CORRELATE THE HEALTH STATUS OF INFANTS AND FEEDING PRACTICES OF MOTHERS IN SELECTED URBAN AREAS AT DHARAPURAM WITH A VIEW TO PREPARE A SELF INSTRUCTIONAL MODULE

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. MGR MEDICAL UNIVERSITY, CHENNAI IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

2010 – 2012
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INSTRUCTIONAL MODULE

APPROVED BY DISSERTATION COMMITTEE ON 18/11/2010

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ACKNOWLEDGEMENT

With deep sense of gratitude I thank the lord God Almighty for his grace and close presence, which strengthened and sustained me through his endeavour.

I extend my heartfelt thanks and gratitude to the management, Bishop’s College of Nursing for providing an opportunity to undergo this course to uplift my professional life.

My genuine gratitude to our prof. Mrs. VIJAYARANI PRINCE, M.Sc (N), M.A., M.A., M.Phil (N), principal of Bishop’s College of Nursing, Dharapuram for her ceaseless guidance, thoughtful comments, invaluable suggestions, and constant encouragement throughout the period of study.

I am highly obligated to Mr. John Wesley, Administrator, Bishop’s College of Nursing, Dharapuram for giving me an opportunity undergo this project.

I owe my profound gratitude to the Clinical Guide Mrs. Sheela Rani, M.Sc (N), Department of community Health Nursing for her enlightening ideas, constant guidance and encouragement throughout the study.

I am indebted to our class – coordinator Mrs. Glory suramajari M.Sc (N), for her expert guidance, Constant support and untiring efforts in the area of research, kindled my spirit and enthusiasm to go ahead and to accomplish this study successfully.

I express my genuine gratitude and obligation to Mr. K.Duraisamy.M.Sc.,M.Phil.,(stat) for his suggestion in analysis presentation of data.
I extend my gratitude to Mr. P. Sampath, M.A., M.Ed., (English) for his valuable English editing.

I extend my thanks to Mrs. D.M. D.Sivaranjini Mary, M.A., B.Ed, M.Phil., (Tamil) for his valuable Tamil editing.

My immense thanks to librarians of Bishop’s College of Nursing for their Co-operation in procuring books when needed.

I extend my heartfelt thanks to Mr. Vijay Kumar, Vijay Xerox, and Dharapuram for their kind co-operation in typing my thesis.

I continue to be indebted to all for their support, guidance and care who directly and indirectly involved in my progress of work and for the successful completion of this thesis.
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ABSTRACT

A child is unique individual he or she is not a miniature adult, not a little man or woman. Children are major consumers of health care. They are considered as special risk group. Majority of childhood sickness and death are preventable by simple low cost measures. A successful infant feeding requires co-operation between the mother and her baby. At no time in life is nutrition more important than in infancy.

Adequate nutrition promotes the wholesome growth and development of the child. As a result of poor knowledge on the part of the mother regarding the nutritional requirements of her baby, many babies do not get adequate food between 6 months and 2 years of age, a time when the mother is a substitute for feeding.

This study was aimed to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.

The research approach used for the study was descriptive survey approach. The design used for the study was descriptive correlational research design. Non probability purposive sampling technique was used to collect 100 samples of infants. The conceptual framework used for the study was based on the revised health belief model. Health status of infants was assessed by checking weight, height and head circumference using standard methods. Then the feeding practices of the mothers were assessed by structured interview schedule using rating scale. Self instructional module regarding complementary feeding was distributed to each study sample at the end of data collection. Data gathered were analyzed by using descriptive and inferential statistics.

Among 100 infants majority 78 (78%) of the infants had normal weight and 22(22%) had underweight. All the infants (100%) are having normal height and normal head circumference.
Majority 78(78%) of the mothers had moderately adequate feeding practice, 11 (11%) had inadequate feeding practice and 11 (11%) had adequate feeding practice.

There was a positive correlation \( r=0.55 \) between the level of feeding practice and the weight of the infants. The mean and standard deviation scores for the level of practice was 51.37 (SD± 6.3) and the mean and standard deviation scores for the weight of the infants was 7.49 (SD±1.28) respectively.

There was a positive correlation \( r=0.2 \) between the level of feeding practice and the height of the infants. The mean and standard deviation scores for the level of practice was 51.37 (SD±6.3) and the mean and standard deviation scores for the height of the infants was 67.93 (SD±3.17) respectively.

There was no correlation \( r=0.15 \) between the level of feeding practices of mothers and the head circumference of the infants. The mean and standard deviation scores for the level of practice was 51.37 (SD±6.3) and the mean and standard deviation scores for the head circumference of the infants was 42.2(SD±3.3) respectively.

There is no significant association of weight of the infant when compared to the selected demographic variables except for the age of infant \( (X^2=9.58) \).

There is no significant association of feeding practice of the mothers when compared to the selected demographic variables except for sex of the infant \( (X^2 =5.98) \), type of family \( (X^2= 12.47) \) and source of health information \( (X^2= 17.75) \).

The study findings revealed that adequate feeding practices of mothers will maintain the health status of infants.
CHAPTER - I
INTRODUCTION

“What is done to the children, they will do to the society. Children are wealth of tomorrow”.

Datta.P.,(2009)

BACKGROUND OF THE STUDY

A child is a unique individual; he or she is not a miniature adult, not a little man or woman. Children always need a special care to survive and thrive. Good health of these precious members of the society should be ensured as prime importance in all countries. Child health is greatly dependent on the family’s health. It depends upon family’s physical and social environment.

Datta.P.,(2009)

Modern concept of child health emphasizes on continuous care of “whole child”. According to UNICEF, assistance for meeting the needs of children should no longer be restricted to only one aspect like nutrition, but it should be broad-based and geared to their long term personal growth development ensuring holistic health care of children. At present, in child health care, more emphasis is given on preventive approach rather than curative care only.

Datta.P.,(2009)

Children are the most important age group in all societies. Health status and health behavior of later life are laid down at this stage. Child health care development of the child, should include specific biological and psychological needs must be met to ensure the survival and healthy development of the child, the future adult.

Datta.P.,(2009)

After the foetal phase, it is the infant’s first year which accounts for rapid growth. A healthy infant doubles his birth weight within 8 months, by the end of a year the child is 3 times its birth weight. The normal birth length in an
Indian baby is in the range of 46-54 cm. There is an increase in the body proportion.

**Vijaya.H.,(2009)**

Infant health is related to breast feeding because of the nutritional content and natural immunity agents contained in breast milk; at least for fully breast feed infants. Early weaning and bottle fed infants living under poor hygienic conditions are more prone to die than breast fed infants living under similar conditions.

**Park.K.,(2011)**

By 6 months of age an infant can voluntarily control suckling and swallowing. Between 7 and 8 months, munching reflexes becomes apparent. This permits consumption of solid foods. By 9-12 months, the infant can use her tongue to move food between the teeth and chew solids. This develops further between 12 and 18 months the baby is able to eat most semisolid foods. By 9 months family foods, modified and mashed can be given and between 1-1 ½ year, the child is able to eat most foods.

**Gosh.S.,(2006)**

Underfive age groups are vulnerable and special risk group constituting a major portion of total population with high death rate. The important causes of morbidity and mortality of this group are ARI, Diarrhoea, Neonatal and Perinatal diseases, infections and accidents. These conditions are mostly preventable with adequate health care. For this reason the underfive age group are provided with special health care through underfive clinic services. The services provided by the clinic are set out in the symbol, which has been proposed for underfive clinics in India.
Health assessment provides the data used to identify potential problems and serves as the basis for the establishment of nursing diagnosis. Nurses can be instrumental in helping the nation to achieve national health goals by participating actively in health assessment. Health assessment of children is an ongoing process that does not end when the first database is obtained.

Infants are commonly examined for anthropometry measurement, feeding pattern, immunization status and systemic examination. Anthropometry is a very valuable index for evaluation of health status. It includes measurement of height, weight, skin fold thickness, arm circumference, head and chest circumference. These are valuable indicators of nutritional status as well as patterns of growth and development.

The assessment procedure for this age group of 2 month to 1 year includes of important steps that must be taken by the health care provider, including history taking, checking for general signs, checking main symptoms, checking for anemia, assessing the child’s feeding, checking immunization status, assessing other problems.

IMNCI,(2010)
Breast feeding is advantageous for all—the baby, the mother and the society. It is perfect for the baby, even when the mother is ill, pregnant, menstruating or even undernourished. Breast milk is a normal ideal food because it contains all the nutrients that baby needs for the first 6 months. Exclusive breast feeding means the infant receives only breast milk foods with the exception of undiluted drops or syrups consisting of vitamin and mineral supplements or medicines. Breast feeding is exclusive for first six months and continued up to 2 years and beyond.

Complementary feeding can be defined as any non breast milk food or nutritious foods given to young children in addition to breastfeeding. Weaning is the process of gradually introducing foods other than breast milk in the child’s feeding schedule. Weaning is started between 4-6 months.

Weaning to be initiated during 4-6 months with fruit juices, especially the grape juice, which is low in sorbitol. Within one or two weeks new foods to be introduced with biscuit soaked in milk, vegetable soup, mashed banana, mashed and boiled potato etc. Food items to be given during 6-9 months include soft mixture of rice and dhal, khichiri, pulses, mashed and boiled potato, bread or roti soaked in milk or dhal, mashed fruits like banana, mango, papaya, stewed apple, etc. More variety of household foods can be added during 9-12 months. New food items like fish, meat, and chicken can be introduced during this period. During 12-18 months the child can take all food cooked in the family and needs half amount of mother’s diet.

Gosh.S.,(2006)

Malnutrition affects the health status of children. Unavailability and scarcity of suitable food, lack of money for purchasing food. Traditional beliefs and taboos about child’s diet and insufficient balanced diet are resulting in malnutrition. It is the underlying cause of childhood illness and death among underfive age group. Malnutrition in infancy and childhood leads to growth
retardation; undernourished children do not grow to their full potential of physical and mental abilities.

Datta.P.,(2009)

A child can be malnourished but the family members and health care provider should notice the problem. Identifying malnutrition and treating them can help prevent many severe diseases and death. Some malnutrition cases can be treated at home. Severe cases need referral to hospital for treatment. All children must be routinely assessed for malnutrition and corrected by counseling the mothers and acceptable feeding recommendations. If the child is not very low weight their feeding should be assessed because children less than 2 years old have a higher risk of feeding problems and malnutrition.

IMNCI,(2010)

Provision of adequate nutrition and nutritional intervention can increase the resistance of infection, improve wound healing, prevent organ failure and reduce morbidity. Feeding assessment includes breast feeding and night feeds, types of complementary foods or fluids, frequency of feeding and whether feeding is active and feeding pattern during illness. The mother should be given appropriate advice to help overcome any feeding problems.

Sucithra.R.,(2010)

Feeding problems are noticed by assessing the difficulties of breast feeding, use of feeding bottle, lack of active feeding and not feeding well during illness. Mothers and care takers should be counseled to give fluids and to offer types of food recommended, even though a child may take small amounts at each feeding during illness. After the illness, good feeding helps make up for weight loss and helps prevent malnutrition. When the child is well, good feeding helps prevent future illness.

IMNCI,(2010)
Balanced and sufficient nutritional intake is most essential for children to promote optimal growth and development to protect and maintain health, to prevent nutritional deficiency and various illnesses. Too little feed, large amount feeding, wrong technique of feeding, bottle feeding, inexperienced mothers are the responsible and prominent causes of feeding problems. These problems are preventable by simple measures. The nutritional statuses of an individual are influenced by the adequacy of food intake both in terms of quantity and quality and also by the physical health of the individual.

Datta.P.,(2009)

Assessment of nutritional status involves various techniques with different approach. It includes dietary history, clinical examination, anthropometry, biochemical evaluation, functional assessment and radiology. Factors influencing the nutritional status like socio economic factors, health care services, educational facilities and participating factors like parasitic, bacterial and viral infections also need to be assessed to have complete information regarding nutritional status.

Datta.P.,(2009)

It is important to consider the role of food preferences and cultural, lifestyle and financial variations when assessing the food intake. Any religious dietary restrictions should be determined. Mothers are the responsible for the person for the promotion of health during the infant period. In later half of infancy, guidance and counseling should concern which should be completed within one year of child’s age. Weaning is an important transitional period in relation to child’s nutrition.

Datta.P.,(2009)

It is computed that exclusive breast feeding and appropriate complementary feeding will lead to a 20 percent reduction in infant mortality rate. Improvement in infant and young child feeding and caring through coordinated efforts of integrated child development services (ICDS) and
national rural health mission (NRHM) can result in substantial improvement in nutrition and health status and survival during the critical first two years.

**NFHS – 3,(2008)**

**NEED FOR THE STUDY**

Infants (0-1) year constitute 2.92% of the population in India. Of the 136 million children born each year in the world, 90% are in the third world. Although the chances of survival of these newborns has improved by 50% in the least 20 years, the first few hours, days and months of their lives are still an obstacle race. About 40% of total infant mortality occurs in the first month of life.

**Park.K.,(2011)**

Every infant and child has the right to good nutrition according to the conventions on the rights of the child. Under nutrition is associated with 35% of the disease burden in children under five. Globally, 30% (or 186 million) of under five children are estimated to be stunted and 18% (115 million) have low weight for – height, mostly as a consequence of poor feeding and repeated infections, while 43 million are overweight on average about 35% of infants 0-6 months old are exclusively breast fed. Optimal breast feeding and complementary feeding practices can save the lives of 1.5 million under five children every year.

**WHO,(2003)**

The rate of exclusively breast feeding in Canada is 16%, in India 46%, in Pakistan 37% and in Nepal 53%. In regions of Americas the rate of exclusively breast feed are 30%, in South East Asia region 41%. The exclusive breast feed rate is high in low income groups (41%) and it is less in high income group (17%).

**WHO statistics report,(2011)**
8% of the infants were exclusively breast fed (0-5months) in South Africa and 49% of the infants were given complementary feed and breast feeding (2003). 37% of the infants were exclusively breast fed during 0-5 months and 36% of the children receive both complementary and breast feed during 6-9 month (2005) in Pakistan. 46% of the infants were given exclusive breast feeding during 0-5 months and 57% of the infants received both breast feed and complementary feed during 6-9 months in India (2005).

UNICEF,(2009)

Almost half of the children under five years of age (48 percent) are stunted and 43 percent are underweight. The proportion of children who are severely undernourished is also notable: 24% are severely stunted and 16 % are severely underweight. Wasting is quite a serious problem in India, affecting 20% of children under five years of age. Very few children under five years of age are overweight. Only 44% of breastfed children are fed at least the minimum number of times recommended and only half of them also consume food from three or more food groups. Feeding recommendations are followed even less often for non breastfeeding children. Overall only 21% of breastfeeding and non breastfeeding children are fed according to the infant and young child feeding recommendations. The timely complementary feeding rate increases to 74 % at age 9-11 months and 81% at age 12-17 months. Use of bottles with nipples is not common in India. Bottle feeding increases from 5% under age two months to 18 percent at age 9-11 months and declines at older ages.

NFHS-3(2005-2006)

According to the country wide (India) data of the National family Health Survey 1998-1999 (NFHS-2), only 55% of children at 2 months of age are exclusively breast fed, 23% receive breast milk plus water and 20% receive supplements along with help an hour after 24 hours. A large number of mothers squeezed the first milk thinking it to be dirty.

Gosh.S.,(2009)
The percentage of children exclusively breast fed drops steadily from 72% for children under one month of age to about 20% who are 6 months old, during the period which exclusive breastfeed is recommended by WHO and UNICEF. The proportion of children receiving breast milk and supplements increases from 10% for children in the first month of life 18% for children age 12 months and declines thereafter as a large number of children are weaned off the breast. 92% babies are still being breastfed 12 months and 59% even at 2 year.

Gosh.S.,(2009)

According to NFHS-2 (1998-99), only 24% of breast feeding children who are 6 months old consume solid or musty food, the quantify being quite small. This proportion rises to only 46% at 9 months of age.

Gosh.S.,(2009)

In the country wide National Family Health Survey,(1998-99), it was found that only 33.5% children were being given semisolids at 6-9 months. Range was from 72.9% in Kerla to only 17.5% in Rajastan and 17.3% in Uttarpradesh. In all major 6 states except Kerla, Tamil Nadu, Andhrapradesh, Himachal Pradesh and Assam more than 50% of children of aged 6-9 months were not receiving semisolids food in addition to breast milk. In Tamil Nadu 56.5% were receiving at correct time.

Gosh.S.,(2009)

In rural Chennai, 45% of the children were underweight, 51% were stunted and 21% were wasted (low weight for height)

Srilatha.V.,(2003)

In rural districts of salem, the prevalence is higher to 50% than in urban areas (38%). It is highest in female children (48.9%) than among male children (45.5%). It is estimated to be large in scheduled cases 53.2% and in scheduled tribes 56.2%.

Deven.N.,(2001)
In urban Chennai, 40% of children had stunted growth and 33% are underweight. Both boys and girls are equally affected. Overall, in Tamil Nadu 46.6% children in rural and 36.7% of children in urban area are suffering from malnutrition.

Venkatareddy,(2004)

Some nutritional programmes are successfully running in our India to improve the child’s nutritional status includes Vitamin A prophylaxis programme, Prophylaxis against nutritional anaemia, Control of iodine deficiency disorders, Special nutrition programme, Balwadi nutrition programme, ICDS programme, Mid-day meal programme and Mid-day meal scheme.

Park.K.,(2011)

The World Bank estimates that India is ranked 2\textsuperscript{nd} in the world of the number of children suffering from malnutrition, The prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa with dire consequences for mobility, mortality, productivity and economic growth. Today child malnutrition is prevalent in 7% of children under the age of 5 in China and 28 percent in sub-Saharan African compared to a prevalence of 43% in India. Under nutrition is found mostly in rural areas and is concentrated in a relatively small number of districts and villages with 10 percent of villages and districts accounting for 27-28% of all underweight children.

M.Swaminathan Research foundation(2009)

Child malnutrition is responsible for 22% of India’s burden of disease. Micronutrient deficiencies are also a widespread problem in India. The prevalence of micronutrient deficiencies varies in different states, More than 75% of preschool children suffer from iron deficiency anemia (IDA) and 57% of preschool children have sub-clinical Vitamin A deficiency (VAD). Iodine deficiency is endemic in 85% of districts. The prevalence of underweight in
rural areas are 50% versus 38% in urban areas and higher among girls (48.9%) than among boys (45.5%). Undernutrition is substantially higher in rural areas than in urban areas. Even in urban areas, however, 40% of children are stunted and 33% are underweight.

M. Swaminathan Research Foundation, (2009)

Juby Rose, (2010) conducted a study to determine the nutritional status of infants, in Karnataka. The research approach used in the first phase of the study was survey approach with cross sectional design and an evaluative approach was selected in the second phase to determine the effectiveness of PTP on feeding practices. 1112 mothers and their infants were selected. Non probability purposive sampling technique was used 68.8% of infants was not given bottle feed when they were on breast feed. 30.68% were started on complementary feed at 4 months.

The researcher during her community posting observed that many mothers were not started the weaning food even after 6 months of age to their children. The infants also have not gained adequate weight due to improper feeding practices. So the researcher felt the need to assess the health status of infants and feeding practices of mothers.

STATEMENT

A STUDY TO CORRELATE THE HEALTH STATUS OF INFANTS AND FEEDING PRACTICES OF MOTHERS IN SELECTED URBAN AREAS AT DHARAPURAM WITH A VIEW TO PREPARE A SELF INSTRUCTIONAL MODULE.

OBJECTIVES

1. To assess the health status of infants
2. To assess the level of feeding practices of mothers
3. To find the relationship between the health status of infants and feeding practices of mothers.
4. To find the association of feeding practices of mothers with their selected demographic variables.
5. To find the association of health status of infants with their selected demographic variables.

OPERATIONAL DEFINITIONS

Correlation
An association or bond between variables, with variation in one variable systematically related to variation in another.

Polit,(2008)

In this study it refers to the significant relationship exists between the infant’s health status and feeding practices of mothers which is measured by using statistical measurements.

Health
“Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity”.

Park.K.,(2011)

Health status of infants
In this study the health status of infants includes normal height, weight and head circumference which is assessed by using standard methods. Weight is assessed by using standard weighing scale, height and head circumference is measured by simple inch tape method and the readings are compared with WHO standards using percentiles.

Infant
Infants are the children aged from one month to one year.

Wong’s,(2004)
In this study it refers to the infants who are in the age group between 6 months to one year.

**Feeding practice**

Offering the food or nourishing someone else.

*Cowie.A.P.,(2008)*

In this study it refers to the knowledge on practice in terms of response of the mothers regarding feeding practices which is measured by rating scale and its score.

**Mother**

Mother is a women who has given birth to a child

*John.B(2003)*

In this study mothers who are having the infant of 6 months to 12 months of age.

**Self instructional module**

A learning package for achieving pre specified objectives; a module is self contained and includes the instructional material a necessary for the learning of specific unit or topic.

*Santombi devi elsa, (2009)*

In this study it refers to a structured, sequentially arranged and written, in simple language to facilitate self learning, which is prepared by the researcher to provide information regarding complementary feeding which includes, exclusive breast feeding, reasons for exclusive breast feeding, meaning, benefits, age of introduction, frequency, types, commercially available foods, age related guidelines, risks of early introduction, and risks of late introduction of complementary feeding.
Hypotheses

\( H_1 : \) There will be a significant correlation between the health status of infants and the feeding practices of mother.

\( H_2 : \) There will be a significant association between the health status of infants with their selected demographic variables.

\( H_3 : \) There will be a significant association between the feeding practices of mothers with their selected demographic variables.

ASSUMPTIONS

- The mothers may have some knowledge regarding feeding practices.
- Feeding practice may influence the health status of infants.

DELIMITATION

This study is limited to

- The sample size is 100
- The data collection period is 5 weeks

PROJECTED OUTCOME

Assessing the health status of the infants and will help to identify the early malnutrition which in turn will prevent the future problems related to growth and development among infants. Assessing the feeding practices of the mothers and giving self instructional module helps the mother to know the importance of breast feeding, complementary feeding and their merits and demerits.
CONCEPTUAL FRAMEWORK

The conceptual framework for this study was based on the revised health belief model Rosenstock, Strecher and Becker, (1988) which addresses the relationship between a person’s beliefs and behaviors. It provides a way of understanding and predicting how client will behave in relation to their health and how they will comply with health care therapies. It is concerned with what people perceive, or believe to be true about themselves in relation to their health.

Health belief model has 3 components

- Background
- Perception
- Action

BACKGROUND

According to theorist, background for one’s health beliefs include demographic variables such as age or race and socio psychological variables such as personality, peer group pressure and socio economic factors.

In this study it refers to socio demographic factors such as age and sex of the child, Age of the mother, Religion, Education of the mother, Number of children, Occupation of the mother, Family income per month, Type of family, Number of episodes of infections in the last month, Source of health information regarding complementary feeding.

INDIVIDUAL PERCEPTION

Perceived susceptibility

According to theorist, perceived susceptibility is the people will not change their health behaviors unless they believe that they are at risk.

In this study it refers to Mother may have inadequate feeding practice and mother may not monitor the child’s weight periodically.
Perceived severity of illness

According to theorist, perceived severity of illness is the probability that a person will change his/her health behaviors to avoid a consequence depends on how serious he or she considers the consequences to be.

In this study it refers to Mother may not take measure to improve the infant health status unless they believe that the inadequate feeding practice may end up in malnutrition, reduced immunity and retarded physical and mental growth. Infant health status was assessed by checking weight, height and head circumference which was interpreted as normal & underweight, normal & stunted growth and normal and under normal respectively based on the WHO standards using percentiles. Mothers feeding practice was assessed by using rating scale and graded as adequate, moderately adequate and inadequate feeding practice.

EXPECTATIONS

Perceived benefits

According to theorist, perceived benefits is an individual assessment of the positive consequences of adopting the behavior,

In this study it refers to the adequate weight gain and Normal health status of infants

Perceived barriers

According to theorist, perceived barriers are the individual’s assessment of the influences that facilitate or discourage adoption of the promoted behavior.

In this study it refers to the Myths and beliefs, Poor economic status, lack of time, Lack of knowledge and cultural restrictions.

Perceived self efficacy

According to theorist, Self efficacy looks at a person’s belief in his/her ability to make a health related change.

In this study it refers to Confidence in giving complementary feeding.
CUES TO ACTION

According to theorist, cues to action are external events that prompt a desire to make a health change. External influences promoting the desired behavior may include information provided or sought, reminders by powerful others, persuasive communications and personal experiences.

In this study it refers to Mother seeks information regarding complementary feeding from friends, relatives, neighbors and health workers. Self instructional module regarding complementary feeding was given to the mothers at the end of data collection.

BEHAVIOR:

According to theorist, behavior refers to likelihood of taking recommended preventive health action to reduce the threat based on expectations.

In this study it refers to improve the feeding practice and to improve the health status mother may decide to give appropriate complementary feeding to the infant and monitor the child’s growth
**BACKGROUND**

Socio Demographic factors
- Age of the infant
- Sex of the infant
- Age of the Mother
- Religion
- Education of the mother
- Number of Children
- Occupation of the mother
- Family Income per month
- Type of family
- Number of episodes of infections in the last month
- Source of health information regarding complementary feeding.

**PERCEPTION**

**THREAT**

Perceived Susceptibility:
- Mother may have inadequate feeding practice and mother may not monitor the child’s weight periodically.

Perceived severity of ill health condition:
- Mother may not take measure to improve the infant health status unless they believe that the inadequate feeding practice may end up in malnutrition, reduced immunity and retarded physical and mental growth.

Infant health status was assessed by checking weight, height and head circumference which was interpreted as normal & underweight, normal & stunted growth and normal and under normal respectively based on the WHO standard using percentiles. Mother’s feeding practice was assessed by using rating scale and graded as adequate, moderately adequate and inadequate.

**EXPECTATIONS**

Perceived Benefits:
- Adequate weight gain
- Normal health status of infants.

Perceived Barriers
- Myths and beliefs
- Poor economic status
- Lack of time
- Lack of knowledge
- Cultural restrictions

Perceived self efficacy:
- Confidence in giving complementary feeding

**CUES TO ACTION**

- Mother seeks information regarding complementary feeding from friends, relatives, neighbors and health workers.
- Self instructional module was given to the mothers at the end of data collection.

**BEHAVIOUR**

To improve the feeding practice and to improve the health status mother may:
- Decide to give appropriate complementary feeding to the infant
- Monitor the child’s growth

---

**FIG – 1: CONCEPTUAL FRAMEWORK, REVISED HEALTH BELief MODEL- (ROSENSTOCK, STRECHER, BECKER, 1998)**
CHAPTER-II
REVIEW OF LITERATURE

The review of literature for the present study has been derived from published articles, text books, reports and med line search and it is organized as follows.

PART-I: OVERVIEW OF,

A. INFANT HEALTH STATUS
B. PREVALENCE OF MALNUTRITION
C. FEEDING PRACTICES

PART-II
a) STUDIES RELATED TO INFANT HEALTH STATUS
b) STUDIES RELATED TO FEEDING PRACTICES.
c) STUDIES RELATED TO NURSES ROLE IN PROMOTION OF INFANT HEALTH STATUS

PART-I:

A. OVERVIEW OF INFANT HEALTH STATUS

Infancy

Infancy is a period of rapid growth. During the first year of life the infant grows and develops more rapidly than at any other time in life. This is evident from the fact that totally helpless newly born child, who is completely dependent on mother or caretaker, develops a fair degree of physical and mental abilities by the first birthday. The child develops the ability of speech and is able to express himself. He attains a fairly good motor development, holds objects and starts walking. Infant period is from birth to one year.

Wong’s (2009)
Child health status

Child health refers to a state of complete physical, mental and social well being and not merely the absence of disease or infirmity in matters relating to growth and development of foetus during antenatal period and from birth of the baby till 5 years of age.

Gulani.K.K.,(2005)

Health indices

a) Weight

Weight is one of the best criteria for assessment of growth and a good indicator of health and nutritional status of child.

The average birth weight of newborn is about 10% of his body weight due to losses of extracellular fluid. He regains the weight by the age of 10 days subsequently. He gains weight at the rate of approximately 25 to 30 g per day for the first 3 month. An infant usually doubles his birth weight by the age of 5 months and the birth weight trebles at 1 year and is four times at 2 years. At 6 months of age the average weight of infant is 7.4±1 Kg and he or she gains about 340gm a month or 90-150 gm a week during second 6 months.

Measurement of weight to be done by the use of same weighing scale and with accuracy. Beam balance, electronic weighing machine and adult weighing machine can be used according to availability, child’s age and ability. Weighing should be done with minimum clothing to prevent chilling.

Weight of infants will be calculated by using the formula; \[ \frac{\text{Age in months} + 9}{2} \]

Piysuh.G.,(2008)

b) Length or height

The baby measures 50 cm at birth, 60 cm at 3 months, 70 cm at 9 months and 75 cm at 1 year. The average height at this stage is 65.5±3 cm and increases about 1.25 cm, a month during second 6 months.
Infantometer or simple tape measure is used for assessing the crown heel length by placing the child on hard surface in supine position with extended legs.

c) Head circumference

Head circumference is 35 cm at birth, 40 cm at 1 year. Chest circumference is 3 cm less than head circumferences at birth and by the age of one year, head and chest circumferences are almost same. 43 cm increases about 0.5 cm a month during second 6 months. Head circumference can be measured by a tape measure, placing it over the occipital protuberance at the back, above the ears on the sides and just over the supraorbital ridges in front and measuring the point of highest circumference. Head circumference is measured by ordinary inch tape.

d) Chest circumference

At birth, head circumference is larger than chest circumference by about 2.5 cm. By 6-12 months, both are equal. After first year, chest circumference tends to be larger by 2.5 cm. For measuring chest circumference place the inch tape at the level of nipple line in a plane at right angle to the spine. Record the measurement in mid respiration.


Development of infant feeding abilities

- The rooting reflex and the suck, swallowing mechanism are present at birth and they facilitate feeding
- By 6 months an infant can voluntarily control sucking and swallowing and biting movements begins
- By 7 months the gag reflex that moves food from mid position to the posterior third of the tongue and assist in feeding solids.
By 8 months munching reflex up and down mandibular movement becomes apparent. This permits consumption of solid food. Lateral movement of the tongue which also pushes food to the molars also emerges.

By 9-12 months of infant can use lips to clean a spoon and use the tongue to move food between the teeth and chew solids.

**Changes in gastro-intestinal system**

A full term baby has the ability to digest simple proteins and carbohydrates. As the child grows, the digestive ability improves.

**Excretory system**

During the early months of life, the filtration rate of the kidney is low and the child finds it difficult to excrete a high concentration of solutes. By the end of the first year of life, the functional capacity of the kidneys is fully developed.

**Mental development**

There is rapid increase in the number of brain cells during the first 5-6 months and the rate of cell division after this. Malnutrition during infancy affects his brain development and may lead to mental retardation.

**Changes in feeding behavior**

Maturation of the nervous system, particularly the one controlling muscular co-ordination, brings about a change in the feeding behaviour. At birth, the baby is able to co-ordinate sucking, swallowing and breathing. Although eyes cannot be focused, the baby is able to find nourishment by the rooting reflex. Till about 3 months the baby sucks with the up and down movements push the food out. By 3-4 months, tongue movements change and the child is able to swallow and by the six months chewing movement also develop.

**Gosh.S.,(2006)**

**Important milestones**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social smile</td>
<td>4-6 weeks</td>
</tr>
<tr>
<td>Head holding</td>
<td>3 months</td>
</tr>
<tr>
<td>Sits with support</td>
<td>6 months</td>
</tr>
<tr>
<td>Sits without support</td>
<td>7 months</td>
</tr>
<tr>
<td>Reaches out for a bright object and gets it</td>
<td>5-6 months</td>
</tr>
<tr>
<td>Transfer object from one hand to the other</td>
<td>6-7 months</td>
</tr>
<tr>
<td>Starts imitating cough</td>
<td>6-7 months</td>
</tr>
<tr>
<td>Crawls</td>
<td>8-10 months</td>
</tr>
<tr>
<td>Creeps</td>
<td>10-11 months</td>
</tr>
<tr>
<td>Stands holding furniture</td>
<td>9 months</td>
</tr>
<tr>
<td>Walks holding furniture</td>
<td>12 months</td>
</tr>
<tr>
<td>Stands without support</td>
<td>10-11 months</td>
</tr>
<tr>
<td>Says one word with meaning</td>
<td>12 months</td>
</tr>
</tbody>
</table>

**Common health problems of infants**

- Low birth weight
- Malnutrition
- Infections and infestations
- Accidents and poisoning
- Behavioural problems

**Problems related to normal infant development**

- Thumb sucking
- Use of pacifiers
- Sleep problems
- Constipation
- Loose stools
- Colic
- Spitting up
- Diaper dermatitis
- Baby bottle syndrome
- Obesity

**Nurses role in health promotion of infants**

- Promoting safety
- Preventing aspiration
- Preventing falls and accidents
- Promoting nutritional health of the infant
- Promoting achievement of developmental task
- Promoting sensory stimulation
- Promoting infant development in daily activities.

*Wong’s (2009)*

**Normal growth chart**

*A prototype growth chart developed by WHO*
It has two reference curves the upper curve represents 50\textsuperscript{th} percentile and lower curve represents 3\textsuperscript{rd} percentile. The space between the two growth curves has been called the “road-to-health”.

### Weight (kg) by age 6-12 months (WHO standard)

<table>
<thead>
<tr>
<th>AGE IN MONTHS</th>
<th>PERCENTILES FOR BOYS</th>
<th>PERCENTILE FOR GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3rd</td>
<td>5th</td>
</tr>
<tr>
<td>6</td>
<td>6.4</td>
<td>6.6</td>
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<tr>
<td>7</td>
<td>6.7</td>
<td>6.9</td>
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<tr>
<td>8</td>
<td>7.0</td>
<td>7.2</td>
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<td>9</td>
<td>7.2</td>
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<td>7.7</td>
<td>7.9</td>
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<tr>
<td>12</td>
<td>7.8</td>
<td>8.1</td>
</tr>
</tbody>
</table>

### Length (cm) by age 6-12 months (WHO standard)

<table>
<thead>
<tr>
<th>AGE IN MONTHS</th>
<th>PERCENTILES FOR BOYS</th>
<th>PERCENTILE FOR GIRLS</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>3rd</td>
<td>5th</td>
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<tr>
<td>6</td>
<td>63.6</td>
<td>64.1</td>
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<td>7</td>
<td>65.1</td>
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<td>70.7</td>
</tr>
<tr>
<td>12</td>
<td>71.3</td>
<td>71.8</td>
</tr>
</tbody>
</table>
Head circumference (cm) by age 6-12 months (WHO standard)

<table>
<thead>
<tr>
<th>AGE IN MONTHS</th>
<th>PERCENTILES FOR BOYS</th>
<th>PERCENTILE FOR GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3rd</td>
<td>10th</td>
</tr>
<tr>
<td>6.5</td>
<td>41.5</td>
<td>42.3</td>
</tr>
<tr>
<td>9.5</td>
<td>43.1</td>
<td>43.9</td>
</tr>
<tr>
<td>12.5</td>
<td>44.1</td>
<td>44.9</td>
</tr>
</tbody>
</table>

Piyush.G.,(2008)

B) PREVALENCE OF MALNUTRITION

Definition

Malnutrition has been defined as “a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients”

Park.K.,(2011)

Prevalence

During 2000-2007, more than 25% of the world’s children under the age of 5 years were underweight for their age. The proportion ranged from 1% of children in developed countries to 26% in developing countries.

Both acute and chronic under nutrition were found to be high in all the 7 states in India for which reports have so far been received, namely, Haryana, Karnataka, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh and Goa. At present in India 65% children under 5 years of age were underweight. This includes 43% moderate to severe cases, 16% severe malnutrition, of these, 19% percent have moderate to severe wasting and 38% moderate and severe stunting.

Assessment of nutritional status

1. Clinical examination: physical signs and symptoms of nutrient deficiency diseases
2. Anthropometry: height, weight, arm circumference and skin fold thickness are valuable indicators of nutritional status. For young children additionally head and chest circumference are measured.
3. Laboratory and biochemical assessment: haemoglobin estimation, stool and urine examination, biochemical test, nutrient concentration in body fluids, detection of abnormal amount of metabolites in urine and measurement of enzyme.


5. Assessment of dietary intake: direct assessment of food consumption which involves dietary surveys which may be household inquiries or individual food consumption survey.

Malnutrition cycle

Park.K., (2011)
Classification of protein energy malnutrition

1. Gomez’ classification:
   It is based on weight retardation.
   \[
   \text{Weight for age (\%) = } \frac{\text{weight of the child}}{\text{weight of a normal child of same age}} \times 100
   \]
   - Between 90 and 110% : normal nutritional status
   - Between 75 and 89% : 1st degree malnutrition (mild)
   - Between 60 and 74% : 2nd degree malnutrition (moderate)
   - Under 60% : 3rd degree malnutrition (severe)

2. Waterlow’s classification:
   When a child’s age is known, measurement of weight enables almost instant monitoring of growth: measurements of height assess the effect of nutritional status on long term growth.

<table>
<thead>
<tr>
<th>W/H</th>
<th>H/A</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;m-2SD</td>
<td>Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;m-2 SD</td>
<td>Stunted</td>
<td>Wasted and stunted</td>
<td></td>
</tr>
</tbody>
</table>

Interpretation of indicators:

- **Weight/height (%)**
  \[
  \text{Weight/height (\%) = } \frac{\text{weight of the child}}{\text{weight of a normal child at same height}} \times 100
  \]
  - Normal: >95
  - Mildly impaired: 87.5-95
  - Moderately impaired: 80-87.5
  - Severely impaired: <80

- **Height/age (%)**
  \[
  \text{Height/age (\%) = } \frac{\text{height of the child}}{\text{height of a normal at same age}} \times 100
  \]
  - Normal: >95
  - Mildly impaired: 87.5-95
  - Moderately impaired: 80-87.5
  - Severely impaired: <80

Park.K.,(2011)
Problems of malnutrition

- Protein energy malnutrition
- Anemia
- Rickets
- Nutritional blindness
- Growth retardation

NUTRITIONAL PROGRAMMES IN INDIA

1. Vitamin A prophylaxis programme
   
   This programme was launched in the year of 1970. One of the components of the National Programme for Control of Blindness is to administer a single massive dose of an oily preparation of vitamin A containing 200,000 IU (110 mg of retinol palmitate) orally to all preschool children in the community every 6 months through peripheral health workers.

2. Prophylaxis against nutritional anaemia
   
   This programme consists of distribution of iron and folic acid tablets to pregnant women and young children.

3. Control of iodine deficiency disorders
   
   The National Goitre Control Programme was launched by the Government of India in 1962. Objectives of this study was identification of the goiter endemic areas to supply iodized salt in place of common salt and to assess the impact of goiter control measures over a period of time.

4. Special nutrition programme
   
   This programme was started in 1970 for the nutritional benefits of children below 6 years of age, pregnant and nursing mothers and is in operation in urban slums, tribal areas and backward rural areas. The supplementary food supplies about 300 kcal and 10-12 grams of protein per child per day. The beneficiary mothers receive daily 500 kcal and 25 grams of protein. This supplement is provided to them for about 300 days in a year.
5. Balwadi nutrition programme

This programme was started in 1970 for the benefit of children in the age group 3-6 years in rural areas. The programme is implemented through Balwadi which also provide preprimary education to these children. The food supplement provides 300 kcal and 10 grams of protein per child per day. Balwadis are being phased out because of universalization of ICDS.

6. ICDS programme

Integrated Child Development Service (ICDS) programme was started in 1975 in pursuance of the National Policy for children. Beneficiaries are preschool children below 6 years, and adolescent girls 11-18 years, pregnant and lactating mothers. Each Anganwadi unit covers a population of about 1000.

7. Mid-day meal programme

The mid-day meal programme (MDMP) is also known as School Lunch Programme. This programme has been in operation since 1961 throughout the country. The major objective of the programme is to attract more children for admission to schools and retain them so that literacy improvement of children could be drought about.

A model menu for a mid-day school meal is,

**Foodstuffs**

- Cereals and millets - 75 g/day/child
- Pulses - 30 g/day/child
- Oils and fats - 8 g/day/child
- Leafy vegetables - 30 g/day/child
- Non-Leafy vegetables - 30 g/day/child

8. Mid-day meal scheme

It was launched on 15th August 1995 and revised in 2004. The programme originally covered children of primary stage (classes I to V). A cooked mid-day meal with minimum 300 calories and 8-12 grams of protein content will be provided to all the children in class I to V.
9. Diarrhoeal disease programme

It was started in 1978 with the objective of reducing the mortality and morbidity due to diarrhoeal diseases. Since 1985-86, with the inception of the national oral rehydration therapy programme, the focus of activities has been on strengthening case management of diarrhea for children under the age five years and the maternal knowledge related to use of home available fluids, use of ORS and continued feeding.

10. Applied nutrition programme

UNICEF is assisting in the implementation of the applied nutrition programme in the form of implements, seeds, manure and water supply equipment. Wherever the land is available, the facilities provided by the UNICEF should be utilized in developing school gardens. The produce may be utilized in the school feeding programmes as well as for nutrition education.

Park.K.,(2011)

World breastfeeding week

With a goal to boost the health of infants worldwide and encourage mothers to breastfeed, nearly 120 countries around the world celebrate World Breastfeeding Week from 1-7 August every year. Theme for the years 20011 is “talk to me! – a 3D experience” A 3 dimensions includes time, place and communication.

Prabhudeva.S.S.,(2011)

Baby friendly hospital initiatives (BFHI)

A new BFHI created and promoted by WHO and UNICEF, has proved highly successful in encouraging proper infant feeding practices, starting at birth. BFHI is supported by the major professional medical and nursing bodies in India. The global BFHI has listed ten steps which the hospital must fulfill.

Park.K.,(2011)

FEEDING PRACTICES

The first food for the infant is mother’s milk. It is nature’s gift for the child fortunately, even a poorly nourished mother is able to nurse her child
satisfactorily at least during first few months of life. Documented evidence has shown that infants grow well on exclusive breast feeding for first 6 months of life. This is beneficial for child, not only during this period but even in the later years of life. During this period, the baby does not even need water supplements as breast milk provides enough water even for the summer months. On the other hand, water supplements may prove harmful as it may be unhygienic. So breast feeding should be started as soon as possible immediately after birth.

**Exclusive breast feeding**

Only breast milk is given. No other food or drink, not even water is given. Medicines, vitamins or mineral drops are permitted if indicated.

_Gosh.S.,(2006)_

**Expressed breast milk**

If a mother is not in a position to feed her baby (e.g., ill mother, preterm baby, working mother etc.) or has engorged breasts, she should express her milk in a clean wide mouthed container and this milk should be fed to her baby. Expressed breast milk can be stored at room temperature for 10 hours, in a refrigerator for 24 hours and a freezer at -20 C for 3 months.

_Ghai.O.P.,(2004)_

**Weaning or complementary feeding**

Weaning is the process of gradually introducing foods other than breast milk in the child’s feeding schedule. Weaning is started between 4-6 months.

_Gosh.s(2006)_

**Starting at 6 months of age and no later**

Start with mashed fruit like banana, or cereal. Porridge can be made with Atta, ground rice, ragi, millet, etc. Mix a little oil or ghee in the porridge as oil is a very rich source of energy. Give one to two teaspoons to begin with and gradually increase over the next three to four weeks, so that by that time the baby is taking 50 to 60 g of porridge (half cup) or one whole banana. Other fruits in season like papaya, and mango can be given in a similar manner. In the hills apple, apricot and pear can be given after cooking them for a few minutes.
Banana is an excellent food. Commercial weaning foods are not needed for babies. Reassure the families that it is not necessary to buy expensive baby foods and that suitable weaning food can be made from the family food, as they provide the same nourishment to the baby as any other food prepared by the mother. Fresh food prepared at home is always preferable.

Mashed rice with dhal or kichiri, mashed vegetables, a little roti softened in dhal or milk can be given from the foods normally cooked at home. Similar suitable foods are eaten in different parts of India. Add a little oil for extra calories. Spices can be added after taking out the baby’s share of the food. The diet should contain some green vegetables.

**Gosh.S.,(2006)**

**4-6 months**

Weaning to be initiated with fruit juices, especially the grape juice, which is low in sorbitol. Within one or two weeks new foods to be introduced with, biscuit, soaked in milk, vegetable soup, mashed banana, mashed and boiled potato etc. each food should be given within one or two teaspoons at first for 3-6 times per day. Foods should not be over diluted. Within 3 to 4 weeks amounts of food to be increased to half a cup. Breastfeeding must be continued.

**6-9 months:**

Food items to be given in this period include soft mixture of rice and dhal, khichiri, pulses, mashed and boiled potato, bread or roti soaked in milk or dhal, mashed fruits like banana, mango, papaya, stewed apple, etc. Egg yolk can be given from 6-7 months onwards. Curd and khir can be introduced from 7-8 months onwards. By the age of 6-9 months the infant can enjoy bite biscuits, piece of carrot and cucumber. The infant can have these foods 5-6 times per day and amount of food to be increased gradually. Breast feeding should be continued.
9-12 months:

More variety of household foods can be added. New food items like fish, meat, and chicken can be introduced during this period. The infant can eat everything cooked at home but spices and condiments to be avoided.

12-18 months:

The child can take all food cooked in the family and needs half amount of mothers diet. Number of feeds can be 4-5 times or according to the child’s need. Breastfeeding to be continued, especially at night.

Datta.P.,(2009)

Frequency of complementary feeding:

- When food is first introduced, a small amount should be given 1-2 times a day and slowly increased to 3-4 times daily by one year.
- Gradually increase the amount. If a child is not breastfeed, complementary foods should be given 4-5 times daily and breast feeding continued at night.
- Complementary feeding may be given before, after or with breast feed.

Artificial feeding:

Artificial feeding means to feed the child other than breast milk. It involves the use of breast milk substitutes in the form of liquid milk, i.e. fresh cow’s or buffalo’s milk or commercially available dried whole milk. It is a form of supplementary feeding.

Datta.P.,(2009)

Tenth Five Year Plan Goals

The Planning Commission recognizing the importance of appropriate infant and young child feeding practices has for the first time included goals for breastfeeding and complementary feeding in the National Nutrition Goals for the Tenth Five Year Plan. The Tenth Plan has set specific nutrition goals to be achieved by 2007. The major goals are:
1. Intensify nutrition and health education to improve infant and child feeding and caring practices so as to:
   • bring down the prevalence of under-weight children under three years from the current level of 47% to 40%;
   • reduce prevalence of severe under nutrition in children in the 0-6 years age group by 50%;

2. Enhance Early Initiation of Breastfeeding (colostrum feeding) from the current level of 15.8% to 50%;

3. Enhance the Exclusive Breastfeeding rate for the first six months from the current rate of 55.2% (for 0-3 months) to 80%; and

4. Enhance the Complementary Feeding rate at six months from the current level of 33.5% to 75%.

Improving child survival is of immense importance for India for its own sake as well as to fulfill the global desire to achieve the MDGs for nutrition and child survival. Evidence based preventive measures like optimal infant and young child feeding are important tools to achieve these goals.

Agarwal. R.K.,(2008)

**WHO recommendations for complementary feeding**

- Give breast milk alone for 6 months
- Give complementary food from 6 months onwards
- Only if a child is 4-6 months and not gaining weight adequately despite appropriate breast feeding or receives frequent breast feeds but appears hungry soon after, give complementary food earlier.
- When starting complementary foods, continue breast feeding as often and long as before
- Give complementary foods that are rich in energy and nutrients; clean and safe; easy to prepare from family foods; and locally available and affordable
- Give complementary foods 3 times daily to breast feed babies 6-7 months, increasing to 5 times daily by 12 months
❖ Start with a few teaspoons and gradually increase the amount and variety
❖ Actively encourage a child to eat
❖ Make sure all utensils are clean
❖ Spoon feed foods from a cup or bowl
❖ If foods are not refrigerated feed them within 2 hours of preparation
❖ During and after illness, breast feed more frequently than usual and give extra meals
❖ After illness, encourage a child to eat as much as possible at each meal, until lost weight is regained
❖ Keep a chart of the child’s weight.

Gosh.S.,(2006)

Caring behaviour:

⇒ Feeding with a balance between giving and encouraging self feeding, as appropriate to the child’s level of development
⇒ Feeding with positive verbal encouragement, without any kind of force or coercion
⇒ Feeding in response to early hunger cries
⇒ Feeding in a comfortable environment
⇒ Feeding by someone with whom the child has a positive emotional relationship.

Preventing infections:

❖ The food should be stored in as cool as possible
❖ Food should preferably be reheated before the child
❖ Utensils should be scrubbed thoroughly
❖ The area should be free from insects and flies
❖ Vegetables, meats and hands should be washed thoroughly
❖ Use safe drinking water
❖ Immunize the child as per the national immunization schedule

Gosh.S.,(2006)
Feeding problems of infants:
- Regurgitation
- Vomiting
- Suckling and swallowing difficulties
- Dehydration
- Fever
- Excessive crying
- Abdominal colic
- Underfeeding
- Overfeeding
- Change in bowel habits

Wong’s,(2009)

PART-II

a) Studies related to infant health status:

Deland.U.,et.al.,(2001) conducted a study to evaluate the effects of the dietary intervention on infant growth and general health status rather than specific allergic manifestations in Switzerland. In the intervention cohort (Z=564), the recommended dietary regimen was supplemented. In the control cohort (FF=566), there was no specific intervention. Growth parameters included weight, length, head circumference, BMI, and Z scores (SDS). General health status was assessed by clinically significant findings in gastrointestinal, respiratory, or skin symptoms. Growth at 6 weeks and at 3 and 6 months was similar for Z and FF. Significantly fewer Z than FF infants had clinically noteworthy health findings at 3 months (Z=27% versus FF=37%, odds ratio=0.63, CI=0.48-0.82) and 6 months (Z=33% versus FF=49%, odds ratio=0.51, CI= 0.40-0.66). This corresponds to a 30 % reduction in overall health concerns at 6 months for the intervention cohort. At 3 and 6 months, differences between cohorts in most measures of general health status were strongly influenced by a lower incidence of skin symptoms in the Z cohort. Within FF, there were fewer exclusively breastfed (eBF) infants with health problems at 3 months compared with those who were partially (pBF) or non-
breastfed (nBF) (eBF=31%, pBF=40%, nBF=39%, p< 0.05). In contrast, in the Z intervention cohort, the number of infants with health concerns was similar for exclusively breastfed infants and for those in whom mother's milk was supplemented or replaced by pHF (eBF=29%, pBF=25%, nBF=26%, ns). In a subanalysis of overall health findings in infants without a family risk of allergies, there were again significantly fewer Z than FF infants with any health or any skin problem.

Kshatriya.G.K.et.al.(2008) performed a cross sectional investigation to assess the nutritional condition in children of three tribal communities of Himalayan, in India. A total of 989 tribal children in the age group 0-1 years through 5+ years (below 6 years) was examined. Crown-heel length was measured using infantometer with the child lying supine, height with Martin's anthropometer and body weight using standard weighing machine. Body mass index (BMI) was subsequently computed. 'Z' score was undertaken to obtain comprehensive pictures of undernutrition in terms of wasting, stunting and underweight in these communities. The chi2-test test was also undertaken to compare nutritional indicators by the sexes. It was observed that maximum wasting (85.3%), stunting (86.6%) and underweight (93.3%) were recorded in girls, who belong to Himalayan ecology. It was important to note that the prevalence of undernutrition in terms of wasting, stunting and underweight was similar in both the sexes (chi2 (2) = 1.745, p > 0.05).

Dutta.A.et.al.(2009) conducted a study to identify factors that may influence the nutritional status of the children of the Garhwal Himalayas. 40 families from one town and one village in each of the three major agro climatic situations (high, middle, and low hills) were selected at random (total 240 families). The nutritional status of 353 children (0 to 12 years of age) was assessed by nutritional anthropometry and compared with tables of weight-for-age and height-for-age z-scores (WAZ and HAZ) identifying wasting and stunting, respectively, and compared with the World Health Organization (WHO) Growth Reference charts 2007. Chi-square test was applied to analyze
the effects of age, sex, altitude, and area on the nutritional status of children. Of the 353 children studied, 38.2% belonged to the school-aged group, with 7% more girls than boys. Only 11.3% of the children had normal HAZ while 10.3% had normal WAZ. The largest percentages of children (31.8% HAZ and 29.1% WAZ) were clustered in the SD1 group that is the severely stunted or wasted group. There were 17.0% severely stunted girls (SD1), as compared to 14.8% boys; while the percentages of WAZ girls were 16.1% and boys was 13%. The situation in the urban areas was slightly better: 6.4% of the sample had normal HAZ and 7.1% had normal WAZ, compared with 4.4% and 4.6% of the rural children. In all three agro climatic situations, the largest percentage of children fell in the HAZ SD1 (stunted) category (15.3% in the high hills, 7.3% in the middle hills, and 9.5% in the low hills). There is a significant effect of area (rural vs. urban) on stunting and wasting among children. The child's sex affects stunting only. The other two variables, altitude and age, do not show a significant relationship with stunting or wasting.

Khan.M.I.et.al. (2011) conducted a descriptive cross sectional study was done in the department of Pediatrics in Medical College Hospital, New Delhi. The purpose of the study was to assess breast feeding pattern, complementary feeding pattern, types of complementary foods and also to assess the nutritional status and to detect any relationship with the nutritional status and the feeding practices. Mothers with their children aged less than 2 years were included. 400 consecutive children were enrolled randomly. Out of 400 children, 214 children (53.5%) were male and 186 children (47.5%) were female and M:F was 1.2:1. Exclusive breastfeeding rate was 41.5%. Pre-lacteal feeding rate were 30.7% and most common pre-lacteal foods were honey and sugar water. Colostrum was given in 69.3% children. Breast feeding continued at the time of interview was 58.1%. Complementary feeding started in time in 35.8%, early weaning in 44.5% children. Type of complementary food was mainly luta (rice powder mixed with boiled water and sugar only) in 38.8% and khichuri (rice, pulses, soybean oil) in 19.5%.
Bottle feeding rate was 31.30%. Around 43% children were underweight and 10.25% children were severely underweight and common in between 12 to 23 months of age group. Around 29% children were stunted among 11.25% were severely stunted. About 13.5% children were wasted and among them 2.5% were severely wasted. Stunting prevalent over the age of 9 months and wasting started after 6 months of age. Malnutrition was common in partially breast fed and early weaning with carbohydrate rich food.

Subramanyam.M.A.et.al(2011) conducted a study to assess the association between changes in state per capita income and the risk of under nutrition among children in India. Data for this analysis came from three cross-sectional waves of the National Family Health Survey (NFHS) conducted in 1992-93, 1998-99, and 2005-06 in India. The sample sizes in the three waves were 33,816, 30,383, and 28,876 children, respectively. The outcomes were underweight, stunting, and wasting, defined as more than two standard deviations below the World Health Organization-determined median scores by age and gender. They also examined severe underweight, severe stunting, and severe wasting. We estimated fixed and random effects logistic models that accounted for the clustering of the data. In models that did not account for survey-period effects, there appeared to be an inverse association between state economic growth and risk of undernutrition among children. However, in models accounting for data structure related to repeated cross-sectional design through survey period effects, state economic growth was not associated with the risk of underweight (OR 1.01, 95% CI 0.98, 1.04), stunting (OR 1.02, 95% CI 0.99, 1.05), and wasting (OR 0.99, 95% CI 0.96, 1.02).

Senarath.U.,(2012) conducted a study to describe the complementary feeding practices in five South Asian countries. South Asian region has the highest global burden of child undernutrition, with almost 41% of children stunted, 16% wasted and 33% underweight. The new and updated global complementary feeding indicators were used to identify determinants of inappropriate complementary feeding practices. The latest Demographic
and Health Surveys for Bangladesh, Nepal, Pakistan and Sri Lanka, and the National Family Health Survey of India were used as data sources. Four key indicators were calculated: introduction of solid, semisolid or soft foods in 6-8 months aged, minimum dietary diversity, minimum meal frequency and minimum acceptable diet in 6-23-month-aged children. Univariate and multivariate logistic regression analyses were performed to identify determinants of poor complementary feeding practices. The timely complementary feeding rate increases to 74% at age 9-11 months and 81% at age 12-17 months. Use of bottles with nipples is not common in India. Bottle feeding increases from 5% under age two months to 18% at age 9-11 months and declines at older ages. NFHS-3 finds that only 44% of breastfed children are fed at least the minimum number of times recommended and only half of them also consume food from three or more food groups.

Kanani.S.et.al.,(2012) conducted a study to assess factors contributing to positive deviance among the urban poor of Vadodara city, India. Mothers of sixty 6-18 months old children- 30 each in positive deviant (PD: normal by weight-age) and negative deviant (ND: grade II by weight-age) groups-were interviewed through home visits using semi-structured questionnaires. Factors contributing significantly to PD (p < 0.01): PD children (vs. ND), were older (12-18 mo vs. 6-11 mo); families were smaller (5-7 vs. >7 members), of lower parity (1-2 vs. 3-4), greater birth interval (>3 y vs. 1-2 y); received colostrum (96% vs. 26%), breastfed at least 8-9 times/d (86% vs. 20%); were started on complementary feeds (CF) at 6-8 mo (53% vs. 23%); given thicker consistency CF (73% vs. 36%); fed actively (40% vs. 23%), fewer had diarrhea episodes in past 15 d (26% vs. 83%). Mean calorie intake (% RDA) from CF among PD was significantly higher than in ND (68% vs.42%).
b) studies related to feeding practices:

Garg.A.et.al.,(2000) conducted a community-based cross-sectional study to assess the adequacy of complementary feeding (CF) practices and determine its association with growth of infants, aged 6-12 months, in rural Indian population. The study was conducted in six villages of Ghaziabad district, Uttar Pradesh, India. A structured interview schedule was used for eliciting information from 151 mothers of infants, aged 6-12 months, on CF practices. Data on CF practices were scored using the CFI developed. Measurements of weight and length were taken. Bivariate and multivariate analyses were done using the SPSS software (version 13). The mean +/- standard deviation (SD) CFI scores ranged from a low value of 7.09 +/- 3.21 in 6-8 months old infants to a comparatively-higher value of 9.69 +/- 2.94 in 9-12 months old infants. Using the CFI it could be identified that infants (n = 151) had poor dietary diversity, with only 31% and 18% of the infants reportedly being fed the recommended number of food-groups during 6-8 and 9-12 months respectively. The food-frequency scores of the CFI showed that cereals and diluted animal milk were the major food-groups fed to the infants in this setting. Analysis of nutritional status revealed that 24.5% of the infants were stunted (length-for-age [LAZ] < -2SD), 25% were underweight (weight-for-age [WAZ] < -2SD), and 17% were wasted (weight-for-age [WLZ] < -2SD). Significant associations (p < 0.05) were observed between the meal-frequency and the dietary diversity of the CFs of infants aged 6-8 months and 9-12 months and the WAZ and LAZ indices of their nutritional status. On multivariate analysis of factors affecting the LAZ, WAZ and WLZ scores, the CFI was significantly associated (p < 0.05) with LAZ whereas maternal education and breastfeeding frequency were significantly (p < 0.01) associated with WAZ and WLZ. Per-capita income, parity, and birth-order were the significant (p < 0.05) determinants of the CFI.

Khan.M.et.al.,(2000) conducted a longitudinal study to define the breastfeeding practices in Uttar Pradesh. 401 rural children and 193 urban children
were selected. Collections of dietary data and anthropometric measurements were done monthly during the 1st year and quarterly thereafter by trained paramedical staff. 100% rural, 98% urban poor, and 78% urban elite mothers breast-fed their babies at birth. At 1 year 97% rural, 90 urban poor, and 25% elite continued breast-feeding. By 2 years it decreased further. Only some rural children but many of the urban children were provided with cow's milk during breast-feeding. At 10 months, 100% urban elite, 33% of the urban poor, and 6% of rural mothers provided rice and bread to babies. The growth pattern from 4th months of age fell behind the developed countries.

Aggarwal.A.,(2000) conducted a study to assess the characteristics of women who exclusively breast feed infants during the first 4 months and women who introduce early supplementation of foods in India. Data were obtained from interviews with 75 randomly selected mothers. 73.3% of mothers were 20-30 years old. 49.3% of birth weights were less than 45 kg. 20% were under 145 cm in length. 55 mothers (73.3%) received prenatal care. 26 mothers were informed about breast feeding. 76% of mothers resumed full household and/or professional work within 45 days of delivery. 61.3% of births were males. 97.3% were normal vaginal deliveries. 98.7% roomed with their mother after delivery. 62.7% were breast fed within the first day of life. The rest were breast fed by the 3rd day. 51.3% were started on supplementary feeding within 6 weeks. 72% were started on supplementary feeding within 2 months. Duration of exclusive breast feeding was unrelated to maternal education or nutrition, socioeconomic status, family support, motivation for breast feeding, birth order, or gender of the infant. The most common reason for early food supplementation was insufficient breast milk (49.4%). 6 of 13 mothers related work resumption as the reason for artificial feeding. Most mothers used cow or buffalo milk. Most used bottles, and few had proper hygiene. Most diluted the supplements with water.
Khan.M.E.,(2001) conducted a study to assess the infant feeding practices in India. The mean age at which children are given solid supplemental food varies considerably across India. The common solid foods include rice, rice with milk and ghee, biscuits, roti (unleavened bread), and boiled potatoes. 99% of women in urban areas; and 89% of those in rural areas believe that human milk is better than commercial milk or animal milk. It is nutritional and has antibodies. About 1/5 of the rural women said that it is good because it does not coast anything. women are generally unaware of contraceptive properties of breast milk.

Katiyar.G.P.,(2003) conducted a study to describe the infant and child feeding practices in the urban, urban slum, and rural areas of the Varanasi district, India. 784 mothers were interviewed to investigate the feeding pattern of their 893 children, all in the 0-5 year age group. Colostrum was discarded in 90% of children of the urban slum and rural group, while 63.74% of urban children received colostrum. 53.85% of urban children were breastfed up to 6 months, as compared to 10.21% of those in urban slums, or 12.2% in rural areas; breast feeding was prolonged in the slums and in rural areas, and sometimes beyond 2 years of age in rural areas. 66.67% of children in the urban group were weaned before 6 months, as compared to 40.14% and 33.63% in the slums and in the rural group; weaning was markedly delayed in those last 2 groups; 5-9% of children in rural areas were not weaned at all. While 50.55% of urban children received solid foods between 7-12 months of age, most of slums and rural areas children received solids between 13-18 months. About 20% of urban children were started on an adult diet by 12 months, and the majority by 18 months; most slum or rural children were started between 18-24 months or after 2 years, respectively. 83.62% of urban infants were given foods such as cereals, meat, curd, brinjial and root vegetables, which not given to other groups' infants because of the belief that they can cause clinical disorders.
Patel A. et al., (2005) conducted a study to determine the prevalence of complementary feeding indicators among children of 6-23 months of age and to identify the determinants of inappropriate complementary feeding practices in India. The study data on children aged 6-23 months was obtained from the National Family Health Survey 2005-2006. Inappropriate complementary feeding indicators were examined against a set of child, parental, household, health service and community level characteristics. The prevalence of timely introduction of complementary feeding among infants aged 6-8 months was 55%. Among children aged 6-23 months, minimum dietary diversity rate was 15.2%, minimum meal frequency 41.5% and minimum acceptable diet 9.2%. Children in northern and western geographical regions of India had higher odds for inappropriate complementary feeding indicators than in other geographical regions. Other determinants of not meeting minimum dietary diversity and minimum acceptable diet were: no maternal education, lower maternal Body Mass Index (BMI) (<18.5 kg/m²), lower wealth index, less frequent (<7) antenatal clinic visits, lack of post-natal visits and poor exposure to media. A very low proportion of children aged 6-23 months in India received adequate complementary foods as measured by the WHO indicators.

Mukhopadhyay D.K. et al., (2009) conducted a study a community-based cross-sectional study to assess the prevalence of under nutrition along with the risk factors among 1-3 years children, in Darjeeling district of West Bengal, India. Anthropometric measurement of 256 children was done as per WHO guidelines along with collection of socio cultural and healthcare related information. Z-score was calculated (NCHS reference) and the prevalence of stunting, underweight, and wasting was 46.9%, 52.3% and 15.2% respectively. Composite, index of anthropometric failure was 65.6%. Anthropometric failure was significantly associated with low income, more number of siblings, nuclear family, short duration of exclusive breastfeeding, later initiation of complementary feeding, immunization status, mothers' BMI, episodes of
diarrhea and acute respiratory infection. Multipronged intervention is to be initiated to address this staggering problem of under nutrition.

Veena.S.R.et.al.(2010) conducted a study to examine whether duration of breastfeeding and age at introduction of complementary foods are related to cognitive performance in 9- to 10-year-old school-aged children in South India. The authors examined 514 children from the Mysore Parthenon birth cohort for whom breastfeeding duration (six categories from <3 to > or = 18 months) and age at introduction of complementary foods (four categories from <4 to > or = 6 months) were collected at the first-, second- and third-year annual follow-up visits. Their cognitive function was assessed at a mean age of 9.7 years using three core tests from the Kaufman Assessment Battery for children and additional tests measuring long-term retrieval/storage, attention and concentration, visuo-spatial and verbal abilities. All the children were initially breastfed. The mode for duration of breastfeeding was 12-17 months (45.7%) and for age at introduction of complementary foods 4 months (37.1%). There were no associations between longer duration of breastfeeding, or age of introduction of complementary foods, and cognitive function at 9-10 years, either unadjusted or after adjustment for age, sex, gestation, birth size, maternal age, parity, socio-economic status, parents' attained schooling and rural/urban residence.

c) Studies related to nurses role:

Anjalin,(2008) conducted a study to assess the effectiveness of Planned Teaching Programme on Knowledge and Attitude about Complementary Feeding among Mothers of Infants. The research approach used for the study was evaluative approach with one group pre-test post-test design. Purposive sampling technique was used to select the subjects for the study. The study was conducted in two primary health centres (PHCs) of Udupi Taluk with a sample size of 50 mothers The data were collected by means of demographic proforma, knowledge questionnaire and attitude scale on Complementary Feeding and opinionnaire on acceptability of planned teaching programme,
pre-test knowledge and attitude scores were collected using a structured knowledge questionnaire and attitude scale and planned teaching was administered. On day 8, post-test was done using same questionnaire and opinionnaire on acceptability of PTP was taken. The mean post-test knowledge score (32) was higher than the mean pretest knowledge score (14). Majority (80%) expressed that PTP was easy to understand. Majority (74%) of the mothers were reported that the PTP includes all content regarding Complementary Feeding. There was no disagreement.

**Abhiruchi Galhotra , (2009)** conducted a study to assess knowledge and current Breast feeding practices and to evaluate the gain in awareness post Breastfeeding awareness campaign among lactating women in an urban Resettlement colony of Chandigarh. This study was undertaken on a study sample of 210 lactating women (15 women with children < 2yrs from each of the 14 anganwari centers in the area). A pre-tested questionnaire was used to assess knowledge and practices of these women. This was followed by a Breast feeding awareness Campaign (BFAC) and a post Campaign assessment of gain in awareness was done after one month. Areas of concern at baseline were (a) Discarding colostrum (28.1%), (b) feeding prelacteals (74.7%), (c) delayed initiation of Breast feeding (35.7%), (d) absence of exclusive BF (32.9%), (e) Delayed Complementary feeding (20.0%), and finding commercial weaning foods more nutritious for the child (48.1%). Post BFAC, results revealed improved awareness amongst the mothers.

**Shazia.M.et.al.,(2010)** conducted a cross sectional survey study to assess the practice and knowledge of mothers regarding breast feeding, complimentary feeding, and to find out socio-economic correlates of feeding practices. 500 mothers with children less than 24 months were included. Infant feeding patterns were assessed in relation to recommendations and household socio-economic factors by an Interview Technique. Out of 500 mothers, 8.4% started exclusive breast feeding (EBF) while Pre-lacteal use was seen in 31.6%. 

47
Regarding the duration 52.2% mothers continued breast feeding for 2 years. Median duration of EBF was 3.5 months. It was seen that 60% of the 0-5 month-old infants breastfed 8 or more times per day. However, exclusiveness of breast feeding decreased from 60% at (0-2 months) to 40% (3-5 months). Majority 64.2% were poor and 61.5% had no education. There is a statistically significant difference in feeding practices of educated and uneducated (P < 0.0001) and also in poor and middle class mothers (P <0.0003). Regarding, age of their last born babies, 180 babies were under 6 months, and 320 were 6 to 23 months of age. The knowledge about complimentary feeding (CF) was inadequate. Around 21% of 2-3 months old babies received complementary food and 19% of 6-8 month-olds were only breastfed. In 78% mothers CF was advised by family members while in 23% mothers by doctors.
CHAPTER - III
METHODOLOGY

This chapter deals with methodology adopted for the study. It includes research approach, research design, setting, population, criteria for sample selection, sample and sampling technique, instrument, data collection procedure and plan for data analysis.

RESEARCH APPROACH:
Descriptive survey approach was used to conduct the study.

RESEARCH DESIGN:
Descriptive Correlational research design was used to conduct the study.

SETTING:
The study was conducted in Nanchyampalayam urban area of Dharapuram. It is 3 km away from Dharapuram. Total population in this area is 6770. This area consists of 7 streets. The total number of mothers in this area is 1200 and the total infants are 178. Majority of the mothers were self employee, agricultural work, cotton mills and only few are going for private and government jobs.

POPULATION:
The population selected for this study was infants and their mothers.

SAMPLE:
The samples of the study were infants aged 6 months to 12 months and their mothers.

CRITERIA FOR SAMPLE SELECTION:

INCLUSION CRITERIA:
- Mothers who have infants between 6-12 months of age.
- Both male and female infants.
• Mothers who know Tamil
• Mothers who are available at the time of data collection.

EXCLUSION CRITERIA:
• Mothers who are not willing to participate
• Infants who are sick

SAMPLE SIZE:
100 infants and their mothers, who met the inclusion criteria, were selected as study sample.

SAMPLING TECHNIQUES:
Non probability purposive sampling technique was used to select the sample.

THE DESCRIPTION OF THE INSTRUMENT:
The instrument consists of 3 parts;

PART-I
It consists of demographic variables such as age and sex of the child, age of the mother, education of the mother, religion, number of children, family income, type of family, number of episodes of infections in the last month and source of information on complementary feeding.

PART-II
It consists of infant health status assessment includes checking the weight, height and head circumference of infants. Weight of the infants was checked by standard weighing scale, height and head circumference was checked by inch tape.

PART-III
Structured interview schedule was used to assess the breast feeding practices. It consists of 8 positive and 2 negative dichotomous questions.
Rating scale was used to assess the feeding practices of the mothers of infants consists of 25 questions. It has 19 positive and 6 negative questions. The total numbers of questions were 35.

**SCORING PROCEDURES:**

**PART-II** Infant health status was assessed by checking height, weight and head circumference. The weight was compared with the expected weight of the infant using WHO standards. The findings were interpreted as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight (kg) percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3-50th percentile</td>
</tr>
<tr>
<td>Underweight</td>
<td>&lt;3rd percentile</td>
</tr>
</tbody>
</table>

The height was compared with the expected height of the infant using WHO standards. The findings were interpreted as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Height (cm) percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3-50th percentile</td>
</tr>
<tr>
<td>Stunted</td>
<td>&lt;3rd percentile</td>
</tr>
</tbody>
</table>

The head circumference was compared with WHO standards. The findings were interpreted as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Head circumference (cm) percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3rd-50th percentile</td>
</tr>
<tr>
<td>Below normal</td>
<td>&lt;3rd percentile</td>
</tr>
</tbody>
</table>

**PART-III:**

Structured interview schedule was used to assess the breast feeding practices. It consists of 8 positive questions and 2 negative questions, which was scored as follows;
Negative questions:

- Yes response: 0
- No response: 1

Positive questions:

- No response: 0
- Yes response: 1
- Total score: 10

The level of feeding practices of mothers was assessed by structured interview schedule using rating scale. It has 19 positive questions and 6 negative questions, which was scored as follows:

**POSITIVE QUESTIONS:**

- Never: 1
- Occasionally: 2
- Always: 3

**NEGATIVE QUESTIONS:**

- Always: 1
- Occasionally: 2
- Never: 3
- Total score: 75

Overall score for feeding practices of mothers:

**The total score was interpreted as below:**

<table>
<thead>
<tr>
<th>Level of practice</th>
<th>Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate practice</td>
<td>58-85</td>
<td>68-100%</td>
</tr>
<tr>
<td>Moderately adequate practice</td>
<td>29-57</td>
<td>34-67%</td>
</tr>
<tr>
<td>Inadequate practice</td>
<td>1-28</td>
<td>1-33%</td>
</tr>
</tbody>
</table>
VALIDITY:

The validity of the rating scale was established in consultation with the four nursing experts in the field of community health nursing and one from community medicine. No modifications were done. The validity of the standard weighing scale was assessed by checking the accuracy and karlpearson’s formula was used. (r=0.99).

RELIABILITY:

The reliability of the weighing scale was assessed by inter rater method and karl pearson’s formula was used. (r=0.9). The reliability of the rating scale regarding feeding practices was established by test re test method where Karl Pearson’s co-efficient formula was used to find out the stability of the tool. It was found to be reliable (r=0.93). The internal consistency was assessed by split half method where spearman’s brown prophecy formula was used. It was found to be reliable. (R=0.89)

PILOT STUDY:

The pilot study was conducted in Nehru Nagar, Dharapuram. Permission was obtained from municipal health officer. Oral consent was obtained from the mothers of infants after explaining the purpose of study. 10 Samples who met inclusion criteria were selected by using non probability purposive sampling method. Demographic variables were collected, and Infant health status was assessed by checking the weight, height and head circumference. Weight was checked by using the standard weighing scale. Height and head circumference was measured by simple inch tape method. Feeding practices of mothers was assessed by structured interview schedule using rating scale. 40-50 minutes were spent for each sample. The data was analyzed by using descriptive and inferential statistics. The findings of the pilot study showed that 70% of the infants were having normal weight, 90% of the infants were having normal height, and all were having normal head circumference. 60% of the mothers were having moderate level of feeding practice. There was a significant correlation between the health status of infants (weight r=0.9, height
r=0.6) and the feeding practices of the mothers. The findings of pilot study revealed that it was feasible and practicable to conduct the main study.

**DATA COLLECTION PROCEDURE:**

The study was conducted in Nanchayampalayam, urban area of Dharapuram. The data was collected for a period of 5 weeks. Written permission was obtained from the municipal health officer and verbal consent was obtained from the samples. 100 samples were selected by using non probability purposive sampling technique. The data were collected from morning 9am to evening 5pm. Demographic data was collected and infant health status was assessed by checking the weight, height and head circumference. The weight was checked by using standard weighing scale. Height and head circumference was measured by using simple inch tape method. Feeding practices of mothers was assessed by structured interview schedule using rating scale. 40-50 minutes were spent for each sample. 3-4 samples were interviewed per day. At the end of data collection self instructional module regarding complementary feeding was given to each sample. Collected data was computed, tabulated and analyzed using descriptive and inferential statistical methods.
PLAN FOR DATA ANALYSIS:

The collected data were assessed by using descriptive and inferential statistics.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Data analysis</th>
<th>Methods</th>
<th>Objectives or remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descriptive</td>
<td>Frequency and percentage distribution</td>
<td>To describe demographic variables of mothers and infants.</td>
</tr>
<tr>
<td></td>
<td>statistics</td>
<td></td>
<td>To describe the health status of infants.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean, standard deviation</td>
<td>To assess the level of feeding practices of mothers</td>
</tr>
<tr>
<td>2</td>
<td>Inferential</td>
<td>Karl pearson’s formula</td>
<td>To find the relationship between the health status of infants and feeding practices of mothers.</td>
</tr>
<tr>
<td></td>
<td>Statistics</td>
<td>Chi-square test</td>
<td>To find the association of health status of infants with their selected demographic variables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chi-square test</td>
<td>To find the association of feeding practice scores of the mothers with their selected demographic variables</td>
</tr>
</tbody>
</table>

PROTECTION FOR HUMAN SUBJECT:

The study was conducted after the approval of the dissertation committee. The written consent was obtained from the municipal health officer. Verbal consent from each study subject was obtained by explaining the purpose of the study.
CHAPTER – IV
DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected. The present study was designed to correlate the health status of infants and the feeding practices of mothers.

The data has been organized and tabulated as follows:

- **Section A**: Distribution of demographic variables of infants and their mothers.
- **Section B**: Assessment of health status of infants
  - Frequency and percentage distribution of infants according to their weight
  - Frequency and percentage distribution of infants according to their height
  - Frequency and percentage distribution of infants according to their head circumferences
- **Section C**: Assessment of level of feeding practices of mothers
- **Section D**: Relationship between the health status of infants and feeding practices of mothers
- **Section E**: Association of health status of infants with their selected demographic variables.
- **Section F**: Association of feeding practices of mothers with their selected demographic variables.
SECTION A:- DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF INFANTS AND THEIR MOTHERS

Table 1: Frequency and percentage distributions of demographic variables of infants and their mothers

<table>
<thead>
<tr>
<th>S. No</th>
<th>Demographic variables</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Age of the infant</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) 6-8 months</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>b) 8-10 months</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>c) 10-12 months</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>2.</td>
<td>Sex of the infant</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Male</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>b) Female</td>
<td>59</td>
<td>59</td>
</tr>
<tr>
<td>3.</td>
<td>Age of the mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) below 20 years</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>b) 20-25 years</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>c) 26-30 years</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>d) Above 30 years</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Hindu</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>b) Christian</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>c) Muslim</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>5.</td>
<td>Education of the mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) No formal education</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>b) Primary</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>c) Higher secondary</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>d) Graduate</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

n=100
<table>
<thead>
<tr>
<th></th>
<th>Number of children</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) One</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>b) two</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>c) three</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>d) four and above</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Occupation of the mother</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Self employee</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>b) Government</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>c) Private</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>d) House wife</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Family income/month</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Less than Rs.1000</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>b) Rs.1000-2000</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>c) Rs.2000-3000</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>d) Above Rs.3000</td>
<td>76</td>
<td>76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Type of family</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Nuclear family</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>b) Joint family</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>c) Extended family</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Number of episodes of infections in the last month</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) nil</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>b) one</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>c) two</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>d) more than two</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Source of health information on complementary feeding</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Health professionals</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>b) TV/Radio</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>c) Friends/relatives</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>d) Magazine/news paper</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
Table 1 depicts that among 100 infant and their mothers:

Majority 36 (36%) of the infants belonged to 6-8 months, 34 (34%) belonged to 9-10 months, and 30 (30%) belonged to 11-12 months. (Fig: 2)

Regarding sex of the infant majority 59 (59%) of the infants were females and 41 (41%) were males. (Fig: 3)

Regarding age of the mother majority 39(39%) of the mother belonged to 26-30 years, 38(38%) belonged to 20-25 years, 13 (13%) belonged to less than 20 years and 10(10%) belonged to 30 years. (Fig: 4)

Regarding religion majority 74 (74%) of the mothers belonged to Hindu, 20 (20%) belonged to Muslim and 6 (6%) belonged to Christian. (Fig: 5)

Regarding education of the mother majority 47 (47%) of the mother had undergone primary education, 39 (39%) mothers had higher secondary education, 10 (10%) had no formal education and 4 (4%) were graduate. (Fig: 6)

Regarding number of children majority 46 (46%) of the mother had one child, 40 (40%) had two children, 11 (11%) had three children and 3 (3%) had four and above. (Fig: 7)

Regarding occupation of the mother majority 50 (50%) of the mother were house wife, 42 (42%) were self employee, 4 (4%) were private employee and 4(4%) were government employee. (Fig: 8)

Regarding family income majority 76(76%) of the mother had the monthly family income of more than Rs. 3000, 12 (12%) of the mothers had family income between Rs. 2001-3000, 8 (8%) of the mother had family
income between Rs. 1001-2000 and 4 (4%) of the mother had less than Rs.1000. (Fig: 9)

Regarding type of family majority 82 (82%) of the mother belonged to nuclear family, 15 (15%) were belonged to joint family and 3 (3%) were belonged to extended family. (Fig: 10)

Regarding the number of episodes of infection in the last month majority 39 (39%) of the infants had no infection, 31 (31%) infants had infection for one time, 19 (19%) infants had infection for two times and 11 (11%) infants had infection for more than 2 times. (Fig: 11)

Regarding the source of health information majority 33(33%) of the mothers were receiving the information through television, 31(31%) were receiving through health personnel, 30 (30%) were receiving from friends and relatives and 6 (6%) were receiving through radio. (Fig: 12)
Figure: 2- Percentage distributions of infants according to their age
Figure: 3- Percentage distributions of the infants according to their sex
Figure 4: Percentage distributions of the mothers of infants according to their age.
Figure: 5- Percentage distributions of the mothers of infants according to their religion
Figure: 6- Percentage distributions of the mothers of infants according to their education
Figure: 7- Percentage distributions of the mothers of infants according to their number of children
Figure: 8- Percentage distributions of the mothers of infants according to their occupation
Figure: 9- Percentage distributions of the mothers of infants according to their monthly family income
Figure: 10- Percentage distributions of the mothers of infants according to the type of family
Figure: 11- Percentage distributions of the of infants according to the number of episodes of infections in the last month.
Figure: 12- Percentage distributions of the mothers of infants according to their source of health information
## SECTION B: ASSESSMENT OF HEALTH STATUS OF INFANTS

Table 2- Frequency and percentage distributions of infants according to their weight

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight (Kg percentile)</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3rd – 50th percentile</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Underweight</td>
<td>&lt; 3rd percentile</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 2- depicts that among 100 infants majority 78 (78%) of the infants had normal weight and 22(22%) had underweight.
Figure 13: percentage distributions of the infants according to their weight
Table: 3- Frequency and percentage distributions of infants according to their height

<table>
<thead>
<tr>
<th>Category</th>
<th>Height (Cm percentile)</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3rd – 50th percentile</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Stunted</td>
<td>&lt; 3rd percentile</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table: 3 depicts that all infants (100%) are having normal height and no one is having stunted growth.
Figure 14: Percentage distributions of the infants according to their height
Table: 4- Frequency and percentage distributions of infants according to their head circumference

n=100

<table>
<thead>
<tr>
<th>Category</th>
<th>Head circumference (Cm percentile)</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>3rd – 50th percentile</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Under normal</td>
<td>&lt; 3rd percentile</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4- depicts that all infants are having normal head circumference and no one is having the under normal head circumference.
Figure 15: Percentage distributions of infants according to their head circumference
SECTION C:- ASSESSMENT OF LEVEL OF FEEDING PRACTICES OF MOTHERS

Table: 5  Frequency and percentage distributions of mothers according to their level of feeding practice

<table>
<thead>
<tr>
<th>Level of practice</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Moderately adequate</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Adequate</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 5: depicts that majority 78(78%) of the mothers had moderately adequate feeding practice, 11 (11%) had inadequate feeding practice and 11 (11%) had adequate feeding practice.
LEVEL OF FEEDING PRACTICE

Figure :- 16 Percentage distributions of mothers of infants according to their level of feeding practice
### Section D: Relationship Between the Health Status of Infants and Feeding Practices of Mothers

**Table 6**

Relationship between the health status of infants (weight) and feeding practices of mothers

<table>
<thead>
<tr>
<th>S. No</th>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Coefficient of correlation</th>
<th>Table value</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Level of feeding practice</td>
<td>51.37</td>
<td>6.3</td>
<td>r=0.55</td>
<td>0.197</td>
<td>S</td>
</tr>
<tr>
<td>2.</td>
<td>Weight of infants</td>
<td>7.49</td>
<td>1.28</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S- significant, df=98

*Table 6* depicts that there was a positive correlation $r=0.55$ between the level of feeding practices of mothers and the weight of the infants. The mean and standard deviation scores for the level of practice was 51.37 (SD± 6.3) and the mean and standard deviation scores for the weight of the infants was 7.49 (SD±1.28) respectively.
Table 7- Relationship between the health status of infants (Height) and feeding practices of mothers

<table>
<thead>
<tr>
<th>S. No</th>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Coefficient of correlation</th>
<th>Table value</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Level of feeding practice</td>
<td>51.37</td>
<td>6.3</td>
<td>r=0.2</td>
<td>0.197</td>
<td>S</td>
</tr>
<tr>
<td>2.</td>
<td>Height of infants</td>
<td>67.93</td>
<td>3.17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S- significant, df=98  
p<0.05

Table 7 depicts that there was a positive correlation (r=0.2) between the level of feeding practices of mother and the height of the infants. The mean and standard deviation scores for the level of practice was 51.37 (SD±6.3) and the mean and standard deviation scores for the height of the infants was 67.93 (SD±3.17) respectively.
Table 8- Relationship between the health status of infants (head circumference) and feeding practices of mothers

<table>
<thead>
<tr>
<th>S. No</th>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Coefficient of correlation</th>
<th>Table value</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Level of feeding practice</td>
<td>51.37</td>
<td>6.3</td>
<td>r=0.15</td>
<td>0.197</td>
<td>NS</td>
</tr>
<tr>
<td>2.</td>
<td>Head circumference of infants</td>
<td>42.2</td>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NS- Non significant, df=98

Table 8 depicts that there was no correlation (r=0.15) between the level of feeding practices of mothers and the head circumference of the infants. The mean and standard deviation scores for the level of practice was 51.37 (SD±6.3) and the mean and standard deviation scores for the head circumference of the infants was 42.2(SD±3.3) respectively.
### SECTION E: ASSOCIATION OF HEALTH STATUS OF INFANTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES

**Table 9:** Association of weight of infants with their selected demographic variables

<table>
<thead>
<tr>
<th>S. No</th>
<th>Demographic variables</th>
<th>Weight of the infants</th>
<th>$\chi^2$</th>
<th>Table value</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Normal</td>
<td>Underweight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Age of the infant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) 6-8 months</td>
<td>22</td>
<td>14</td>
<td>9.58</td>
<td>5.99 df=2</td>
</tr>
<tr>
<td></td>
<td>b) 8-10 months</td>
<td>31</td>
<td>3</td>
<td>3.58</td>
<td>3.84 df=1</td>
</tr>
<tr>
<td></td>
<td>c) 10-12 months</td>
<td>25</td>
<td>5</td>
<td>2.49</td>
<td>7.82 df=3</td>
</tr>
<tr>
<td>2.</td>
<td>Sex of the infant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Male</td>
<td>31</td>
<td>10</td>
<td>0.23</td>
<td>3.84</td>
</tr>
<tr>
<td></td>
<td>b) Female</td>
<td>47</td>
<td>12</td>
<td></td>
<td>df=1</td>
</tr>
<tr>
<td>3.</td>
<td>Age of the mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) below 20 years</td>
<td>11</td>
<td>2</td>
<td>2.49</td>
<td>7.82</td>
</tr>
<tr>
<td></td>
<td>b) 20-25 years</td>
<td>30</td>
<td>8</td>
<td></td>
<td>df=3</td>
</tr>
<tr>
<td></td>
<td>c) 26-30 years</td>
<td>29</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Above 30 years</td>
<td>8</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Hindu</td>
<td>57</td>
<td>17</td>
<td>0.19</td>
<td>5.99</td>
</tr>
<tr>
<td></td>
<td>b) Christian</td>
<td>5</td>
<td>1</td>
<td></td>
<td>df=2</td>
</tr>
<tr>
<td></td>
<td>c) Muslim</td>
<td>16</td>
<td>4</td>
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</tr>
<tr>
<td>5.</td>
<td>Education of the mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) No formal education</td>
<td>8</td>
<td>2</td>
<td>0.59</td>
<td>7.82</td>
</tr>
<tr>
<td></td>
<td>b) Primary</td>
<td>38</td>
<td>9</td>
<td></td>
<td>df=3</td>
</tr>
<tr>
<td></td>
<td>c) Higher secondary</td>
<td>29</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Graduate</td>
<td>3</td>
<td>1</td>
<td></td>
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</table>

n=100
<table>
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<tr>
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<th>Number of children</th>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) One</td>
<td>34</td>
<td>12</td>
<td>4.25</td>
<td>7.82</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>b) two</td>
<td>34</td>
<td>6</td>
<td>df=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) three</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) four and above</td>
<td>2</td>
<td>1</td>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>Occupation of the mother</th>
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<th></th>
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<th></th>
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<tbody>
<tr>
<td></td>
<td>a) Self employee</td>
<td>32</td>
<td>10</td>
<td>7.71</td>
<td>7.82</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>b) Government</td>
<td>1</td>
<td>3</td>
<td>df=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Private</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) House wife</td>
<td>42</td>
<td>8</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Family income/month</th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Less than Rs.1000</td>
<td>2</td>
<td>2</td>
<td>4.14</td>
<td>7.82</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>b) Rs.1000-2000</td>
<td>8</td>
<td>0</td>
<td>df=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Rs.2000-3000</td>
<td>9</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Above Rs.3000</td>
<td>59</td>
<td>17</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Type of family</th>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Nuclear family</td>
<td>64</td>
<td>18</td>
<td>0.27</td>
<td>5.99</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>b) Joint family</td>
<td>12</td>
<td>3</td>
<td>df=2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Extended family</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th></th>
<th>Number of episodes of infections in the last month</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) nil</td>
<td>30</td>
<td>9</td>
<td>7.82</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) one</td>
<td>22</td>
<td>9</td>
<td>df=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) two</td>
<td>17</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) more than two</td>
<td>9</td>
<td>2</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Source of health information on complementary feeding |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Health professionals</td>
</tr>
<tr>
<td>(b) TV</td>
</tr>
<tr>
<td>(c) Radio</td>
</tr>
<tr>
<td>(d) Friends/relatives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>26</th>
<th>5</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25</td>
<td>8</td>
<td>1.35</td>
<td>7.82</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2</td>
<td>df=3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NS- Non significant  
P<0.05

S- Significant

**Table 9** Chi square values were calculated to find the association between weight of the infants with their selected demographic variables. The results revealed that there was no significant association between weight of the infants with their selected demographic variables except for age of the infant ($x^2=9.58$).
SECTION F: - ASSOCIATION OF FEEDING PRACTICES OF MOTHERS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES

Table: 10- Association of feeding practices of mothers with their selected demographic variables.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Demographic variables</th>
<th>Level of feeding practice</th>
<th>$\chi^2$</th>
<th>Table value</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inadequate</td>
<td>Moderate</td>
<td>Adequate</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Age of the infant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>6-8 months</td>
<td>7</td>
<td>25</td>
<td>4</td>
<td>4.51</td>
</tr>
<tr>
<td>b)</td>
<td>8-10 months</td>
<td>2</td>
<td>29</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>10-12 months</td>
<td>2</td>
<td>24</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Sex of the infant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Male</td>
<td>7</td>
<td>27</td>
<td>7</td>
<td>5.98</td>
</tr>
<tr>
<td>b)</td>
<td>Female</td>
<td>4</td>
<td>51</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Age of the mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>below 20 years</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>4.52</td>
</tr>
<tr>
<td>b)</td>
<td>20-25 years</td>
<td>5</td>
<td>28</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>26-30 years</td>
<td>3</td>
<td>30</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Above 30 years</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>Hindu</td>
<td>9</td>
<td>56</td>
<td>9</td>
<td>1.9</td>
</tr>
<tr>
<td>b)</td>
<td>Christian</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Muslim</td>
<td>2</td>
<td>17</td>
<td>1</td>
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</tr>
<tr>
<td>5.</td>
<td>Education of the mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>No formal education</td>
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<td>8</td>
<td>0</td>
<td>10.18</td>
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<td>Primary</td>
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<td>40</td>
<td>3</td>
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</tr>
<tr>
<td>c)</td>
<td>Higher secondary</td>
<td>4</td>
<td>28</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>Graduate</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of children</td>
<td>a) one</td>
<td>b) two</td>
<td>c) three</td>
<td>d) four and above</td>
</tr>
<tr>
<td>---</td>
<td>--------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------</td>
<td>------------------</td>
</tr>
<tr>
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<td>8</td>
<td>32</td>
<td>6</td>
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<td>2</td>
<td>34</td>
<td>4</td>
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<td>0</td>
<td>10</td>
<td>1</td>
<td></td>
</tr>
<tr>
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<td></td>
<td>1</td>
<td>2</td>
<td>0</td>
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<tr>
<td></td>
<td>Occupation of the mother</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>a) Self employee</td>
<td>6</td>
<td>33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Government</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Private</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) House wife</td>
<td>4</td>
<td>39</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family income/month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Less than 1000</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) 1000-2000</td>
<td>1</td>
<td>7</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>c) 2000-3000</td>
<td>1</td>
<td>8</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Above 3000</td>
<td>7</td>
<td>62</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type of family</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>a) Nuclear family</td>
<td>8</td>
<td>63</td>
<td>11</td>
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</tr>
<tr>
<td></td>
<td>b) Joint family</td>
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<td>14</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Extended family</td>
<td>2</td>
<td>1</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>Number of episodes of infections in the last month</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) nil</td>
<td>3</td>
<td>31</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) one</td>
<td>5</td>
<td>24</td>
<td>2</td>
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</tr>
<tr>
<td></td>
<td>c) two</td>
<td>0</td>
<td>17</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) more than two</td>
<td>3</td>
<td>6</td>
<td>2</td>
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</table>
Table 10 Chi square values were calculated to find the association of feeding practices of mothers with their selected demographic variables. The results revealed that there was no significant association between feeding practices of mothers with their selected demographic variables except for sex of the infant ($X^2 = 5.98$), type of family ($X^2 = 12.47$) and source of health information ($X^2 = 17.75$)
CHAPTER-V
DISCUSSION

This chapter deals with sample characteristics and objectives of the study. The aim of this present study was to correlate the health status of infants and feeding practice of the mothers in selected urban area, Dahrapuram with a view to prepare a self instructional module.

DESCRIPTION OF SAMPLE CHARACTERISTICS:

- Majority 36 (36%) of the infants belonged to 6-8 months, 34 (34%) belonged to 9-10 months, and 30 (30%) belonged to 11-12 months.
- Regarding sex of the infant majority 59 (59%) of the infants were females and 41 (41%) were males.
- Regarding age of the mother majority 39(39%) of the mother belonged to 26-30 years, 38(38%) belonged to 20-25 years, 13 (13%) belonged to less than 20 years and 10(10%) belonged to 30 years.
- Regarding religion majority 74 (74%) of the mothers belonged to Hindu, 20 (20%) belonged to Muslim and 6 (6%) belonged to Christian.
- Regarding education of the mother majority 47 (47%) of the mother had undergone primary education, 39 (39%) mothers had higher secondary education, 10 (10%) had no formal education and 4 (4%) were graduate.
- Regarding number of children majority 46 (46%) of the mother had one child, 40 (40%) had two children, 11 (11%) had three children and 3 (3%) had four and above.
- Regarding occupation of the mother majority 50 (50%) of the mother were house wife, 42 (42%) were self employee, 4 (4%) were private employee and 4(4%) were government employee.
- Regarding family income majority 76(76%) of the mother had the monthly family income of more than Rs. 3000, 12 (12%) of the mothers had family income between Rs. 2001-3000, 8 (8%) of the mother had family income between Rs. 1001-2000 and 4 (4%) of the mother had less than Rs.1000.
• Regarding type of family majority 82 (82%) of the mother belonged to nuclear family, 15 (15%) were belonged to joint family and 3 (3%) were belonged to extended family.
• Regarding the number of episodes of infection in the last month majority 39 (39%) of the infants had no infection, 31 (31%) infants had infection for one time, 19 (19%) infants had infection for two times and 11 (11%) infants had infection for more than 2 times.
• Regarding the source of health information majority 33(33%) of the mothers were receiving the information through television, 31(31%) were receiving through health personnel, 30 (30%) were receiving from friends and relatives and 6 (6%) were receiving through radio.

THE FINDINGS ARE DISCUSSED ACCORDING TO THE OBJECTIVES UNDER THE FOLLOWING HEADINGS
1. Assess the health status of infants
2. Assess the level of feeding practices of the mothers
3. Find the relationship between the health status of infants and feeding practices of mothers.
4. Find the association of health status of infants with their selected demographic variables
5. Find the association between level of feeding practices of mothers with their selected demographic variables

THE FIRST OBJECTIVE OF THE STUDY WAS TO ASSESS THE HEALTH STATUS OF INFANTS

Assessment of infant health status (weight, height, head circumference), depicts that among 100 infants majority 78 (78%) of the infants had normal weight and 22(22%) had underweight, all the infants were having normal height and all the infants were having normal head circumference.
THE SECOND OBJECTIVE OF THE STUDY WAS TO ASSESS THE LEVEL OF FEEDING PRACTICES OF THE MOTHERS

Assessment of level of feeding practices of mothers depicts that majority 78(78%) of the mothers had moderately adequate feeding practice, 11 (11%) had inadequate feeding practice and 11 (11%) had adequate feeding practice.

These findings were consistent with findings of Shazia, et.al.,(2008) performed to assess the feeding practice and knowledge of mothers regarding breast feeding, complimentary feeding, and to find out socio-economic correlates of feeding practices. The study findings revealed that, the knowledge and practice about complimentary feeding (CF) was moderate. Around 21% of 2-3 months old babies received complementary food and 19% of 6-8 month-olds were only breastfed. In 78% mothers CF was advised by family members while in 23% mothers by doctors. The majority 64.2% of the mother were poor and 61.5% had no education.

THE THIRD OBJECTIVE OF THE STUDY WAS TO FIND THE RELATIONSHIP BETWEEN THE HEALTH STATUS OF INFANTS AND FEEDING PRACTICES OF MOTHERS.

The correlation co-efficient for the level of feeding practices and the weight of the infants was r=0.55 at p<0.05 level of significant which is positively correlated.

The correlation co-efficient for the level of feeding practice and the height of the infants was r=0.2 at p<0.05 level of significant which is positively correlated.

The correlation co-efficient for the level of feeding practice and the head circumference of the infants was r=0.15 at p<0.05 level of significant which is not correlated.
Hence research hypothesis $H_1$: There will be a correlation between the health status of infants and the feeding practices of the mothers was accepted.

These findings were consistent with the findings of Sian.M.Robinson.(2000) Variations in Infant Feeding Practice Are Associated with Body Composition in Childhood. The study results revealed that Children with high infant guidelines scores had a higher lean mass [9.5 (95% CI 9.3–9.7) kg in children in the top quarter of the distribution, compared with 7.5 (95% CI 7.2–7.9) kg in children in the bottom quarter ($P = 0.001$)]. These associations were independent and were little changed by adjustment for confounding factors. These data suggest that variations in both milk feeding and in the weaning diet are linked to differences in growth and development, and they have independent influences on body composition in early childhood.

THE FOURTH OBJECTIVE OF THE STUDY WAS TO FIND THE ASSOCIATION BETWEEN HEALTH STATUS OF INFANTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Chi square values were calculated to find the association between the weight of the infants with their selected demographic variables. There was no significant association between weight of the infants with their selected demographic variables except for age of the child ($x^2=9.58$).

Hence research hypothesis $H_2$: There will be a significant association between health status of infants with their selected demographic variables was rejected except for age of the infant.
THE FIFTH OBJECTIVE OF THE STUDY WAS TO FIND THE ASSOCIATION BETWEEN FEEDING PRACTICES OF MOTHERS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Chi square values were calculated to find the association between feeding practices of mothers with their selected demographic variables. There was no significant association between feeding practices of mothers with their selected demographic variables except for sex of the infant ($X^2 = 5.98$), type of family ($X^2 = 12.47$) and source of health information ($X^2 = 17.75$).

The study findings are contradictory with the findings of Shazia et al., (2010) performed a study to assess the practice and knowledge of mothers regarding breast feeding, complimentary feeding, and to find out socio-economic correlates of feeding practices. Majority 64.2% were poor and 61.5% had no education. There is a statistically significant difference in feeding practices of educated and uneducated ($P < 0.0001$) and also in poor and middle class mothers ($P < 0.0003$). Regarding, age of their last born babies, 180 babies were under 6 months, and 320 were 6 to 23 months of age.

Hence research hypothesis $H_3$: There will be a significant association between the feeding practices of mothers with their selected demographic variables was accepted.
CHAPTER- VI
SUMMARY, CONCLUSION, IMPLICATION, RECOMMENDATIONS AND LIMITATIONS.

This chapter is divided into 5 aspects
1. Summary of the study
2. Conclusion
3. Implications for nursing
4. Recommendations
5. Limitations

SUMMARY OF THE STUDY
The study was focused to find the correlation between the health status of infants and the feeding practices of the mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.

The research approach used for the study was Descriptive survey approach. The research design used for this study was descriptive correlational research design. The study was conducted in selected area Nanchiyampalayam. The sample size was 100 infants and their mothers. The samples were selected by non probability purposive sampling technique and the health status of infants and feeding practices of mothers were assessed. The conceptual framework was based on the health belief model.

The health status of infants was assessed by measuring the weight, height and head circumference. Structured interview schedule was used to assess the level of feeding practices of mothers. Collected data were analyzed by using descriptive and inferential statistics.
THE MAJOR FINDINGS OF THE STUDY;

Distribution of demographic characteristics of the infants and their mothers.

Majority 36 (36%) of the infants belonged to 6-8 months. Majority 59 (59%) of the infants were females. Majority 39(39%) of the mother belonged to 26-30 years. Majority 74 (74%) of the mothers belonged to Hindu. Majority 47 (47%) of the mother had undergone primary education. Majority 46 (46%) of the mother had one child. Majority 50 (50%) of the mother were house wives. Majority 76(76%) of the mother had the monthly family income of more than Rs. 3000. Majority 82 (82%) of the mother belonged to nuclear family. Majority 39 (39%) of the infants had no infection in the last month. Majority 33(33%) of the mothers were receiving the health information through television.

- Majority 78 (78%) of the infants had normal weight.
- Among 100 infants, all the infants are having normal height, weight and head circumference.
- Majority 78(78%) of the mothers had moderately adequate practice.
- There was a positive correlation (r=0.55) between the health status of infants (weight) and feeding practices of the mothers.
- There was a positive correlation (r=0.2) between the health status of infants (height) and feeding practices of the mothers.
- There was no correlation (r=0.15) between the level of feeding practices of mothers and the head circumference of the infants.
- There was no significant association between weight of the infant with their selected demographic variables except age of the child ($x^2=9.58$).
- There was no significant association between feeding practices with their selected demographic variables except for sex of the infant ($X^2 = 5.98$), type of family ($X^2 = 12.47$) and source of health information ($X^2 = 17.75$).
CONCLUSION

The present study was conducted to assess the correlation between the health status of the infants and the feeding practices of the mother. The findings of the study revealed that majority 78(78%) of the infants were having normal weight and all (100%) are having the normal height and head circumference. There was a positive correlation $r=0.55$ between the health status (weight) of the infants and the feeding practice of the mothers. There was a positive correlation $r=0.2$ between the health status (height) of the infants and the feeding practice of the mothers. There was no correlation $r=0.15$ between the level of feeding practices of mothers and the health status (head circumference) of the infants. There was a significant association between the health status of the infants with their selected demographic variable such as age of the child. There was a significant association between the feeding practice of the mothers with their selected demographic variables such as sex of the child, type of family and the source of health information. The study findings revealed that adequate feeding practices of the mothers will maintain the health status of the infants.

IMPLICATIONS

NURSING SERVICE:

- Community health nurse can organize a screening program in the community and can identify the early malnutrition among infants
- Community health nurse can conduct the awareness programme on feeding practices among the mothers to prevent the malnutrition.
- By assessing the knowledge regarding feeding practice of mothers a community health nurse can insist the mothers regarding the importance of complementary feeding.
NURSING EDUCATION:

- Students can conduct nutritional exhibitions on complementary feeding by using different media and organize camps to assess health status of infants.
- Nursing students can do mini project to assess the health status of infants and feeding practices of mothers.

NURSING ADMINISTRATION:

- The nurse administrators can conduct in service education, organize workshop, seminars and conference at PHC and sub centers regarding the importance of maintaining nutritional status and complementary feeding.
- Community health nurse can organize in service program for the VHN, ANM and AWW regarding infant health status assessment and complementary feeding.
- The nurse administrators can organize awareness program in the villages regarding nutritional problems and importance of complimentary feeding for infants.
- The nurse administrators can distribute the free pamphlets, booklets and conduct exhibitions using posters and charts regarding nutritional requirements and selection of nutritive foods among mothers with infants in order to prevent the nutritional problems.

NURSING RESEARCH:

- The study findings can be utilized by the emerging nurse researchers
- The study findings can be baseline for further studies to build up on for improving the body of knowledge in nursing.
RECCOMENDATIONS:

- Similar study can be done using larger samples
- Similar study can be done as a comparative study between urban and rural area
- Experimental study can be conducted by providing low cost well balanced complementary diet to the infants in relation to health status of infants.
- Descriptive study can be conducted to assess the knowledge, practice and attitude towards feeding practices and health status of infants.

LIMITATIONS:

Researcher had difficulty in making the child to cooperate while checking the weight, height, and head circumference since the child was crying.
BIBLIOGRAPHY

BOOKS:

JOURNALS:


**WEBSITE:**

35. Stefano.luccioli@fda.hhs.gov
36. tarrantm@hku.hk
37. mdibley@health.usyd.edu.au
38. moonhuro@yahoo.fr
39. Seema.mihrshahi@edu.au
40. Tersa.janevic@yale.edu
41. http://www.answers.com/topic/health-measurement-scales
42. http://www.rchindia.org/dlhs_india.htm
43. http://www.nic.in/nfhsfactsheet.htm
44. http://www.hfhsindia.org/india2.html
46. http://www.who.int/nutrition/topics/exclusive_breastfeeding/en
APPENDIX - A

| 1. |  |  |
|-----|-----------------|
| 2. |  |  |
| 3. |  |  |
| 4. |  |  |

3352.0/2009/11 dated 11-05-2011

The undersigned, Department of Education, Government of Tamil Nadu, hereby authorize the project report (Project Report) for the implementation of the project.

Date: 3.5.11

The undersigned, Department of Education, Government of Tamil Nadu, hereby authorize the project report (Project Report) for the implementation of the project.

Date: 3.5.11

(Signature) Education Department

(c) 2011
APPENDIX - B

LETTER SEEKING EXPERT'S OPINION FOR

VALIDITY OF TOOLS

From
Ms.J.Reeta Roselin
M.Sc. (Nursing) II year,
Bishop’s College of Nursing,
Dharapuram.

To

Respected Madam/Sir,

SUB: Requisition for content validity of tool

I am M.Sc. (Nursing) second year student of Bishop’s College of Nursing, Dharapuram, under Dr. M.G.R Medical University, Chennai. As a partial fulfillment of my M.Sc.(N) Degree Programme, I am conducting a research on “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” One of the initial steps of the research study is to develop a tool. I am sending the above stated for content validity and for your expert and valuable opinion.

I will be very thankful to return it to the undersigned.

Yours sincerely,

(J.Reeta roselin)

Encl;
Certificate of content validity
1. Statement of problem, objectives, operational definition, hypotheses
2. Description of the tool and tool for data collection
3. Self addressed envelope
LIST OF EXPERTS OF VALIDATION

1) Jaeny Kemp, M.Sc (N)
   Principal
   Institute of nursing
   G.K.N.M.Hospital
   Coimbatore.

2) Mr. M. Kandaswamy, M.Sc(N).,
   Professor and HOD,
   Jubilee Mission College of Nursing
   Thrissur
   Kerala.

3) Mrs. Amudha, M.Sc(N).,
   Associate Professor,
   HOD of Community Health Nursing,
   Dhanvanthri College Of Nursing,
   Pallakkapalayam.

4) Prof. Dr. S.L. Ravishankar
   Department of community medicine
   PSG institute of medical science and research
   Coimbatore

5) Mrs. Sophia Christopher, M.Sc(N).,
   HOD of community health nursing,
   K.G. College of nursing,
   Coimbatore.
APPENDIX – D

CERTIFICATE FOR VALIDITY

This is to certify that the project tool on “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” has been validated by me and found appropriate with mentioned suggestions.

Signature :

Name :

Designation :

College :

JAENY KEMP
PRINCIPAL
INSTITUTE OF NURSING
G.K.N.M. HOSPITAL
COIMBATORE- 641 037.
CERTIFICATE FOR VALIDITY

This is to certify that the project tool on “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” has been validated by me and found appropriate with mentioned suggestions.

Signature: [signature]

Name: Kandasamy M

Designation: Professor & Head
Dept. Community Health Nursing

College: Juddheka Mission College of Nursing, Thiruvannamalai
CERTIFICATE FOR VALIDITY

This is to certify that the project tool on “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” has been validated by me and found appropriate with mentioned suggestions.

Signature : Amudha

Name : N.M. Amudha, M.Sc.N.

Designation: Associate Professor,
VMALCON, Salem.

College : VMALCON, Salem.
CERTIFICATE FOR VALIDITY

This is to certify that the project tool on “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” has been validated by me and found appropriate with mentioned suggestions.

Signature : S. L. Ravi Shankar

Name : Dr. S. L. RAVI SHANKAR

Designation : Professor

DEPARTMENT OF COMMUNITY MEDICINE

College : PSG Institute of Medical Sciences & Research

Coimbatore-4.
CERTIFICATE FOR VALIDITY

This is to certify that the project tool on “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” has been validated by me and found appropriate with mentioned suggestions.

Signature : [Signature]
Name : SOFIA CHRISTOPHER
Designation : PROFESSOR M. SC (CN) PH. D
College : K. G. CN
APPENDIX-E

CERTIFICATE OF ENGLISH EDITING

TO WHOM SOEVER IT MAY CONCERN

This is certify that the dissertation work, “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” done by Miss. J.Reeta Roselin, II Year M.Sc (Nursing) student of Bishop’s College of Nursing, Dharapuram is edited for English Language appropriateness by ____________________

Signature

Date : ____________________

Address : ____________________

P. Sampath, M.A., M.Phil., M.Ed.,
Lecturer in English,
Maharani Teacher Training Institute,
Dharapuram.
APPENDIX-F

CERTIFICATE OF TAMIL EDITING

TO WHOM SOEVER IT MAY CONCERN

This is certify that the dissertation work, “A study to correlate the health status of infants and feeding practices of mothers in selected urban areas at Dharapuram with a view to prepare a self instructional module.” done by Miss. J. Reeta Roselin, II Year M.Sc (Nursing)student of Bishop’s College of Nursing, Dharapuram is edited for Tamil Language appropriateness by

_________________________

Signature

Date :
APPENDIX-G

NANCHIYAMPALAYAM AREA MAP

Setting of the study
APPENDIX - H
INSTRUMENT
PART-I

DEMOGRAPHIC DATA:

1. Age of the infant
   a) 6-8
   b) 8-10
   c) 10-12

2. Sex of the infant
   a) Male
   b) Female

3. Age of the mother
   a) below 20
   b) 20-25
   c) 26-30
   d) Above 30

4. Religion
   a) Hindu
   b) Christian
   c) Muslim

5. Education of the mother
   a) No formal education
   b) Primary
   c) Higher secondary
   d) Graduate

6. Number of children
   a) one
   b) two
   c) three
   d) four and above
7. Occupation of the mother
   a) Self employee
   b) Government
   c) Private
   d) House wife

8. Family income/month
   a) Less than 1000
   b) 1000-2000
   c) 2000-3000
   d) Above 3000

9. Type of family
   a) Joint family
   b) Nuclear family
   c) Extended family

10. Number of episodes of infections in the last month
    a) Nil
    b) One
    c) Two
    d) More than two

11. Source of information on complementary feeding
    a) Health professionals
    b) TV/Radio
    c) Friends/relatives
    d) Magazine/news paper
PART-II

ASSESSING THE HEALTH STATUS OF INFANT:

Weight : 

Length : 

Head circumference : 

The infant’s weight will be checked by using standard weighing scale. Baby is placed with minimum clothing. The accurate weight is recorded.

Simple tape measurement is used for assessing the crown-heel length/height and head circumference.
Part-III: ASSESS THE FEEDING PRACTICE

a) Practice questionnaire to assess the breast feeding practices:

<table>
<thead>
<tr>
<th>S. NO</th>
<th>QUESTIONS</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.+</td>
<td>Did you feed the baby immediately after the birth?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.+</td>
<td>Did you give exclusively breast feeding up to 6 months?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.+</td>
<td>Do you wash your breast before breast feed?</td>
<td></td>
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</tr>
<tr>
<td>4.+</td>
<td>Did you give demand feeding?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.+</td>
<td>Do you use alternate breast for feeding at each time?</td>
<td></td>
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</tr>
<tr>
<td>6.+</td>
<td>Do you wake the child and feed during night?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.*</td>
<td>Do you stop breastfeeding when child is sick?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.*</td>
<td>Do you stop breast feed when you are sick?</td>
<td></td>
<td></td>
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<tr>
<td>9.+</td>
<td>Do you still continue breast feed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.+</td>
<td>Have you started the complementary food at 6 months of age?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SCORING:**

**Negative questions:**(*2)

Yes response: 0
No response: 1

**Positive questions:**(+8)

No response: 0
Yes response: 1

Total score: 10
b) Rating scale to assess the weaning practices among mothers of infants:

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>QUESTIONS</th>
<th>NEVER</th>
<th>OCASSIONALLY</th>
<th>ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. +</td>
<td>Do you wash your hands before start feeding?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. +</td>
<td>Do you avoid giving commercial complementary foods?</td>
<td></td>
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<tr>
<td>3. *</td>
<td>Do you force the food even if the child refuses it?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. +</td>
<td>Do you give the particular food after few days when the baby refuses it?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5. +</td>
<td>Do you use separate plate for your child’s feeding?</td>
<td></td>
<td></td>
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<tr>
<td>6. +</td>
<td>Do you feed your child 3-4 times a day after 6 months?</td>
<td></td>
<td></td>
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<tr>
<td>7. +</td>
<td>Do you increase the amount of food every month?</td>
<td></td>
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<td></td>
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<tr>
<td>8. *</td>
<td>Do you reduce the amount of food after an illness?</td>
<td></td>
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<tr>
<td>9. +</td>
<td>Do you increase the fluid intake during illness?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10. +</td>
<td>Do you give cow’s milk daily?</td>
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</tr>
<tr>
<td>11. +</td>
<td>Do you dilute cow’s milk with water in equal proportion initially?</td>
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<tr>
<td>12. +</td>
<td>Do you give dhal soup?</td>
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<tr>
<td>13. +</td>
<td>Do you add mashed dhal in the food?</td>
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<td></td>
</tr>
<tr>
<td>14. *</td>
<td>Do you avoid giving banana?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>15. +</td>
<td>Do you give green vegetable soup?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. +</td>
<td>Do you give mashed vegetables?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Question</td>
<td>Scoring</td>
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<tr>
<td>-----</td>
<td>---------------------------------------------------------------------------</td>
<td>---------</td>
<td></td>
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</tr>
<tr>
<td>17.</td>
<td>Do you give fruit juice?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18.</td>
<td>Do you mix fruit juice in warm water?</td>
<td></td>
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<tr>
<td>19.</td>
<td>Do you give mashed fruits at 6 months?</td>
<td></td>
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<tr>
<td>20.</td>
<td>Do you take baby’s share before adding spices to family’s food?</td>
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<tr>
<td>21.</td>
<td>Do you give mashed potato?</td>
<td></td>
<td></td>
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<tr>
<td>22.</td>
<td>Do you give mashed rice?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>23.</td>
<td>Do you give mashed roti/bread with milk?</td>
<td></td>
<td></td>
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<tr>
<td>24.</td>
<td>Do you give tea/coffee to child?</td>
<td></td>
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</tr>
<tr>
<td>25.</td>
<td>Do you give bottled soft drinks?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SCORING:**

**POSITIVE QUESTIONS: (+ 19)**

- Never : 1
- Occasionally : 2
- Always : 3

**NEGATIVE QUESTIONS: ( * 6)**

- Always : 1
- Occasionally : 2
- Never : 3

Total score : 75
Overall score for feeding practices:

Total score : 85

<table>
<thead>
<tr>
<th>Level of practice</th>
<th>Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate practice</td>
<td>58-85</td>
<td>68-100%</td>
</tr>
<tr>
<td>Moderately adequate practice</td>
<td>29-57</td>
<td>34-67%</td>
</tr>
<tr>
<td>Inadequate practice</td>
<td>1-28</td>
<td>1-33%</td>
</tr>
</tbody>
</table>
பகுதி 1

சம எணில் விளக்கம்:

1. கணுகரத்துறை வட்டம்:
   (அ) 6-8 மாதம்
   (ஆ) 8-10 மாதம்
   (இ) 10-12 மாதம்

2. கணுகரத்துறை பாதிக்கல்
   (அ) அதிகம்
   (ஆ) சுட்டம்

3. கருவிய வேளாண்மை
   (அ) 20 குடும்ப கீரை
   (ஆ) 20-25
   (இ) 26-30
   (ஃ) 30 குடும்ப கீரை

4. பெரும்
   (அ) சிளைலை
   (ஆ) சின்னமலையம
   (இ) பெரைலை

5. கருவிய பாதுகாப்பு
   (அ) புல்லியாறு கல்லு பாதுகாப்பு
   (ஆ) கருவியப்பாதுகாப்பு
   (இ) பெருமைப்பாதுகாப்பு
   (ஃ) பூங்கா

6. கணுகரகதிகள் வழிகாட்டிகள்
   (அ) 1
   (ஆ) 2
   (இ) 3
   (ஃ) 4 மாதம் அதிகம் கீரை

7. கருவிய விதைக்கல்
   (அ) சம விதைக்கல்
   (ஆ) அதிக விதைக்கல்
   (இ) குறுக்காக விதைக்கல்
   (ஃ) மிட்டு மங்கலக்கல்
8. வணக்கமாக வந்து விளக்கம்:
   (அ) ய. 1000 க்கு முன்னர்
   (ஆ) ய. 1001-2000
   (இ) ய. 2001-3000
   (ற) ய. 3000 க்கு முன்னர்

9. முறைப்படுத்தப்படும் வகைகள்:
   (அ) குறிப்பிட்டு முறைப்படுத்தப்படும்
   (ஆ) கல்வி முறைப்படுத்தப்படும்
   (இ) தொழில் முறைப்படுத்தப்படும்

10. காலக்கூடிய முறைக்குறிக்குடிய இடத்தில் பாதுகாப்பு மற்றும் கமலிலையானாலே குறிப்பிட்டு விளக்கம்?
    (அ) தொடர்வரும்
    (ஆ) 1 படியான
    (இ) 2 படியான
    (ற) 2 படியான நூறான

11. தினசரி இடையே பாதுகாப்பு விளக்கம் நடைபெற்று விளக்கம் (இடையே குறிப்பிட்டு)
    (அ) காலக்கூடிய பாதுகாப்பாகக்
    (ஆ) நிகந்தக்காராக
    (இ) மாணவர்கள்
    (ற) செரீசைச் பாதுகாப்பு மற்றும் மாணவர்கள்

பண்டி: 2

துறை துறைப்பரப்பு பரப்பல்:
ஆபாரம்:
தேச குறிப்பிட்டு:
<table>
<thead>
<tr>
<th>ம. எண்</th>
<th>பதிப்பு</th>
<th>பதிப்பிலுள்ள விளக்கம்</th>
<th>தீர்மானம்</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>குழுவத் பொறியியல் 30 நேர்க்குறிகள் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
<td></td>
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<td>2.</td>
<td>அழுது மற்றும் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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<td>3.</td>
<td>கன்றும் பின்னர் நேர்குறிகள் பின்னர் எவ்விதுறைகள்?</td>
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<td>4.</td>
<td>குழுவத் பொறியியல் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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<td>5.</td>
<td>குழுவத் பொறியியல் கன்றும் பின்னர் நேர்குறிகள் பின்னர் எவ்விதுறைகள்?</td>
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<td>6.</td>
<td>விளக்கும் நேர்குறிகள் குழுவத் பொறியியல் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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<td>7.</td>
<td>குழுவத் கண்டதியானாக்கிய நேர்குறிகள் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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<td>8.</td>
<td>கட்டண வகையடுத்து காலத்தியானாக்கிய நேர்குறிகள் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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<tr>
<td>9.</td>
<td>குழுவத் பொறியியல் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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<tr>
<td>10.</td>
<td>விளக்கும் நேர்குறிகள் குழுவத் பொறியியல் கன்றும் பின்னர் எவ்விதுறைகள்?</td>
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</tbody>
</table>
| எல்லையையேததுதையைத்தைத்தைத்தை கைகளும் புதியப்புஸ்தாசியான் புதுக்கக்கூடு
| அழுத்தான் இந்தியான் |  கேலமில்லாத | பொழுதுள்ளவை | பி பி பி பி
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<tr>
<td>1. குறுக்கைக்குக் கிளைய கல்லால் கொள்ளாமல் கல்லால் குறுக்கைக்கக்காயா?</td>
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<tr>
<td>2. கல்லால் கொள்ள காந்தாற்றம் குறுக்கைக்கக்காயா பில் கிளைய குறுக்கைக்கக்காயா?</td>
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<tr>
<td>3. குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கைக்கக்காயா?</td>
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</tr>
</tbody>
</table>
| 4. குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கை�}
<p>| 5. குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கையாக பில் கிளைய குறுக்கைyard? |  |  |  |
| 6. குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறு�்கை�ாக கிளைய குறுக்கையாக பில் கிளைய குறுத்தையாக கிளைய குறுத்தையாக பில் கிளைய குறுத்தையாக பில் கிளைய குறுத்தையாக பில் கிளைய குறுத்தையாக பில் கிளைய குறுத்தைyard? |  |  |  |
| 7. குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுக்கைyard? |  |  |  |
| 8. குறுக்கையாக கிளைய குறுக்கையாக கிளைய குறுத்தைyard? |  |  |  |
| 9. குறுக்கையாக கிளைய குறுத்தைyard? |  |  |  |
| 10. குறுக்கையாக கிளைய குறுத்தைyard? |  |  |  |
| 11. குறுக்கைyard? |  |  |  |
| 12. குறுக்கைyard? |  |  |  |
| 13. குறுத்தைyard? |  |  |  |</p>
<table>
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<td>14.</td>
<td>மகாவட்ட பொருள் மையமாக கருதியிருக்குமா?</td>
</tr>
<tr>
<td>15.</td>
<td>பசைக்கு வந்து, துவக்கைமடைக் கருதுவரை இலக்கியின் விளக்கம்.</td>
</tr>
<tr>
<td>16.</td>
<td>புத்தகங்கள் இலங்கை விளக்கம்?</td>
</tr>
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<td>17.</td>
<td>துவக்கைமடை பொருள் மையமாக இலங்கை விளக்கம்?</td>
</tr>
<tr>
<td>18.</td>
<td>புத்தகங்கள் பெருமை சந்தரம் கருதுவரை இலங்கை விளக்கம்?</td>
</tr>
<tr>
<td>19.</td>
<td>பொருள் புத்தகங்கள் 6 பொருளின் கருத்துக்கு அப்படி வைக்கப்பட்டவா?</td>
</tr>
<tr>
<td>20.</td>
<td>இன்னொத்து துவக்கையின் குழுமம் காரணமாக முதலில் புத்தகம் இலங்கை விளக்கம் பதிவு செய்யும் வைக்கப்பட்டவா?</td>
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<tr>
<td>21.</td>
<td>பொருள் இலங்கை விளக்கம்?</td>
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<td>22.</td>
<td>பொருள் எழுத்துக்குள் விளக்கம் விளக்கம்?</td>
</tr>
<tr>
<td>23.</td>
<td>கருண / ம இலங்கை விளக்கம்?</td>
</tr>
<tr>
<td>24.</td>
<td>கருணை எழுத்துக் குழுமம் பதிப்பு செய்யும் கருத்துக்குள் விளக்கம் விளக்கம்?</td>
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<td>25.</td>
<td>புத்தகங்கள் இலங்கை விளக்கம்?</td>
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**ANSWER KEY:**

**Rating scale:**

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APPENDIX - I
SELF INSTRUCTIONAL MODULE ON COMPLEMENTARY FEEDING

Infancy:

Infancy is a period of rapid growth. During first year of life the infant grows and develops more rapidly than at any time in life. Infant period is from birth to one year.

Exclusive breast feeding:

Exclusive breast feeding means the infant receives only breast milk and no other liquids or complementary foods with the exception of undiluted drops or syrups consisting of vitamin and mineral or medicines. All children should be exclusively breastfeed for the first 6 months.

Reasons for exclusive breastfeeding:
• Babies exclusively breastfeeding for 6 months grow normally.

• Water supplementation is not necessary and can lead to increased risk of diarrhoea and decreased intake of mother’s milk

• Exclusive breastfeeding provides 98% protection against infection

• It contributes to better intelligence development

• Mothers who breast feed exclusively are better adjusted with their babies

• Reduces the incidence of food related allergies, asthma and eczema

• Unnecessary supplementation with infant formula or cow’s milk can interfere with the physiologic benefits of exclusive breastfeeding.

Complementary feeding or weaning:

Weaning is the process of gradually introducing foods other than breast milk in the child’s feeding schedule. Weaning is started between 4-6 months.

Breastfeeding alone is sufficient food for first 6 months of age, thereafter; complementary foods are required to ensure adequate growth and to prevent malnutrition and stunting, which is very common in this age group of month to 24 months.

Benefits of complementary feeding:

• It promotes optimal growth of infants

• Prevents malnutrition and nutrition related problems

• Prevents anemia
Age of introduction:

The ideal age for introducing feeding is at 6 months. Early or late introduction of complementary foods is risky and may leads to refusal to eat, anemia and other nutritional problems.

Frequency of complementary feeds:

- When food is first introduced, a small amount should be given 1-2 times a day and slowly increased to 3-4 times daily by one year.
- Gradually increase the amount. If a child is not breast feed, complementary food should be given at least 5 times daily.
- Complementary may be given before, after or with breastfeed.

Types of complementary foods:
Complementary food should be prepared from cereals like rice, wheat, maize, milks and roots staples like potatoes, and variety should be introduced by adding food from one or more of following groups:

- Pulses
- Meat, chicken, egg, fish
- Milk and milk products
- Vegetables and fruits
- Oils and fats
- Sugars

It is recommended to use foods in various combinations so as to derive optimum nutrition eg: Cereal-pulse combination provide complete protein intake.

**Commercially available foods:**

Although it seems that commercially available complementary foods are convenient but these are usually six to ten times more expensive than family foods, they may not have the variety of taste and textures possible with home prepared foods and would interfere in the development of taste of homemade foods.
Age related guidelines for complementary feeding:

4-6 months:

Complementary feeding to be initiated with;

- Fruit juice especially grape juice which is low in sorbitol
- Within one or two weeks new foods should be introduced with porridge, biscuit, soaked in milk, vegetable soup, mashed banana, mashed potatoes etc.
- Each food should be given within one or two teaspoons at first 3-6 times per day.
- Foods should not be over diluted
- Within 3-4 weeks amount should be introduce to half a cup and breastfeed must be continued.

6-9 months:

Food items to be given includes;

- Soft mixture of rice, khichiri, pulses, mazed and boiled potato, bread or roti soaked in milk or dhal, mashed fruits like banana, mango, papaya, stewed apple etc.
• Egg yolk can be given from 6 -7 months onwards and curd and khir can be introduced from 7-8 months onwards

• By the age of 6-9 months the infants can enjoy bite biscuits, piece of carrot and cucumber

• The infant can have these foods 5-6 times per day and amount of food to be increased gradually, breast feeding should be continued

**9-12 months:**

• Give almost everything cooked at home.(soften and without spice)

• New food items like fish, meat, chicken can be introduced during this period.

• Gradually increase quantity. Give 3 feeds in breast feed babies and about 5-6 feeds in artificially feed babies.

• Vegetables and seasonal fruits can be added and continue breast feeding.

**WHO Recommendations for complementary feeding:**

• Give breast milk alone for 6 months
• If the child weight gain is not appropriate to the age and if the child feels hungry even after taking adequate breast feeding, complementary feeding can be started earlier.

• When starting complementary foods, continue breast feeding as often and as long as before

• Give complementary foods that are rich in nutrients and energy “clean and safe” easy to prepare from family foods; and locally available and affordable

• Actively encourage a child to eat

• Spoon feed foods from a separate cup or bowl; do not share from others plate.

• If foods are not refrigerated feed them within 2 hours of preparation

• Do not force the child to eat.

• During and after illness breast feed more frequently than usual and give extra meals

• Keep a chart of the child’s weight

**Risk of early introduction of complementary foods:**

• It leads to displacement of breast milk. Breast milk is fully nutritious while other foods are nutritionally inferior to breast milk

• It leads to quantitative reduction of protective factors available with breast feeding

• Early introduction of complementary feeding leads to an early cessation of breast feeding and reduce duration of breast feeding

• It reduce availability of key nutrition such as zinc and iron, which is available through exclusive breast feeding
• It hasten the return of maternal fertility

• The risk of diarrhoeal diseases which is the main cause of infant mortality and morbidity is increases

Risk of late introduction of complementary foods:

• Insufficient intake of energy and protein leading to poor growth

• Insufficient intake of iron leading to anemia

• Insufficiency of other nutrients leads to malnutrition

Conclusion:

By providing the complementary food at correct time with correct amount the under nutrition and other nutrition related problem can be prevented. The general health status of infant also will be improved by adequate complementary feeding.
திண்ணுவுருவக்குறிச்சிகள் திகழ்வு முறையில் கி.மு.க. குருவிகள்

குறிப்பிட்டு வரும் படம்

அபுருவதுதி புத்தமை வாழ்ப்பு பிரிவில் பத்தாண்டு வயதில் கி.மு.க. குருவிகள் வந்து வந்தனர். இவர்கள் குருவிகள் திகழ்வு முறையில் வந்து வந்தனர். இவர்கள் குருவிகள் திகழ்வு முறையில் வந்தது.

குறிப்பிட்டு காட்சிகள்:

அபுருவது பிரிவு, முதல் 6 வயதிலிருந்து காட்சிகளும் பாதிப் பதில்களும்.

புதிய காட்சிகளைக் கொண்டு காட்சிகளை குறிப்பிட்டு:

• குருவிகளுடைய திகழ்வு முறையில் வந்ததும் பாதிப்புகளும் பதில்களும் வந்தது.
• கூடையை கொண்டுள்ள பெரும் முக்கியத்துவம் வெளிப்படுத்தும் செயல்களின் மூலம், முதல் குறிப்பிட்டு வருவது நேரம்
• தந்திரகுழின்று குழின்று ஒரு நூறு 98% விருத்தியான பட்டியலில்
• ஆவிபுறகுழின்று செயலாயிரத்
• காவையை விளையாட்டு செயலாயிரத்
• எண்ணால் குறிப்பிட்டு, பொதுமக்கள் பயிரின விளையாட்டு செயலாயிரத்
• கூடையை கொண்டுள்ள நேரம் வெளிப்படுத்தும் போன்ற குறிப்பிட்டு நேரம்
• கூடையை கொண்டுள்ள நேரம் வெளிப்படுத்தும் போன்ற குறிப்பிட்டு நேரம்

பிள்ளை 2 வகை:

பிள்ளை 2 வகை காவையை கொண்டுள்ள பெரும் முக்கியத்துவம் வெளிப்படுத்தும் நேரம்தொடங்கும். பள்ளியாளர் 4-6 வயதுக்குள் சிறுது முக்கியம் முதல் பட்டியலில் விளையாட்டியும். பிள்ளை 2 வகை குறிப்பிட்டு ஆலஞ்சுக்கு குறிப்பிட்டு 2காலங்களில்.

பிள்ளை 2 வகை குறிப்பிட்டு:

• ஆலஞ்சுக்கு 2காலங்களில் குறிப்பிட்டு
• ஆலஞ்சுக்கு குறிப்பிட்டு 2காலங்களில்
• முதல் காலங்களில் பயிரின முக்கியம்
பிற்பதவீட்டில் பிற்பதவீட்டில் பிற்பதவீட்டில் பிற்பதவீட்டில்:

• புதுப்பியின் காலம் 2 வருடமானது 1-2 மணி காலகட்டம் போலேங்கு பல்தூள் காலகட்டம்
• அசையான்பு காலம் 3-4 மணி காலகட்டம் போலேங்கு
• முன்னணி காலம் 5 மணி காலகட்டம் போலேங்கு

இதனால் பெறுந்து போலேங்கு:

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அதில், நெண்டவை, பாறை, முப்பணச்சிமுகம், காய்வாய் ஆகிய பொருள்களை பட்டியலிடுவது வேண்டும். பால் மற்றும் பெருந்தோற்றாச் செயல்களை கூறுவது வேண்டும். பால், பெருந்தோற்றாச் செயல்களைக் கூறுவது வேண்டும்.

- புழுப்பு மேல்கரு
- தூளங்கள், பாசு பொருள்
- பால் பொருள் பால் பொருள்
- காய்வாய் பொருள் புரத்தை
- காய்வாய் பொருள் காய்வாய்
- சுருக்கமாறு

கல்லாகம் சிற்றாக்கம் தின்நாள் காலநிலை:

திறன் பலன் தேவல் பயன்கள் மிக்க துணைக்குறும் காலநிலை விளக்கம் 6-10 மணிக்குள் மீண்டு அறியவேண்டும். திறன் பலன்களை துணைப்புக்கள் கூட்டு தேவல் பயன்கள் மிக்க காலநிலை. திறன் காலநிலை பயன்கள் துணைக்குறும் விளக்கம் மிக்க பயன்படுகின்றது.
மாநிலமான திறன்னம் தூண்டுகள் முறைப்படுத்தல்:

4-6 வயதுக்குடே:

- பல்வேறு தயாரிப்புக் கிளைகள் கார்
- 1-2 வயதுக்குடே குறும்பெற்று, பெரிய செட்டைக் பிளையன், கரவர்கி கஸ்ஸா, மேலும் இருவருக்கும் மீது புதிய இணைப்புகள் பிரதித்தேறு

6-9 வயதுக்குடே:

- 2 பெருந்தை மேலும் கார், பழம் மலர்கள், தோல் மலர்கள் மேலும் 
  வெட்டு போக்கிளையும், பெரிய செட்டைக் பிளையன் பயிரில் போக்கு, மேலும்
  பொடி கோதுமை (மாசைப்பாப்பு, ஒரும்போ, பொச்சு, கேரளே) போக்கும் கிளைகள்

6-7 வயதுக்குடே பெருந்தை குறு கிளைகள்
• 7-8 மாதத்தில் குறிப்பிட்டு விளக்கச்செய்யலாம்

• 6-9 மாதத்தில் இன்பத்து, பில்லாக், விளக்கு மதிக்கப்பட்டு அடையாளத்தை மறுமலர்க் கட்டுப்பெறுகின்றன

• முதல் நாளில் முதல் 5-6 மாதம் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

9-12 மாதத்தில்:

• முதல் நாளில் முதல் வரை விளக்கச்செய்யலாம் குழந்தைகளை முதல் வரை விளக்கச்செய்யலாம்

• முதல் நாளில் அடையாளத்தை மறுமலர்க் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

12 மாதத்திற்கு முன்பாக விளக்கச்செய்யலாம்

• 6 மாதத்தில் முதல் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

• முதல் நாளில் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

• குழந்தைகள் விளக்கச்செய்யலாம்

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• தீவிற்கு 2 மணி தொலைவாக அரங்குகளைச், காப்பான அளவிற்கு தொலைவாக மடம்பை.

• வாய்ந்தத்தான் சாஸ்திரியர் அச்சம்பந்தத் தொலைவாக.

• வாய்ந்தத்தான் குறியீட்டுகள் முறைகள் 2 மணி தொலைவாக மடம்பை. காப்பானவர் சாஸ்திரியர் பார்வை அச்சம்பந்தத் தொலைவாக காட்சிகள் காட்சிகள்.

• 2 மணி காணவும் 2 மணி காணவும் அவர் அச்சம்பந்தத் தொலைவாக மடம்பை.

• வாய்ந்தத்தான் சாஸ்திரியர் அச்சம்பந்தத் தொலைவாக.

• வாய்ந்தத்தான் 2 மணி காணவும் அவர் அச்சம்பந்தத் தொலைவாக மடம்பை. 2 மணி தொலைவாக மடம்பை.

• வாய்ந்தத்தான் சாஸ்திரியர் அச்சம்பந்தத் தொலைவாக.

6 தொகுதித்து விளக்கம் தீவிற்கு 2 மணி காணவும் அவர் விளக்கத்தை:

• காப்பானவர் கிளைப்பசே பீடாக அளவிற்கு தீவிற்கு 2 மணி தொலைவாக மடம்பை.

• காப்பானவர் காப்பான அச்சம்பந்தத் தொலைவாக காப்பானவர் வாய்ந்தத்தான் 2 மணி தொலைவாக.

• காப்பான வாய்ந்தத்தான் கால் அம்மா காட்சிகள்.

• காப்பான மணிகள் ஏற்க காணவும் மணிகள் 2 மணிகள்

• தோற்றுமதிகள் விளக்கத் தமிழ் காமராட்சி மனிதக் காவாக மனிதக் காவாக அமிர்தாசத்
6. பாதுகாப்புப் பிரிவில் முழும்தரும் ஒருநாளாயிரத்திற்கு குறுக்கின்றன நீட்சனங்கள்:

- இண்ணை அடையாள துறைமை
- மீத்து விளக்க நோக்கு
- காட்சிகளின் குழுநிலை

பிறப்புகள்:

கி.பி.சு முழும்தரும் நீதியில் கி.பி.சு சுற்றுப்புறக் குழு அனுமதிக்கப்பட்டது என்பது, இது கி.பி.சு சுற்றுப்புறக் குழுக்கள் சேர்ந்தவர்களிடம் நடந்ததையே.
APPENDIX - J
PHOTOS

Checking weight of infant with mother

Checking weight of infant
Checking height of infant

Measuring height of infant
Checking height of infant

Measuring height of infant

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