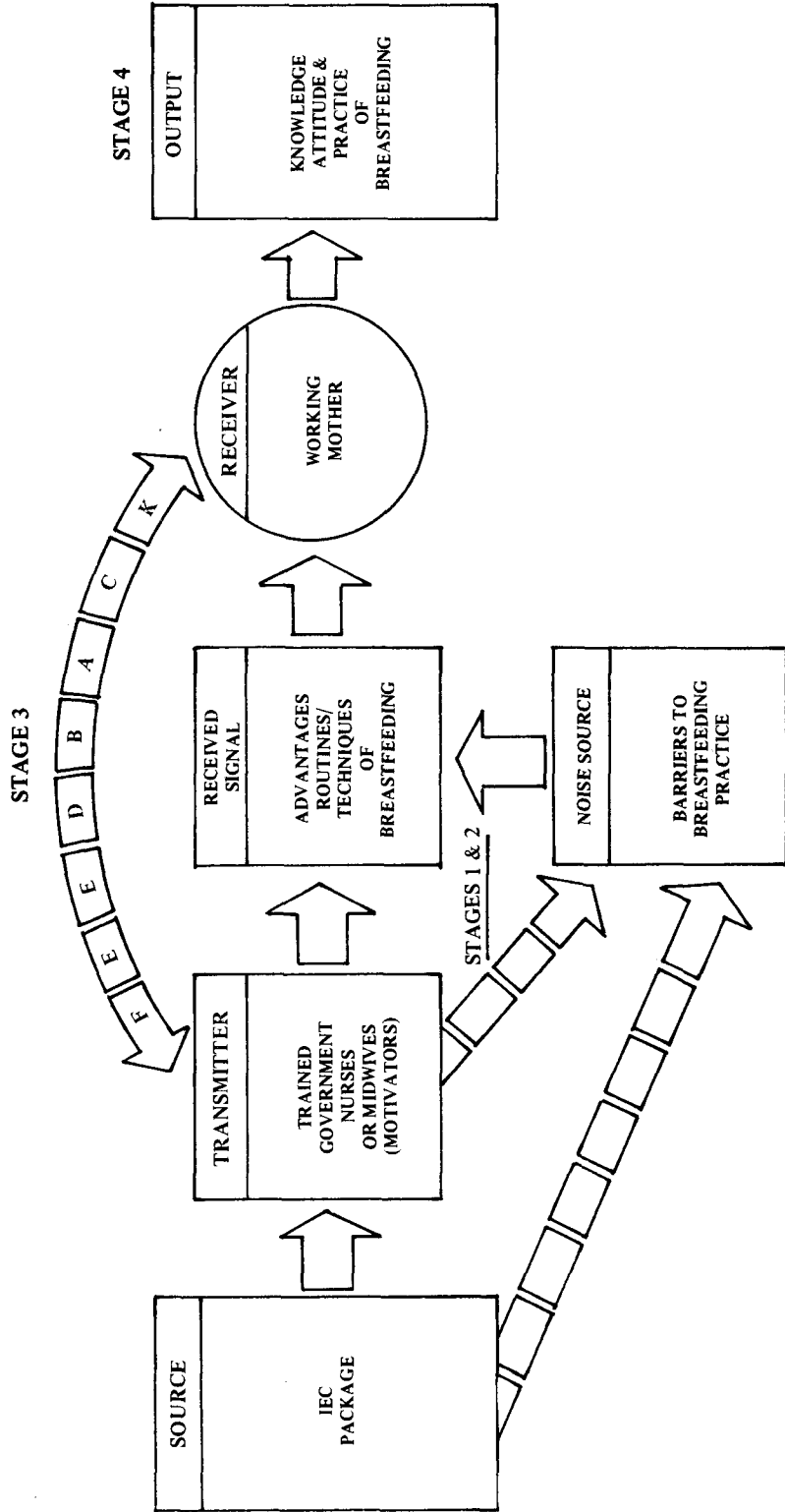
Such trends are not accidental, but are linked to factors such as:

1. Urbanization and industrialization. Increase in the extra-household employment of married women, increased rates of literacy and educational attainment, changes in the institution of the family, and the expansion of multinational companies' marketing activities.
2. Socio-demographic factors. Associations between residence, education, and socio-economic status suggest that as urbanization, education, and standard of living increase, the overall practice of breastfeeding will decline unless other changes counteract them (cf. Population Reports, 1981).
3. Psychosocial factors. Mother's decision to breastfeed is a function of the opportunity to breastfeed — "ideological conditions that reflect her attitudes, beliefs, and knowledge of breastfeeding and its alternatives" (cf. Baer, 1981).
4. Physiological factors. Illness or discomfort particularly in the early weeks of post partum which range from breast engorgement, sore and cracked nipples, leakage of breast milk, breast abscesses and mastitis.

To overcome these factors which act as barriers to the practice of breastfeeding, both demand and supply interventions are proposed in the areas of medical training, public education, community mobilization, and national legislation.

The encouragement of partial breastfeeding through media campaigns, education, and the health services could probably be the most beneficial method to increase breastfeeding among working mothers (cf. Huffman, 1984).

With the aim of promoting breastfeeding among urban working mothers, the pilot project's educational campaign incorporates the foregoing findings and some theories in communication. Illustrated in diagram form, the constituents are related as follows:



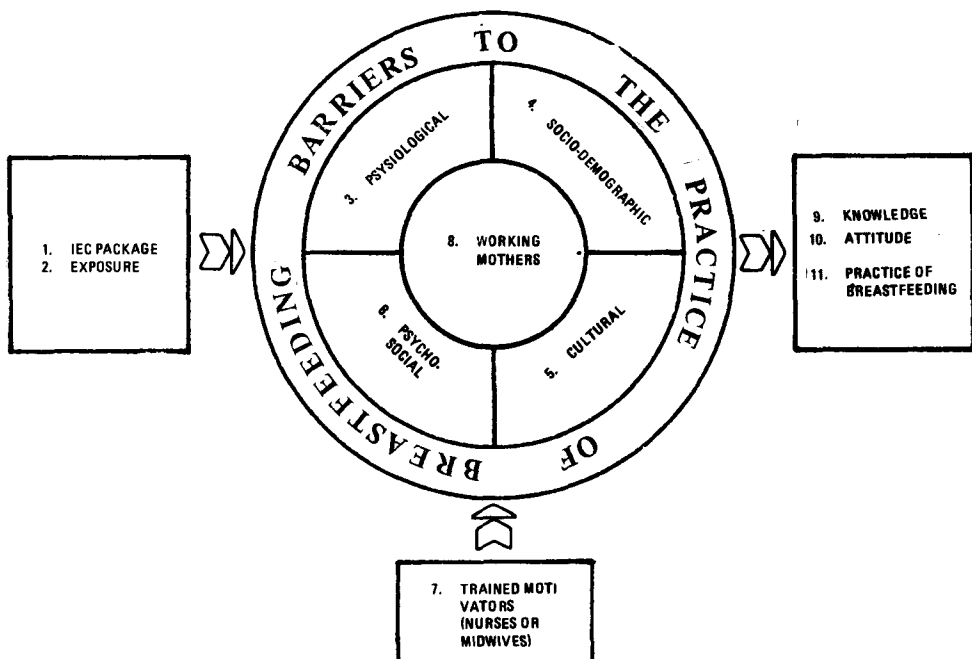
In the illustrated conceptual framework, the IEC Package initially constitutes the source of the message on breastfeeding. The message on breastfeeding is transmitted by the motivators (in the person of midwives or nurses of the Ministry of Health) to the receiver or the client-working mother. However, the signals or messages, that is, the advantages and routines/techniques of breastfeeding may be distorted by noise consisting of the barriers (physiological, psychosocial, and socio-demographic) to breastfeeding practice.

Thus, the decision to practice breastfeeding—STAGE 4 (or the output of the whole communication process) whose grounds have been prepared and directed in the knowledge stage (STAGE 1) and the persuasion stage (STAGE 2) may still be subjected to a confirmation stage or feedback (STAGE 3). Therefore, the motivators (government midwives or nurses) will have to follow-up the messages introduced in the IEC Package (leaflet and brochure) with interpersonal communication — group discussions and face-to-face communication — to reinforce the message given in stages 1 and 2, and to check the output level or incidence and duration of breastfeeding.

From the foregoing bases: (a) the use of an educational campaign to encourage breastfeeding; and (b) the communication process, it is theorized that, “the use of Mass Media and the reinforcement from interpersonal channels — motivators” (nurses and midwives of the Ministry of Health) will allow the receiver (working mothers) to overcome socio-demographic, physiological, cultural and psychosocial barriers of selective exposure, perception and retention of breastfeeding messages.”

The IEC Package is used as an intervention to overcome the barriers to breastfeeding practice among urban working mothers. It will ultimately cause increased incidence and duration of breastfeeding with the support intervention of the health personnel.

In a paradigm, the conceptual framework evolved for the study shows the relation of the components and the interventions or inputs used to promote the practice of breastfeeding .



Specifically, the components in the study are defined as:

1. IEC Package — leaflet, brochure, group discussions and face-to-face motivation on breastfeeding used for client-mothers.
2. Exposure — refers to the respondent's use of IEC materials on breastfeeding and the communication or contact with motivators.
3. Physiological Barriers — physical discomfort or illness experienced during the early weeks of post partum which ranges from breast engorgement, sore and cracked nipples, leakage of breast milk and breast abscesses. Each of these barriers will be overcome by an explanation of its nature and the means to treat or cope with such discomforts.
4. Socio-demographic Barriers — characteristics of client-mothers which include age, parity or number of living children, type of occupation and education.
5. Cultural Barriers — attitude towards baring of breast and perceptions regarding prevailing fashions in infant feeding.
6. Psychosocial Barriers — knowledge, beliefs and attitudes towards breastfeeding which include desire to breastfeed, misconceptions about breastfeeding practice and lack of confidence (insufficient milk/poor quality of breast milk) to cope with breastfeeding.
7. Motivators — nurses or midwives of the Ministry of Health stationed in Barangay Health Centers who introduced breastfeeding among mother-clients and who persuade them to use breastfeeding.
8. Working Mothers — mothers who are working or are employed in clerical, factory, and professional jobs, in industries, or public and private institutions (formal sector); or those engaged in agricultural or fishing activities, cottage industries, and small-scale marketing (informal sector).
9. Knowledge — pertains to the respondents' understanding of the benefits of breastfeeding and the techniques used to successfully breastfeed a child (i.e., position of breastfeeding, expressing and storing breast milk) which is measured through a 25-item objective test.
10. Attitude — refers to the respondents' favorable or unfavorable disposition toward breastfeeding which is measured through a 10-item Likert scale.
11. Practice — the actual use of breastfeeding, the type of breastfeeding (pure or any breastfeeding) and the duration of use.
12. Any breastfeeding type — refers to the use of pure or mixed breastfeeding or both.

C. Research Hypotheses

On the basis of the aforementioned questions, it is hypothesized that:

1. The IEC Package positively affects the knowledge, attitude and practice of breastfeeding among urban working mothers;
2. Education, worktype, breastfeeding experience and income affect breastfeeding practice among urban working mothers;
3. The IEC Package helps urban working mothers overcome physiological, cultural and psychosocial problems associated with breastfeeding.

D. Methodology

1. *Locale of the Study*

The respondents for the study were selected from urban barangays* in the central district or poblacion of the cities of Cotabato, Davao and Zamboanga.

The three cities were among the major cities in Mindanao where data on breastfeeding practice were limited.

The urban population of the three cities was distributed as follows:

	<u>No. of Urban Barangays</u>	<u>Urban Population</u>
Davao Poblacion	40	123,375
Zamboanga City	10	70,000
Cotabato City	2	56,000

* A barangay is the smallest political subdivision and is generally classified as urban or rural. The following concepts are generally used in classifying areas as urban:

1. In their entirety, all cities and municipalities having a population density of at least 1,000 persons per square km.

2. Central districts of cities which have a population density of at least 500 persons per square kilometer.

3. Barangays having 1,000 inhabitants where the occupation of the inhabitants are predominantly non-farming or non-fishing.

4. Generally, residences in the urban barangays are of the apartment or bungalow type houses, constructed of permanent (concrete) or semi-permanent (wood or light) materials. The street patterns, i.e., network of streets are in parallel or right angle orientation with commercial, manufacturing, recreational and personal service establishments available.

Source: 1975 Integrated Census of the Population and Its Economic Activities. NCSO.

(a) Cotabato City

Cotabato City covers a total land area of 17,599 hectares or 175,599.00 square meters. As of May 1980, it has a total population of 83,871 with a density of 476 per square kilometer. Majority of the inhabitants are concentrated in the poblacion or downtown area.

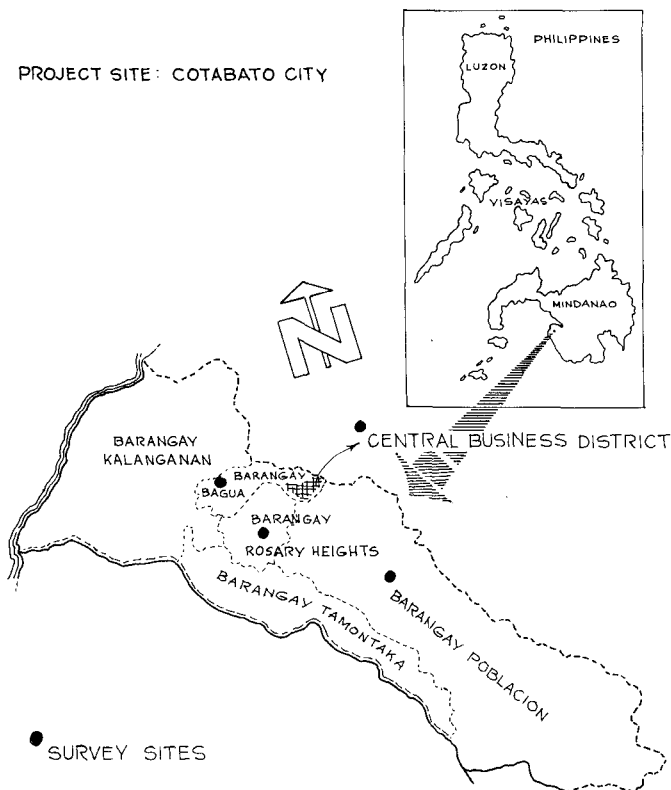
It is 556 statute miles away from the national capital, Manila. It can be easily reached by jet flight from Manila in approximately 90 minutes.

The city is fast gaining the reputation of "Gateway to Central Mindanao" being the seat of the region's development.

It has 5 hospitals of which 3 are government and 2 are private with 255 and 170 hospital beds, respectively. Other health services are provided by a Rural Health Unit, a Puericulture Center, 7 Barangay Health Stations and 32 Private Medical Clinics. The city is served by 79 physicians, 76 nurses, 34 midwives, and other health personnel. *

In 1985, the 5 leading causes of infant mortality were (1) pneumonia, (2) tetanus neo., (3) prematurity, (4) stillbirth and (5) sepsis neo. For infant morbidity the 5 leading causes were: (1) diarrhea, (2) pneumonia, (3) bronchitis, (4) measles, and (5) tetanus neo.

PROJECT SITE: COTABATO CITY



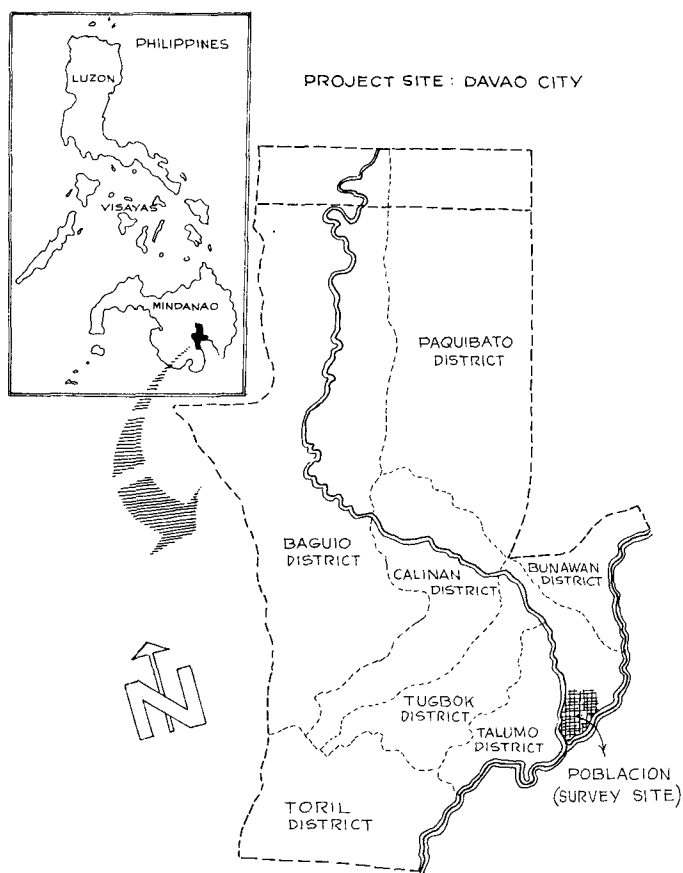
*Source: Annual Report on Health Resources, 1985. Cotabato City Health Office.

(b) Davao City

Approximately 946 aerial kilometers or 528 statute miles southwest of Manila, the capital of the Philippines, lies Davao, a premier city of Mindanao. In just an hour and a half, one could reach Davao City by jet flight from Manila.

The poblacion district which comprises 40 barangays with 24,368 households has a land area of 1,028.2 hectares. Davao City as of 1984, has a density computed at 127 per hectare with a total population of 610,375.*

The area is serviced by 7 hospitals – 1 public and 6 private. The former has a bed capacity of 350, while the latter has 775. There are 12 rural health units and 32 barangay health stations.



* Source: 1984 Davao City Digest of Vital Information.

Office of the City Planning and Development Coordinator 1984.

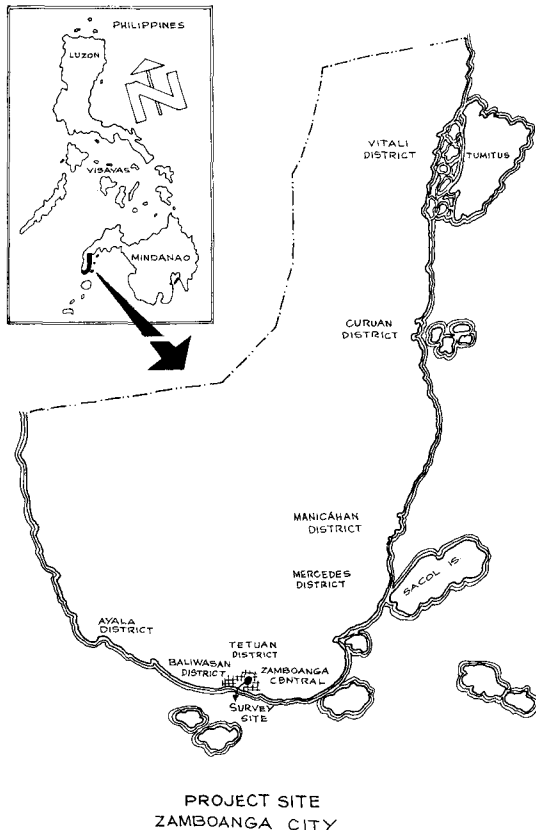
(c) Zamboanga City

Zamboanga City is located in the northwestern portion of Mindanao. It is 521 statute miles from the national capital, Manila. It has a total land area of 1,420.99 square kilometers.

Based on the 1980 census, the population of the city is listed at 343,722 with a population density of 242 per square kilometer. In the poblacion, or Zamboanga Central District, there is a total of 10,741 households with a total population of 62,150.

The city is serviced by 5 hospitals, 3 public and 2 private. There are 106 doctors, 179 nurses and 84 midwives attending to the health needs of the population in addition to other health professionals (e.g., dentists, nutritionists, etc.)

As of 1982, the five leading causes of infant death are: (1) broncho-pneumonia, (2) gastro-enteritis, (3) perinatal mortality, (4) congenital anomalies, and (5) bronchitis. *



*Source: 1984 Socio-Economic Profile, City of Zamboanga.
Office of the City Planning and Development Coordinator.

2. Study Population

Dr. John Laing in the National Acceptors Survey (1978) cited that in general, the proportion of households with a pregnant woman in the 4th or later month of pregnancy is about 4 percent in the Philippines. The proportion of urban households with working wives who are in the 4th or later month of pregnancy is approximately 2 percent.

Based on this information, the number of working pregnant women in each of the cities has been established as follows:

	No. of Households *	No. of Working Pregnant Women
Davao Poblacion	20,396	408
Zamboanga City	11,667	233
Cotabato City	9,333	187

Generally, the respondents were recruited from government and private hospitals and clinics. These served as the cluster points from which the sample population was selected.

The list of government and private hospitals, and clinics in each study area was used as the sampling frame.

All the clients from the sampled hospitals and clinics during the 3-month recruitment period (November 1984 to January 1985) who were: residents of the cities of Cotabato, Davao or Zamboanga; were engaged in gainful occupations outside the home; had at most two (2) children; and who were in their 4th to the last month of pregnancy – constituted the sample population.

A total of 277 urban working mothers constituted the sample. They were distributed as follows:

	Sample Size
Davao Poblacion	148
Zamboanga City	80
Cotabato City	49
	<u>277</u>

3. Instrumentation

The following survey instruments were used in the collection of data:

- a) Pre-test (Set A) – T₁. This survey form consisted of 4 parts: (1) background information; (2) breastfeeding experience and sources of information; (3) attitudes towards breastfeeding; and (4) knowledge test on breastfeeding. The knowledge test was administered by the "recruitment centers" or cluster points (hospital/clinic staff) to the client-mothers before they were given the leaflet on breastfeeding.

**No. of households is estimated/computed by dividing the total urban population by the average family size – 6, i.e., Davao Poblacion 122, 375/6 = 20,396. Number of working pregnant women is derived by multiplying the no. of households by .02 (Dr. John Laing's estimate of the proportion of urban households, with working wives who are in the 4th or later month of pregnancy).*

- b) Post-test I (Set B) – T_2 . This set was administered to the client-mothers after their attendance at the group discussion sessions. This set elicited data on the respondents' knowledge of breastfeeding; their attitudes toward breastfeeding and their evaluation of the IEC Package – leaflets, brochure, and group discussion sessions.
- c) Post-test II (Set C) – T_3 . The interview was conducted a few weeks after the client-mothers' deliveries. It was used to ascertain the respondents' practice of breastfeeding after giving birth.
- d) Post-test III (Set D) – T_4 . This set was conducted 6 months after the respondents had given birth. It re-tested the information on breastfeeding retained by the mother-clients; drew out data on additional sources of information, duration and practice of breastfeeding, and perception of the other IEC Package component – home visits conducted by the health workers.

A pre-test of the Set A (T_1) survey instrument was conducted among 15 working mothers in Davao City. This served as the basis for the final construction of the survey instruments (pre-test/Set A and post-test/Set B) with the assistance of a Consultant. The two other survey instruments (post-test II/Set C) and post-test III/Set D) were not pre-tested because the questions were primarily directed as a follow-up of the clients' breastfeeding practice.

Twenty-five items were constructed for the test on the knowledge of breastfeeding based on a table of specifications drawn from the contents of the leaflet and brochure. A Consultant likewise guided the researchers in preparing the test questions.

4. Data Collection Process

In Cotabato and Davao, the research assistants for the project conducted the interviews while an interviewer was trained and hired to administer the survey forms in Zamboanga City. In some instances when the interviews could not be conducted by the above-named interviewers due to factors such as unstable peace and order conditions (in Davao City), or inavailability of respondents for interview after repeated visits, the interview schedules were administered by some health workers in Zamboanga and Davao.

The interviews were conducted in the homes of the clients, their places of work and in the health centers during their pre-natal and post-natal check-ups.

Originally, 277 mothers were interviewed for Set A and Set B. However, this decreased to 259 when the final interviews were conducted 6 months after the mothers had given birth. This was due to the following reasons: (a) stillbirth deliveries, (b) transfer of residence, and (c) unstable peace and order conditions particularly in Davao City which prevented the interviewer from conducting an interview or caused the client to transfer residence.

CHAPTER II

PROJECT DESCRIPTION

The project consisted of two major components namely: the preparation of IEC print materials (leaflet and brochure) and effective transmission of the IEC messages through interpersonal communication and the implementation phase. The leaflet and brochure on the different aspects of breastfeeding made up the IEC materials; the face-to-face communication through small group discussions and home visits made up the communication strategies.

The project implementation phase consisted of three parts: (1) the training of health workers on the different aspects of breastfeeding and communication strategies which included the conduct of small group discussions and face-to-face communication; (2) the recruitment of clients; and (3) the utilization of the IEC Package.

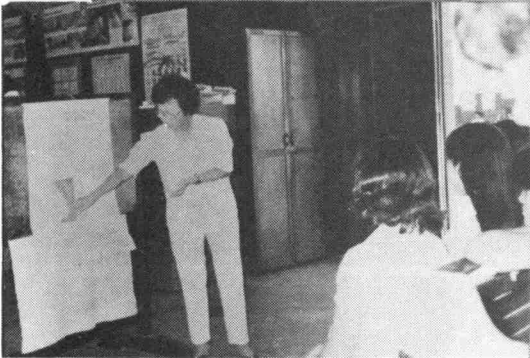
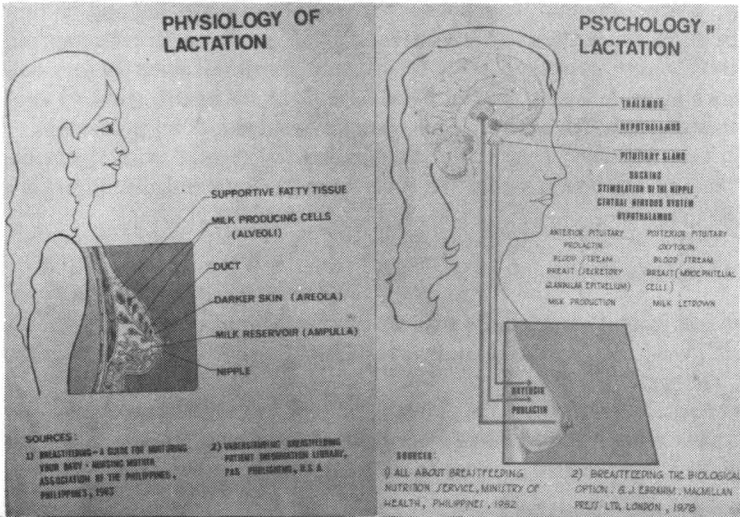
A. The IEC Package

1. *The Print Materials.* The print materials used were the leaflet and the brochure. The two-page leaflet was prepared for the purpose of motivating mothers to breastfeed their babies. It contained three messages, namely: the benefits of breastfeeding, working mothers can breastfeed their children even when they are at work, and breastfeeding is a good start in life. Copies of the leaflet were distributed to prospective clients by the doctor, nurses and midwives attending to pre-natal cases in the cluster points.

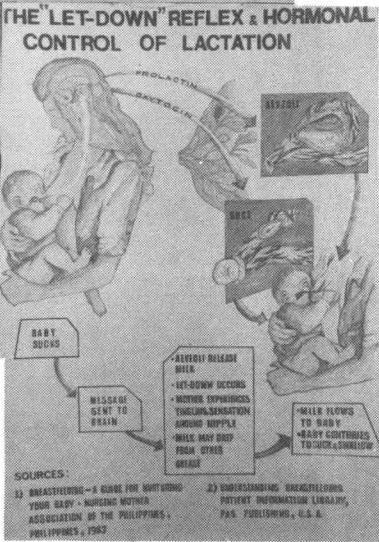


In the case of Davao the leaflets were distributed just before the clients attended the group discussions. The brochure was prepared for instructional purposes. It contained comprehensive materials on why and how working mothers can use pure breastfeeding even when they report to their respective work of assignment, as well as common problems associated with breastfeeding and their remedies. The brochures were distributed to the mothers during their attendance at the group discussion sessions. Illustrations were also used to explain concepts in lactation.

ILLUSTRATIONS USED IN GROUP DISCUSSIONS



A Health worker utilizing an instructional material on breast-feeding.



The conceptualization and preparation of the print materials were made possible through the help of a Consultant who is an expert in the field of communication. A baseline study was conducted among pregnant mothers in the cities of Cotabato and Davao so as to ensure that the produced materials were adapted to the clients' needs. After the revisions were made on the basis of the findings of the baseline study, a publishing agency in Davao City was contracted to reproduce the materials.

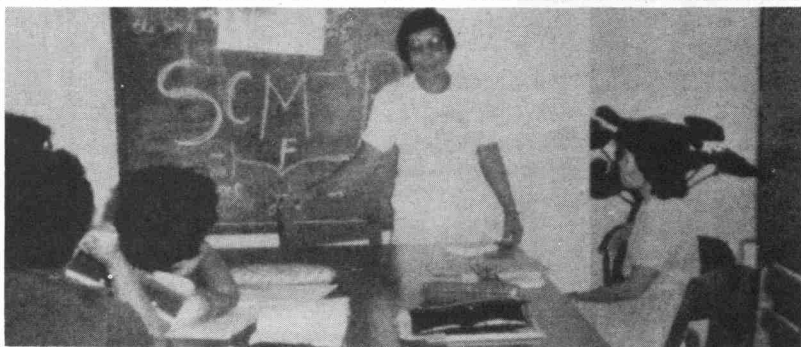
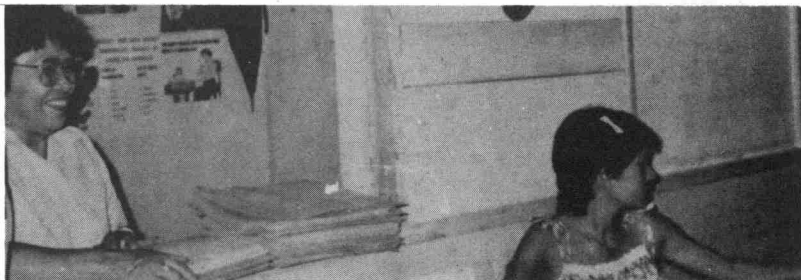
2. *Interpersonal Communication.* Aside from the print materials, two interpersonal communication strategies were employed to be made a part of the IEC Package. These two were the small group discussions and the home visits. The small group discussions were conducted in all three research areas in order to instruct mother-clients on the techniques of breastfeeding and on how to overcome the misconceptions of breastfeeding. The face-to-face motivation through home visits were supposed to be conducted six times: once before delivery and five times after delivery. These visits were done by health workers employed by the Ministry of Health who are either nurses or midwives by profession.

These visits were done to further discuss topics related to the importance of breastfeeding, problems associated with breastfeeding and the duration of breastfeeding.

B. Project Implementation

The implementation of the project involved three phases: (a) the training of the health workers, (b) the recruitment of clients, and (c) the actual utilization of the IEC Package.

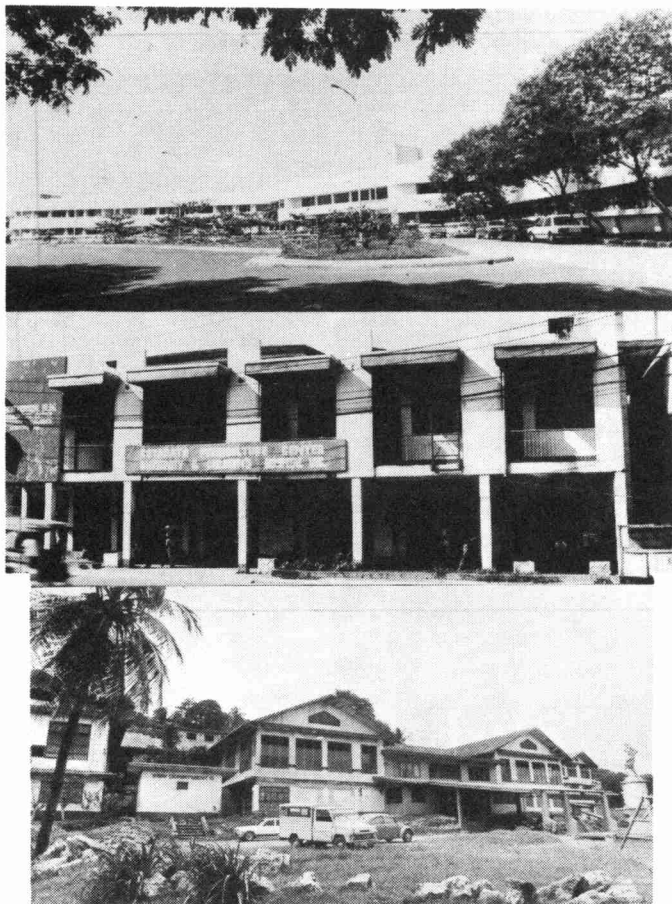
1. *Training of Health Workers.* The training program on breastfeeding for health workers was aimed at providing health workers with a functional knowledge in breastfeeding and skills to communicate the acquired knowledge.



It provided the health workers with knowledge on the following: communication strategies, anatomy and physiology of lactation, the benefits of breastfeeding, the importance of preparing for breastfeeding, expressing and storing breast milk and solutions to problems associated with breastfeeding. The training also oriented the participants, who are implementors of the project, with the objectives of the project.

A two-day training was conducted in each study area for the health workers. A total of 18 health workers participated in the training, 10 from Davao City, 3 from Cotabato and 5 from Zamboanga. Physicians of the Ministry of Health and trained communicators served as resource speakers.

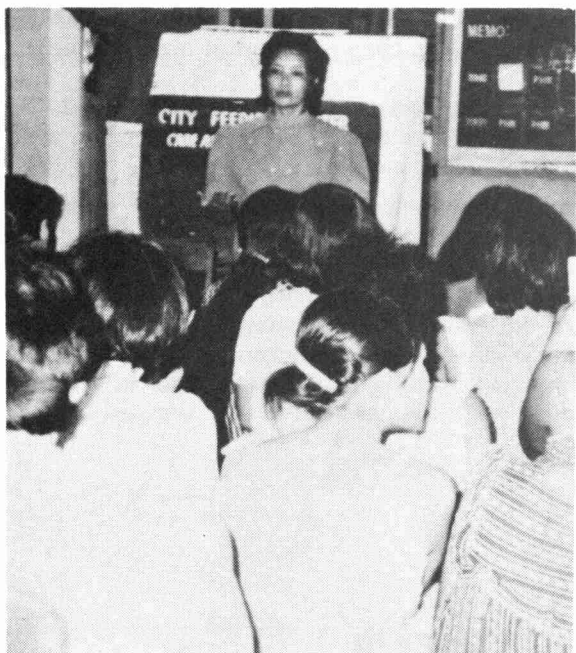
2. **Recruitment.** The three cities utilized different strategies to recruit the needed clients. Regional hospitals, health centers of the Ministry of Health and private clinics of medical practitioners were used as recruitment centers. The regional hospitals were used as recruitment centers in both cities of Cotabato and Zamboanga while the health centers of the City Health Office were utilized in the cities of Davao and Zamboanga. All three survey areas identified private clinics and hospitals as recruiting centers in addition to the original cluster points – hospitals and health centers.



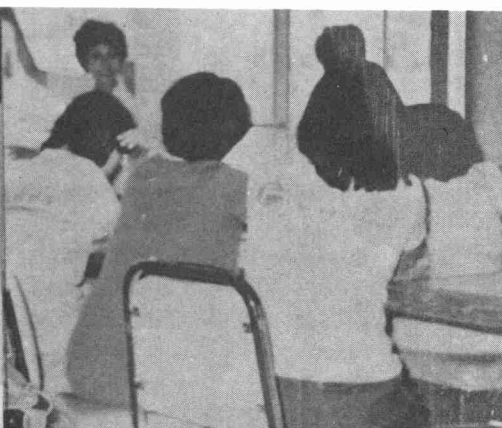
Due to the credibility factor, physicians assigned in the different recruitment centers were requested to do the initial motivation. The leaflets were distributed during the initial motivation session. It was however, observed that the physicians assigned in the health centers of Zamboanga go to the centers only once a week. Though the Davao physicians assigned in the identified centers report daily they only attend to special cases. This set up led the research teams of both cities to request the nurse or midwife assigned in the health center to do the initial motivations and encourage the prospective clients to attend the scheduled small group discussions.

A few weeks after the recruitment began, it was noted that the centers were not able to recruit the needed number of clients because the great majority of the expectant mothers who go to the regional hospitals were unemployed and there were not enough working mothers who went to the different identified health centers and private clinics to meet the sample size. Apparently, some working mothers availed of pre-natal services of clinics which were not included in the sampled cluster points. Due to this difficulty, all three research teams took an active role in the recruitment process. The Cotabato, Davao and Zamboanga research teams recruited from offices and business firms. In addition, the Davao and Cotabato research teams identified the Davao Maternity School and Notre Dame Hospital's School of Midwifery as recruitment centers, respectively. The recruitment strategy used by the research teams proved to be effective.





3. *Utilization of the IEC Package.* Using the brochures, the 18 trained health workers from the three research areas led small group discussions. All the small group discussions in Cotabato City were conducted at the City Maternity Hospital while group discussions in both Davao and Zamboanga were held at the health centers and at their respective campuses. The group discussions at the Cotabato Maternity Hospital and at the Western Mindanao State University campus were held on Sundays, the only common time for working mothers. The group discussions held at the Health Centers of Davao and Zamboanga were held on days convenient to the clients. The size of the group discussions in all 3 areas ranged from 2 to 34.



The topics discussed during the small group discussions were: the techniques of breastfeeding, benefits of breastfeeding, misconceptions of breastfeeding, and attitude on breastfeeding.

Questions on expressing and storing breast milk were frequently asked. This showed that expressing and storing of breast milk is a new information which stirred considerable interest among working mothers.

After the recruitment process, face-to-face motivation followed. The midwives and nurses conducted home visits once during the pre-natal period and once a month for five months after delivery. These visits reinforced the motivation given during the small group discussions and the clients' decision to practice breastfeeding. It also allowed the follow-up of breastfeeding practice. It was however, observed that the home visits by health workers were not conducted regularly because they were too busy with their daily responsibilities. Some of them were not able to continue their visitations because they attended seminars and workshops.

CHAPTER III

THE CITY HEALTH WORKERS: CHARACTERISTICS AND PROGRAM IMPACT

Background Characteristics

The health workers involved in this project served as a medium for the implementation of the IEC Package. They conducted face-to-face communication with clients through group discussions and individual follow-ups.

Eighteen (18) health workers were recruited from the three survey areas: three (3) from Cotabato, ten (10) from Davao, and five (5) from Zamboanga.

- A. Age Structure.** The health workers recruited came from various age groups. Exactly one-half belonged to the age group 40-49. The oldest was sixty (60) while the youngest was twenty (20). The mean age was 45 indicating that they were predominantly middle aged.
- B. Civil Status, Breastfeeding Experience and Training.** Thirteen (13) or 72 percent of the eighteen (18) health workers were married, three (3) were widowed and two (2) were single. Of those who were either married or widowed, eight (8) had 3-4 children, three (3) had 1-2 children and one (1) had six (6) children, the biggest family size ever reported.

About 76 percent of those with children claimed to have experienced breastfeeding their babies at one time or another. Except for one (1), the health workers from Davao and Zamboanga reported to have undergone training and seminars on breastfeeding and other related topics. The three (3) health workers

from Cotabato being fresh graduates and very new in the service, did not yet have the opportunity to attend any seminar or training on breastfeeding.

Although not all of the health workers attended seminars or training on breastfeeding, all of them however, asserted that they had received previous information on the subject matter. Among the most common sources mentioned were: newspapers (28%), doctors and nurses (17%), fellow health workers (17%), magazines (17%), books (11%), radio/television (6%), and Population Forum (6%). (Table 1)

TABLE 1
HEALTH WORKERS' SOURCES OF BREASTFEEDING
INFORMATION

Sources	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Newspapers	1	33.3	4	40.0	—	—	5	27.8
Doctor/nurse	—	—	3	30.0	—	—	3	16.7
Other health workers	—	—	3	30.0	—	—	3	16.7
Magazines	1	33.3	—	—	2	40.0	3	16.7
Books	2	66.7	—	—	—	—	2	11.1
Radio/television	—	—	—	—	1	20.0	1	5.6
Population Forum	1	33.3	—	—	—	—	1	5.6
Base N.	3		10		5		18	

- C. **Attitude Towards Breastfeeding.** All the 18 health workers indicated a favorable attitude toward breastfeeding. Some reasons cited for their positive attitude were: (a) milk is a complete food for babies (56%), (b) breastfeeding is more economical and convenient (56%), (c) mother's milk protects the baby from infection and diseases (50%), and (d) breastfeeding fosters closer relationship between mother and child (6%). (Table 2)

TABLE 2
REASONS FOR HEALTH WORKERS' POSITIVE
ATTITUDE TOWARDS BREASTFEEDING

REASONS	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Milk is a complete food for babies	2	66.7	7	70.0	1	20.0	10	55.6
Breastfeeding is more economical and convenient	2	66.7	7	70.0	1	20.0	10	55.6
Breastfeeding fosters closer relationship between mother and child	—	—	—	—	1	20.0	1	5.6
Mother's milk protects the baby from infection and diseases	—	—	7	70.0	2	40.0	9	50.0
Base N.	3		10		5		18	

Program Impact

To assess the effects of the training program conducted for the health workers, a questionnaire was administered before and after the health workers' attendance at the training sessions on breastfeeding.

Aside from questions on background characteristics, the questionnaire was used to elicit data on the health worker's evaluation of the training program and IEC materials (guidebook and brochure). Additionally, a pre-test and post-test on their knowledge of breastfeeding were administered to determine the knowledge gained from the training program for health workers.

- A. Evaluation of the Training Program.** The trainors' training conducted for health workers, was considered by all participants from the three (3) survey areas to be beneficial, necessary, and important in motivating mothers to breastfeed their babies.

Because the trainors' training was generally considered by health workers to be useful, 17 or 94 percent suggested that a similar training be conducted for other health workers in order to help them keep abreast with the latest knowledge and information about breastfeeding. Among the more important reasons mentioned why the training was profitable were: (1) they were able to review the anatomy and physiology of lactation; (2) they learned how to communicate their knowledge about the needs and importance of breastfeeding; and (3) the IEC materials used were interesting, simple and highly applicable in promoting breastfeeding.

The following suggestions were, however, made to improve future training programs: (1) provide enough audio-visual materials; (2) conduct actual demonstration of breastfeeding techniques; and (3) schedule a longer period of training and more time with the resource speakers.

- B. Evaluation of the IEC Materials.** The first IEC material submitted for evaluation by the health workers, was the Guidebook. Despite the fact that three (3) health workers admitted that they did not have enough time to go over it thoroughly, the great majority or 94 percent considered it generally very useful. Those who were able to read the contents very well, found the following topics to be of considerable value: (1) the importance of breastfeeding, (2) the advantages of breastfeeding, (3) the importance of colostrum, and (4) the different sucking reflexes. However, a significant suggestion was given for the improvement of the Guidebook, namely : "it should have an illustration of the physiology of lactation."

Similarly, all the health workers considered the flipcharts and brochures produced by the project staff to be highly informative and simple. They said that they learned very much from the flipcharts on the anatomy and physiology of lactation and such knowledge gained would be very useful for the promotion of breastfeeding, especially in the health centers where they are assigned. Some 6 or 33 percent even went as far as suggesting that the IEC materials be reproduced in larger quantities and translated into the major dialects spoken in the survey areas to serve as sources of information and knowledge on breastfeeding.

- C. Health Workers' Knowledge Test Performance.** The performance of the health workers on a 25-item knowledge test taken before and after the trainors' training, differed quite considerably from one study area to another. Pre-test scores differed, with Cotabato health workers obtaining the highest — a mean score of 18.50, and Zamboanga health workers getting the lowest mean score of 10.40. This divergence in mean scores resulted to the disparity in the mean differences between pre-test and post-test among the survey areas.

The Zamboanga health workers showed a marked increase of 7.2 which was significant at the .01 level, the Davao health workers exhibited a difference of 1.22, significant at the .05 level and the Cotabato health workers, an increase of 1.00 which was not significant.

All workers, however, manifested knowledge gains to some extent. (Table 3)

TABLE 3
TEST PERFORMANCE OF HEALTH WORKERS
BY STUDY AREAS

Statistical Measures	Cotabato	Davao	Zamboanga	Total
Pre-test				
Mean (\bar{x})	18.50	17.00	10.40	15.50
Standard Deviation (S.D.)	1.73	1.22	1.34	18.67
Post-test				
Mean (\bar{x})	19.50	18.22	18.40	18.67
Standard Deviation (S.D.)	2.94	1.30	4.04	2.59
Mean Difference	1.00	1.22	7.2	2.74
Standard Deviation of Difference	0.82	1.39	3.19	3.32
t-ratio	2.11	2.63	5.04	3.76
Degrees of Freedom	2	9	4	17
Level of Significance	n.s.	.05	.01	.01

CHAPTER IV

THE CLIENTS: BACKGROUND CHARACTERISTICS AND REACTION TO THE IEC PACKAGE

Background Characteristics

The clients of the study consisted of working mothers who were pregnant and who at most had two (2) children. They comprised a total of 277 coming from the 3 different sample areas in Mindanao: 49 from Cotabato City, 148 from Davao City, and 80 from Zamboanga City.

A. Socio-Demographic Factors

1. *Age Composition.* The ages of the clients ranged from 16 to 40 years. Davao City had younger clients with a mean age of 26 years while Zamboanga City and Cotabato City had relatively older clients with a mean age of 27 years. The data indicate that most of the clients were relatively young; the mean age was 26 years.

2. *Ethnic Origin.* All the areas showed that the clients were mostly Cebuanos (50%) and the rest varied greatly in terms of ethnicity. Davao City comprised the biggest proportion of Cebuanos (59%) and the rest belonged to varied groups, to wit: Boholano (10%), Waray (7%) and Ilongo (5%). Cotabato clients were almost as varied as the clients of Davao City: Cebuanos (33%), Ilongos (22%), Maguin-danaons (10%), Ilocanos (10%), varied indigenous groups (12%), Tagalog and Zamboanguenos (8.2% and 4% respectively). In Zamboanga, equally proportionate to the Cebuanos (44%) were the Zamboanguenos (44%). The minority (3%) were Ilocanos.

3. *Educational Attainment.* The majority of the clients (61%) claimed to have college education, 30 percent reported to have high school background, four percent (4%) had elementary education, two percent (2%) had vocational orientation, and the rest (3%) did not indicate their educational attainment.

Cotabato had the highest percentage (94%) of clients having college education, followed by those from Zamboanga City (69%). Comparatively, Davao City had the lowest proportion of clients (45%) with college education. On the other hand, the data showed that Zamboanga City had the most number of clients (6%) with elementary education.

4. *Occupational Structure and Type of Work.* The occupational structure was stratified into higher and lower professional, skilled, semi-skilled and unskilled workers. Clients were almost equally distributed among the semi-skilled (38%) and skilled workers (37%). A small proportion was unskilled (16%) and classified as professionals (higher and lower professionals) was only 10 percent.

According to type of work, about 76 percent belonged to the formal sector and 24 percent worked in the informal sector.

The disparity is attributable to the uneven distribution of the population in terms of work type in Cotabato and Zamboanga compared to Davao. In Cotabato and Zamboanga, the formal-sector workers comprised 98 percent and 85 percent, respectively; whereas in Davao 37 percent belonged to the informal sector and 64 percent to the formal sector.

5. *Monthly Income.* The monthly income ranged from as low as P 500.00 to over P 3,000.00. On the whole, the mean monthly income was P 2,171.17. Cotabato being classified in the upper occupational structure and higher educational classification had the highest mean monthly income (P 2,343.45). Zamboanga ranked second with P 2,236.07 and Davao City with P 2,079.20 as mean monthly income.

TABLE 4
DEMOGRAPHIC AND SOCIAL CHARACTERISTICS:
SUMMARY TABLE

Demographic and Social Characteristics	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Age								
16 – 20	1	2.0	18	12.2	—	—	19	6.9
21 – 25	14	28.6	65	43.9	32	40.0	111	40.0
26 – 30	26	53.1	50	33.8	34	42.5	110	39.7
31 – 35	8	16.3	11	7.4	10	12.5	29	10.5
36 – 40	—	—	4	2.7	1	1.2	5	1.8
No Response	—	—	—	—	3	3.8	3	1.1
Mean (\bar{x}) Age in Years	26.68		25.72		27.28		26.40	
Standard Deviation (S.D.)	3.55		4.47		3.54		4.00	
Ethnic Origin								
Cebuano	16	32.7	87	58.8	35	43.8	138	49.8
Maguindanaon	5	10.2	—	—	—	—	5	1.8
Tagalog	4	8.2	3	2.0	—	—	7	2.5
Ilongo	11	22.4	7	4.7	—	—	18	6.5
Zamboangeño	2	4.1	—	—	35	43.8	37	13.4
Ilocano	5	10.2	3	2.0	2	2.5	10	3.6
Boholano	—	—	15	10.2	—	—	15	5.4
Davaoeño	—	—	6	4.1	—	—	6	2.2
Waray	—	—	11	7.4	—	—	11	4.0
Varied indigenous groups (i.e., Bilaan, Surigaonon)	6	12.2	7	4.7	7	8.8	7	7.2
No Response	—	—	9	6.1	1	1.1	4	3.6
Educational Attainment								
Elementary	—	—	7	4.7	5	6.2	12	4.3
High School	3	6.1	74	50.0	6	7.5	83	30.0
College	46	93.9	67	45.3	55	68.8	161	60.6
Vocational	—	—	—	—	5	6.2	5	1.8
No Response	—	—	—	—	9	11.3	9	3.3
Occupational Classification								
Higher professionals (e.g., nurse, chemist, lawyer)	2	4.1	1	0.7	4	4	7	2.5
Lower professionals (e.g., techno- logist, teacher, research officer, economist, section head)	7	14.3	5	3.4	9	11.2	21	7.6
Skilled workers (e.g., clerk, aide, bookkeeper, cashier)	30	61.2	29	19.6	42	52.5	101	36.5
Semi-skilled workers (e.g., telephone operator, salesgirl, dressmaker bag/cake maker)	10	20.4	73	49.3	21	26.3	104	37.5
Unskilled workers (e.g., laundry woman, vendor)	—	—	40	27.0	4	5.0	44	15.9
Type of Work								
Informal	1	2.0	54	36.5	12	15.0	67	24.2
Formal	48	98.0	94	63.5	68	85.0	210	75.8
Monthly Income (Philippine Peso)								
500 – 999	—	—	7	4.7	2	2.5	9	3.3
1,000 – 1,499	8	16.3	28	18.9	7	8.7	43	15.5
1,500 – 1,999	6	12.3	29	19.6	17	21.2	52	18.8
2,000 – 2,499	15	30.6	42	28.4	9	11.2	66	23.8
2,500 – 2,999	7	14.3	12	8.1	14	17.5	33	11.9
3,000 and over	12	24.5	23	15.6	18	22.5	53	19.1
No Response	1	2.0	7	4.7	13	16.3	21	7.6
Mean (\bar{x}) Income	2,343.45		2,079.20		2,236.07		2,171.17	
Standard Deviation (S.D.)	689.63		719.12		737.08		731.12	
Total N	49		148		80		277	

B. Parity and Breastfeeding Experience

1. Number of Children. The clients of the study were composed of pregnant women who at most had 2 children. Parity was limited to 2 children in view of the possible relationship between the number of previous children and the likelihood to breastfeed (cf. Population Reports, 1981). The results showed that 46 percent were expecting their first child – *primigravidas*, while 35 percent had one child and 18 percent had two (2) children. Cotabato had the highest percentage of women who were still pregnant with their first children (51%). Davao and Zamboanga had almost the same distribution of women who had no children at the time of the interview (47% and 45% respectively).

2. Breastfeeding Practice. Out of the total number of clients, only 37 percent breastfed their last child; 16 percent did not and 46 percent had no chance to breastfeed (*primigravidas*). Zamboanga had the highest number of women who breastfed their last child (40%) and Cotabato, the least (33%). Majority of the Zamboanga and Cotabato clients who breastfed claimed to have practiced mixed feeding (75%). However, majority of the Davao City clients (71%) have practiced pure breastfeeding.

3. Reasons for not Having Breastfed the Last Child. The prevalent reasons mentioned for not having breastfed were: “inadequate milk and no milk supply” (16 out of 45) and “working outside the home” (7 out of 45). Most of the reasons cited by the respondents could actually be remedied. Some of these were working outside the home (7), painful breastfeeding (3), inverted nipples (2), did not like to breastfeed (2), had caesarian operation (1), baby was placed in the nursery (1), baby was ill (2). Two (2) respondents had allergies and one (1) had jaundice.

4. Persons Who Influenced Clients in Deciding to Breastfeed. Almost half of the clients (49%) who breastfed their last babies decided to do so on their own while 48 percent did so because of other persons’ influence. Eighty-one percent of the clients in Cotabato, 43 percent in Zamboanga and 41 percent in Davao made decisions on their own.

Those who were influenced by others claimed that mothers and/or parents (52%) were the most influential to them. Doctors (14%) ranked second and relatives (10%), third. Of those who were influenced by others in Cotabato, all of them (100%) were influenced by their mothers and/or parents, but only 77 percent in Zamboanga and 38 percent in Davao City made decisions due to their mothers’ or parents’ influence.

TABLE 5

**PARITY AND BREASTFEEDING PRACTICE:
SUMMARY TABLE**

Categories and/or Responses	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Number of Children								
None	25	51.0	69	46.6	36	45.0	130	46.9
One	21	42.9	45	30.4	30	37.5	96	34.7
Two	3	6.1	33	22.3	13	16.3	49	17.7
No Response	—	—	1	0.7	1	1.2	2	0.7
Total N.	49		148		80		277	
Experience and Forms of Breastfeeding with Last Child:								
Breastfed last child	16	32.7	55	37.2	32	40.0	103	37.2
Forms of breastfeeding:								
Pure	(4) ^{a/}	(25.0)	(39)	(70.9)	(6)	(18.8)	(49)	(47.1)
Mixed	(12)	(75.0)	(16)	(29.1)	(24)	(75.0)	(52)	(51.0)
No Response	—	—	—	—	(2)	(6.2)	(2)	(1.9)
Did not breastfeed	8	16.3	26	17.6	11	13.8	45	16.2
Not applicable (no child)	25	51.0	67	45.2	36	45.0	128	46.2
No Response	—	—	—	—	1	1.2	1	0.4
Total N.	49		148		80		277	
Reasons for not Breastfeeding (Frequency of responses):								
1. Problems on milk supply (inadequate or none at all)	3		9		4		16	
2. Underwent caesarian operation	1		—		—		1	
3. Baby in the nursery	1		—		—		1	
4. Baby was sick	1		1		—		2	
5. Respondent did not want to breastfeed	2		—		—		2	
6. Inverted nipples	—		2		—		2	
7. Respondent was sick (e.g., allergies, cough and jaundice)	—		2		1		3	
8. Painful breastfeeding	—		3		—		3	
9. Respondent operated for cyst	—		1		—		1	
10. Respondent works outside the home	—		5		2		7	
No Response	—		—		2		2	
Total N.	16		18		14		48	
Person(s) Who Influenced Clients in Deciding to Breastfeed								
Not influenced by others	13	81.2	23	41.4	14	43.8	50	48.6
Influenced by others:	3	18.8	32	58.6	13	40.6	48	47.6
mothers/parents	(3) ^{b/}	(100.0)	(13)	(38.2)	(10)	(76.9)	(26)	(52.0)
doctors	—	—	(4)	(11.8)	(3)	(23.1)	(7)	(14.0)
husband	—	—	(4)	(11.8)	—	—	(4)	(8.0)
relatives	—	—	(5)	(14.7)	—	—	(5)	(10.0)
midwife/nurse	—	—	(4)	(11.8)	—	—	(4)	(8.0)
hilot	—	—	(1)	(2.9)	—	—	(1)	(2.0)
friend	—	—	(3)	(8.8)	—	—	(3)	(6.0)
No response	—	—	(—)	—	5	15.6	5	4.9
Total N.	16		55		32		103	

^{a/} Figures in parentheses represent the distribution of respondents according to the forms of breast feeding.

^{b/} — Figures in parentheses represent the frequency and percentages of responses under the category "influenced by others."

C. Evaluation of IEC Package

The Information, Education and Communication (IEC) Package involved in this study was made up of group discussions, leaflets, brochures, follow-ups through home visits and clinic visits of clients.

The group discussions were designed to enable the health workers and clients to discuss the different aspects of breastfeeding like preparation of the breasts, importance of breastfeeding, physiology of lactation, psychology of breastfeeding and problems related to breastfeeding practices.

Leaflets were distributed before the group discussions to motivate clients to breastfeed. They contained topics related to the importance of breastfeeding. Copies in Cebuano, Tagalog and English were reproduced to help clients understand them according to their most commonly used dialect or language.

The brochures were aimed at helping clients to know about the procedures of breastfeeding. Tagalog and English copies were reproduced to enable the clients to understand the messages in the dialect.

Follow-ups were made after the group discussions. They were conducted by nurses and midwives in the clients' homes or their respective clinics. Follow-ups were made to find out problems related to the preparation for breastfeeding and problems encountered while breastfeeding.

1. Group Discussion

The survey data showed that clients tended to have favorable assessments of the group discussion. Most of them (90%) claimed that it was helpful for understanding the breastfeeding concepts; the trainors in the group discussion likewise helped them to comprehend the information on breastfeeding. (Table 27)

When clients were asked in what ways the training program could be improved, particularly, its group discussion component, 57 clients gave some suggestions. All of them (100%) suggested the expansion of the breastfeeding educational campaign to other areas. Fifty-three percent (30 clients) proposed that the group discussion be such as to provide better interaction and sharing, and that the session start on time. A few clients (23%) suggested that the IEC Package be reinforced by support materials or strategies such as television programs and lectures to pregnant mothers. (Table 28)

2. Leaflet

The clients also showed positive evaluation of the leaflet. About 89 percent were encouraged to breastfeed due to the leaflet. The graphic features of the leaflet were also pleasing to the clients. Ninety-three percent liked the color of the leaflet and 95 percent, its illustrations. (Table 29)

The leaflet motivated clients to breastfeed for the following reasons: it provided information on the benefits of breastfeeding (48%) and basic knowledge on proper breastfeeding (28%). (Table 30)

3. Brochure

Impressions on the brochure were favorable. The clients (98%) liked the way the brochure was made. (Table 31) When probed why they liked the brochure, the following reasons were given: a) it provided complete information on breastfeeding (42%), b) it was easy to read and understand (27%), c) its information was

orderly, simple and neat (18%), and d) were clear, motivating and detailed (10.0). (Table 32)

4. Home Visits

To assist the clients, health workers were encouraged to conduct home visits. However, only 30 percent were actually visited. Slightly over two-thirds (70%) said that they were not visited by any health worker during the past 6 months after their delivery. (Table 33)

With respect to the frequency of home visits, 47 percent of the clients claimed to have been visited one (1) to two (2) times, while only about 36 percent were visited three (3) to four (4) times. (Table 34)

Health workers reported that they were not able to do home visits regularly due to their hectic schedule. Davao City health workers, however, cited critical peace and order situations as the principal reason for their inability to do home visits.

CHAPTER V

THE CLIENTS: KNOWLEDGE OF BREASTFEEDING AND SOURCES OF INFORMATION

The effect of the IEC Package on breastfeeding was assessed through the knowledge gained before and after exposure to the IEC strategies namely: leaflet, brochure and group discussion. The pre-test was administered by the hospital or clinic staff at the "cluster points" while the post-test was given after each group discussion session.

The same instrument was given for the pre-test and post-test, but the sequence of the items was rearranged in the post-test. It was made up of 25 items consisting of eight (8) multiple choice and seventeen (17) true or false items. The questions revolved around the following aspects of breastfeeding: importance of breastfeeding, the practice of breastfeeding, and problems related to breastfeeding.

A. Knowledge Scores: Pre-test and Post-test

The results of the pre-test and post-test (overall and by area) are shown in Table 6. The data revealed a significant difference between the pre-test and post-test scores as indicated by the t-ratio of 13.39 which is significant at .01 level. Among the three (3) areas, Zamboanga had the highest mean increase in the post-test with an approximate 5-point gain. (Table 6)

TABLE 6
KNOWLEDGE PRE-TEST/POST-TEST RESULTS
BY SURVEY AREAS

Statistical Measures	Cotabato	Davao	Zamboanga	Total
Pre-test				
Mean (\bar{x})	14.63	14.32	14.61	14.45
Standard Deviation (S.D.)	3.73	3.10	3.74	3.67
Post-test				
Mean (\bar{x})	17.73	17.11	19.8	17.96
Standard Deviation (S.D.)	3.70	3.66	3.59	3.96
Mean Difference (D)	3.26	2.78	4.93	3.48
Standard Deviation (S.D.)	3.26	3.63	5.14	4.18
t-ratio	5.92	7.33	8.36	13.39
Level of Significance	.01	.01	.01	.01
Total N.	35	148	76	259

In order to pinpoint the areas to be emphasized in the future utilization of the IEC Package, the pre-test/post-test scores in different subdimensions of the test, namely: advantages of breastfeeding and disadvantages of infant formula, common problems associated with breastfeeding, preparations for breastfeeding, and expressing and storing milk, were also studied.

The statistical measures as shown in Table 7 revealed significant differences in the pre-test and post-test results in all subdimensions except for the items on the topic, "other facts of breastfeeding." The mean differences for all survey areas in the various subdimensions were: 1.35 for advantages of breastfeeding; 0.25 for disadvantages of infant formula; 0.49 for common problems; 0.68 for preparations for breastfeeding; 0.56 for expressing and storing of breast milk; and 0.48 for other facts of breastfeeding. These mean differences do not seem to be very impressive, but the t-ratio showed statistical significance. (Table 7)

TABLE 7

**KNOWLEDGE PRE-TEST/POST-TEST RESULTS :
BY SUBDIMENSIONS AND SURVEY AREAS**

Subdimensions of Breastfeeding	Cotabato	Davao	Zamboanga	Total
a. Advantages of Breastfeeding				
Mean (\bar{x})	1.1429	1.1892	1.7763	1.3552
S.D.	1.3316	2.0714	2.1141	2.0129
N	35	148	76	259
t-ratio	5.0776	6.9844	7.3250	10.8353
Sig. Level	.01	.01	.01	.01
b. Disadvantages of Infant Formula				
Mean (\bar{x})	0.2941	0.1554	0.4267	0.2529
S.D.	1.4466	0.0738	1.5437	1.1966
N	34.*	140	75	257
t-ratio	1.1855	2.1153	2.3936	3.3884
Sig. level	n.s.	.01	.01	.01
c. Common Problems				
Mean (\bar{x})	0.3429	0.4797	0.5658	0.4865
S.D.	0.9375	1.0133	1.0873	1.0243
N	35	148	75	259
t-ratio	2.1635	5.7595	4.5363	7.6434
Sig. Level	.01	.01	.01	.01
d. Preparations for Breastfeeding				
Mean (\bar{x})	0.6970	0.5068	1.0411	0.6850
S.D.	1.5709	1.0000	1.6197	1.3019
N	33	140	73	254
t-ratio	2.5487	6.1651	5.4920	8.3862
Sig. Level	.01	.01	.01	.01
e. Expressing and Storing Breast Milk				
Mean (\bar{x})	0.4000	0.4054	0.9444	0.5569
S.D.	1.6306	1.1771	2.1022	1.5660
N	35	148	72	255
t-ratio	1.4513	4.1900	3.8121	5.6783
	n.s.	.01	.01	.01
f. Other facts of Breastfeeding				
Mean (\bar{x})	-0.0303	-0.7297	-0.1549	-0.4762
S.D.	1.2115	0.9731	1.3055	1.1446
N	33	140	71	244
t-ratio	-0.1437	-9.1232	-1.0000	6.6041
	n.s.	.01	.01	.01

* - Missing responses

The negative difference in the subdimension, "other facts of breastfeeding" indicated a decrease in the total mean score in the post-test. This was true in all survey areas but was markedly seen in the Davao area. This marked decrease in the Davao area could be attributed to the fact that topics on other facts of breastfeeding were not often considered in group discussions due to lack of time. In the case of Cotabato and Zamboanga, little emphasis was given to this topic during the group discussions.

In the survey area results, the Cotabato area showed no significant differences in two subdimensions, namely : disadvantages of infant formula and expressing and storing of breast milk. This may be explained by the fact that 22 percent of the respondents in Cotabato were not able to attend the group discussion though they were given the instructional materials.

The findings suggest the importance of group discussions, and that health workers should be given longer time for group discussions during which all topics should be given emphasis.

B. Selected Factors Associated with Breastfeeding Knowledge

Based on the consonance theory which states that the cognitive system is made up of elements which are in harmony with one another (cf. Kretch, David et al, 1962), the assumption was made in this study that attitude, knowledge and practice of clients are interconnected. This is further supported by the study of Rivera and Marso in 1979 among hospital delivered women which showed that mothers who chose breastfeeding had higher knowledge scores than those who did not. (cf. Simpson-Hebert, 1983).

Therefore, knowledge can also be influenced by the factors that affect the practice of breastfeeding. According to the literature review done by Hebert, infant feeding choice is influenced by educational attainment of the mother, mother's employment outside the home and breastfeeding experience.

The effect of selected demographic variables on knowledge of breastfeeding was then measured using the t-test for difference between pre-test and post-test means controlling for such variables as education, work type and breastfeeding experience.

The findings showed that education (Table 35), work type (Table 36), and breastfeeding experience (Table 37) were significantly associated with knowledge of breastfeeding. The t-ratios showed significant differences between pre-test and post-test means among all groups when classified according to education, work type and breastfeeding experience. (Table 8)

TABLE 8

**STATISTICAL MEASURES (T-RATIO) OF CHANGES IN KNOWLEDGE
SCORES, CONTROLLING FOR SELECTED VARIABLES**

Variables	Cotabato	Davao	Zamboanga	Total
Education				
High	6.65	3.54	5.45	8.30
level of significance	.01	.01	.01	.01
Moderate	1.02	8.53	5.65	9.94
level of significance	n.s.	.01	.01	.01
Low	—	1.73	6.32	3.36
level of significance	—	n.s.	.01	.01
Work Type				
Formal	5.76	7.86	7.14	11.65
level of significance	.01	.01	.01	.01
Informal	—	5.19	5.00	6.58
level of significance	—	.01	.01	.01
Breastfeeding Experience				
Yes	1.73	1.41	4.45	6.16
level of significance	.05	.01	.01	.01
No	6.30	8.41	7.72	12.79
level of significance	.01	.01	.01	.01

Individual survey area results, however, exhibited slightly different results when education was controlled. Non-significant results were seen among the moderately educated group in Cotabato and among the low-level group of Davao. Hence, the results across all areas, when education was controlled were significant only for highly educated (with college education) groups. This indicated that the IEC Package tends to be highly effective in terms of knowledge gained among working women with college education.

In the case of Zamboanga, the significant increase of knowledge among clients of low education could be attributed to the fact that these were clients of health centers where the health workers had established very good rapport with the clients. These health workers attended to the individual problems and questions presented by the clients during the group discussion sessions.

C. Knowledge of Breastfeeding Post IEC Exposure

Six months after delivery, clients were interviewed to determine how much knowledge on breastfeeding was retained. The questions included topics on the preparations for breastfeeding before and after delivery, introduction of supplementary food, common problems associated with breastfeeding and their remedies.

1. **Preparation on Breastfeeding Before and After Delivery.** Clients appeared to have good retention of the preparations for breastfeeding before and after delivery. A relatively large portion of them recalled that the following preparations were needed before delivery: rest, sleep and exercise (78%), well-balanced diet (78%), care of the nipples (70%), relaxation from tension (54%) and care of the breast (53%). (Table 38)

Most of the clients who recalled the different preparations for breastfeeding after delivery mentioned the following: care of the nipples (76%), have a well-balanced diet (75%), care of the breast (63%) and teach the baby how to suck (60%). (Table 39)

2. **Supplementary Food.** Clients seemed to recall some of the food given to supplement the milk intake of the babies. Some of those mentioned were: porridge (85%), eggs (74%) and potatoes (70%). (Table 40)

Most of them reported that supplementary food was usually given when the baby was 3 to 4 months (75%). (Table 41)

3. **Common Problems Associated with Breastfeeding.** Majority of the clients (74%) mentioned breast engorgement as one of the common problems associated with breastfeeding. Others mentioned were flat or inverted nipples (62%), diminishing milk (62%), breast sagging (58%), cracked or sore nipples (56%) and too fast milk flow (47%). (Table 42)

The data showed that some of the problems on breastfeeding stressed during the group discussions were still clearly recalled by more than one-half of the clients. However, when asked about the remedies to these problems, only few could remember them.

For flat and inverted nipples, the following remedies were mostly recalled: 1) pulling and stretching the nipples in all directions daily in the last 3 months of pregnancy (45%), b) stretching the nipples through thumb position (37%), and c) holding the areola when feeding (37%). (Table 43)

Some of the remedies mentioned for breast engorgement were as follows: a) having the baby suck the fuller breast (41%), b) letting the baby suck more often (36%), and c) not letting the baby miss a feeding (36%). (Table 43)

Diminishing milk could be corrected by drinking more fluids (55%) and eating more nutritious food (48%). (Table 43)

Those who recalled that breast sagging could be remedied, cited the use of appropriate bra (54%) as the most common remedy. (Table 43)

Less than half of the clients (44%) recalled that expressing some milk before feeding the infant was one of the remedies for too fast milk flow. (Table 43)

The results of the survey six months after delivery indicated that the information contained in the IEC Package such as the preparations for breastfeeding, introduction of supplementary food, and common problems of breastfeeding were easily recalled. However, the more detailed ones like the remedies to the common problems had low retention. This could be explained by the observation that most of the clients found it difficult to grasp the techniques and procedures involved in the application of the remedies.

D. Sources of Information

Clients were asked what information they received from the health workers during the six months. The responses seemed to show that only few of the clients ever received information from health workers after the group discussions. Among those who were visited, 66 percent were followed up on their practice of breastfeeding and 45 percent had discussed with health workers the benefits derived from the practice of breastfeeding. (Table 44)

Other sources of information were identified: friends (72%) and relatives (70%). This showed that the communication network of most clients revolved around interpersonal sources. (Table 45)

CHAPTER VI

ATTITUDES TOWARD BREASTFEEDING

Attitudes of the clients toward breastfeeding were ascertained before and after exposure to the IEC Package using a 10-item Likert Scale instrument. This section presents a study of the validity of the instrument using the zero-order correlation and tests on individual items and total score, for changes in attitude before and after exposure to the IEC Package.

A. Construction of the Attitude Scale

The zero-order correlation was used to test the validity of the attitude scale items. Ten items were constructed. Using the pre-exposure findings, the results of the item by total score correlation showed a range of values of r from 0.35 to 0.60. These values of r are within acceptable limits indicating that the test is highly valid. This means that women who generally have a favorable attitude toward breastfeeding are more likely to have a positive attitude in all aspects toward breastfeeding.

TABLE 9

**ZERO-ORDER CORRELATION VALUE OF 10 ATTITUDINAL
ITEMS BY TOTAL SCORE**

Attitudinal Items	Person	r^2
1. Breastfeeding is no longer fashionable	0.58	0.33
2. Breastfeeding is embarrassing	0.57	0.33
3. Breastfeeding causes the breast to sag	0.53	0.21
4. Breastfeeding can be an irritant in husband-wife relationship	0.64	0.42
5. Cleaning and pressing the breast when collecting milk makes me feel uneasy	0.58	0.33
6. Breastfeeding is inconvenient	0.66	0.45
7. Infant formula is better than breast milk	0.60	0.36
8. A mother should not breastfeed if husband is not in favor	0.58	0.34
9. Breastfeeding fosters closer relationship between mother and child	0.35	0.12
10. Breastfeeding is less expensive	0.35	0.12

B. Attitudinal Change: Total Scale Score

A ten-item Likert Scale instrument was used for this purpose. The scores of the participants ranged from 20 to 50, with 50 as the highest score and 10 as the lowest score.

Among a total of 277 respondents, the mean score in the pre-exposure to the IEC Package was 37.92 with a standard deviation of 6.17. This indicated a fairly good number of clients having favorable attitudes toward breastfeeding with a few respondents having either an extremely favorable or unfavorable attitude. (Table 10)

TABLE 10
ATTITUDE SCORES BY SURVEY AREAS:
PRE-EXPOSURE TO IEC PACKAGE

Range of Scores	Cotabato	Davao	Zamboanga	Total
10	0	0	4	0
11 – 20	1	1	1	3
21 – 30	4	18	8	30
31 – 40	24	80	45	149
41 – 50	20	49	22	91
Total.	49	148	80	277
Mean (\bar{x})	38.92	38.11	37.30	37.92
S.D.	6.42	6.13	6.63	6.17

The post-exposure mean score was relatively higher and the standard deviation smaller. The mean score of the 277 clients included in the sample was 39.06 with a standard deviation of 4.87. This revealed a slight change in attitude among clients. The distribution also showed that three (3) clients had unfavorable attitudes before exposure and 30 were still undecided before exposure. After exposure only 12 clients had scores that signified indecisiveness. (Table 11)

TABLE 11
ATTITUDE SCORES BY SURVEY AREAS:
POST IEC PACKAGE EXPOSURE

Range of Scores	Cotabato N	Davao N	Zamboanga N	Total N
10	0	0	0	0
11 – 20	0	0	0	0
21 – 30	1	4	7	12
31 – 40	22	103	39	164
41 – 50	26	41	34	101
Total.	49	148	80	277
Mean (\bar{x})	40.41	38.69	39.10	39.06
S.D.	4.47	4.49	5.48	4.87

This shift in attitude caused a significant difference between pre-exposure and post-exposure attitude scores of the clients. The mean difference of 1.07 and standard deviation of the difference of 6.49 for 273 clients yielded a t-ratio of 2.72 which is significant at .01 level. (Table 12)

TABLE 12
ATTITUDINAL CHANGES : PRE AND POST-EXPOSURE
BY SURVEY AREAS

Statistical Measures	Cotabato	Davao	Zamboanga	Total
Mean Difference	1.86	0.58	1.97	1.07
Standard Deviation of the Difference	5.04	6.92	6.40	6.49
t-ratio	2.58	1.02	2.68	2.72
Level of Significance	0.1	n.s.	.01	.01
N	49	148	76	273

This implied that overall, the exposure to the IEC Package led to a significant change in attitude of the clients toward breastfeeding.

Looking at the survey area results, only Davao with a sample size of 148 showed no significant change. The mean of the pre-exposure scores was 38.11 showing a relatively favorable attitude among a large group of clients. The post-exposure mean was 38.69 giving a mean difference of 0.58 with a standard deviation of 6.92. This yielded a t-ratio of 1.02 which is non-significant.

The minimal increase in the mean score of the Davao area clients may be due to the process by which the exposure to the IEC package was undertaken. The post-test was administered right after the group discussions to participants whose number ranged from 2 to 34. The large number of participants in majority of the group discussions held in Davao lessened the opportunity for effective interaction among the participants and the health workers. Other factors included the following: lack of motivation among clients who primarily went to the health centers for pre-natal check-ups rather than for the group discussion sessions; and the limited time (1 hour) allotted for the group discussion session. Thus, the nature of the group discussion session was not effective in creating an outright change in attitude.

On the other hand, Cotabato and Zamboanga had smaller samples and less number of participants in the group discussion sessions. The sizes of the group discussions ranged from 2 to 13. In most sessions, the discussions were done in an informal manner and resulted to greater group interaction.

C. Attitudinal Changes: Individual Dimensions

To determine the changes in attitude arising from exposure to some aspects of the IEC Package like the leaflet and the group discussion based on the brochure, the McNemar test for change was used. Each of the 10 attitudinal items was subjected to this test utilizing both total sample and survey area sample.

The data revealed that of the 10 attitudinal items, two (2) items were significant at the .01 level, namely:

- a) breastfeeding is no longer fashionable; and
- b) breastfeeding fosters closer relationship between mother and child.

Three (3) items were significant at the .05 level: a) baring the breast in public is embarrassing; b) breastfeeding can be an irritant to husband-wife relationship ; and c) breastfeeding causes the breasts to sag. The changes in the other items were not significant. (Table 13)

TABLE 13

**CHI-SQUARE VALUES OF THE MCNEMAR TEST FOR CHANGES IN
ATTITUDE (PRE AND POST-EXPOSURE) FOR THE
10 ATTITUDINAL ITEMS**

Attitudinal Items	X ² Value Total N=273	Level of Significance
1. Breastfeeding is no longer fashionable	20.17	.01
2. Baring the breast in public while breastfeeding is embarrassing	2.72	.05
3. Breastfeeding causes the breast to sag	3.57	.05
4. Breastfeeding can be an irritant in husband-wife relationship	2.89	.05
5. Cleaning and pressing the breast when collecting milk makes me feel uneasy	0.04	n.s
6. Breastfeeding is inconvenient	2.44	n.s.
7. Infant formula is better than breast milk	1.12	n.s.
8. A mother should not breastfeed if husband is not in favor	0.02	n.s
9. Breastfeeding fosters closer relationship between mother and child	8.60	.01
10. Breastfeeding is less expensive	1.11	n.s

About 32 percent of the clients who agreed that "breastfeeding is no longer fashionable" before exposure to the program changed their attitudes after exposure. This gave a total of 94 percent who do not believe that breastfeeding is no longer fashionable. The pattern of changes is similar in all three survey areas as far as this item is concerned. (Table 14)

This trend is also true in relation to the item "breastfeeding fosters closer relationship between mother and child." Six percent of the clients reversed their attitude after exposure to the program, resulting in a 94 percent rate of agreement to the item. A similar trend is observed in all survey areas but a greater rate of change occurred among the Cotabato area clients. (Table 14)

"Baring the breast in public while breastfeeding is embarrassing" is one of the items which showed a slightly significant change. In this item, a relatively lower percentage of clients (64%) had favorable attitudes before exposure to the program. This increased to 78 percent, when 14% who were not in favor before exposure changed their attitude after exposure. (Table 14)

Another item which involved a slightly significant change in attitude is "breastfeeding causes the breast to sag." Among the 10 attitudinal items, this showed the

lowest number of respondents with the right attitude before exposure to the program. Only 58 percent disagreed with this statement. Exposure to the program caused 17 percent of the mothers to change their attitude. (Table 14)

The third item which showed a slight change in attitude is "breastfeeding can be an irritant in husband-wife relationship." Though 87 percent already had the right attitude before exposure to the program, an additional number (7%) signified the right attitude only after exposure to the program, again resulting to a 94 percent favorable attitude. (Table 14)

The other items showed some changes but these are too small to show any significance.

TABLE 14
ATTITUDINAL CHANGES :PRE AND POST-EXPOSURE
BY ATTITUDINAL ITEMS

Attitudinal Items	Pre-Exposure				Post-Exposure			
	Agree N	%	Disagree N	%	Agree N	%	Disagree N	%
1. Breastfeeding is no longer fashionable	84	31.6	185	68.8	15	5.6	254	94.4
2. Baring the breast in public while breastfeeding is embarrassing	98	36.3	172	63.7	60	22.2	210	77.8
3. Breastfeeding causes the breast to sag	113	42.2	155	57.8	67	25.0	201	75.0
4. Breastfeeding can be an irritant in husband-wife relationship	36	13.2	237	86.8	17	6.2	256	93.8
5. Cleaning and pressing the breast when collecting milk makes me feel uneasy	37	13.7	232	86.3	33	12.5	236	87.7
6. Breastfeeding is inconvenient	75	27.7	196	72.3	53	19.6	218	80.4
7. Infant formula is better than breast milk	33	12.3	236	87.7	20	7.4	249	92.6
8. A mother should not breastfeed if husband is not in favor	24	9.0	243	91.0	36	13.5	231	86.5
9. Breastfeeding fosters closer relationship between mother and child	242	88.6	31	11.4	256	93.8	17	6.2
10. Breastfeeding is less expensive	228	85.1	40	14.9	243	90.7	25	9.3

CHAPTER VII

PRACTICE OF BREASTFEEDING

To determine the incidence of breastfeeding as well as the kind of breastfeeding practiced by clients upon delivery, a survey was conducted during the week after child-birth (post-test III/set C).

The data elicited from the survey were: incidence of breastfeeding, period of breastfeeding initiation, reasons for breastfeeding and introduction of infant formula before breastfeeding.

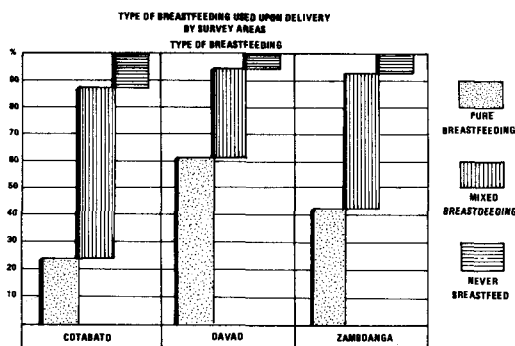
A. Incidence of Breastfeeding

The survey revealed that almost all of the clients (260 or 96%) practiced breastfeeding. The major reasons given for breastfeeding were: a) breastfeeding is good for the baby because breast milk is a complete food; it has immunological properties; it contains vitamins and it promotes growth (84%); b) it promotes bonding between mother and child (12%); and c) it is economical (44%). (Table 15) This revealed that motivational strategies to influence mothers to breastfeed when focused on benefits to the baby as well as to the mother can be very effective.

TABLE 15
REASONS FOR BREASTFEEDING

Reasons	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Breastfeeding is good for the baby because breast milk is a complete food, has immunological properties, contains vitamins, promotes growth faster	42	100	113	77.9	64	8.8	219	84.4
Promotes bonding between mother and child	6	14.3	17	11.7	8	10.9	31	11.9
It is economical	18	42.8	62	42.7	35	47.9	115	44.2
It delays pregnancy	3	7.1	1	0.7	—	—	4	1.5
It is safe	—	—	1	0.7	6	8.2	7	2.7
Base N.	42		115		73		260	

Figure 1



Among those who breastfed, 141 or 52 percent used pure breastfeeding and 119 or 44 percent used mixed feeding. Comparing the three survey areas, it may be observed that Davao City had the highest incidence of pure breastfeeding (95 or 64%), while Cotabato had the least incidence of pure breastfeeding (12 or 25%) and the highest incidence of mixed feeding (30 or 65%). (Figure 1, Table 16)

TABLE 16

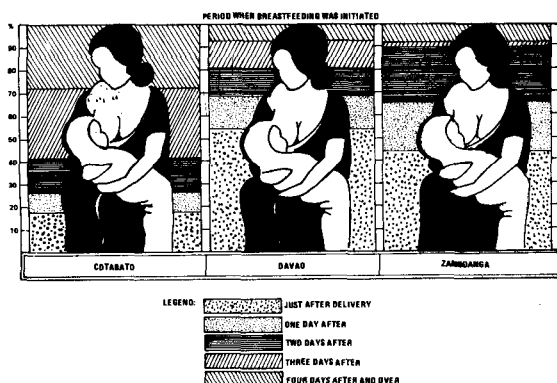
**TYPE OF BREASTFEEDING USED UPON DELIVERY
BY SURVEY AREAS**

Type of Breastfeeding	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Pure Breastfeeding	12	24.5	95	64.2	34	44.2	141	51.8
Mixed Breastfeeding	30	65.2	50	33.8	39	50.6	119	43.8
Never Breastfed	5	10.9	3	2.0	4	5.2	12	4.4
Total.	47	100	148	100	77	100	271	100

There are several factors that could account for this disparity, foremost of which is the composition of the clients in the three survey areas. Whereas, a large number of the Davao clients had lower education levels, were employed in the informal sector and had lower incomes, the Cotabato clients were of higher educational levels and were employed in the formal sector. The other factor that could account for the disparity was the program structure employed in the project. City Health Centers were used in Davao and Zamboanga where the clients of the projects were regular clients of the Centers. In Cotabato, the health workers employed in the project were from the nursing staff of the City Hospital who interacted with the clients for the first time during the group discussion sessions.

A small proportion (4%) of the clients did not breastfeed at all. The common reasons cited were: a) no milk (50%); respondent delivered through caesarian operation (12) and respondent had allergy (12%). (Table 46)

Figure 2



The clients were also asked when they initiated breastfeeding. Almost one-half (46%) of the total sample breastfed their children right after delivery. When the clients were classified by survey areas, it showed that the Davao clients (54%) had the greatest incidence of breastfeeding just after delivery followed by the Zamboanga clients (45%). (Figure 2, Table 17)

TABLE 17

BREASTFEEDING INITIATION BY STUDY AREAS

Period When Breast-feeding was Initiated	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Just after delivery	8	19.0	78	53.8	33	45.2	119	45.8
One day after	3	7.1	23	15.9	14	19.2	40	15.4
Two days after	7	16.7	17	11.7	18	24.7	42	16.2
Three days after	13	31.0	17	11.7	1	1.4	31	11.9
Four days after and over	11	26.2	10	6.9	7	9.6	28	10.8
Total.	42	100.0	145	100.0	73	100.0	260	100.0

The Cotabato clients had the least incidence of breastfeeding just after delivery. This may be due to the fact that most Cotabato clients are of the middle-level class, hence they delivered their babies in the hospital where in most cases the use of the nursery is still practiced. Another reason cited was, there was no flow or very little flow of milk just after delivery.

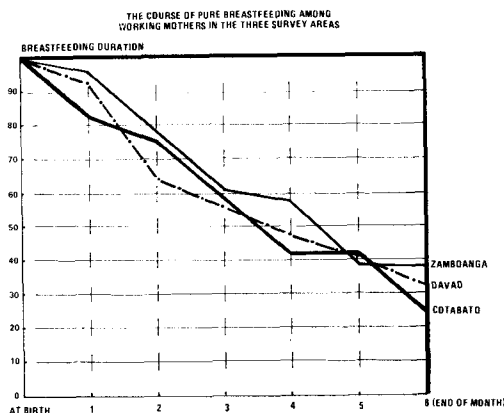
Of the total number that breastfed 94 or 36 percent said that they introduced infant formula before breastfeeding. Majority (64%) however, claimed that they did not use infant formula. (Table 47)

The incidence of not introducing infant formula by the majority of those participants who were not able to breastfeed right after delivery could be a manifestation of their confidence that they would have more milk and would ultimately be able to breastfeed their children.

B. Duration of Breastfeeding

The measure used to determine duration of breastfeeding is the percentage still breastfeeding at the end of each month for a 6-month period. Two types of data are presented, namely : a) duration of pure breastfeeding; and b) duration of any breastfeeding (mixed and pure) type.

Figure 3



1. *Pure Breastfeeding.* The survey showed that 141 clients breastfed at birth. This information was taken from a survey conducted the week following delivery of the child. Of the 141 clients only 129 were included in the survey at the end of 6 months due to lost to follow-up. Because of the abnormal conditions prevailing in the areas at the time of the survey, clients transferred residence either temporarily or permanently. Table 18 shows the trend of pure breastfeeding by survey areas.

TABLE 18

THE COURSE OF PURE BREASTFEEDING AMONG WORKING MOTHERS IN THE THREE SURVEY AREAS

Breastfeeding Duration in Months	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
At birth	12	100	89	100	28	100	129	100
End of 1st month	10	83.3	82	92.1	27	96.4	119	92.2
End of 2nd month	9	75.0	58	65.2	22	78.6	89	69.0
End of 3rd month	7	58.3	51	57.3	17	60.7	75	58.1
End of 4th month	5	41.7	43	48.3	16	57.1	64	49.6
End of 5th month	5	41.7	37	41.6	11	39.3	53	41.1
End of 6th month	3	25.0	28	31.5	11	39.3	42	32.6

The data revealed that in all three areas more than one-half of the working women were still using pure breastfeeding at the end of three months. This is relatively higher than the results of the study conducted by Simpson-Hebert among mothers in urban

Philippines where only 39 percent of the women who initially used pure breastfeeding at birth were still breastfeeding at the end of the third month.² The mothers in the current study were able to manage using pure breastfeeding by expressing and storing milk either before going to the office or while at the place of work.

At the end of the 6th month, only one-third of the clients were still using breastfeeding, majority (64%) of whom are employed in the informal sector. At this time very few clients (15 or 36%) employed in the formal sector managed to continue using pure breastfeeding. Most of the mothers complained of diminishing milk supply once they had started reporting for work. This may be due to factors like, anxiety and tension caused by work itself, the inconvenience of expressing and storing breast milk and the knowledge that there is always a convenient alternative, bottle feeding.

Although some mothers continued to use breastfeeding after their maternity leave, it may be observed that the largest number of shifts to mixed feeding or bottle feeding (36 or 28%) occurred on the 2nd month leave. (Table 19)

TABLE 19
COURSE OF MILK FEEDING AMONG RESPONDENTS WHO
STARTED WITH PURE BREASTFEEDING

Period in Months	Pure Breast-feeding		Mixed Feeding		Bottle Feeding	
	N	%	N	%	N	%
At birth	129	100				
1st month	119	92.2	4	3.1	6	4.7
2nd month	89	69.0	22	17.1	14	10.9
3rd month	75	58.1	35	27.1	15	11.6
4th month	64	49.6	39	30.2	21	16.3
5th month	53	41.1	48	37.2	23	17.8
6th month	42	32.6	49	38.0	33	25.6

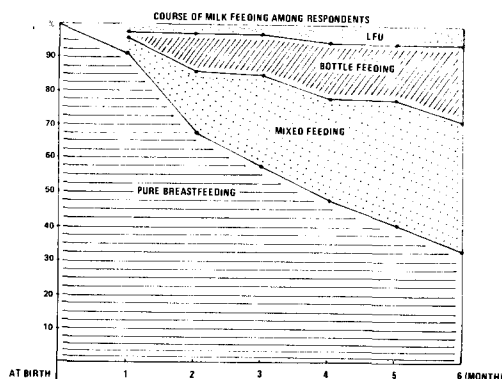
Of the 129 clients who initiated pure breastfeeding at birth, 10 or 8% terminated the use of breastfeeding on the first month due to various reasons, foremost of which is lack of milk. Four of the 10 who terminated pure breastfeeding shifted to mixed feeding while the rest completely stopped breastfeeding.

On the second month (period when maternity leave ends) 30 or 31 percent stopped using pure breastfeeding. A total of 22 shifted to mixed breastfeeding and 14 stopped breastfeeding completely.

On the third to the sixth month the number of those who terminated the use of breastfeeding is more or less constant ranging from 11 to 14. At the end of the sixth month, only one-third of those who initiated pure breastfeeding were still using this method.

²Mayling Simpson—Hebert, "Infant Feeding in the Philippines 1955-1983 and Its Effects on Infant Health: A Literature Review" (Manila: Ateneo de Manila University July 12, 1983), p. 8 (Draft).

Figure 4



C. Duration of Any Breastfeeding Type

Generally, studies on breastfeeding do not distinguish between pure and mixed breastfeeding. They provide information regarding breastfeeding to mean any breastfeeding, i.e., pure and mixed breastfeeding.

Duration of any breastfeeding type expressed in terms of percent continuing to breastfeed is shown in Table 20. (Figure 4)

TABLE 20

PERCENTAGE OF CLIENTS CONTINUING TO USE ANY BREASTFEEDING FOR 6 MONTHS BY SURVEY AREAS

Period in Months	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
At birth	43	100	139	100	62	100	244	100
End of 1st month	40	93.0	130	93.5	59	95.2	229	92.0
End of 2nd month	37	86.6	122	87.8	52	83.9	211	84.7
End of 3rd month	28	65.1	111	79.9	44	71.0	183	73.5
End of 4th month	24	55.8	97	69.8	40	64.5	161	64.7
End of 5th month	21	48.8	83	59.5	28	45.2	132	53.0
End of 6th month	15	34.9	69	49.6	26	41.9	110	44.2

Of the 244 clients who started using any breastfeeding, 15 or 6 percent stopped on the first month, 18 or 7 percent on the second month, 28 or 11 percent on the third month. This trend continued up to the 6th month, so that, at this time only 110 or 44 percent were still breastfeeding their children. This trend is similar to other studies (e.g., Simpson-Hebert, Mayling: 1983) conducted in the Philippines.

D. Application of Breastfeeding Information

Among the concepts emphasized in the breastfeeding IEC Package were: a) expressing and storing milk; b) introduction of supplementary food; and c) remedies to problems encountered while breastfeeding.

In order to determine the extent of application of concepts learned from the Package, the mothers who were exposed to the IEC Package were asked if these pieces of information were applied in their practice of breastfeeding during the 6-month period. This section includes discussions on expressing and storing breast milk; intro-

duction of supplementary food, and remedies to problems encountered while breast-feeding.

1. Expressing/Storing Breast Milk. In order to prolong the use of pure breast-feeding among working mothers, expressing and storing of breast milk was promoted in the project. The idea was for the mothers to give their babies stored breast milk rather than milk formula while at work, which is the common practice.

Of the clients interviewed 6-months after delivery, 155 or 60 percent claimed that they had tried expressing breast milk at one time or the other during the 6-month period after delivery. (Table 48) A few, however, used expressing of breast milk for reasons other than storing of breast milk.

Those who have not tried expressing milk gave the following reasons for not doing so: a) no breast milk or little milk (16%); b) respondent is not willing to try it (10%); c) no need, baby is brought to the mother or mother goes home (3%); d) no facility in office convenient for expressing breast milk (1%). (Table 21)

TABLE 21

REASONS FOR NON-PRACTICE OF EXPRESSING BREAST MILK

Reasons	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. No breast milk; little milk	13	61.9	2	2.7	2	28.6	17	16.5
2. Not willing to try	—	—	10	13.3	—	—	10	9.7
3. No need, baby is brought to mother or mother goes home	2	9.5	1	1.3	—	—	3	2.9
4. No place to express milk	—	—	—	—	1	14.3	1	1.0
5. Mother won't allow it	—	—	1	1.3	—	—	1	1.0
6. Breastfeeding is convenient	2	9.5	4	5.3	1	14.3	7	6.8
7. Hilot and friends said that breast- feeding causes the breast to sag	—	—	2	2.7	—	—	2	1.9
8. Responses not adequately defined	4	19.0	13	17.3	1	14.3	17	16.5
No response			34	45.3	2	28.6	36	35.0
Base N.	21	100.0	75	100.0	7	100.0	103	100.0

A large number of clients (52%) who tried expressing milk did so after their maternity leave (Table 49) and majority of them (50%) expressed milk for less than a month. A few (18%) continued expressing milk for 2 or more months. (Table 50) Though small in number, this may be a manifestation that given the right motivation, mothers can successfully continue breastfeeding even while at work.

A number of clients however, though willing to continue breastfeeding, had no more milk even before they went back to work. The claim of insufficient milk is attributed to a variety of problems. There is empirical evidence that some women do have difficulty in breastfeeding due to genuine maternal ill health or severe malnutrition, improper feeding techniques, faltering growth or illness on the part of the infant, early introduction of other foods, lack of confidence, as well as a personal preference not to breastfeed (cf. Population Reports, 1981). However, the causes of insufficient milk were not resolved in this study.

2. Introduction of Supplementary Food. The need for introducing supplementary food at certain periods while breastfeeding was also considered in the IEC Package.

When asked whether supplementary food was introduced, 18 or seven percent (7%) of the mothers said that they have not yet done so. (Table 51) The age of the child when supplementary food was given varied. Majority of the mothers or 77 percent gave supplementary food when their children were between 3 to 4 months. Some mothers (18%) introduced supplementary food a little later, i.e., when the children were between 5 to 6 months. (Table 22)

TABLE 22
AGE OF CHILD WHEN SUPPLEMENTARY FOOD
WAS INTRODUCED

Age in Months	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
1 – 2	2	5.0	6	4.7	2	2.9	10	4.2
3 – 4	31	77.5	99	76.7	53	75.7	183	76.6
5 – 6	7	17.5	23	17.8	14	20.0	44	18.4
No response	—	—	1	0.8	1	1.4	2	0.8
Total	40	100.0	129	100.0	70	100.0	239	100.0

These showed a general practice consistent with what the package contained; an observation of the recommended period that supplementary food be introduced when the child is about 4 months old.

3. *Problems Encountered While Breastfeeding.* Another point of interest in the study was the possible problems encountered by the respondents while breastfeeding. Of the 253 respondents who breastfed, 89 or 35 percent claimed that they had encountered problems. (Table 23)

TABLE 23
NUMBER OF RESPONDENTS WHO ENCOUNTERED SOME PROBLEMS IN BREASTFEEDING

Responses	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
No 27	62.8	104	73.2	33	48.5	164	64.8	
Yes 16	37.2	38	26.8	35	51.5	89	35.2	
Total.	43	100.0	142	100.0	68	100.0	253	100.0

The following were the major problems associated with breastfeeding which 89 respondents experienced: a) diminishing milk supply; lack of breast milk (37%); b) breast engorgement (20%); c) swollen nipples (16%); and d) inverted nipples (11%). (Table 24)

Among 33 clients who said that diminishing milk was a problem, 10 or 30 percent claimed that they remedied it by taking fluids and soup, three (3) or nine percent (9%) ate more nutritious food, three (3) or nine percent (9%) tried to induce lactation by using a breast pump, while two (2) or six percent (6%) took medicines. Twelve respondents (36.4%) either stopped breastfeeding, used infant formula or took no steps to remedy the problem. (Table 24)

Of the eighteen clients who had the problem of breast engorgement, 6 or 33 percent tried to remedy the problem by letting their infants suck more often while 5 or 28 percent expressed breast milk. (Table 24)

The clients who encountered the problem of swollen nipples tried to solve the problem by using a breast pump (21%), feeding their infants on their less painful breasts (21%) and by using a lukewarm compress on their nipples (21%). (Table 24)

Fifty percent of clients who had inverted nipples exerted efforts to solve their problem by using a breast pump and 30 percent of them tried to stretch their nipples. (Table 24)

TABLE 24

**PROBLEMS ENCOUNTERED WHILE BREASTFEEDING AND
APPLIED REMEDIES**

Problems and Remedies	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. Diminishing Milk								
a) took medicine	1	25.0	—	—	1	6.7	2	6.1
b) used breast pump			1	7.1	2	13.3	3	9.1
c) took more fluids/ soup	1	25.0	3	21.4	6	10.0	10	30.3
d) stopped breast- feeding (gradually)	1	25.0	3	21.4	2	13.3	6	18.2
e) ate more nutri- tious food	1	25.0	1	7.1	1	6.7	3	9.1
f) used infant formula	—	—	1	7.1	—	—	1	3.0
g) having a balance diet	—	—	—	—	2	13.3	2	6.1
h) having adequate rest or sleep	—	—	—	—	2	13.3	2	6.1
i) no remedy taken	—	—	5	35.7	—	—	5	15.2
Base N.	4		14		15		33	
2. Breast engorgement								
a) stopped breastfeeding					1	20.0	1	5.6
b) took vitamins					1	20.0	1	5.6
c) used infant formula					1	20.0	1	5.6
d) used hot towel compress	2	25			1	20.0	3	16.7
e) let the infant suck more often	3	37.5	2	40.0	1	20.0	6	33.3
f) expressed milk	3	37.5	2	40.0			5	27.8
g) no remedy			2	40.0			1	5.6
Base N.	8		5		5		18	

Table 24 (Continued)

Problems and Remedies	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
3. Swollen Nipples (with fever); sore/cracked nipples								
a) used breast pump	—	—	1	16.7	2	50.0	3	21.4
b) fed on less painful breast	—	—	2	33.3	1	25.0	3	21.4
c) used lukewarm, wet cloth as a compress on the nipples	2	50.0	—	—	1	25.0	3	21.4
d) breastfed the child only when hungry	1	25.0					1	7.1
e) no remedy taken			1	16.7	—	—	1	7.1
f) breastfed often for shorter periods	1	25.0	1	16.7	—	—	2	14.3
g) not clearly defined	—	—	1	16.7	—	—	1	7.1
Base N.	4		6		4		14	
4. Inverted Nipples; small nipples; flat nipples								
a) used breast pump; expressed milk	2	100.0	1	33.3	2	40.0	5	50.0
b) pulled & stretched nipples	—	—	1	33.3	2	40.0	3	30.0
c) held the areola with two fingers so the baby can suck properly	—	—	1	33.3	1	20.0	1	10.0
d) no remedy	—	—	1	33.3	1	20.0	1	10.0
Base N.	2		3		5		10	

The findings showed that majority of the mothers (77%) who encountered problems associated with breastfeeding were motivated to continue breastfeeding by taking possible steps to remedy the problem. Most of the remedies taken by the mothers were those presented in the IEC Package showing therefore, the usefulness of providing information on breastfeeding among urban mothers for the successful establishment of lactation.

E. The Impact of Selected Socio-demographic Variables on the Duration of Breast-feeding: A Regression Model

The aim of the IEC Package is to increase the duration of breastfeeding practice, particularly pure breastfeeding among working mothers.

However, duration of breastfeeding practice as shown in previous studies (cf. Population Reports, 1981; Hardy, Ellen, et al, 1982) has been markedly affected by such factors as education, worktype, income, age, breastfeeding experience, parity and work distance. Though some of these personal characteristics have been considered in the design of this IEC project, disparity in the practice of breastfeeding may still be accounted for by these factors aside from the effects of the introduction of the IEC Package. Identifying these factors can aid in the improvement of the package and pinpoint the probable target audience for future promotional programs.

An intercorrelation matrix was prepared involving all possible variables descriptive of the clients. Four variables were found to be significantly correlated with the criterion measures of duration of pure breastfeeding and any breastfeeding. The four variables were education, worktype, breastfeeding experience, and income.

To evaluate the contributions of the four variables found correlated with the criterion measures stepwise regression was employed. This was also done to establish the predictive powers of these variables.

The order of listing the predictors was based on the principle of causal ordering³ (Norman H. Nie; et. al.; SPSS) among variables assuming income is dependent on worktype, worktype and income are dependent on education, and breast feeding experience is dependent on worktype.

Using this criterion, the predictors for duration of breastfeeding were listed as follows:

X_1 – education; X_2 – worktype; X_3 – breastfeeding experience; and X_4 – income.

The obtained statistical measures on the effects of these four predictors on the duration of pure breastfeeding are shown in Table 25. R is the multiple correlation coefficient which indicates the combined effect of the independent variables on the dependent variable. Hence, the combined effect of education, worktype, breastfeeding experience, and income on pure breastfeeding is 32 percent. R^2 indicated the degree of variation in the dependent variables which can be explained by the independent variables operating jointly. Hence 10 percent of the variation in the duration of pure breastfeeding is explained by education and worktype operating jointly. Take note that worktype and income made no contribution to the change in the duration of pure breastfeeding as shown in the change in R^2 column.

The F-ratio indicates the significance of the changes in R^2 . As gleaned from Table 25, both education and breastfeeding experience were significant at the .01 level. This implied that among working mothers with less than two children, education and breastfeeding experience affect the practice of breastfeeding. Education was inversely related to duration of breastfeeding, i.e., the higher the education, the shorter the duration of pure breastfeeding practice. Breastfeeding experience was directly associated with duration of breastfeeding, that is, women with previous breastfeeding experience tend to practice pure breastfeeding for a longer time.

³Norman Nie, et al. *Statistical Package for the Social Science*, 2nd ed. (Dasma-riñas, Manila: The Marist Book Corporation, 1970), p. 344.

These are also revealed by the regression coefficients in the regression equation.

TABLE 25

CORRELATION AND REGRESSION OF SELECTED SOCIO-DEMOGRAPHIC
VARIABLES ON DURATION OF PURE BREASTFEEDING

Independent Variables	r	R	R ²	Change in R ²	SEE	F-ratio
Education (X ₁)	-.278	0.278	0.077	0.077	0.57	10.59*
Worktype (X ₂)	- 0.100	0.278	0.077	0.000	0.42	0
Breastfeeding Experience (X ₃)	0.168	0.318	0.101	0.024	0.44	3.36*
Income (X ₄)	-.166	0.318	0.101	0.000	1.05	
Y = 7.3520	-0.0186 X ₁	-0.0004X ₂	+0.00083X ₃		-0.0011X ₄	

*Significant beyond .01 level

Table 26 illustrates the effect of the four socio-demographic variables on any breastfeeding practice. The combined effect of education, worktype, breastfeeding experience and income on the duration of breastfeeding practice is 43 percent as shown by R.

TABLE 26

CORRELATION AND REGRESSION OF SELECTED SOCIO-DEMOGRAPHIC
VARIABLES ON DURATION OF ANY BREASTFEEDING

Independent Variables	r	R	R ²	Change in R ²	SEE	F-ratio
Education (X ₁)	-.208	.208	.043	.043	0.58	13.41*
Worktype (X ₂)	-.204	.414	.099	.056	0.42	17.47*
Breastfeeding Experience (X ₃)	0.294	.413	.171	.072	0.42	22.47*
Income (X ₄)	-.256	.432	.186	.091	1.00	28.39*
Y = 16.9735	-.0029X ₁	-.0123X ₂		+0.0442X ₃		-.0199X ₄

*Significant beyond .01 level

Table 26 shows that R^2 is 18.6 percent indicating that 19 percent of the variation in the duration of breastfeeding practice was explained by education, worktype, breastfeeding experience and income.

Changes in R^2 were shown to be significant at the .01 level by the F-ratios. This indicated that education, worktype, breastfeeding experience and income affect significantly the practice of breastfeeding. Education, worktype and income are inversely related to breastfeeding practice and breastfeeding experience is directly related to breastfeeding practice.

CHAPTER VIII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The Pilot Project aimed to increase the practice of pure breastfeeding among urban working mothers through the use of an IEC Package. To attain its objective, it developed IEC materials, employed the interpersonal communication strategy, trained government health workers and evaluated the effectiveness of the IEC Package. Specifically, it sought to answer the following questions:

1. Has the designed IEC Package affected the knowledge of breastfeeding, attitude and practice towards breastfeeding among urban working mothers?
2. What socio-demographic factors affect the practice of breastfeeding among urban working mothers?
3. Does the designed IEC Package help working mothers overcome physiological, cultural and psychosocial problems in breastfeeding?

The project hypothesized that :

1. The IEC Package positively affects the knowledge, attitude and practice of pure breastfeeding among urban working mothers.
2. Education, worktype, breastfeeding experience, and income affect breastfeeding practice among urban working mothers.
3. The IEC Package helps urban working mothers overcome physiological, psychosocial and cultural problems associated with breastfeeding.

The study involved 277 working mothers who were selected through identified cluster points. The criteria used in the selection of clients were: (a) residents of the city, (b) engaged in gainful occupation outside the home, (c) have no more than two children, and (d) on her fourth to last month of pregnancy. However, some deviations were made in the actual recruitment of clients due to slow recruitment turn-outs in the identified cluster points.

Eighteen health workers were trained to conduct small group discussions and visitations of clients.

Summary of Findings

The major research findings, briefly stated, are as follows:

A. Project Implementation

1. Midwives who conducted home visits have not been very successful due to the busy schedules and volume of work assigned to them.
2. The IEC materials were considered by all of the health workers and majority of the clients to be very simple and highly informative.

3. The clients considered the group discussions helpful in getting them to understand the different breastfeeding concepts.

B. Knowledge and Attitude towards Breastfeeding

1. A significant change in breastfeeding knowledge among the clients in all three areas was observed.
2. Increase in knowledge was significantly related with education, type of work, and breastfeeding experience among the clients in the three survey areas.
3. A significant change was also observed in the attitude towards breastfeeding among clients in all three survey areas.
4. The item study of changes in attitudes revealed significant changes in the following attitudinal items: a) breastfeeding is no longer fashionable; b) breastfeeding causes the breast to sag; c) baring the breast in public while breastfeeding is embarrassing.

C. Practice of Breastfeeding

1. Almost all of the clients (96%) practiced breastfeeding at birth.
2. Of this, 54 percent practiced pure breastfeeding.
3. The major reasons given for breastfeeding were breastfeeding is good for the baby and it is economical.
4. More than half (58%) of those who initiated the use of pure breastfeeding continued to do so until the end of the third month.
5. A number of them (43%) had tried expressing and storing breast milk but half of them did so for less than one month.
6. A few (17%) continued expressing breast milk for 2 or more months.
7. More than three-fourths of the clients gave supplementary food when these babies were between 3–4 months.
8. Major problems associated with breastfeeding were: diminishing milk supply or lack of breast milk, breast engorgement, sore nipples and flat or inverted nipples.
9. About 77 percent of the mothers who encountered problems associated with breastfeeding were motivated to continue to breastfeed by taking possible steps to remedy the problems.
10. The F-values 10.59 for education and 3.36 for breastfeeding experience showed that these two variables were significantly related to duration of pure breastfeeding. Education is inversely correlated while breastfeeding experience is directly correlated with pure breastfeeding practice.
11. Education, worktype, breastfeeding experience and income are significantly correlated with the practice of any breastfeeding type.
12. Education, worktype and income are inversely correlated while breastfeeding experience is directly correlated with the practice of any breastfeeding type.

Conclusions

It was shown that there was a significant increase in knowledge of breastfeeding after exposure to the IEC Package; attitudes toward breastfeeding changed significantly as a result of the exposure to the IEC Package; and incidence of breastfeeding was relatively high with 96 percent of the clients of the project practicing breastfeeding at birth. In a literature review on infant feeding conducted by Simpson–Hebert, it

was shown that among the urban economically advantaged women only 67 percent practiced breastfeeding.⁴ Thus, hypothesis 1 which states that the IEC Package positively affects breastfeeding knowledge, attitude and practice among urban working mothers is accepted.

The second hypothesis which states that education, worktype, breastfeeding experience and income affect breastfeeding practice among urban working mothers is sustained. Education is negatively correlated with the practice of pure and any breastfeeding type; breastfeeding experience positively affects pure and any breastfeeding practice. Worktype and income are inversely related to any breastfeeding practice.

The third hypothesis which states that the IEC Package helps urban working mothers overcome physiological, cultural, and psychosocial problems associated with breastfeeding is upheld.

Those who encountered physiological problems such as breast engorgement, sore nipples and inverted nipples exerted efforts to overcome such problems by applying remedies suggested in the brochure or explained during the small group discussion.

Cultural barriers as indicated by the following attitudes: breastfeeding is no longer fashionable, baring the breast in public while breastfeeding is embarrassing and breastfeeding causes the breast to sag, changed significantly after exposure to the IEC Package.

The psychosocial problem of insufficient breast milk was cited as a major reason for not breastfeeding or for terminating breastfeeding. Yet, the clients tried to remedy this problem.

Recommendations

In the light of the foregoing findings, the following recommendations are drawn:

A. Policy-Related Issues

1. The trainor's training conducted for health workers was considered by all participants to be necessary and useful. To strengthen the support on breastfeeding promotion, there is a need to provide a training or educational program on breastfeeding for health service providers (involved in maternal and infant health programs) under the sponsorship of the Ministry of Health or other agencies participating in health-related programs. *
2. Breastfeeding promotion should further be strengthened by the following means:
 - (a) Educational institutions offering medical, nursing and midwifery courses should include and give equal importance to breastfeeding in their respective curricula.
 - (b) The WHO-UNICEF statement and recommendations on infant and young children feeding (1979) should be included in the formulation of national health policies and implemented. *

⁴ Mayling Simpson-Hebert, "Infant Feeding in the Philippines 1955-1983 and Its Effects on Infant Health: A Literature Review" (Manila: Ateneo de Manila University, July 12, 1983), p. 65 (Draft).

* WHO-UNICEF statement and recommendations on infant and young child feeding (1979) is presented in Appendix C.

- (c) To ensure the dissemination of scientific information on breastfeeding among expectant mothers, breastfeeding should be included as an integral topic in pre-marriage counseling programs. The information should contain the benefits derived from breastfeeding, the techniques of breastfeeding, problems associated with breastfeeding and the effect of oral contraceptives on breastfeeding.

B. Information—Education—Communication (IEC): Strategies and Material Production

The IEC Package developed in the project positively affected the knowledge, attitudes and incidence of breastfeeding among urban working mothers. However, the utilization and adoption of the IEC Package for an educational campaign on breastfeeding need to include the following considerations:

1. The use of the leaflet and brochure (translated into major dialects) together with small group discussion sessions is advisable for women with lower educational attainment.
2. The use of the leaflet and brochure is recommended for urban working mothers with higher educational attainment (college education).
3. The utilization of small group discussion sessions on breastfeeding is possible in barangay health centers where rapport has been established with the clients and scheduling of the sessions could be made with ease, i.e., integrated in the health programs for mothers. This will allow great interaction among participants and a comprehensive discussion on breastfeeding.
4. Preferably, mothers with breastfeeding experience should be invited to the small group discussion session.
5. The decision-making process on breastfeeding showed the independent course of the decision among majority of the clients followed next by the involvement of friends and relatives in the communication network. Thus, information-education-communication strategies should be directed to mothers and consider the dissemination of information in the area of interpersonal networks.
6. Benefits derived from breastfeeding ranked first as a reason for breastfeeding practice, thus, this message should be included and emphasized in the development of IEC materials.
7. A common instructional material (similar to a Guidebook) should be developed for health service providers. It should include illustrations on the physiology and psychology of lactation.
8. The conduct of home visits by health workers is an ideal IEC strategy to lend psychological support to mothers and as a follow-up measure on the practice of breastfeeding. This could be utilized in barangay health centers where rapport has been established (e.g., mothers are actively involved in barangay health programs) so that the mothers in turn visit the centers regularly.

C. Training Programs

The training program designed for health workers resulted to a significant change in their knowledge of breastfeeding. This showed the usefulness of providing an educational program for health service providers in the successful promotion of

breastfeeding. In designing a training program for health workers, the following suggestions are offered:

1. Topics should include: anatomy and physiology of lactation, breast milk composition and its advantages, preparing for breastfeeding, expressing and storing breast milk, introduction of supplementary food, common problems associated with breastfeeding and contraindications to breastfeeding.
2. The use of audio-visual materials on expressing and storing breast milk as effective teaching aids for health service providers. Expressing and storing breast milk stirred considerable interest among the clients in the group discussion sessions. Almost half of the clients tried expressing and storing breast milk. This showed that mothers could be properly motivated to continue breastfeeding even when they go back to work in formal or informal sectors.

Aside from giving emphasis to expressing and storing breast milk in IEC messages, health service providers should know how to impart this technique.

3. To effectively manage a group discussion session, it is recommended that nurses or midwives of barangay health centers be trained on interpersonal communication.

D. Areas for Research

The most common problem encountered by the clients in the study was “no milk, lack of milk or diminishing milk supply.” This has been referred to in other studies as the “no milk syndrome;” however, a wide range of factors have been cited as possible causes for the problem. Thus, an integrated approach is recommended to study the problem to include physiological and psychosocial factors in order that other factors could be determined aside from the bio-medical aspects. With such an approach, it is hoped that possible solutions could be identified in order to help working mothers establish successful lactation.

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Appendix~A

TABLE 27

REACTIONS TO THE GROUP DISCUSSION

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Helped to understand breastfeeding concepts (e.g., colostrum)	38	77.6	132	89.2	79	98.8	249	89.8
Helped to understand the information on breastfeeding	38	77.6	132	89.2	80	100.0	150	90.2
Base N.	49		148		80		277	

TABLE 28

SUGGESTIONS FOR THE IMPROVEMENT OF THE GROUP DISCUSSIONS

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Improve the manner of conducting group discussions (e.g., being prompt; adequate number of participants, inviting experienced breastfeeding mothers)	12	85.7	10	55.6	8	32.0	30	52.6
Must have experienced nurse/midwife as motivators	1	7.1	—	—	—	—	1	1.8
Use of support materials/strategies (through t.v., lectures to mothers-to-be, film and audio-visuals, home visits)	—	—	8	44.6	6	24.0	13	22.8
Widespread campaign of breastfeeding	14	100.0	18	100.0	25	100.0	57	100.0
Base N.	14		18		25		57	

TABLE 29
REACTIONS TO THE LEAFLET

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Encouraged to breastfeed	44	89.8	123	83.1	78	97.5	245	88.5
Liked the color of the leaflet	48	98.0	133	89.9	76	95.0	157	92.8
Liked the illustrations in the leaflet	46	93.9	140	94.6	77	96.2	263	95.0
Base N	49		148		80		277	

TABLE 30
WAYS THE LEAFLET ENCOURAGED CLIENTS TO BREASTFEED

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Provided information on the benefits of breast-feeding	23	52.3	48	39.0	46	59.0	117	47.8
Provided information on proper breastfeeding	25	56.8	17	13.8	26	33.3	68	27.8
Provided a guide for inexperienced mothers	1	2.3	2	1.6	3	3.8	4	1.6
Illustrations provided motivation to breastfeed	1	2.3	4	3.3	4	5.1	9	3.7
Provided information to husbands as well	—	—	3	2.4	—	—	3	1.2
Base N	44		123		78		245	

TABLE 31
NUMBER OF CLIENTS WHO APPROVED THE BROCHURE

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Yes	48	98.0	144	97.3	79	98.8	271	97.8
No	—	—	1	0.7	—	—	1	0.4
No answer	—	—	—	—	1	1.2	1	0.4
INAP	1	2.0	3	2.0	—	—	4	1.4
Total	49		148		80		277	

INAP — not applicable; did not receive any brochure

TABLE 32
REASONS FOR BROCHURE APPROVAL

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Complete information on breastfeeding	27	56.3	61	42.4	27	34.2	115	42.4
Easy to read and understand, simply stated	15	31.3	34	23.6	23	29.1	72	26.6
Presentation of information is orderly and sequential, simple, neat	2	4.2	23	22.2	23	29.1	48	17.7
Illustrations are clear, motivating, elaborated, emphasized	3	6.3	18	12.5	6	7.6	27	10.0
Explanations are supported by pictures/illustrations	—	—	6	4.2	—	—	6	2.2
Brochure is handy	2	4.2	1	0.7	—	—	3	1.1
Translated into Cebuano	—	—	1	0.7	—	—	1	0.4
Base N	48		144		79		271	

TABLE 33

**NUMBER OF CLIENTS VISITED BY HEALTH WORKERS
WITHIN THE 6-MONTH PERIOD AFTER
CLIENT'S DELIVERY**

Responses	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
No.	30	63.8	105	73.9	46	65.7	181	69.9
Yes	17	36.2	37	26.1	24	34.3	78	30.1
Total	47	100.0	142	100.0	70	100.0	259	100.0

TABLE 34

**FREQUENCY OF HOME VISITS CONDUCTED
BY HEALTH WORKERS**

Frequency of visits	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
1 – 2 times	12	70.6	25	67.6	—	—	37	47.4
3 – 4 times	5	29.4	10	27.0	13	54.2	28	35.9
5 – 6 times	—	—	—	—	7	29.2	7	9.0
more than 6 times	—	—	—	—	1	4.2	1	1.3
can't remember (how many times)	—	—	2	5.4	3	12.5	5	6.4
Total	17	100.0	37	100.0	24	100.0	78	100.0

TABLE 35

KNOWLEDGE GAINED CONTROLLING FOR EDUCATION

Study Areas/Statistical Measures	Educational Attainment		
	Low	Moderate	High
a) Cotabato City			
Mean (\bar{x})	0	1.25	3.85
S.D.	0	3.45	3.01
N	0	8	27
t-ratio		1.02	6.65
Significance Level		n.s.	.01
b) Davao City			
Mean (\bar{x})	3.00	3.07	1.82
S.D.	4.58	3.73	2.95
N	7	108	33
t-ratio	1.73	8.53	3.54
Significance Level	n.s.	.01	.01
c) Zamboanga City			
Mean (\bar{x})	12.75	5.35	4.31
S.D.	4.03	4.54	5.12
N	4	23	42
t-ratio	6.32	5.65	5.45
Significance Level	.01	.01	.01
d) Total			
Mean (\bar{x})	6.54	3.34	3.38
S.D.	6.45	3.96	4.12
N	11	139	102
t-ratio	3.36	9.94	8.30
Significance Level	.01	.01	.01

TABLE 36

KNOWLEDGE GAINED CONTROLLING FOR TYPE OF WORK

Study Areas/Statistical Measures	Type of Work	
	Formal	Informal
a) Cotabato City		
Mean (\bar{x})	3.27	—
S.D.	3.31	—
N	34	1
t-ratio	5.76	—
Significance Level	.01	—
b) Davao City		
Mean (\bar{x})	2.73	2.87
S.D.	3.37	4.07
N	94	54
t-ratio	7.86	5.19
Significance Level	.01	.01
c) Zamboanga City		
Mean (\bar{x})	4.52	7.36
S.D.	5.11	4.88
N	65	11
t-ratio	7.14	5.00
Significance Level	.01	.01
d) Total		
Mean (\bar{x})	3.43	3.62
S.D.	4.09	4.47
N	193	66
t-ratio	11.65	6.58
Significance Level	.01	.01

TABLE 37

KNOWLEDGE GAINED CONTROLLING FOR BREASTFEEDING EXPERIENCE

Study Areas/Statistical Measures	Without Breast-feeding experience	With Breast-feeding experience
a) Cotabato City		
Mean (\bar{x})	3.72	2.10
S.D.	2.95	3.84
N	25	10
t-ratio	6.30	1.73
Significance Level	.01	.05
b) Davao City		
Mean (\bar{x})	3.14	2.18
S.D.	3.57	3.67
N	93	55
t-ratio	8.47	1.41
Significance Level	.01	.01
c) Zamboanga City		
Mean (\bar{x})	5.02	4.87
S.D.	4.37	6.27
N	45	30
t-ratio	7.72	4.25
Significance Level	.01	.01
d) Total		
Mean (\bar{x})	3.75	3.02
S.D.	3.79	4.78
N	163	95
t-ratio	12.79	6.16
Significance Level	.01	.01

TABLE 38

KNOWLEDGE OF PREPARATIONS FOR BREASTFEEDING BEFORE DELIVERY

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. Rest, sleep and exercise	17	36.2	119	83.8	66	94.3	202	78.0
2. Relaxation from tension	3	6.4	72	50.7	66	94.3	141	54.4
3. Cultivation of a strong desire to breastfeed	8	17.0	38	26.8	65	92.9	111	42.9
4. Have a well-balanced diet	30	63.8	102	71.8	69	98.6	201	77.6
5. Care of the nipples	31	66.0	83	58.5	67	95.7	181	69.9
6. Care of the breasts	7	14.9	68	47.9	63	90.0	138	53.3
7. Eat more nutritious food, soup & fruits	11	23.4	5	3.5	—	—	16	22.9
8. Others	5	10.6	4	2.8	2	2.8	11	4.2

TABLE 39

KNOWLEDGE OF PREPARATIONS FOR BREASTFEEDING AFTER DELIVERY

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. Teach the baby how to suck	12	25.5	74	52.1	69	98.6	155	59.8
2. Care of the nipples	38	80.9	93	65.5	67	95.7	198	76.5
3. Care of the breasts	11	23.4	87	61.3	66	94.3	164	63.3
4. Have a well-balanced diet	25	53.2	101	71.1	68	97.1	194	74.9
5. Eat more nutritious food, soup, and fruits	4	8.5	1	0.7	—	—	5	1.9
6. Drink plenty of liquids, milk	3	6.4	—	—	1	1.4	4	1.5
7. Relax, have enough rest, sleep	1	2.1	2	1.4	5	7.1	8	3.1
8. Others	3	6.4	3	2.1	6	8.6	12	4.6
Base N.	47		142		70		259	

TABLE 40

KNOWLEDGE OF SUPPLEMENTARY FOOD THAT ARE GIVEN TO THE BABY

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. Porridge	18	59.6	134	94.4	68	97.1	220	84.9
2. Eggs	23	48.9	98	69.0	68	97.1	189	73.6
3. Potatoes	14	29.8	98	69.0	68	97.1	180	69.5
4. Others:								
a. soup (beef, chicken, vegetable)	10	21.3	23	16.2	7	10.0	40	15.4
b. cerelac, gerber	15	31.9	33	23.2	4	5.7	52	20.1
c. fruits (banana, star apple, ripe mangoes)	12	25.5	14	9.8	7	10.0	33	12.7
d. vegetables (red squash, beans)	12	25.5	26	18.0	4	5.7	42	16.2
e. fruit juice	3	6.4	1	0.7	6	8.6	10	3.9
f. meat, fish	7	14.9	1	0.7	1	1.4	9	3.5
g. cereals, biscuit	4	8.5	5	3.5	5	7.1	14	5.4
Base N.	47		142		70		259	

TABLE 41

KNOWLEDGE OF AGE WHEN SUPPLEMENTARY FOOD ARE USUALLY GIVEN

Age in Months	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
1 - 2	1	2.1	—	—	2	2.9	3	1.2
3 - 4	40	85.1	106	74.7	49	70.0	195	75.3
5 - 6	6	12.8	16	11.2	13	18.6	35	13.5
No response	—	—	20	14.1	6	8.5	26	10.0
Total.	47		142		70		259	

TABLE 42

KNOWLEDGE OF COMMON PROBLEMS ASSOCIATED WITH BREASTFEEDING

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. Flat or inverted nipple	6	13.6	87	61.3	65	92.9	158	61.7
2. Cracked or sore nipple	9	20.5	71	50.0	63	90.0	143	55.9
3. Breast engorgement	30	68.2	95	66.9	64	91.4	189	73.8
4. Diminishing milk	7	15.9	86	60.6	66	94.3	159	62.1
5. Too fast milk	11	25.0	48	33.8	62	88.6	121	47.3
6. Breast sagging	1	2.3	85	59.9	62	88.6	148	57.8
7. Lack of breast milk	1	2.3	2	1.4	1	1.4	4	1.6
8. Uncomfortable feeling at night	4	9.1	—	—	—	—	4	1.6
9. Baby bites the nipples	—	—	2	1.4	—	—	2	0.7
10. Fear that the child will be affected if the mother caught flu/fever	1	2.3	1	0.7	—	—	2	0.7
Base N	44		142		70		256	

TABLE 43

REMEDIES TO PROBLEMS ASSOCIATED WITH BREASTFEEDING

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Remedies for flat and inverted nipple								
Pull and stretch nipples in all directions daily in the last 3 months of pregnancy	2	4.2	50	35.2	65	92.9	117	45.2
Use a breast pump	2	4.2	18	12.7	64	91.4	84	32.4
Stretch the nipples through thumb position	2	4.2	31	21.8	63	90.0	96	37.1
Hold the areola when feeding	2	4.2	31	21.8	63	90.0	96	37.1
Others	1	2.1	—	—	3	43.0	4	1.5
Remedies for breast engorgement								
Let the baby suck more often	9	19.1	24	16.9	61	87.1	94	36.3
Don't let the baby miss a feeding	4	8.5	29	20.4	61	87.1	94	36.3
Have the baby suck the fuller breast first	1	2.1	44	31.0	61	87.1	106	41.1
Express a little milk to make sucking easier	2	4.2	10	7.0	61	87.1	73	28.2
Take a hot bath	2	4.2	7	4.9	59	84.3	68	26.3

TABLE 43 (Continued)

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Use a warm, wet cloth on the breast	4	8.5	10	7.0	61	87.1	75	28.9
Express excess breast milk either by hand or with a breast pump	13	17.6	50	35.2	62	88.6	125	48.3
Others	2	4.2	1	0.7	1	1.4	4	
Too fast milk								
Express some milk before the infant feeds	7	14.9	46	32.4	60	85.7	133	43.6
Mothers should lessen fluid intake	1	2.1	1	0.7	1	1.4	3	1.2
Express milk	2	4.2	—	—	—	—	2	0.8
Others	3	6.4	—	—	—	—	3	0.1
Remedies for cracked or sore nipples								
Breastfeed often but for shorter periods	5	10.6	16	11.3	63	90.0	84	32.4
Start feeding on less painful breast	3	6.4	54	38.0	62	88.6	119	45.9
Breastfeed the baby when he is not yet very hungry	—	—	12	8.4	62	88.6	74	28.6
Alternate breast-feeding positions	1	2.1	28	19.7	63	90.0	92	35.5
Make sure that the baby has the nipple and areola in his mouth	1	2.1	13	9.2	63	90.0	77	29.7

TABLE 43 (Continued)

Responses	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Wash baby's saliva off the nipples	—	—	7	4.9	62	88.6	69	26.6
Let the nipple dry thoroughly before covering	1	2.1	7	4.9	62	88.6	70	27.0
Wash nipples with warm water	—	—	—	—	1	1.4	1	0.4
Express milk	1	2.1	—	—	1	1.4	2	0.8
Remedies for diminishing milk supply								
Rest	1	2.1	15	10.6	63	90.0	79	30.5
Eat more nutritious food	3	6.4	54	38.0	66	94.3	123	47.5
Drink more fluids	6	12.8	71	50.0	65	92.8	142	54.8
Lessen tiring outside activities	—	—	12	8.4	65	92.8	77	29.7
Nurse baby more often	1	2.1	10	7.0	64	91.4	75	28.9
Have self-confidence	—	—	15	10.6	64	91.4	79	30.5
Others	2	4.3	1	0.7	4	5.7	7	2.7
Remedies for breast sagging								
Maintain good posture	1	2.1	36	25.3	59	84.5	96	37.1
Use appropriate bra	1	2.1	78	54.9	62	88.6	141	54.4
Watch weight	—	—	22	15.5	53	75.7	75	28.9
Others	—	—	—	—	3	4.3	3	1.2
Base N.	47		142		70		259	

TABLE 44

**INFORMATION ON BREASTFEEDING RECEIVED FROM HEALTH WORKERS
DURING THE 6-MONTH PERIOD AFTER DELIVERY**

	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
1. Breastfeeding while at work	1	5.88	2	5.40	4	16.66	7	8.97
2. Common problems associated with breastfeeding and their remedies	—	—	—	—	16	66.66	16	20.51
3. Benefits of breast-feeding	5	29.41	11	29.72	19	79.16	35	44.87
4. Preparations for breastfeeding	—	—	4	10.81	9	37.50	13	16.66
5. Follow-up practice	9	52.94	23	62.16	20	83.33	52	66.66
6. Introduction of supplementary food	—	—	1	2.70	2	8.33	3	3.85
Base N	17		37		24		78	

TABLE 45

**OTHER SOURCES OF INFORMATION DURING THE
6-MONTH PERIOD AFTER DELIVERY**

	Cotabato		Davao		Zamboanga		Total	
	F	%	F	%	F	%	F	%
Friends	7	50.0	48	77.4	9	69.2	64	71.9
Relatives	9	64.3	41	66.1	12	92.3	62	69.6
Newspapers/magazines	3	21.4	8	12.9	8	61.5	19	21.3
Radio/TV	5	35.7	12	19.4	11	84.6	28	31.5
Co-workers/neighbors	1	7.1	4	6.5	—	—	5	5.6
Books/Pamphlets/ Booklets	—	—	2	3.2	2	15.4	4	4.5
Others	1	7.1	4	6.5	—	—	5	5.6
Base N	14		62		13		89	

TABLE 46

REASONS FOR NON-BREASTFEEDING PRACTICE

Reasons	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
1. No milk	1	25.0	—	—	3	75.0	4	50.0
2. Respondent delivered through caesarian operation	1	25.0	—	—	—	—	1	12.5
3. Respondent had allergy	—	—	—	—	1	25.0	1	12.5
4. Response not adequately defined	1	25.0	—	—	—	—	1	12.5
No response	1	25.0	—	—	—	—	1	12.5
Total	4	100.0	0	0	4	100.0	8	100.0

TABLE 47

NUMBER OF CLIENTS WHO INTRODUCED INFANT MILK FORMULA BEFORE BREASTFEEDING

Response	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Yes	19	45.2	49	33.8	26	35.6	94	36.2
No	23	54.8	96	66.2	47	64.4	166	63.8
Total	42	100.0	145	100.0	73	100.0	260	100.0

TABLE 48

NUMBER OF RESPONDENTS WHO TRIED EXPRESSING BREAST MILK

Response	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Yes	25	54.3	67	47.2	63	90.0	155	60.1
No	21	45.7	75	52.8	7	10.0	103	39.9
Total	46	100.0	142	100.0	70	100.0	258	100.0

TABLE 49

PERIOD WHEN CLIENTS FIRST EXPRESSED BREAST MILK

Period	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
During maternity leave	7	29.2	36	53.7	23	36.5	66	42.6
After maternity leave	15	62.5	26	38.8	39	61.9	80	51.6
Others	3	8.3	5	7.5	1	1.6	9	5.8
a. after birth	(1)*	—	—	—	(1)	—	—	—
b. before I breast-feed	(1)		(2)		—			
c. while working	(1)		(2)		—			
d. when sick	—		(1)		—			
Total	25	100.0	67	100.0	63	100.0	155	100.0

*Figures in parentheses represent number of responses for category "others."

TABLE 50

DURATION OF CLIENTS' PRACTICE OF EXPRESSING BREAST MILK

Duration in Months	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Less than 1 month	9	36.0	42	62.7	27	42.8	78	50.3
1 — less than 2 months	2	8.0	8	11.9	9	14.3	19	12.2
2 — less than 3 months	3	12.0	5	7.4	10	15.9	18	11.6
3 — 4 months	2	8.0	6	9.0	2	3.2	10	6.5
5 months or more	4	16.0	3	4.5	10	15.9	17	11.0
No answer	5	20.0	3	4.5	5	7.9	13	8.4
Total	25	100.0	67	100.0	63	100.0	155	100.0

TABLE 51
NUMBER OF CLIENTS WHO INTRODUCED SUPPLEMENTARY FOOD

Responses	Cotabato		Davao		Zamboanga		Total	
	N	%	N	%	N	%	N	%
Yes	40	88.9	129	90.8	70	100	239	93.0
No	5	11.1	13	9.2	—	—	18	7.0
Total	45	100.0	142	100.0	70	100.0	257	100.0

TABLE 52
**INTERCORRELATION MATRIX OF SELECTED SOCIODEMOGRAPHIC
VARIABLES AND TYPE OF BREASTFEEDING**

Variable	Educ.	Work list	Work- type	Age	Bf Exp.	No. of Children	Income	Pure Breast- feeding	Any breast- feeding
Education	1.00								
Work distance	0.149	1.00							
Worktype	0.354	0.049	1.00						
Age	0.179	-0.104	0.067	1.00					
Bf experience	-0.056	-0.217	-0.079	-0.048	1.00				
No. of Child	-0.254	-0.007	-0.028	0.148	-0.022	1.00			
Income	0.499	0.162	0.218	0.152	-0.162	-0.161	1.00		
Pure Breastfeeding	-0.278	-0.116	0.100	0.072	0.168	-0.189	-0.166	1.00	
Any breastfeeding	-0.208	-0.176	-0.294	0.112	0.294	0.028	-0.256		1.00

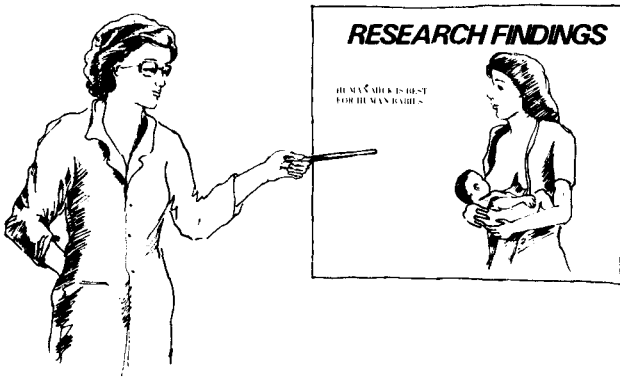
Appendix~B

BREASTFEEDING



**ESPECIALLY PREPARED FOR YOU
AND YOUR BABY**

WHY BREASTFEEDING?



Today, more and more mothers are turning to breastfeeding. They now realize that it is the most natural, and without question the best method of feeding their babies. Research after all, has shown that human milk is exactly what a human infant needs.

How about you? Have you considered breast-feeding?

Breastfeeding is the best possible way of meeting your baby's nutritional needs in the first months of life. Breast milk is the ideal food for your baby. Here's why:

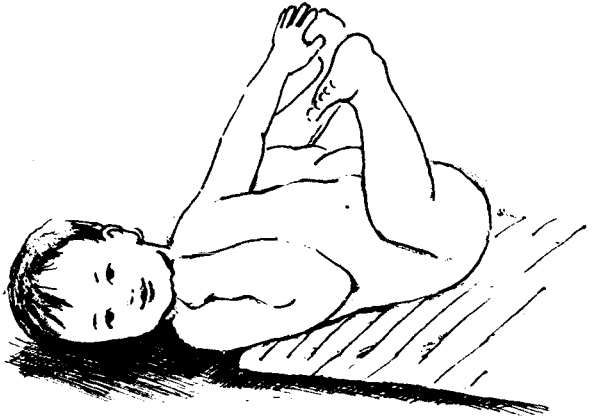
- o Breast milk is a complete food. It contains all the nutrients that a normal baby needs to grow healthy and strong.
- o No commercial formula can match the natural and perfect mixture of proteins, sugar, fat, vitamins and minerals found in breast milk.

- o Breast milk has substances that provide immunity, or protection against bacteria and viruses that cause diarrhea, colds, and other early childhood infections. These substances are present in high quantities in *colostrum*, the yellowish first milk the breast makes.
- o Breast milk also has substances that stimulate the growth of specific body tissues.

WHAT ARE THE BENEFITS OF BREASTFEEDING?

FOR YOUR BABY

- o Your baby will rarely suffer constipation. Mothers's milk is easier to digest than milk formula.
- o Your baby is less likely to get colic (kabag); diarrhea, infantile allergies, and eczema than bottle-fed babies.
- o Your baby smells nicer if totally breastfed because spit-up and stools do not have a strong odor.
- o Breastfeeding encourages good formation of your baby's jaw, palate and teeth.



FOR YOU

- o Many mothers who breastfeed usually have longer periods of infertility after birth than non-lactating mothers. This is a natural way of lengthening the interval between births which is good for you, and your baby.
- o Breastfeeding helps you to regain your figure quicker. Breastfeeding immediately after delivery stimulates muscular contractions in your uterus to help it return to its normal size more quickly. It also helps promote reduction of weight gained during pregnancy because extra fat is burned each day for milk production.
- o Breastfeeding is economical because there is no need to buy formulas and to sterilize bottles.

FOR YOU AND YOUR BABY

- o Breastfeeding promotes bonding; the warm, close relationship between you and your baby. When you breastfeed your baby, he or she feels secure in hearing your heartbeat, touching your skin, smelling your scent, and looking into your face.

Breastfeeding allows you to cuddle your child which encourage him or her to be close to you even when he or she is already grown up.

- o Breastfeeding can be a relaxing and pleasurable experience for you and your baby. Several times a day, it will give you the chance to sit down and relax with your baby.



CAN YOU BREASTFEED EVEN AS A WORKING MOTHER?

Yes, you can. Even if you are working outside the home, you can continue feeding your baby with your breast milk. Breast milk can be stored and/or frozen.

You can press your breasts, collect, and store your milk, for up to six hours, without refrigeration. You can keep it for 24 hours in a refrigerator. You can even collect large amounts and freeze your milk for up to one month. The milk remains fresh and safe.

BREASTFEED AND GIVE YOUR BABY A GOOD START IN LIFE.

Any mother who wishes to breastfeed can. Breast size or shape has nothing to do with milk production. You don't need special food to encourage milk production. All you need is your regular balanced diet, including liquids.

If you are about to have your baby, think about breastfeeding. Even if you choose to breastfeed for only the first few months of your baby's life, you will give your baby a good start.

BREASTFEEDING

Loving and Nurturing Your Baby

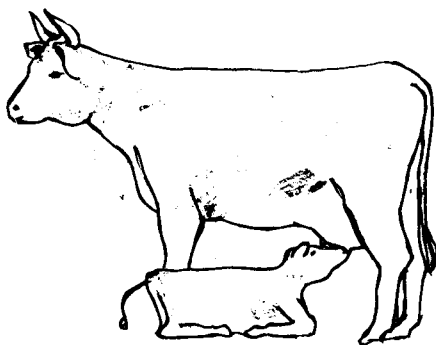


BREASTFEEDING: LOVING AND NURTURING YOUR BABY

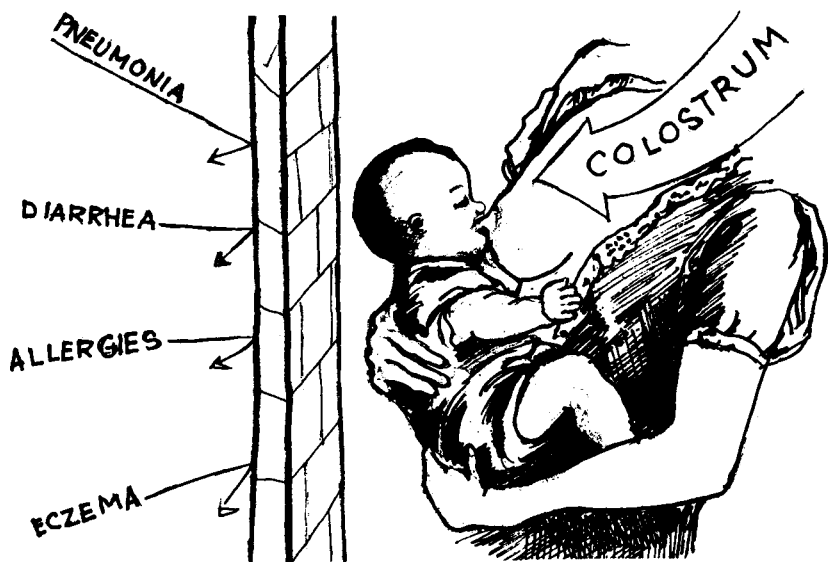
Nature designed your body, so that through the breasts you can provide the complete food for your baby's growth and development – human or breast milk. Breast milk is fully adequate for your baby until he is about 4 to 6 months old.

WHAT MAKES BREAST MILK THE BEST FOOD FOR YOUR BABY?

Man and animals have the inborn capacity to feed and care for their young, but their bodies and needs are different. Thus, the substances present in their milk vary. The milk from animals is more suitable for the digestive system and demands of their own kind.



Human milk is best for human babies, because it contains the right proportions of water, carbohydrates, protein, fat, minerals and vitamins to make your baby grow healthy and strong.



The first secretion of human milk is called **COLOSTRUM**. This is bright yellow in color and contains large amounts of antibodies.

The antibodies give your newborn baby protection from infections or diseases such as colds, cough, flu, pneumonia, diarrhea, allergies and eczema. Hence, it is important for him to suck within an hour after normal delivery, while the thick colostrum is present in greater quantity.

By doing this, you give your baby protection against disease and at the same time the chance to enjoy your first meeting. Furthermore, the baby gets familiar with you and your breast.

WHAT SHOULD YOU REMEMBER THE FIRST TIME YOU BREASTFEED?

Do not be discouraged if you feed your baby and he shows no interest at all. Remember that he still doesn't know why he should suck. But the moment he has tasted your milk, he will start craving for it.

Initially, your breasts can produce only little milk. The quantity, however, is sufficient to meet the baby's needs.

So, even during the first few days, sucking is quite important. It stimulates your breasts to yield milk and ease its flow later. It also helps to prepare the infant's digestive tract by facilitating the outward movement of the first greenish-black stools.

The quality of your milk depends on the kind of food that you eat.

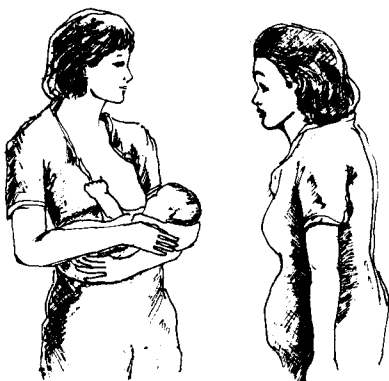


A regular balanced diet must include meat, fish, eggs, dried beans, green leafy vegetables, fruits, and fruit juices. These highly nutritious foods will guarantee the high quality of breast milk to feed your baby.

HOW DO YOU PREPARE FOR SUCCESSFUL BREASTFEEDING BEFORE AND AFTER DELIVERY?

Breastfeeding is the best method of feeding your baby.

To develop the proper attitude and prepare yourself physically, you should consult a doctor or talk with an experienced breastfeeding mother early during pregnancy.



Before delivery:

1. Have plenty of rest, sleep and exercise;
2. Learn to relax from tension, stress and worries;
3. Cultivate a strong desire to breastfeed;
4. Include in your diet, meat, fish, eggs, dried beans, green leafy vegetables, fruits and fruit juices;
5. Take proper care of your nipples and breasts both before and after pregnancy. Wash your breasts with warm water (not soap).



Remove any crusty substance that may have formed on the nipple area. Let your breasts dry thoroughly.

After delivery:

You may need to gently persuade the baby to suck your breast in the first few days. Here's how you can teach your baby to suck.

1. Lie on one side and lay down your baby with his head facing your breast.
2. Pull your baby gently to you and hold him close enough for his chin to touch your breast.



3. Stroke your baby's cheek or the corner of his mouth to induce him to turn to your nipple.
4. Do not use force by pressing his cheek on your breast because he will turn away from it.

5. Guide the nipple into his mouth and help him get as much of it by holding the areola (dark area surrounding the nipple) between your thumb and index finger.



6. Make sure that the baby sucks the whole areola (the dark skin surrounding the nipple), not the nipple only, for this is painful for you. It also prevents the flow of milk.

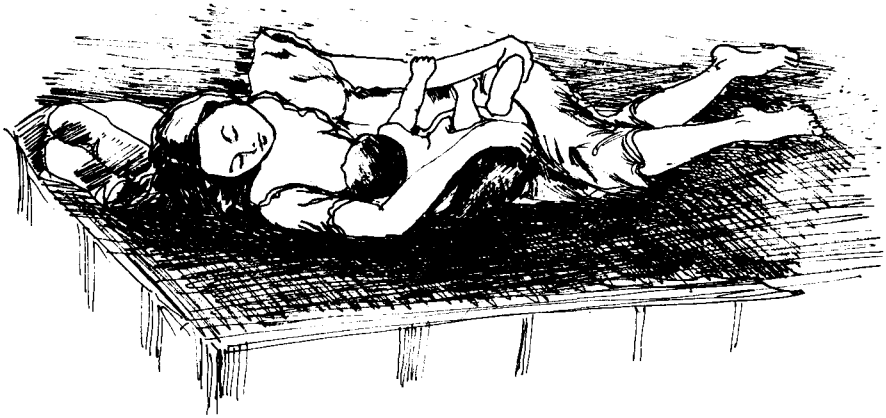
7. Keep your hands and breasts clean. After nursing, wash your breasts with water. Do not use soap or alcohol. Let them dry thoroughly.



8. When taking the baby away from the breast, place your finger in the corner of his mouth and press the lower jaw. Always do this to prevent him from biting the end of your nipple.

9. Always offer the fuller breast first until it is empty to prevent swelling.

10. In breastfeeding, you may find it comfortable to lie on your side with the baby resting on your arms or sit on a low chair with a pillow supporting your back and your feet on a footstool.



11. Relax and enjoy feeding your baby. Tension and worry can affect the production and flow of breast milk.

HOW CAN YOU BREASTFEED WHEN YOU GO BACK TO WORK?

Today, many mothers continue to nurse their babies. You, too, can do the same. Breastfeed your baby whenever you are at home. And when at work, have someone give him your expressed milk. Expressed milk means collected and stored human milk.

The milk taken from your breasts may be kept for 6 hours at room temperature. When refrigerated, it can last for 24 hours; when frozen, it can be preserved for one month.

Being back at work does not put an end to breastfeeding. You may also breastfeed your baby in your place of work if you have the opportunity to do so.

Express your milk either by hand or with a breast pump. Always express both breasts.

a) Expressing by hand

Place both clean hands around one breast with your thumbs at the top. Press and move your hands toward the nipple for one or two minutes.

Place the areola between your thumb and first two fingers.

Press in and collect the milk in a clean, sterilized container.



b) Using a breast pump

Clean the breast pump with soap and water and rinse the glass horn with boiling water.

Pump the bulb and insert the plastic or glass horn well over the areola and pump the bulb. Slowly release the bulb.

Pour collected milk into a clean, sterilized container.

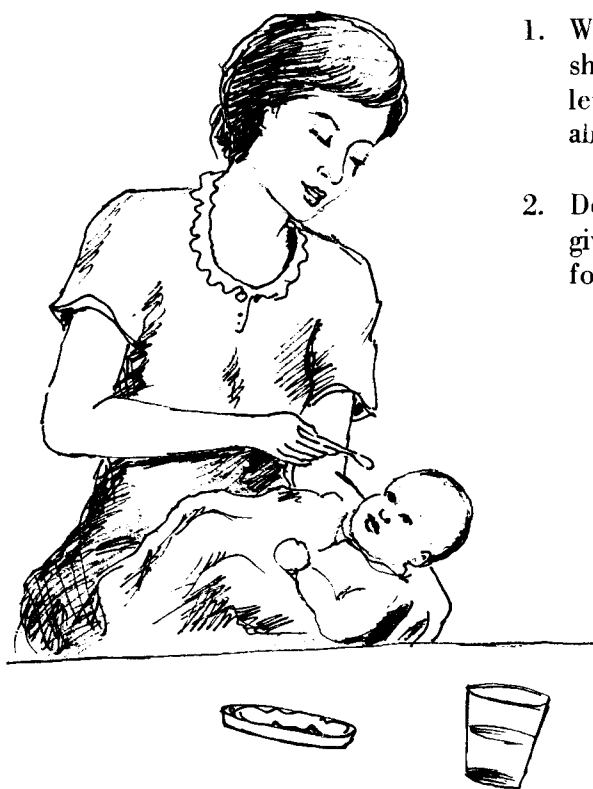
WHEN DOES YOUR BABY NEED FOOD OTHER THAN BREAST MILK?

Breast milk is a complete food. It is the only food your baby needs from birth until 4 to 6 months of age.

When your baby is 4 to 6 months old, breast milk is still important in his diet. However, you may start giving him supplemental food.

You can use one of two ways in introducing solid food:

1. Wait until your baby shows a real interest and let him pick the food available; or
2. Develop his interest by giving him a spoonful of food.



Nutritious food prepared at home is highly recommended.

Remember that there is no general rule as to how long breast-feeding should last. It continues for as long as the baby wants to nurse on your breasts and for as long as your breasts yield milk.

WHAT ARE SOME COMMON PROBLEMS IN BREASTFEEDING?

Mothers differ from each other. Some have well-shaped nipples, while others have flat and inverted (turning inward) nipples. Others may experience sore nipples or engorged (swollen) breasts. These cases need special attention.

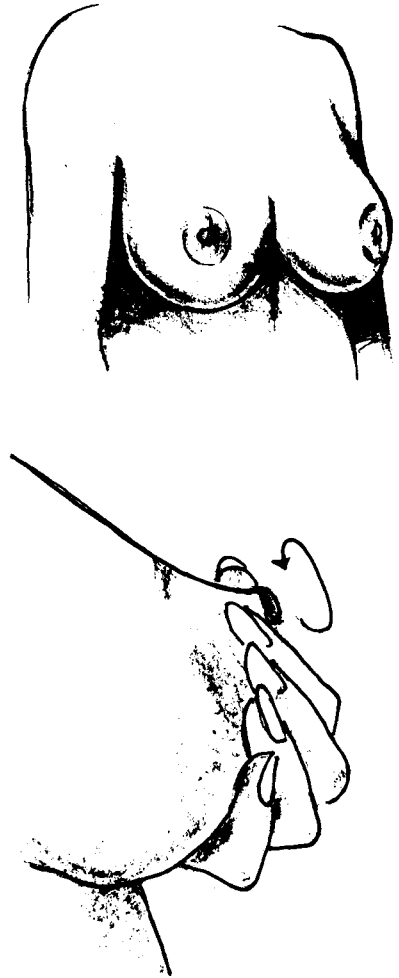
Flat or Inverted Nipples

If your nipples are flat or inverted, you may remedy this condition by doing the following.

1. Pull and stretch your nipples in all directions daily in the last three (3) months of your pregnancy.

2. Place your thumbs on both sides of the nipple. Press firmly against the breast tissue and at the same time push the thumbs away from each other. This stretches the nipple out.

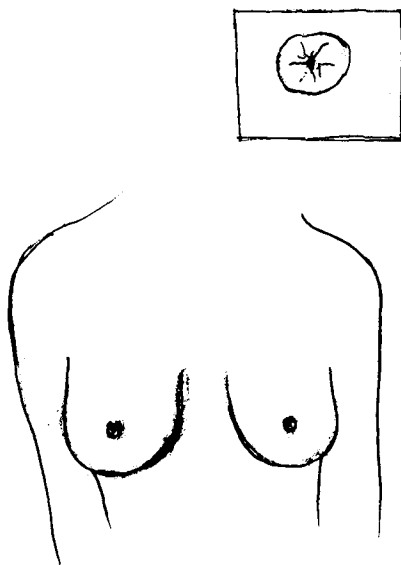
3. Use a breast pump before feeding to pull out the nipple.
4. While feeding, hold the areola to help your baby reach the nipple. The baby's sucking enables the nipple to come out naturally.



Cracked or Sore Nipples

This condition may be due to the untoughened or soft skin of the nipple which reacts to the strong sucking motions of your baby. Here's what you can do:

1. Breastfeed more often but for shorter periods.
2. Start feeding on your less painful breast.
3. Breastfeed when your baby is not yet very hungry to prevent him from sucking hard.
4. Alternate your position (lying down; sitting up) for each feeding to lessen and distribute the pressure of sucking to other parts of the nipple.
5. Check to make sure that the baby has the nipple and the areola in his mouth.
6. After feeding, use water in washing away the residue of the baby's saliva on your breast. Let the nipple dry thoroughly before covering it.



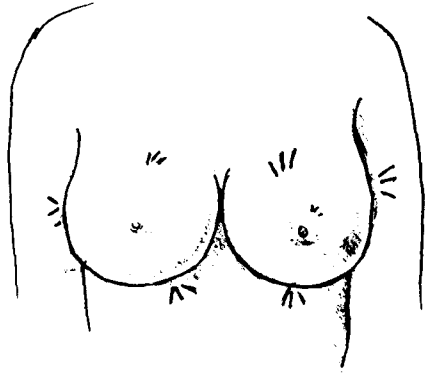
Dried Up Milk

The drying up of breast milk is usually psychological. You can be affected by what some people say about losing your milk or by the experience of other mothers.

Thus, you lose self-confidence and you begin looking for signs of your own failure. Eventually, when your baby sucks, he may not obtain the usual flow of milk, and you become convinced that you have lost your milk and so you shift to bottle milk. This should not be so.

Breast Engorgement (Painful Fullness of the Breast)

Sometimes, you may experience swelling or painful fullness of the breast. This results from over production of milk and accumulation of blood in some blood vessels because of sudden stopping of breastfeeding or long intervals between feedings. To prevent or relieve this discomfort, observe the following:



1. Don't stop breastfeeding. Instead let your baby suck more often.
2. Don't let your baby miss a feeding.
3. Have him begin nursing on the fuller breast.
4. If he finds it difficult to suck, express a little milk to make sucking easier.
5. Take a hot bath or use a warm, wet cloth on your breast.
6. Express excess breast milk either by hand or with a breast pump.

Diminishing Milk Supply

Your milk supply may decrease when:

1. You are tired or feel fatigue.
2. You lack adequate nutritious food.
3. You do not drink enough liquid.
4. You lack or lose self-confidence when you feel you cannot breastfeed properly.
5. You give supplementary bottlefeeds too early before breastfeeding.
6. You fail to regularly feed your baby.

Rest, eat more nutritious food, drink more fluids, lessen tiring outside activities and nurse the baby more often to stimulate your breasts to produce more milk.

If you do not know yet how to breastfeed properly, you might feel a sense of failure and may further lose self-confidence and self-worth or another. All nursing mothers can breastfeed. Certain

suggestions (as in this pamphlet) must be followed to enable you to know how to breastfeed. Knowing how to breastfeed means more confidence and more milk for your baby.

To ease your worries about these problems, consult your doctor. You can also consult an experienced breastfeeding mother.

WHAT ELSE SHOULD YOU KNOW ABOUT BREASTFEEDING?

1. *Diarrhea can be avoided through breastfeeding.* Your breast milk contains anti-infective properties giving your baby immunity to disease. It provides a lining in the stomach which will protect your baby from diarrhea, colds and other diseases.

2. *You can have enough breastmilk, even if you have small breasts.* The milk glands are the ones that produce the milk. Thus, the size or shape of your breasts has no effect on your ability to provide your child with sufficient milk.

3. *Do not worry about your breast sagging when nursing your child.* Sagging is caused by lack of proper support of the breasts during pregnancy. Maintaining a good posture and using an appropriate bra can correct this condition.

4. *You don't need a special diet to have adequate breast milk.* Just follow a good, healthy, balanced diet. Have enough variety of locally available fruits, fresh vegetables, meat and fish.

5. *In general, you can breastfeed, even if you are sick.* Germs do not travel through the milk. In sickness, your body develops antibodies to fight the infection. These antibodies are the ones which pass through your milk and protect your baby. Exceptions are mothers with chronic illnesses like asthma, kidney disease, and beri beri.

6. *If you are tired, rest and relax for a while before nursing your child.* Although, the taste of your milk does not change whether you are tired or not, you need to relax so that your milk can flow easily. When you are relaxed your body produces and releases a certain substance called oxytocin, which helps stimulate the release of milk.

IF YOU HAVE OTHER QUESTIONS ABOUT BREASTFEEDING

- go and ask an experienced breastfeeding mother, or see a doctor, nurse or midwife.

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(A GUIDEBOOK FOR HEALTH WORKERS)

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B R E A S T F E E D I N G
(A Guidebook for Health Workers)

**Prepared by the ADDU/NDU/WMSU Project on the Promotion of
Breastfeeding in cooperation with the Ministry of Health and Inter-
national Development Research Centre**

BREASTFEEDING

(A Guidebook for Health Workers)

FOREWORD

This guidebook is part of a package of information – education – communication materials designed for the promotion of breastfeeding. It is intended for the use of midwives and other health workers in barangay health centers.

This guidebook contains a discussion of the anatomy of the breast and the physiology of lactation. Likewise, it presents related information that ought to be imparted by health workers to their pregnant clients, like the importance of breast milk to a baby's health and development, the preparations for breastfeeding, expressing and storing breast milk, common problems in breastfeeding and their remedies, weaning and food supplementation.

It is suggested that barangay midwives and other health workers familiarize themselves thoroughly with the guidebook to be able to effectively inform, persuade, and instruct pregnant mothers on breastfeeding. Hopefully, the guidebook will help them in impressing upon mothers that “breast milk is the perfect food for babies.”

INTRODUCTION

Breastfeeding is a natural thing for mothers to do. A number of studies, however, show that in developing countries such as the Philippines, only a few initiate breastfeeding and those who breastfeed continue for shorter periods.

In 1958, about 60 per cent of babies born in the Philippines were breastfed. This decreased to 40 per cent in 1968 (Helsing, E. and King, F.: 1982). The decline was partly due to the change from home to hospital delivery. In a hospital, the babies are put together in a nursery for the nursing staff to “look after.” Obviously, the practice enables mothers to rest. But these babies are given milk formula in the first few days after birth.

Today, the practice of breastfeeding is on the rise even in First World countries. In the United States, the percentage of infants being breastfed at one week of age is rising sharply after declining for several years. Increases in early breastfeeding are also reported in Sweden and Australia (Population Reports 1981). Mothers in the United States, Australia, South-East Asia, Scandinavia, and elsewhere have formed groups which support and advise other mothers on practical breastfeeding matters.

There is a growing concern to provide the best milk for the baby – human or breast milk. With appropriate advice, adequate family support, and better understanding of breastfeeding, mothers can learn and succeed in breastfeeding their children.

ANATOMY OF THE BREAST AND PHYSIOLOGY OF LACTATION

ANATOMY

The breasts or mammary glands are two accessory organs of reproduction. On the apex of each organ is the nipple surrounded by a colored zone at its base. This colored area is called the *areola*. It presents small elevations called the *Tubercles of Montgomery*.

The size and shape of the breast vary a great deal among individuals. Generally, they are dome-shaped and have an average weight of 100 to 200 grams. During lactation, they increase two to three times in weight.

The breast is composed of two types of tissues:

1. the glandular tissue (which makes the milk); and
2. the supporting tissue (fats, ligaments and blood vessels.)

The Glandular Tissue

1. Each breast consists of about fifteen to twenty segments of glandular tissue from which a milk duct emanates and extends outside through the nipple.
2. A segment looks like a tree with trunk, branches, and leaves.
3. The milk ducts are the “trunks” that spread out to the minute sack-like alveoli which produce the milk.
4. The *alveoli* consist of a layer of milk-producing *epithelial cells*. The shape of these cells varies according to the amount of milk in the breast – when the alveoli are full, the cells are stretched out thin.
5. The *myoepithelial cells* are cells around the *alveoli* which contract and help to force out or eject the milk.

6. The *lactiferous sinuses* are wider ducts beneath the areola. Milk is collected in these ducts.

The Supporting Tissues

The supporting tissues, fats and ligaments hold together the glandular tissues.

PHYSIOLOGY OF LACTATION

Breastfeeding works by several reflexes, some in the mother and some in the infant. They are:

1. In the mother –
 - a) prolactin reflex (the milk-producing reflex); and
 - b) let-down reflex (milk-ejection reflex).
2. In the baby –
 - a) rooting reflex; and
 - b) sucking reflex.

The Milk Producing Reflex

1. Production of milk by the milk glands is influenced by the hormones *prolactin, growth hormone, corticosteroids, thyroxin, and insulin*.
2. *Prolactin* is the main milk-producing hormone. It comes from the *anterior pituitary* (a gland connected to the hypothalamus).
3. When the baby sucks, the sensory nerve endings in the nipple are stimulated. The impulses go along the sensory nerve fibers in the vagus to the hypothalamus at the base of the brain. This causes the release of prolactin into the blood.
4. The blood carries prolactin to the breast where it acts on the milk-secreting cells. So, the more the baby sucks, the more prolactin is released, and the more milk is secreted.

The Let-down Reflex

1. The main factor involved in the let-down reflex or milk-ejection reflex is the stimulation of the skin of the nipple and the tissues under the *areola*. This normally occurs when the baby feeds on the breast.
2. The sensory impulses which start when the infant sucks on the nipple cause the *posterior part of the pituitary gland* (posterior pituitary) to release another hormone, oxytocin, into the blood.
3. *Oxytocin* makes the myoepithelial cells around the alveoli and ducts contract. This squeezes milk from the alveoli, ducts and sinuses to the nipple.

4. The let-down reflex can easily be inhibited or blocked. Anxiety — like worrying about her milk supply, losing self-confidence, and fear of not having enough milk — is a major factor that can lead to this condition.
5. Nipple stimulation is not the only way to have a milk let-down — the reflex is easily conditioned by breastfeeding. Listening to favorable talks about breastfeeding and thinking happily or affectionately of one's baby can induce the milk to flow. Likewise, when a mother hears her baby cry, her milk may start to drip. And if she feeds her baby at fixed hours during the day her ejection reflex may remind her that it is feeding time.

The Baby's Reflexes

Rooting Reflex

If you touch one of the cheeks of a newborn baby, he turns his head towards that side. If he feels anything touching his lips, the infant opens his mouth, and tries to find a nipple to suck.

This is the **rooting** reflex.

Sucking Reflex

1. The sucking reflex is started by the nipple touching the infant's palate situated deep in the mouth. For the nipple to touch the palate far enough back, much of the areola as well as the **nipple must** be inside the baby's mouth.
2. The sensory nerve impulses caused by sucking are quite important. These impulses start the milk-secretion and milk-ejection reflexes.

BREAST MILK — THE PERFECT FOOD

Breast Milk Versus Bottle Milk

Cow's milk is commonly used as a substitute for breast milk. There are, however, several differences between cow's milk and breast milk.

1. **Protein content.** Whereas breast milk is 1.2 per cent protein, cow's milk is 3.3 per cent protein. Thus, cow's milk is bulkier and tougher than babies suffer indigestion, if they are given unmodified cow's milk to drink.

2. **Water content.** The proportions of water and the other constituents of breast milk are just right. A thirsty baby given breast milk gets the right amount of water to satisfy his thirst. On the other hand, a thirsty baby drinking cow's milk is in danger of taking too much of the substances dissolved in water due to the high concentration of cow's milk.

Human milk is water-rich, that is, it is a diluted fluid in the sense of having a low salt content. The salt concentration is low, but breast milk is so well absorbed that it is enough to support normal growth in a baby.

3. **Carbohydrates.** Breast milk contains more lactose (milk sugar) than cow's milk. Lactose is split into two parts in the gut — galactose and glucose. Galactose is an essential ingredient of the myelin coatings of nerve fibers.

4. **Fats.** Breast milk contains a higher percentage of unsaturated fat than cow's milk.

5. **Minerals.** Whole cow's milk (unmodified) contains almost four times as many minerals as breast milk. This is one of the reasons why the baby's kidneys have to work hard, if he is fed on cow's milk.

Iron, one of the most important minerals needed by the human body, is present in breast milk in large amounts.

6. **Vitamins.** Breast milk contains more Vitamins A, C and E than cow's milk. It also contains just enough Vitamin K for the needs of human babies.

7. **Anti-infective substances.** The proportion of food substances in breast milk prevents the growth of certain organisms such as *E. coli*, dysentery, and typhoid fever bacteria in the baby's intestine. These substances also provide protection from certain bacteria and viruses that cause diarrhea and other early childhood infections.

Other Benefits of Breastfeeding

1. **Colostrum**, a special kind of milk produced in the first four days after birth, contains large amounts of lactoglobulin which protect the baby from diseases like influenza, dysentery, etc.

2. Breastfeeding, immediately after delivery, encourages the **contraction of the uterus** and thus, helps expel the placenta and reduce blood loss.

3. Mothers who breastfeed **usually have longer periods of infertility** after birth than non-lactating mothers. They are **less likely to conceive** while breastfeeding, even if they use no other form of contraception. The protection given by breastfeeding depends upon whether the baby relies solely on breast milk, on the length of time between feeds, and on whether the baby is allowed to feed for comfort after or between feeds.

4. Breastfed babies are **less likely** to get colic, diarrhea, infantile allergies, and eczema than bottle-fed babies.

5. Breastfed babies are **less likely** to suffer from dental decay, when they are older, than bottle-fed babies.

6. Many experts on breastfeeding report that they see fewer problems of faulty jaw and mouth development in breastfed babies.

7. Breast milk is less expensive than bottle milk even when the extra food required by the lactating mother is taken into account.

Disadvantages of Bottlemilk

Some problems associated with bottle feeding are:

1. **Malnutrition.** Due to the high cost of bottle milk, mothers dilute their feed. This results to malnutrition of the baby.
2. **Inconvenience.** Bottle feeding involves more preparations than breastfeeding. Bottle feeding requires clean and hygienic bottles, hence the need for sterilizing the bottles, storing them in a clean place, boiling and cooling of water. All these consume time, efforts, and money.
3. **Unsuitable substitution.** Mothers tend to resort cheaper formula which are of lower quality than the more expensive ones. The use of condensed milk can lead to malnutrition.
4. **Susceptibility to certain diseases.** Bottlefed infants are more prone to diarrhea and suffer infections early. These infants are also more liable to malnutrition, vitamin deficiencies, and iron deficiencies.

TIPS IN PREPARING FOR BREASTFEEDING

To be able to carry, nourish, and protect her baby for the duration of pregnancy, the mother must take good care of herself. The following tips may be given to pregnant women who plan to breastfeed their babies:

1. **Eating the right kinds of food.** Mothers will be providing their babies with plenty of milk and at the same time replenish the food resources used up by their bodies if they eat the right kinds of food.
2. **Providing enough food.** Developing babies will be assured of adequate milk if mothers eat the proper food. To do this, mothers should take the following into consideration :
 - a. Have a normal, balanced, healthy diet similar to what you were used to before pregnancy. Over-eating, that is, having a food in-take equivalent for two persons, is to be avoided. But generally, you will need slightly more food than usual to provide for the needs of the growing baby. Experts suggest an extra 200 calories a day.
 - b. A normal diet must contain enough protein, fluid, fat and carbohydrates and include fruit and vegetables. Refrain from taking sugar in any form, for this is very high in calories and bad for your teeth.
3. **Taking calcium-containing food.** Since babies normally need a lot of calcium, food like bread, cabbage, fish and cheese are recommended for mothers.
4. **Obtaining husbands' support and consent.** A practical way of getting husbands' support and consent with respect to breastfeeding is to discuss with them its advantages. Mothers may even ask their husbands to read articles and suitable IEC (information—education—communication) materials on breastfeeding.

5. *Keeping the nipple clean.* Mothers should always keep the nipples clean before breastfeeding. They should, however, remember that the area around the areola (Montgomery's tubercles) secretes a greasy fluid which keeps its skin and nipple supple (tender) and also kills surface bacteria. If mothers wash off this fluid with soap, the skin is more likely to become sore when breastfeeding babies. A healthy way of washing the breasts is to splash them with warm water.

THE IMPORTANCE OF SUCKLING THE FIRST FEW MINUTES AFTER BIRTH

Today, more expectant mothers seek hospital confinement for delivering their babies. In most cases, new-born babies are taken away from mothers soon after birth and kept in nurseries where they are introduced to bottle milk. It is important that mothers should breastfeed their babies as early as possible for the following reasons :

1. Ideally, a new-born baby should be handed to his mother soon after delivery to hold and suckle for as long as she wants. This enables the baby to suckle the first milk or Colostrum which is rich in antibodies.

2. Early suckling is very good because the sucking reflex of a new-born baby is strongest in the first half hour following birth, after which the baby often becomes tired and uninterested in the breast.

3. Four separate worldwide studies show that early contact between the mother and the newborn baby makes the former more likely to breastfeed successfully. It also increases the length of time she will continue to breastfeed. There is a "sensitive period" probably lasting about 12 hours which is crucial to the development of "mother-child bonding."

4. A mother should not delay breastfeeding her new-born baby. Some mothers are exhausted by their labor that all they think of is having a well-earned rest. They should give priority to nourishing their new-born baby and enjoy their first meeting. A mother's sleep is more likely to be sound, if she has seen, cuddled, and suckled her baby than if she has been worrying about where he is and what is happening to him.

The baby is affected by these drugs taken by the mother that he becomes sleepy and uninterested about breastfeeding. The mother may not be able to get her sedated baby to feed well, but she can stop him from being given a bottle. She can keep her milk supply going by expressing or pumping milk after each feed. She can wake her baby often — every two or three hours at least — for a feed.

Or else, the husband could avail of a perfect opportunity to help his wife. He could see to it that the mother is not given too much pain-killing drugs.

Therefore, the sooner the baby learns how to feed on his mother's breast, the better for him.

EXPRESSING AND STORING MILK

To maintain their family's standards of living, many young women feel that their jobs should come first and raising children should not adversely affect their respective work-schedules. But they can still breastfeed their infants even if they are at work or away from home by expressing and storing their milk.

1. Expressing milk can be done by hand or through a breast pump. Researchers have shown, however, that the former is more preferable than the latter. Although expressing milk by hand requires no sterilized instrument, it is more hygienic than a breast pump.

2. In expressing milk by hand, the following steps should be observed:

- a. Wash hands thoroughly with soap and water. Put one or both hands around the base of the breast. With the thumbs placed above and the fingers below, move hands gradually and gently forward in a stroking motion on the whole surface of the breast. Do not squeeze it.
- b. Press gently the edges of the areola between the fingers and the thumb at the opposite side of the breast while supporting the base of the breast with the other hand. This movement can be done repeatedly for a minute or two.

3. To facilitate the expression of milk, let the baby suck one breast while working on the other. This will initiate the ejection reflex that stimulates the posterior pituitary gland to release oxytocin in the circulation. The oxytocin acts on the muscles in the milk ducts of both breasts to eject milk.

4. A breast pump may be used when the breasts are engorged. It is one way to soften the breasts. But it is not the best method of expressing milk, for it does not completely empty the breast. In some cases, it does not work as an adequate stimulus to the breast to keep up the supply of milk. The best way is to use both breast pump and manual expression.

5. If expressed milk is to be used later or stored, it must be free from any contamination. The mother must be healthy. The expression has to be done in a most hygienic and careful manner. She must wash her hands before expressing milk. To ensure that the milk to be stored is free from any contamination, the first 5 to 10 ml or 1 teaspoon drawn from the breast should be discarded.

6. The expressed milk has to be stored in sterilized containers. It will remain safe and fresh up to 6 hours. With refrigeration, its storage life can last up to 24 hours. Deep freezing for at least 18 degrees centigrade below zero will help to keep it fresh up to a month.

COMMON PROBLEMS IN BREASTFEEDING

The period following delivery is a learning period for both mother and infant. It is at this stage that inter-action begins and develops. One of the means of establishing and promoting a pleasant relationship between the two is breastfeeding. Thus, there

is a need to know the problems usually associated with breastfeeding. These are:

1. **Early Breast Engorgement.** This is attributed to increased tissue fluid and blood and excess milk in the breast. Some mothers experience discomfort and pain, while others are not bothered at all.

Expressing the excess milk can provide relief. This reduces pressure and drains the milk and tissue fluids without any adverse effect on milk production and infant's demand.

2. **Too Little Milk.** The little flow of milk at the beginning does not necessarily mean that the mother is or will be unable to produce more milk especially after a lapse of two weeks. This problem should not discourage the mother from continuing to breastfeed the infant. But if the baby loses too much weight (more than 10% of his birth weight) or becomes dehydrated, then expressed milk from other mothers may be given. Though by itself, this method is not highly advisable, it can be alternated with supplementary formula feeding.

3. **Too Much and Too Fast Milk.** Here, the ejection reflex is too strong that the breast yields too much milk and flows very fast. The infant's mouth fills up rapidly and this can lead to choking. The solution lies in expressing breast milk before feeding.

4. **Flat Nipples.** Flat nipples can be managed in the following ways;

- a. manipulating the nipples to make them more erect and easier to grasp;
- b. expressing the breasts to make them less engorged and softer;
- c. giving the infant another try on the breast. Leaving a drop of milk on the nipple may provide the child the needed stimulant or appetizer. But he may have to be pressed gently and patiently on the breast with the nipple and the areola inside his mouth.
- d. if the baby still fails to suck, a nipple shield may be used for a few days until the engorgement lessens and the nipple stretches out.

5. **Soreness of the Nipples.** The mother's nipple may become sore anytime particularly in the early weeks of lactation. This may be due to sudden exposure to the unaccustomed action of sucking, faulty sucking technique, or letting the infant suck too long in a bad position.

Soreness is more likely to occur in an engorged breast and when the nipple is flat and difficult for the baby to grasp properly.

Sore nipples can be prevented by:

- a. holding the baby close enough for his chin to touch the breast so that the nipple and areola are completely inside his mouth; and
- b. for short or flat nipples, manipulating them or using a nipple shield.

If the above precautions have been observed and soreness persists, the following may prove helpful:

- a. Breastfeed more often but for shorter periods.

- b. Let the baby suck first on the less affected breast. The initial sucking is the strongest and consequently the most painful.
- c. If both nipples are equally painful, elicit the ejection reflex through careful hand expressions until milk flows and the baby can resume his feeding on the breast.
- d. Nurse the baby in a different position or angle.
- e. After breastfeeding, the breast must be carefully washed and the nipple thoroughly dried. The health worker may suggest substances that can soothe the nipples. Lanolin and vaseline which are harmless can be applied and need not be removed before the baby sucks.

6. **"Milk Dried Up" Syndrome.** The constant inquiry directed to a breastfeeding mother on the adequacy of her milk may lead her to be on the look-out for the slightest sign of failure and consequently lose self-confidence.

Thus, mothers have to be reminded of the saying that: "You cannot lose your milk but you can doubt it away." The temporary loss of milk is due to a combination of factors — psychological (doubt) and physiological (lack of suckling stimulus). To overcome this problem, both physiological and psychological approaches must be employed. The mother must nurse the baby more often to increase the suckling stimulus and she must regain self-confidence.

7. **Insufficient Breast Milk.** A mother may have a cooperative and frequently sucking baby, adequate food and rest, and psychological support but may still find herself producing insufficient milk. She may be one of those rare "low producers." To confirm this, the weight of the baby must be recorded regularly for several weeks. A baby should gain at least 0.5 kg. a month in his first six months.

If insufficient milk has been diagnosed as the cause of low weight gain, the following measures may be taken:

- a. **Supplementary bottle feeding.** This can be resorted to after offering the breast first. Hygienic bottle feeding should be observed.
- b. **Wet nursing.** If culturally acceptable, the baby may be allowed to share the breast milk of another lactating mother.
- c. **"Home-made" infant food added to the mother's milk.** Properly prepared (finely mashed) infant food can be better and cheaper.

8. **Too Thin Milk.** A mother may worry about the watery look of her milk. The energy content of human milk varies, but the infant usually adapts by varying his own intake. The failure to gain weight is the only way of determining the sufficiency in quality and quantity of the mother's milk. Again, this is not a valid reason to discontinue breastfeeding, for supplementary feeding can be given.

9. **The Baby Cries Too Much.** The baby's cry is often a sign that something bothers him and oftentimes it is the sensation of hunger. This is natural. On the other hand, some babies seem to be criers as indication of their individuality. No amount of feeding and comfort can make them stop crying.

A baby who cries after being fed may actually be receiving little milk. The best measure is weight gain in a month.

Demand feeding, in some cases, may be the only means to pacify a crying baby. There is absolutely no harm in putting the baby to the breast as often as possible in a day.

Frequent crying, however, does not always imply insufficient breast milk. The mother can only be certain that this is the cause by verifying the weight gain of the child. A few children may want pacifiers and others may be colicky babies.

10. *The Good and Quiet But non-gaining Child.* Some babies hardly cry or even whimper. They don't appear hungry and simply wait to be fed by the mother. The mother should put the infant to the breast more frequently. This stimulates the baby to feed and induce milk production. But weigh the infant regularly to monitor his weight gain.

INTRODUCTION OF SUPPLEMENTARY FOOD

Supplementary food refers to solid food, usually a starchy cereal or porridge which may be enriched with fat, or protein-rich food item, or both. In the introduction of supplementary food, consider the following:

1. An infant need supplementary food beginning from the fourth month to the sixth month. This does not mean that the milk yield of the mother has decreased or there is something wrong with the breasts.

2. It does not also imply cessation of breastfeeding. Supplemental food is initiated because the child is growing and his needs are increasing.

3. The volume of milk will remain the same for a long time, provided the child is put to the breast often. Likewise, the quality of the milk is still excellent and it continues to be the most important source of high quality protein, vitamins and other nutrients. As the infant grows, his protein requirements increase. The frequency of sucking may lessen and result to less milk received by the child. Thus, quality-protein infant food has to be given.

4. The best sources of energy and protein are cereals, because they contain 8 per cent protein. Many kinds of porridge made from cereals and other local staples can be introduced as supplemental food.

The following items are suggested food supplements for the child:

- a. Porridge (*lugaw*), roots and tubers (camote, potatoes), and bananas can provide the energy the infant needs.
- b. Local dark green, leafy vegetables and fat should be included in the porridge after the child has experienced solid food for a month or two. Such food enhances the vitamin and mineral content of the porridge and adds a small amount of protein.
- c. Small amounts of local protein-rich food can be introduced when the child is about 10 months old. Good sources of protein are beans, peas, and peanuts. Fish, meat, eggs and milk are also good.
- d. A child should be eating a home-made multi-mixed meal by about one year of age. A multi-mixed meal should consist of:

— 10 parts of the local staple (cereal, roots, tubers or banana)

- 2 parts of a protein-rich supplement
- 1 part of fat
- green leafy vegetables.

OTHER FACTS ABOUT BREASTFEEDING

When the mother is ill:

1. Let someone take care of the baby and feed him when he is ready.
2. If the mother is in the hospital, breastfeeding can be continued by expressing milk and sending it home for the baby. Milk must be stored in the refrigerator until collected by a friend or relative.
3. Breastfeeding is not possible when the mother has:
 - a. *Chronic illness such as asthma or kidney disease.* The mother cannot nurse the baby due to tiredness or exhaustion.
 - b. *Beri-beri.* Toxic substances are present in the breast milk when a mother has this disease.
4. The mother can still breastfeed even when she has:
 - a. *Diabetes.* Insulin requirements are not really affected by eating more to make up for the calorie-loss in milk.
 - b. *Pulmonary tuberculosis.* If a mother has pulmonary TB, her baby is very likely to be infected already. In these cases, most pediatricians now recommend that the baby continue nursing while the mother and baby are both being treated.
 - c. *Caesarian section.* Although mother may feel a certain discomfort after the operation, she must be determined to breastfeed in the first week or so. As soon as the mother is fully awake after the general anaesthesia given during delivery, the baby can be brought to her for feeding or she can express milk for the baby.
5. A mother should know whether the drugs she takes are harmful or harmless to the child. Oftentimes drugs taken by the mother affect her breast milk. So, in case there is a need to take any drug, she should consult a doctor.

When Baby is ill:

1. Breast milk is still the best food for a sick baby.
2. Even if the baby is in the hospital, breastfeeding may still be continued.
3. If the baby does not eat well and the mother's breasts are full, milk expression will enable her to have a continuous supply of milk and be free from breast engorgement.
4. Infants with low birth weight must have extra breast milk feeds. Additional supplements should also be given, such as: iron, folic acid, vitamin D, C, and calcium.

Size of Breast:

1. The size of the breast does not affect the production of breast milk. The quantity of milk depends on the amount of prolactin released in the anterior pituitary

gland upon sucking. The more sucking is done, the more prolactin is released to stimulate the milk-producing alveoli in the breast. Thus, if the mother has little milk at times, the best remedy is to have more feedings.

2. The size of the breast is dependent on the presence of fatty tissue.

Sagging Breast:

1. Breast sagging is due to too much weight gain during pregnancy.
2. To avoid sagging breasts, the following precautions must be observed during pregnancy:
 - a. The mother must watch her weight carefully.
 - b. She can wear a good supporting bra as soon as the breasts start to grow bigger.

Deficient Mother's Diet:

1. If the mother's diet is grossly deficient in protein and fat, then the baby is liable to be deficient too. Deficiency in fat and protein may lead to retarded growth of the baby. To solve the problem, the mother should be given more food with high protein and fat content.
2. A problem also arises when the mother consumes large amounts of polished rice which is lacking in Vitamin B1 (thiamine). This may lead to beri-beri. The breast-fed babies can be affected by this illness.

Contraception and Milk Production:

Early and more recent studies on the effect of oral contraceptives on milk production reveal that preparations containing higher doses of progestogen have greater inhibiting effect on lactation than those containing lower doses. Thus, contraceptive users particularly those who take oral doses of high progestogen have shorter months to breastfeed. Reduced lactation can be attributed to the hormones in oral contraceptives.

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Appendix~C

WHO/UNICEF meeting on infant and young child feeding

Urgent action to promote the health and nutrition of infants and young children by governments, international agencies, nongovernmental organizations and the infant-food industry was called for by the WHO/UNICEF meeting of infant and young child feeding, which was held in Geneva from 9 to 12 October 1979.

The meeting, chaired by Professor F. T. Sai,¹ was concerned primarily with the development of practical measures to improve infant and young child feeding practices, and was attended by some 140 participants that included representatives of governments and United Nations specialized agencies, members of concerned nongovernmental organizations, and representatives from the infant-food industry. The themes for discussion at the meeting included:

- how to encourage and support breastfeeding;
- promotion and support of appropriate weaning practices;
- promotion of information, education and training of health workers concerning breastfeeding;

- the health and social status of women in relation to infant and young child feeding;
- appropriate marketing and distribution of breastmilk substitutes;
- suggested actions for governments and other groups.

The meeting adopted by consensus a Statement, which highlighted poor infant feeding practices and their consequences as "one of the world's major problems and a serious obstacle to social and economic development". To a great extent it is a man-made problem which, despite three decades of efforts by national and international bodies, continues to take a heavy toll in deaths and long-term mental and physical disability.

In addition to the Statement, the meeting issued recommendations for urgent action concerning the matters discussed. The full text of the Statement and the recommendations is given below.

STATEMENT ON INFANT AND YOUNG CHILD FEEDING

The joint WHO/UNICEF Meeting on Infant and Young Child Feeding, which was held at WHO in Geneva from 9 to 12 October 1979, in expressing the need for urgent action by governments, international agencies, nongovernmental organizations and the infant-food industry and health and development workers to promote the health and nutrition of infants and young children, made the following statement:

1. Poor infant-feeding practices and their consequences are one of the world's major problems

and a serious obstacle to social and economic development. Being to a great extent a man-made problem it must be considered a reproach to our science and technology and our social and economic structures, and a blot on our so-called development achievements. It is not only a problem of the developing world: it occurs in many parts of the developed world as well.

¹ Formerly Director of Medical Services, Ghana; at present, Inter-Regional Coordinator of the World Hunger Programme, sponsored by the United Nations University.

2. The question of adequate nutrition for mankind has been exercising international and national bodies for the last three decades, but the problem of malnutrition is not becoming less. It is taking a heavy toll in deaths and in long-term mental and physical disability. Women, with infants and young children, are its chief sufferers. This is socially, economically and politically unacceptable.

3. In this International Year of the Child, national governments and the international community are being called upon to focus on this complex problem and to take steps to ensure that children everywhere get a proper start in life on the basis of, *inter alia*, adequate nutrition. Governments and local communities have a major role to play in supporting action aimed at mothers and children to ensure sound infant and young child feeding practices.

4. Malnutrition in infants and young children cannot be separated from malnutrition and poor health in women. The mother and her infant form a biological unit; they share also the problems of malnutrition and ill-health, and whatever is done to solve these problems must concern them both together.

5. The problem is part of the wider issues of poverty, lack of resources, social injustice and ecological degradation; it cannot be considered apart from social and economic development and the need for a new international economic order. It is also a basic issue for health care systems and its solution must be seen in the context of Health for All by the Year 2000.

6. The WHO/UNICEF Meeting on Infant and Young Child Feeding affirms the right of every child and every pregnant and lactating mother to be adequately nourished as a means of attaining and maintaining physical and psychological health. It stresses the responsibility of every society to ensure the effective enjoyment of this right so that children may develop to their full potential.

7. Breastfeeding is an integral part of the reproductive process, the natural and ideal way of feeding the infant, and a unique biological and emotional basis for child development. This, together with its other important effects on the prevention of infections, on the health and well-being of the mother, on child spacing, on family health, on family and national economics, and on food production, makes it a key aspect of self-reliance, primary health care and current devel-

opment approaches. It is therefore a responsibility of society to promote breastfeeding and to protect pregnant and lactating mothers from any influence that could disrupt it.

8. The period of weaning from the breast is a critical stage which often results in malnutrition and disease if the child does not have a diet that is adequate in quantity and quality, hygienically prepared and culturally, socially and economically acceptable.

9. The health of infants and young children cannot be isolated from the status of women and their roles as mothers and as partners in social and economic development. In poor urban and rural communities where the health and socio-economic status of women is deteriorating, a corresponding deterioration is taking place in the health of infants and young children.

10. Health for all cannot be attained unless there is a substantial improvement in the socio-economic condition of women, the particular needs of mothers and their infants and young children are recognized and met, and conditions are provided that promote and sustain the well-being of the family. These conditions include the right of women to information and education that will enable them to improve their own health and that of their families and to take an active part in decision-making on matters that affect their own and their children's health. They include also attention to the role of fathers in providing for the needs of their family.

11. The production, preservation, processing and distribution of food are essential components of any approach to ensuring the proper feeding of families and children. Emphasis should be placed on fresh local foods and traditional practices, complemented only when necessary, and under the guidance of government, by industrially processed products.

12. The WHO/UNICEF Meeting on Infant and Young Child Feeding affirms the needs for sustained national and international action, and for the active participation of families, and especially mothers, in the elimination of malnutrition and the promotion of health. This is a challenge to all social and economic development strategies and to the world community as a whole. In the International Year of the Child it is fitting that national and international efforts be intensified, and that the enthusiasm it has generated in the cause of child health be sustained, to respond to this challenge.

RECOMMENDATIONS

THE ENCOURAGEMENT AND SUPPORT OF BREASTFEEDING

Health care system

Because of the fundamental importance of the health of the mother for breastfeeding, which in turn is essential for the health and development of the infant, and because health services through the primary health care approach, especially where they relate to the health of mothers and children, have an important preventive role to play, it is recommended that:

During pregnancy

- Every attempt should be made to ensure the sound nutritional status of women and that their nutritional and health needs are met, especially during pregnancy. The health care system, in collaboration with other sectors, should help in identifying and utilizing existing local resources so as to ensure that the nutritional needs of the mothers are met.
- The health care system in general should ensure that all mothers, particularly during the period of pregnancy, are systematically provided with the type of breastfeeding education that is in keeping with their life situations and that it is presented in practical ways that are likely to enhance their understanding and acceptance of it.
- Emphasis should be given to the fact that lactation is a natural biological process but that to some extent breastfeeding is an act which must be anticipated and reinforced. With adequate teaching and support almost all mothers are capable of breastfeeding and solving any problems which may arise. The best teachers will be breastfeeding mothers.
- Information and guidance should be provided to all women during pregnancy concerning preparation for breastfeeding and ways in which they can establish and maintain breastfeeding. The full cooperation of women's groups and other bodies working for the promotion of breastfeeding should be sought and supported by the health care system.
- Attention should be given to ensuring that, wherever possible, all health workers in a position to provide adequate information to the mother on breastfeeding should be committed to

the promotion of breastfeeding and have a thorough knowledge of its management.

- Care should be given during the pregnancy period to identifying those mothers who are likely to be at high risk of not breastfeeding—because of their special social, economic or health condition—and special care should be given to them so as to enhance improvement of their situation and the establishment of breastfeeding.

At delivery

- Obstetrical procedures and practices should be consistent with the policy of promoting and supporting breastfeeding. In this respect, unnecessary sedation, routine use of episiotomy, and routine use of lactation suppressants should be avoided.
- Breastfeeding should be initiated as soon after birth as possible, normally during the first half-hour and, in order to facilitate breastfeeding, mothers should be encouraged and permitted to keep their infants with them in the same room or close to them and to practise on-demand feeding; maternity routines and physical structures should be conducive to this practice.
- Health workers, including traditional birth attendants, should seek to provide mothers not only with educational information but also with practical help and should be provided with appropriate information on the preparation for and management of breastfeeding.
- The role of the father and other members of the extended family in providing support for the mother should be emphasized in all prenatal, maternity and postnatal care, and fathers should be invited to participate actively with the health team in encouraging the mother to breastfeed.

After delivery

- All postnatal health care should be oriented towards ensuring the maintenance of breastfeeding for as long as possible. All babies should receive colostrum. For optimal breastfeeding, the use of supplementary bottlefeeding—water and formula—should be avoided. A healthy well-nourished mother who is fully breastfeeding her

infant should not need to introduce any complements during the first 4-6 months of life, according to the needs of the infant.

- Mothers' nutritional status should be reviewed and, whenever possible, steps taken to ensure that the mother has access to adequate food intake.
- The contraceptive effect of breastfeeding should be well recognized, although additional family planning methods should be promoted to ensure birth spacing. Preference should be given to contraceptive methods which do not interfere with the normal process of lactation.
- All attempts should be made to ensure that in cases where infants need to be hospitalized, facilities should be provided so that the mother can be with the infant and continue breastfeeding or that the baby can continue to receive breastmilk.
- Where it is not possible for the biological mother to breastfeed, the first alternative, if available, should be the use of human breastmilk from other sources. Human milk banks should be made available in appropriate situations.
- The terms "humanized" and "maternalized" milk for infant formula should be avoided.

Support through the health services

Health service staff must play a critical role in the initiation, establishment and maintenance of breastfeeding and should ensure that the mother has a source of sustained support for as long as breastfeeding continues, and thus health workers should be well informed and provide consistent information.

A baby who is not breastfed should receive special attention from the health care system. Adequate instructions for the use of infant foods as well as warnings about its problems should be the responsibility of the health care system. Supplies of infant formula would thus be required for distribution only where necessary and not as a routine.

Employed mothers

Paid maternity leave for not less than 3 months after birth, job security and economic support should be provided to all mothers whenever possible, and wherever possible, and the responsibility for economic support during maternity leave should be carried by the government, the woman's employer, and other relevant international and national institutions.

Crèches, paid breastfeeding breaks and other facilities should be provided, wherever appropriate, in industry or other relevant institutions, or close to the place of work to permit mothers to continue breastfeeding and have close contact with their babies. Financing of crèches and other mechanisms that allow for this continued contact of breastfeeding should be borne by the government and/or the industry in which the mother is working.

Community and government support

All channels of communication, including religious leaders, school teachers and other community opinion leaders and voluntary associations, particularly women's organizations, should be actively involved, together with the health services and other sectors, in encouraging and supporting breastfeeding and sensitizing the community to the value of breastfeeding and the needs of the mother and baby, through home visits, if necessary.

Messages concerning infant and young child feeding should be consistent from one sector to another and from one population group to another and, therefore, the promotion of breastfeeding and appropriate infant and young child feeding practices in general should be set within the context of overall maternal and child health practices, national nutrition policies and primary health care.

Governments should be encouraged to set up national expert groups to advise them on policies about breastfeeding and to establish coordinating offices that can ensure consistency and continuation of supportive activities and implementation of ongoing evaluation and monitoring as well as systematic epidemiological research including social factors.

WHO/UNICEF and other organizations should be responsible for encouraging regional and national workshops for the promotion of appropriate infant and young child feeding.

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PROMOTION AND SUPPORT OF APPROPRIATE AND TIMELY COMPLEMENTARY FEEDING (WEANING) PRACTICES WITH THE USE OF LOCAL FOOD RESOURCES

Food complementary to breast milk will need to be introduced by 4-6 months; when the nutrition of the mother is poor and/or environmental conditions are unfavourable, it may often need to

be introduced earlier. However, too early introduction of supplements may have a negative effect on breastfeeding and may also increase the risk of infection.

The diet of the young child after cessation of breastfeeding needs special attention because inadequate feeding at this time often leads to clinical forms of malnutrition, particularly when the child is denied the breast as a consequence of a new pregnancy.

In order to guide the mother as to the adequacy of her child's nutrition and the appropriate time to introduce weaning foods, programmes to support her in keeping a graph of her infant's weight and to understand its significance should be extended as widely as possible. The WHO publication *A growth chart for international use in maternal and child health care* provides valuable guidance on this matter.

Foods that are locally available in the home can be made suitable for weaning and their use should be strongly emphasized in health, education and agricultural extension programmes. Foods traditionally given to infants and young children in some populations are often deficient in nutritional value and hygiene, and need to be improved in various ways. Mothers need guidance to improve these traditional foods through combinations with other foods available to them locally. Countries should determine the need for subsidizing weaning foods or in other ways helping to ensure their availability to low-income groups.

Governments and relevant private or public organizations should support practical and appropriate initiatives and policies for improving the nutritional value and hygienic standards of traditional and other locally used weaning foods, for achieving a balanced diet for infants, for educating mothers in the proper feeding of children, and for facilitating the exchange of weaning and child-feeding experiences among countries.

To avoid infection and interference with continued breastfeeding, infants during weaning should not be fed by bottle but rather by cup and spoon or other suitable traditional vessels and utensils. When mothers do not initiate breastfeeding or terminate it prematurely so that animal milk or perhaps vegetable milk mixtures or products may need to be fed by bottle, competent guidance should be available to the individual mothers to ensure that the mixture or product fed is nutritionally adequate, both in quantity and quality, and that all possible measures are taken to see that it does not become a vehicle for infection.

Psychological, social and economic factors that constrain breastfeeding should be minimized.

These questions should be the subject of further research and subsequent scientific meetings.

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STRENGTHENING OF EDUCATION, TRAINING AND INFORMATION ON INFANT AND YOUNG CHILD FEEDING

Every citizen has the right to have access to correct, consistent information and education; therefore, countries must ensure that information and education are provided to all levels and that the messages reach those for whom they are intended at community, intermediate and central levels.

In all educational (formal and non-formal), vocational and professional training programmes, the interrelationship of all knowledge relating to health protection, breastfeeding and adequate nutrition of the mother, infant, and child should be featured.

To ensure maximal effectiveness, educational, and informational activities about nutrition must:

- be adapted to local conditions and culture;
- be directed to the target population, e.g., schoolchildren, youth, pregnant and breastfeeding mothers, men, community leaders, decision-makers and planners;
- be supported by necessary resources from those sectors responsible for periurban and rural economic development;
- be undertaken with the active participation of men, husbands, other family members, and community leaders;
- be linked to measures for income-generation at family and community level;
- utilize local cultural methods of communication, such as folk-arts, drama and music.

To support women and mothers in their efforts to improve their health and nutritional status and that of their infants and children, it is important that nutrition education and information be provided to various other individuals who are influential with the family such as fathers, grandparents, mother-surrogates, community teachers and others who have an impact on the social behaviour and nutritional habits of vulnerable groups, and the education and information should be carried out with their participation.

The Meeting strongly recommends that the governments should provide adequate nutrition training in medical and nursing schools, adequate training to primary health care workers, including midwives particularly in prenatal and perinatal services, school teachers, rural extension workers and others operating at the community level to enable them to undertake functional health and nutritional education in the community based on the priority needs of the people and with their active participation. The outcome of these endeavours should be increased self-reliance at the community and family level.

It is essential that all personnel who will provide nutrition education should be appropriately trained not only in techniques of communication and education but also in child development and in promoting consistent and coherent nutrition and health concepts and practices based on the local sociocultural conditions.

Training

Basic and continuing education and upgrading of information on all aspects of breastfeeding are necessary for health service staff at all levels, including administrators, professional leaders at medical and nursing schools, physicians (especially obstetricians and paediatricians), nurses and midwives at all levels, medical assistants, auxiliaries, social and extension workers, and particularly primary health care workers. Training should place particular emphasis on management of breastfeeding and be related to the economic, cultural and social background of the mother and family. Training should also provide appropriate knowledge on the available, culturally acceptable, locally grown foodstuffs which are suitable for use as weaning foods for the young infant and supplementary foods for the pregnant and lactating woman. They should also be enlightened about the hazards of advertising infant foods in clinics.

The use of mass media, which in many countries includes radio, television, newspapers, advertisements for formula and other infant food products in government and professional journals, should be effectively screened by appropriate government ministries to ensure that they do not detract from official nutrition policies designed to protect breastfeeding and support the health and nutritional status of mothers and children.

There is not enough information about the present state of education/training in the field of maternal, infant and young child nutrition

throughout the world. The Meeting strongly recommends that this matter be reviewed as soon as possible and followed up every five years in order to evaluate the activities in this field and to update the programmes. International organizations, especially UNICEF, FAO, UNESCO, WHO and UNIDO, should collaborate in this activity. This also implies collaboration in the preparation of guidelines aimed at identifying problems related to the health and nutrition status of mothers and children, particularly regarding conditions of breastfeeding and weaning practices, and on methods of surveillance.

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DEVELOPMENT OF SUPPORT FOR IMPROVED HEALTH AND SOCIAL STATUS OF WOMEN IN RELATION TO INFANT AND YOUNG CHILD HEALTH AND FEEDING

Status of women

Participation of women

Women's role and experience in infant feeding is unique and the importance of women gaining greater control of actions affecting this aspect of their lives must be emphasized. It is recommended, therefore, that women's participation in all related actions be significantly enhanced through:

- (i) increased representation of women in all follow-up meetings and actions as recommended by this meeting, including increased involvement of women in the activities of United Nations agencies, nongovernmental organizations, and other groups, including industry and trade unions;
- (ii) the increased recognition and involvement of women's organizations in community, national and international efforts, for the promotion of improved infant and young child feeding and related primary health care efforts;
- (iii) the increased involvement of women in policy formulation and decision-making at all stages of planning and implementation of related national programmes.

Health and nutritional status of women

Improved infant and young child feeding is closely linked with women's enjoying a high status of health throughout all stages of life,

especially in the reproductive cycle. It is recommended that measures be taken to ensure good nutrition and health for all women through:

(i) social and economically available measures directed towards health care, particularly primary health care, including the provision of a balanced and sufficient nutritional intake, especially during pregnancy and lactation, and family planning information and services; special attention should be given to reproductive health and education of adolescent girls with specific action for pregnant adolescents.

(ii) the implementation of activities aiming to reduce women's workload, both in the home and outside the home, including actions to promote the sharing of tasks within the family and including development programmes related in particular to the provision of plentiful and clean water and the use of appropriate technologies.

Measures to support women to breastfeed

The woman is pivotal for all action related to breastfeeding. Breastfeeding is best for the health of the young baby, but also for the health of the mother including the physical, emotional, and psychological aspects of her health.

The majority of women living in rural areas and in the urban periphery are not covered by protective or legislative measures; they are either not wage-earners or are workers without adequate security. Very little has been done for these women. It is recommended therefore that government action and community development activities including the help of breastfeeding mothers be taken to support these mothers to breastfeed. Programmes to develop appropriate technologies (especially regarding food production and handling) to reduce these women's workload and to organize community-based day care of children should be emphasized.

Governments should ratify and apply the ILO conventions through national legislation concerning maternity protection which are to be developed (and which extend existing measures to increase the period of time of maternity leave) for facilitating breastfeeding, including facilities for breastfeeding, paid nursing breaks, flexible schedules, day care centres and other measures to ensure the physical closeness of mother and child; these measures should also ensure that women's earnings are not substantially reduced or that complementary measures are introduced to provide subsidies, and that discrimination of

nursing mothers in employment is prohibited. Women's groups and trade unions should pressure governments to ensure the ratification and implementation of appropriate legislation. The ILO, together with WHO and UNICEF and other organizations of the United Nations system, should continue their activities in the application of such legislation on the protection of breastfeeding mothers.

Specific educational and nutritional programmes within primary health care should be directed towards pregnant women to prepare them psychologically and physically to breastfeed their baby.

Weaning

Women play important roles in the production, preparation and serving of food within the family. The home preparation of appropriate weaning foods will depend on their knowledge, time, human energy and resources. Therefore, it is recommended that:

(i) in all cases where there is access to local food products, it is necessary to teach women and other family members to use these as weaning foods and as part of the family diet;

(ii) in cases where women do not have easy access to locally available foods, action should be taken for the organization of community efforts, such as cooperatives, to make such local foods available to women;

(iii) educational and other community development programmes related to health and nutrition should be linked with income-generating activities and policies;

(iv) all food aid programmes in this area should take cognizance of the local food content and habits and not create a situation of dependency, and should be careful not to compete with breastfeeding and local food production.

Information, education and training

The importance of an adequate basis on which women can have a true and objective choice emphasizes the need for education and information about infant and young child feeding and for the establishment of measures at government levels to protect women against misinformation. Information and education about infant and young child feeding should be directed to men as well as women in order to enable them to assume their supportive responsibilities.

Educational materials to be directed to the general public, to schoolchildren, and to the training of health and other development workers should project a positive image of women, not only in their roles as mothers but also as workers and citizens of the community. This would refer to the images depicted in books and other written material as well as the mass media.

Women's nongovernmental organizations should organize extensive consciousness-raising campaigns for generating policy actions by governments and for launching extensive information dissemination campaigns in support of breastfeeding and good weaning habits. At the local level, nongovernmental organizations are urged to organize and carry out women-to-women programmes to promote breastfeeding and adequate weaning. In these activities nongovernmental organizations should collaborate with WHO and UNICEF, with the necessary support from national and international agencies.

As in most instances the health care providers to mothers and children are women, special efforts should be directed to strengthen training programmes for these groups of workers so as to include a comprehensive component of family planning, infant and young child feeding, and other aspects of family health within primary health care.

For all, education of the public—especially of the young generations—should aim at a better acceptance of breastfeeding as the natural and healthiest practice, taking into account cultural specificities and endogenous practices and using all channels of education as well as the media.

In collaboration with all relevant sectors, particularly health, education, agriculture and industry, governments need to ensure that up-to-date, scientific and empirical information on infant and young child feeding is widely disseminated and applied. A government mechanism must be established to ensure that, through continuous screening and monitoring, the information and publicity relating to maternal, infant and young child feeding are correct and appropriate and that undesirable and inappropriate messages and publicity are eliminated.

A national strategy for communication and education should be formulated to mobilize the available resources; this strategy should include training of manpower at all levels to plan, implement, evaluate and conduct research with respect to communication programmes.

The marketing of infant formula

Women have the right to correct and full information; even objective information, however, can be misleading and harmful if it is given in inappropriate settings or times. Women's organizations should be involved in national councils or government agencies in the monitoring and enforcement of marketing codes dealing with the regulation of information and publicity. Women in all parts of the world—in developed and developing countries—should express their solidarity in deciding what is best for this unique and important part of their lives.

APPROPRIATE MARKETING AND DISTRIBUTION OF INFANT FORMULA AND WEANING FOODS

The government of each country has the responsibility to promote coherent food and nutrition policies which should give special attention to mothers, infants and children. These policies should emphasize the preservation of breastfeeding and the implementation of appropriate nutritional guidance. Governments have a duty to ensure the supply and availability of adequate infant food products to those who need them, in ways that will not discourage breastfeeding. Informed advice should be given at the appropriate time and place to mothers and families about the best infant and young child feeding practices.

Breastfeeding is the only natural method of feeding babies and it should be actively protected and encouraged in all countries. Therefore, the marketing of breastmilk substitutes and weaning foods should be designed not to discourage breastfeeding.

There should be no sales promotion, including promotional advertising² to the public, of products to be used as breastmilk substitutes or bottle-fed supplements and of feeding bottles. Promotion to health personnel should be restricted to factual and ethical information.

There should be an international code of marketing of infant formula and other products used as breastmilk substitutes. This should be supported by both exporting and importing coun-

² This includes the use of mass media and other forms of advertising directed to the mother or general public and designed to increase the sales of breastmilk substitutes, to the detriment of breastfeeding.

tries and observed by all manufacturers. WHO and UNICEF are requested to organize the process for its preparation, with the involvement of all concerned parties, in order to reach a conclusion as soon as possible.

Monitoring of marketing practices is recommended. Usually this will be done under government auspices. Advertising councils and industry, and consumer and professional groups can make an important contribution.

There should be no marketing or availability of infant formula or weaning foods in a country unless marketing practices are in accord with the national code or legislation if these exist, or, in their absence, with the spirit of this Meeting and the recommendations contained in this report or with any agreed international code.

The facilities of the health care system should never be used for the promotion of artificial feeding. Therefore, advertising or promotional distribution of samples of breastmilk substitutes through health service channels should not be allowed. Artificial feeding should not be openly demonstrated in health facilities.

No personnel paid by companies producing or selling breastmilk substitutes should be allowed to work in the health care system, even if they

are assigned more general responsibilities that do not directly include the promotion of formulas, in order to avoid the risk of conflict of interest.

Production and distribution of foods for infants and young children should be governed by strict legal standards. The foods should be labelled to indicate proper and safe home preparation. Governments should adopt the recommended international standards covering foods for infants and young children developed by the Codex Alimentarius Committee on Foods for Special Dietary Uses and should support the elaboration of standards by this Committee to ensure nutritional value and safety. Governments that have not yet adopted such codes or regulations are urged to do so.

Products that are not suitable alone as weaning foods, such as sweetened condensed milk, cornstarch, cassava flour and cereal flours, should be required by proper regulations not to be packaged, labelled, advertised or otherwise promoted in ways that suggest they should be used as a complement or substitute for breastmilk. Vigorous educational efforts should be made against their misuse for the purpose by mothers.

Malnutrition and secondary immunodeficiency

Nutritional deficiency contributes substantially to childhood morbidity and mortality, particularly from infectious disease. In many parts of the world gross life-threatening malnutrition in the shape of marasmus and kwashiorkor is still rampant. For each case of severe malnutrition, there are at least 20 with mild to moderate deficiencies of one or more nutrients. Even in industrialized countries, deficits of nutrients are frequently seen in underprivileged segments of the population and certain "at-risk" groups.

Nutritional deficiency may be the result of reduced dietary intake, or may occur secondarily to malabsorption, loss of proteins and other nutrients through the gut, kidney or skin, chronic systemic disease, malignancy, chronic alcoholism, and drug addiction. Nutritional deficits have been noted in surgical patients and in those being fed parenterally. In addition, persons with certain inherited metabolic diseases may fail to utilize one or more nutrients because of reduced enzyme activity.

On a global scale, malnutrition, with frequently associated infections and infestations, is the commonest cause of immunodeficiency, which is variable in severity and largely reversible. Undernutrition predisposes the host to the risk of acquired infection and may augment the course, frequency of complications, severity and mortality of the infectious illness. Studies suggest that this is the result, at least in part, of thymolympathic atrophy and impaired immunocompetence secondary to moderate/severe nutritional deficiency. However, the important role of environmental factors such as sanitation, personal hygiene and overcrowding in the susceptibility of malnourished individuals to infection has not been quantified.

Infection in turn frequently worsens the nutritional status, often precipitating overt symptoms and signs, and causes immunosuppression. Thus there is a complex pathogenetic interaction between nutritional status, immune response and infection.

From: WHO Technical Report Series, No. 630. 1978 (*Immunodeficiency* report of a WHO Scientific Group), p. 61.

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