

**EFFECTIVENESS OF STRUCTURED TEACHING
PROGRAMME REGARDING DIET DURING LACTATION IN
TERMS OF KNOWLEDGE, ATTITUDE, AND PRACTICE
AMONG PRIMI PARA MOTHERS IN KASTURBA
MEMORIAL HOSPITAL AT DINDIGUL**

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

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(2008 - 2010)

**Certified Bonafide Project Work
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CHAPTER I

INTRODUCTION

MOTHER'S LOVE GROWS BY GIVING

-- CHARLES LAMP

Background of the study

Nutrition is a key factor in national development . Nutritional well being is a sustainable force for health and development and for maximization of human genetic potential .

The term maternal nutrition focuses attention on woman as mothers, on their nutritional status as it relates to the bearing and nurturing of children . At the same women also play vital roles in their families , communities and societies.

Lactation is physiologic process, which has profound relevance for both the mother and the new born. Adequate nutrition for the mother during lactation is also of vital importance as the infant is dependent on mother's milk for its nutrition for the first few months of life. As the mother has to nourish the fully developed and rapidly growing infant ,

mothers needs extra nutrients to meet the baby's increasing needs in addition to her own requirements. Inadequate nutrition during lactation is reflected on both the quality and quantity of milk secreted.

Ruth, A et.al.,(2000)

During breast-feeding the mother needs to eat a sufficient and nutrient-rich diet to provide enough energy and nutrients to support milk production.

Theobald, H. E., (2007)

Mother should be encouraged to continue her new interest in after the newborn arrives. These improvement can have long lasting effects on her family. Improved nutrition promote better health for the family, it can also have a positive effect on future pregnancies of the mother and her children. The postnatal diet should provide for balanced nutrition with enough calories to supply the additional requirements for lactation , if the women will be breast feeding her newborn . Adequate nutritional intake will speed the mother's convalescence and allow her to recover her strength more quickly, the quality and quantity of her milk also will improve.

Gutierrez S ., (1994)

Lactation makes considerable nutritional demand on the mothers. The success of lactation as well as the healthy status of the infants depends entirely on the type of diet consumed by women during pregnancy and lactation period . The maternal diet is importance during lactation . The quality and quantity of milk secretion also depends on maternal diet . The quality of mothers milk is maintained up to some extent by drawing the nutrients from her body reserves indicating additional demand for different nutrition during lactation . The diet consumed by many lactating mothers in our country are very poor .

Kawatra and Sehal,.(1998)

When a women begins life as a undernourished infant with frequent illnesses and poor nutrition during childhood. Mothers arrives at maturity in a less than optimal status to under take pregnancy and lactation. As the condition that produce malnutrition continues to affect her, both mother and child offspring as well as large community, one further disadvantage through a vicious inter generational cycle of poverty and under nutrition.

The composition and volume of human milk progressively changes with the onset and duration of lactation and can be influenced by maternal nutritional factors.

Picciano, M.F ., (2007)

The fact that many Indian mothers in the low income group have been observed to lose weight while nursing a baby clearly indicates that their calories and possibly their portion needs are not met . Thus there is a need to give special importance to the diet of lactating mothers especially in low socio economic groups who are the most neglected segment of our society. Then themselves are not aware of the importance of maintaining their own health and nutritional status. Poverty, ignorance along with the involvement in earning bread of the family are the limiting factors which affects their food and nutrient intake.

Lactating women are at high risk of energy and nutrient inadequacies. Programs to increase breast-feeding rates, particularly among low-income communities, must include strategies to ensure adequate diets during lactation.

Doran, L and Evers, S.,(1999)

Nutrition at optimal levels is fundamental in the maintenance of positive health. Lactation represents a stage wherein health and nutritional status of the infant are dependent on the mother. Successful pregnancy and lactation require adjustments in maternal body composition, metabolism and function of various physiological systems. A diet that meets maternal nutritional needs is required for these adjustments. Thus improving the nutrition and health of mothers during lactation will derive benefits in terms of improved health of their children throughout their lives.

Udipi ,S.A and Ghugre , P .,(2000)

Dietary practices of lactating women may have a significant effect on the well being of mothers and infants. Infact, the proportion of ingested nutrients partitioned for milk biosynthesis may depend on maternal nutrient stores.

The affect of maternal diet on infant growth and development does not end at delivery. Nutrients in breast milk are affected by the mother's nutritional status and dietary intake.

Allen, F.,(2005)

Nutritional recommendations state that women who are breast feeding should increase their energy and nutrient intakes to levels above those of non pregnant, non lactating women .

In India the present strategy is to provide health services to mother and child as an integrated package of “Essential Health care” through primary health care and is provided to the rural population through primary health centers, sub centers, and village level.

Mrs. Gangabai ,B. K., (2007)

The WHO slogan for April 2005 “Make every mother and child count” which reflects the reality that today, the health of women and children is not a high enough priority for many government and the international community.

Dr. Lee ., (2005)

NEED FOR THE STUDY

Lactating mothers are more susceptible to under nutrition in any population as the demand of various nutrients by the body increases. The lactating mother should eat for two persons.

Taking care of nutrition and dietary habits is not limited only for the period of pregnancy as a lactating woman needs to pay the same amount of attention to her diet, if not more, to ensure that the child as well as herself are healthy and fit. Giving birth to a child is one step in the entire process of bringing up a child and what the mother eats still affects the child through breastfeeding. Thus, it becomes imperative for a woman to take care of her diet during lactating period.

Eating healthy, well balanced and a nutritious diet is the way to keep both new born and mother healthy. Nutritional need is thus increased during lactation for providing sufficient breast milk and nutrients to the infant, and to make up for the mother's daily requirement.

Namita, N., (2000)

The need for bringing down maternal mortality rate significantly and improving maternal health is general has been strongly stressed in the National Population policy 2000

NNT (2008)

Human milk provided by healthy and well-nourished mothers is believed to cover the infant's nutrient requirements during the first half

year of life. Human milk composition has a dynamic nature and varies with time postpartum, during a nursing, and with the mother's diet.

Kunz , C.,(2000)

Mishra and Gupta et.al., (2005), conducted a cross sectional study among 60 lactating women to explore the dietary pattern by lactating women in an urban community near Varanasi . Mean calories and proteins intakes were 1380 ± 401.86 Kcal and 46.03 ± 13.20 g per day respectively. In spite of the fact that majority (70%) of lactating women increased dietary intake during lactation. Caloric consumption was low. In comparison of RDA consumption of calorie, pulses, green leafy vegetables, milk fruits and non vegetarian foods were inadequate.

Roots vegetables, pulses, nuts , spicy and green leafy like agathi and non green leafy vegetables like drumstick, brinjal and maize were avoided for varying period after child birth by the postnatal mothers . The main reason for avoidance were there foods produce cold and lead to stiff joint . As a result mothers became anaemic and not secreting adequate milk and their children are prone to malnutrition.

ICMR (2001)

Inadequate Nutrition during lactation may affect the well being of the mother, infant or both. Vitamin D and calcium status in vegetarian women may be low resulting in maternal bone demineralization. Vitamin B-12 deficiency resulting in neurological damage has been reported in infants of vegetarian women

Specker , B.L ., (1994)

In India nearly 20 % of pregnancies end in miscarriages, premature births and soon infant mortality is also very high 125/ 1000 live births due to poor nourishment of mothers which in turn leads to poor health and resistance towards diseases in the newly born child.

Renu , C ., (2000)

Inadequacies in the maternal diet during lactation might have several adverse consequences. The woman's health status might fail to return to an acceptable non pregnancy condition .A poor maternal diet will also result in a decrease volume of breast milk. The protein, carbohydrate and fat content of this are not changed significantly but there is a reduction in vitamin levels. As a result the infant might be vulnerable to health problems.

Levitt , C .et.al., (1998)

Breastfeeding can prevent an average of 1.5 million infant deaths every year. Breast feeding saves life more than any other health intervention strategy. The breast feeding infant is 14 times less likely to die from diarrhea and many others diseases.

WHO (2008)

Despite the benefits of exclusive breast feeding for the health of mothers and children its practice has markedly declined through out developing world. The prevalence of breast feeding initiation was 98.2%, and 22.2 % of mothers practiced it exclusively.

WHO (1998)

Healthy people objectives for breast feeding in early post partum period , at 6 months and 12 months are 75 % , 50 % , and 25 % respectively. Healthy people 2010 objectives for exclusive breast feeding through 3 and 6 months of age are 40 % and 17 % respectively.

National Immunization Survey (2006)

Among children born in 2006, 74 % of mothers initiated breast feeding , where as 43 % were breast feeding at 6 months and 23 % 12

months of age .Approximately 33 % of infants born in 2006 were exclusively breast fed through 3 months of age and 14 % were exclusively breast fed for 6 months .

National health and Nutrition examination survey (2008)

Breast feeding rates decline rapidly in the first 4 to 8 weeks of post partum, with fewer than 35 % of mothers exclusively breast feeding for 4 months. Only 30 to 40 % of Canadian mothers and 29 % of US mothers.

Dennis , C.L., (2002)

Infants aged (0-5) months who are not Breast fed have seven fold and five fold increased risk of death from diarrhea compared with infants who are exclusively breast fed. At the same age, non exclusive breast feeding result in more than two fold increased risk of dying from diarrhea. Infants aged 6- 11 months who are not Breast fed also have an increased risk of such deaths.

Breast feeding promotion network of India (2002)

Out of estimated total of 536,000 maternal deaths world wide , developing countries account for 99 % (533, 000) of the deaths in 2005 .

About 50 % of the global maternal deaths (270,000) occur in the sub – Saharan Africa region , followed by 35 % of maternal deaths (188 , 000) occur in the region of South Asia .

Millennium Development Goals (2009)

India accounts for 22 % (117,000) of all maternal deaths in the world and 62 % of all maternal deaths in south Asia. Region wise large variation in the maternal mortality is obvious in the country of the size of India. These variations are attributed to variation in underlying access to emergency obstetrical care, anemia rates among women, educational level of women, and other factors.

Centre for Management of Health Services (2009)

According to WHO, Neonatal mortality rate 37 per 1000 live births (2002), Infant mortality rate 57 per 1000 live births (2005-2006), under five mortality rate 85 per 1000 live births (2002), Maternal mortality ratio 301 per 100,000 live births (2003) in India.

The national average of MMR is 407 per 100,000 live births in India , which in itself is very high compared to the internal scenario like Sweden (8), UK (10), Greece (2), Srilanka (60), China (60), Thailand (54).

Ministry of Health and Family Welfare Govt.of India (2007)

In India one of the country contributing Infant Mortality due to ignorance of child care it includes malnourished mothers, high number of births per mother with short spacing between birth, poor weaning the early use of cow's milk, inadequate medical attention and supplies poor sanitation.

Park, K., (2007)

Mothers need to be informed about the factors that increase and decrease milk production and affect infant colic and should be encouraged that they can successfully breast feed with out increasing their consumption of sweets or avoiding dried legumes and some vegetables.

Kulakac , O. et.al., (2007)

The paper focuses on the influence of maternal nutrition on infant survival and growth and on subsequent fertility. The basis of most recommendations for lactating mothers is that the average mother produces 850 ml of milk each day. Maternal malnutrition may result in suboptimal lactation performance which will contribute to malnutrition and growth retardation of the child.

Osteria , T.S., (2002)

The government of India introduces various nutritional programs in its policy from time to time. Most of these are supplementary nutrition programs are like mid-day meal program, Balwadi nutrition Program, nutritional vitamin A prophylaxis program and nutritional anemia control program. To be effective, the nutritional programs should be comprehensive and emphasize upon improvement in general health and quality of life of population, control of infections and effective nutritional education besides provision of nutritional supplementation.

Ghai , O.P., (2007)

Lack of nutritional knowledge and poor economy are the reasons for deficient knowledge and practice of dietary intake. However, this can be overcome by improving nutritional knowledge and dietary practices of population in general and vulnerable groups in particular through media and MCH services on the use of locally available low cost nutritious foods and to avoid undue food restrictions. Improvement of applied nutritional knowledge of medical professionals is also necessary.

Mahmood , S . et.al., (2007)

Sarkar NR et.al., (2005) were conducted study regarding Weight loss during prolonged lactation in rural Bangladeshi mothers. They concluded that women who breastfed up to 24 months were of lower weight than non lactating mothers. These mothers were not taking any additional foods during their lactation period. This study recommended that mothers should take additional energy rich foods during the first 24 months of lactation to prevent weight loss.

A supportive approach and efficient communication, taking into account mother's characteristics, might reduce the gap between scientific recommendations and nutritional practices of mothers willing to nurse their infants.

Santos-Torres , M.I. et.al., (2003)

An article regarding “promoting nutrition in breast feeding women”, In is article, the authors discuss the nutritional requirements for breast-feeding women in terms of micronutrients, macronutrients, and minerals. They provide recommendations for women with vegetarian diets and low-income women enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children program who may have dietary deficiencies, and they present a directed case study to provide an

example of how to perform a dietary assessment and the educational support that may be offered by nurses to breastfeeding women. The authors stated that, "Nurses have a vital role in Providing nutritional education to breastfeeding women".

Wilson , P.R and Pugh, L .C., (2005)

Breast milk is considered to be the best nutrient source for infants. In this study Nutritional status, breast milk concentration and dietary intakes were assessed. Among the study participants, anemia (39.0%) and low serum zinc concentration (55.4%) were frequently observed. Dietary assessment revealed lower intakes of iron (10.2+/-2.5 mg/d) and zinc (10.4+/-2.2 mg/d) than estimated requirements. The breast milk concentration of iron, zinc and copper was 0.43+/-0.15 mg/L, 0.56 (0.37, 0.82) mg/L and 0.19+/-0.05 mg/L, respectively.

Nakamori, M et.al., (2009)

The investigator during her postings in the clinical area , researcher noticed that mothers were not consume nutritious rich diet. Mothers were unaware of foods which increases the breast milk secretion and less

knowledge about effect of inadequate diet on mother and child health . Hence the researcher felt that the needs to identify the learning need of mothers and educate them on diet during lactation, so as to improve the health of the mothers and child.

All Citizens - All Health Workers, as per this slogan the investigator selected the mothers as health promoters of child .So improving their knowledge, attitude and practice regarding diet during lactation which in turn will help them to develop future citizen as a healthy being.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of structured teaching programme regarding diet during lactation in terms of Knowledge, Attitude and Practice among primipara mothers in kasturba memorial hospital at Dindigul.

OBJECTIVES

1. To assess the pretest knowledge, attitude and practice scores regarding diet during lactation among primipara mothers.

2. To assess the post test knowledge, attitude and practice scores regarding diet during lactation among primipara mothers.
3. To compare the pretest and post test Knowledge, Attitude and Practice regarding diet during lactation among primi para mothers.
4. To correlate post test knowledge and attitude scores regarding diet during lactation among primipara mothers.
5. To correlate post test knowledge and practice scores regarding diet during lactation among primipara mothers .
6. To find out the association between post test knowledge scores with their selected demographic variables .
7. To find out the association between post test attitude scores with their selected demographic variables .

OPERATIONAL DEFINITION

EFFECTIVENESS:

Producing intended results.

In this study it refers to determining the extent to which structured teaching programme has brought about the significant difference between pre and post test scores of knowledge, attitude, and practice which is measured in terms of statistical measurement.

STRUCTURED TEACHING PROGRAMME:

It is a planned series of information to a group of people .

In this study it refers to information regarding meaning of lactation and puerperium, duration of lactation, nutritional requirements during lactation, dietary advice and complication of inadequate diet which will be given by using compact CD for the period of 45 minutes .

DIET:

The diet is the sum of food consumed by a person. In this study it refers to foods consumed by primipara mothers during lactation.

LACTATION:

The production, secretion and ejection of breast milk is called lactation.

KNOWLEDGE:

Information gained through education.

In this study knowledge refers to the level of understanding of primipara mothers about diet during lactation which is measured by structured interview schedule.

ATTITUDE:

It means a way of thinking or feeling about someone or something.

In this study, it refers to the opinion towards diet during lactation among primipara mothers which is measured by five point likert scale .

PRACTICE:

It means way of doing something.

In this study it refers to the knowledge on practice in terms of verbal response of the mothers regarding diet during lactation which is measured by structured interview schedule.

PRIMIPARA MOTHERS:

Women who delivered for the first time. In this study it refers to primi mothers who delivered by caesarean section .

HYPOTHESES

H₁ - The mean post test knowledge score is significantly higher than the mean pre test knowledge score.

H₂ - The mean post test attitude score is significantly higher than the mean pre test attitude score.

H₃ - The mean post test practice score is significantly higher than the mean pre test practice score.

- H₄** - There will be a significant relationship between post test knowledge and attitude scores regarding diet during lactation
- H₅** - There will be a significant relationship between post test knowledge and practice scores regarding diet during lactation
- H₆** - There will be a significant association between post test Knowledge score of primipara mothers with their selected demographic variables.
- H₇** - There will be a significant association between post test attitude score of primipara mothers with their selected demographic variables.

ASSUMPTIONS

- Primi para mothers may have less knowledge about diet during lactation.
- Teaching enhances the knowledge of mothers regarding diet during lactation .
- Gained knowledge by mothers may influence practice of diet during lactation .

DELIMITATIONS

The study is limited to

- 50 Samples.
- 5 weeks of data collection .

PROJECTED OUT COME

The mothers will gain adequate knowledge through this structured teaching programme and learn about diet during lactation which in turn will help them to maintain health of mother and child.

CONCEPTUAL FRAME WORK

The conceptual frame work for this study was “The health belief model (**Rosenstoch’s** (1974) and **Maiman’s** (1975)) - addresses the relationship between a person’s beliefs and behaviors. It provides a way of understanding and predicting how clients 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

- Individual perceptions
- Modifying factors
- Likelihood of action

INDIVIDUAL PERCEPTIONS :

Perceived susceptibility :

According to theorist , Perceive susceptibility to a disease is the belief that one either will or will not contract a disease. Perceived susceptibility ranges from being afraid of contracting a disease to completely denying that certain behaviors will result in illness.

In this study it refers to lactating mother believes that inadequate diet during lactation may cause health problems to herself and her child.

Perceived seriousness :-

According to theorist , Perceived seriousness of a disease concerns the perception of the seriousness of the disease and its effect on the person's life. This components is related to how much the person knows about the disease and can result in a change in health behavior.

In this study it refers to mothers perceiving the importance of taking nutritious rich diet during lactation.

MODIFYING FACTORS :

According to theorist, Modifying factors for one's health beliefs include demographic variables (such as age or race), socio psychological variables (such as personality and peer group pressure) and structural variables (such as knowledge and prior contact with the disease).

In this study it refers to, demographic variables such as, age, type of family, Religion, Residence, food pattern. Socio psychological variables such as education, occupation, Family income, structural variables is pre assessment of knowledge, attitude and practice regarding diet during lactation among primi para mothers.

The perceived threat of illness refers to developing malnutrition for mother and child.

Cues to action :

According to theorist, cues to action are also modifying factors and are provided by activities such as others advice , mass media campaigns , literature, appointment, remainder telephone calls or post cards and illness of a significant other .

In this study it refers to structured teaching programme regarding diet during lactation which includes meaning of lactation and puerperium, duration of lactation, importance of diet during lactation nutritional requirements during lactation, dietary advices, and complication of inadequate diet.

LIKELIHOOD OF ACTION :

Perceived benefits of preventive action

According to theorist, Perceived benefits of preventive action is concerned with how effective the individual believes preventive measures will be in preventing illness. This factor is influenced by the person's conviction that carrying out a recommended action will prevent or modify the disease and by the person's perception of the cost and unpleasant effect of performing the health behaviour .

In this study it refers to perceiving adequate knowledge, practice and favorable attitude.

Perceived barriers refers to illiteracy poor socio economic status, and wrong cultural beliefs.

Likelihood of taking a recommended preventive health action :

According to theorist, the Likelihood of taking a recommended preventive health action is thus a composite of individual perceptions and modifying factors.

In this study it refers to assessing the post test knowledge, attitude and practice regarding diet during lactation. knowledge is interpreted as adequate, moderately adequate, and inadequate. Attitude is interpreted as favorable, moderately favorable and un favorable. Practice is interpreted as adequate, moderately adequate, and inadequate.

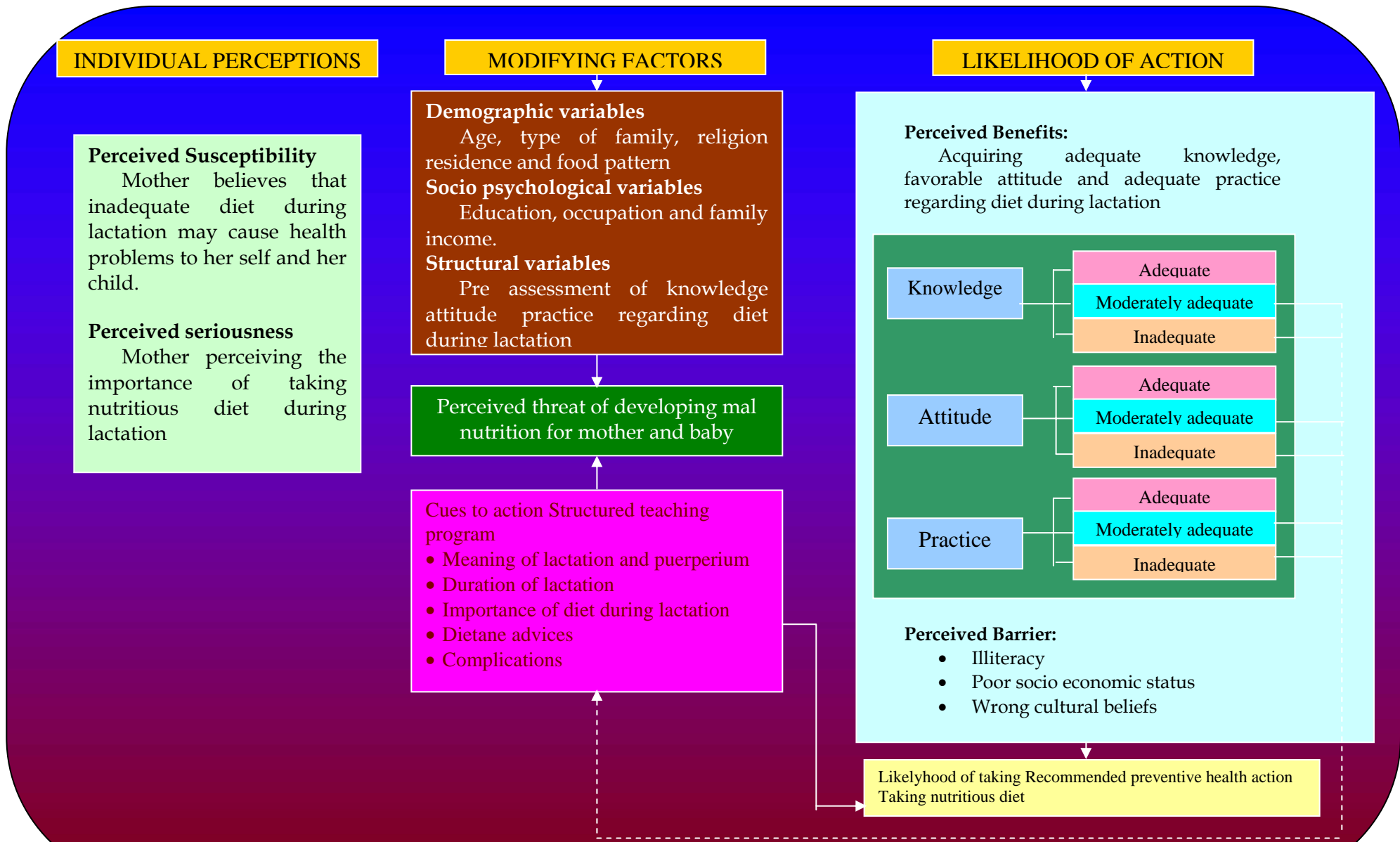


FIG:1 MODIFIED HEALTH BELIEF MODEL Rosenstoch's (1974) Maiman's (1975)

CHAPTER – II

REVIEW OF LITERATURE

Better Pay the Cook Than Doctor

The literature was collected based on the following headings

PART I :-

A. Overview of diet during lactation .

PART II :-

A. Studies related to Diet during lactation .

B. Studies related to knowledge and attitude of lactating mothers towards diet during lactation.

C. Studies related to dietary practice of mothers during lactation .

PART - I

A. Overview of diet during lactation :

All lactating mothers need adequate nutrients to promote healing to tissue traumatized by labour and delivery. The lactating mothers has an increases their need for fluids, protein, calories, iron, energy , vitamins , fats and minerals to produce sufficient amounts of milk for her baby as well as for her health status.

A balanced diet suitable for nursing mothers shall contain the same kinds of food as those recommended during pregnancy but in slightly increased quantities. The additional requirement for nutrients is easily met by selecting a variety of commonly available food stuff without depending too much on rice to other cereals.

LACTATION:

Nutrients Needs during lactation:

Lactating mother's nutritional requirement should meet.

1. her own daily needs
2. provide enough nutrients for the growing infant
3. furnish the energy for the mechanics of milk production

Diet of lactating mother and her nutritional status during pregnancy, affect to a certain extent the quantity and quality of breast milk.

ICMR Recommended dietary allowances for a lactating mother

| Period of lactation | | | | | | |
|------------------------|--------------------|-------------------|----------------|--------------------|-------------------|----------------|
| Nutrient | 0 -6 months | | | 6 -12 months | | |
| | Sedentary Activity | Moderate Activity | Heavy Activity | Sedentary activity | Moderate activity | Heavy Activity |
| Energy Kcal | 1875+550 | 2225+550 | 2925+550 | 1875+400 | 2225+400 | 2925+400 |
| Protein (g) | 75 | 75 | 75 | 68 | 68 | 68 |
| Fat (g) | 45 | 45 | 45 | 45 | 45 | 45 |
| Calcium (mg) | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Iron (mg) | 30 | 30 | 30 | 30 | 30 | 30 |
| Vitamin A retinol (ug) | 950 | 950 | 950 | 950 | 950 | 950 |
| Thiamine (mg) | 0.9+0.3 | 1.1+0.3 | 1.2+0.3 | 0.9+0.2 | 1.1+0.2 | 1.2+0.2 |
| Riboflavin (mg) | 1.1+0.3 | 1.3+0.3 | 1.5+0.3 | 1.1+0.2 | 1.3+0.2 | 1.5+0.2 |
| Ascorbic acid (mg) | 80 | 80 | 80 | 80 | 80 | 80 |
| Folic acid (ug) | 150 | 150 | 150 | 150 | 150 | 150 |
| Vitamin B12 (ug) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |

Ruth, A et.al.,(2000)

1. Energy:

During pregnancy most women store approximately 2 to 4 kg of body weight, which can be mobilized to supply a portion of the additional energy for lactation. It is estimated that stored fat will provide 20 -300 kcal per day, during a lactation period of 3 months. This amount of energy represents only part of the energy needed to produce milk. The remainder of the energy needs should derive from daily diet, the first three months of lactation. During this time lactation can be successively supported and readjustments of maternal weight falls below the ideal weight for height, the daily extra energy allowance may need to be increased accordingly. If more than one infant is being nursed during the first few months of life, maternal kilo calorie stores will be more quickly used and daily supplemental energy needs may double when maternal stores are depleted.

The lactating mother requires additional energy for the production of milk, which is calculated from the volume of milk, secreted, its energy content and the efficiency of conversion of food energy to milk energy. Based on the optimal output of 850ml/ day, energy content of 65 K.cal

/100ml of breast milk and conversion months of lactation is 550 K. cal/ day. This is after taking into account the energy contribution from fat stores deposited during pregnancy. Most Indian mothers continue to lactate even after six months but the milk production is refused. Hence ICMR has recommended an additional allowance of 400 k.cal/ day for the period from 6 -12 months of lactation.

Ruth, A et.al.,(2000)

2. Protein:

For production of milk, protein requirement also increases as the produced milk contains. 1.15g of proteins /100ml. the recommended additional protein intake during lactation is 25g per day for 0 -6 months and 18g per day for 6 -12 months. The extra protein is believed to be necessary to cover the requirements for milk production with an allowance of 70 percent efficiency of protein utilization. The increased needs for protein as well as energy can be met easily by consumption of about 3 -4 extra cups of milk per day. Although this will provide the needed protein and energy, it will not cover the increased recommendations for other nutrients – ascorbic acid, vitamin E and folic acid. Thus other foods such as

citrus fruits, vegetable oils, and green leafy vegetables will also need to be added to the daily diet to supply these nutrients.

Ruth, A et.al.,(2000)

3. Fat:

ICMR has suggested an intake of 45g of visible fat per day. Although the total fat in breast milk is not influenced by the mother's diet, the composition of milk fat does. The fat also provides energy density to meet the higher energy requirements during lactation.

Anitha , F .P., (2003)

4. Calcium:

Mother's milk contain 30 -40 mg of calcium per 100ml. Since about 850ml of milk is produced. Around300mg of calcium is secreted through milk per day. Therefore the additional intake of calcium is essential to enable the retention of 300mg of extra calcium daily. Since the dietary calcium retention in lactating women is 60 percent. ICMR has recommended 1000 mg of calcium per day for a lactating mother.

Swaminathan, M., (2000)

5. Iron:

Since most mothers have Lactational amenorrhea it results in saving of nearly 1 mg iron per day which otherwise would have been lost due to menstruation. This saving is more than sufficient to compensate for the negligible amount secreted in mother's milk and hence iron requirement during lactation is same as that of a normal adult i.e. 30mg/day.

Ruth, A et.al.,(2000)

6. Vitamins

Vitamin A

The additional need of vitamin A during lactation is based on the amount secreted in mother's milk. On an average 300ug of vitamin A is secreted per day. Hence ICMR has recommended an additional allowance of 350 ug of retinol i.e. total of 950 ug per day.

Thiamine, riboflavin and Niacin

As the calorie and protein requirements increase during lactation, the requirements of these vitamins also increase correspondingly. The amount of these vitamins computed on the basis of increased energy allowance would be sufficient to cover the amount secreted in breast milk.

Hence the levels are computed on the same basis as that of adults i.e. 0.5 mg/ 1000k. cal, 0.6 mg/ 1000 kcal and 6.6 mg/1000k k.cal of thiamine riboflavin and niacin respectively.

Folic acid

The folate content of breast milk is about of 50ug/ day of free folate i.e. a total of 150 ug free folate / day.

Swaminathan, M., (2000)

Vitamin -C (Ascorbic acid)

Well - nourished Indian mother secretes about 20 mg Vitamin C per day during lactation. Considering this and the cooking losses averaging to 50 percent. ICMR has recommended an additional intake of 40 mg/day i.e. a total of 80 mg of ascorbic acid per day.

Diet during lactation

Meeting the needs of lactation requires a varied nutrient rich diet. Generally well - balanced diets will meet nutrient needs of the mother. Whenever feasible, food should be the source of nutrients and self - imitated vitamin and mineral supplements should be avoided. The dietary

intake of caffeine, artificial sweeteners and alcohol must be avoided. This is because most chemical injected by the lactating mother cross in to the milk. Therefore, the mother should seek the advice of her physician before taking any dietary supplementary any medication or drugs such as caffeine and alcohol which also pass into the milk, and consequently affects infant.

Foods with a strong flavour may alter the flavour of milk. Few infants may be sensitive to particular foods e.g., Cows milk protein. Hence, when the mother's diet includes such foods the infants may experience discomfort. However, this may not happen to most of the infants. In general, the mother can eat whatever mother likes. However, if mothers suspects that if a particular food is causing the infant discomfort, mother should consult the physician.

A lactating mother requires not only large quantities of bodybuilding and protective foods but also additional energy yielding foods to facilitate abundant formation and secretion of breast milk. Besides adhering to the basic principles of meal planning the following guidelines needs to be considered.

- 1) Large amount of fluids are essential for milk production. Therefore adequate fluids such as milk, fruit juice, and milk based beverages and even water must be encouraged.
- 2) The choice of food is wide during lactation. No food need to be restricted except spicy and strong flavored foods, which might impart Flavour to milk that may cause discomfort to the mother as well as baby.
- 3) Almost all medicines taken during lactation are absorbed into mother's blood and are secreted in the milk,. Hence any medicine during lactation must be avoided or taken under strict medical supervision.
- 4) Since the nutrient needs are enhanced, the meal pattern may be changed to 5 -7 meals a day by introducing in between snack between the meals.
- 5) When a mothers diet is adequate, her milk yield is usually well maintained by drawing on mother reserve of nutrients and evidence of malnutrition is likely to appear in the mother before it does in her child.
- 6) Many women in poor communities have a remarkable ability to breast feed their infants for long periods. This is probably due to

repeated stimulation of the neuro- hormonal reflex by frequently putting the baby to the breast and letting it suckle at night. Hence adequate diet during lactation will not only helps the mother to maintain a sound nutritional status but also ensure good milk supply for a healthy infant.

Galactogogues

Galactogogues are foods that help to produce more milk, Garlic, milk almonds are considered to increase milk production. Studies carried out on nursing mothers have revealed that extra amounts of body building foods like fish and mutton increase the secretion of breast milk. Lactating mothers are also given special preparations containing Ajwain, fenugreek seeds which supply iron, protein, calcium and B complex vitamins.

Ruth, A .et.al.,(2000)

PART II :-

A. STUDIES RELATED TO DIET DURING LACTATION:

Giammarioli ,S et.al., (2002) conducted study on “Nutrient intake of Italian women during lactation “. Healthy lactating women aged 27-36 years were selected from three geographical areas of Italy. Dietary evaluation done based on 24 hours recalls from each mother. Mean energy intakes for the whole country are below recommended values. The percentage of energy from carbohydrate and the amount of fiber are lower than the recommended levels. The results obtained in this study revealed that low energy intake associated with a moderate imbalance in the distribution of energy percentages from macro nutrients.

Mullerova et.al., (1998) , assessed the adequacy of the dietary intake of lactating mothers during the sixth month after delivery .Data on the education , body weight , height of the mothers were assessed . Dietary intake evaluated from a three days dietary record were collected from 131 nursing mothers and 265 control group who did not breast feed their babies and compared with the CZECH recommended dietary allowance . Result ensures that , nursing mothers have higher nutrient intake compared with those who were not nursing their babies . Nursing mothers protein intake (75.4 mg) , calcium (937 mg) , carbohydrate (281

gm) vitamin B (1.1 mg) . However , the nursing mothers do not meet Czech recommended as regards energy , protein , calcium, carbohydrate , vitamin B .

Paul, A.A et.al., (2003) , studied that The quantitative effects of maternal dietary energy intake on pregnancy and lactation in rural Gambian women. Maternal weight gain and the accumulation of subcutaneous fat were significantly lower when the last trimester of pregnancy fell during the time of heaviest farm work and lowest energy intakes. The birth-weight of babies was also significantly correlated with differences in energy intake throughout the year. During early lactation breast milk yields were significantly related to same alterations in the subcutaneous fat stores. Undernourished nursing women there could be a competition for dietary energy between the depleting maternal subcutaneous fat organs and the mammary glands at the expense of milk production.

Leelahakul ,V et.al., (2009) , compared the protein composition of breast milk and the nutrient intake between Thai and Japanese lactating mothers. The breast milk was collected from 15 Thai and 14 Japanese

mothers at the fifth day post-partum. Twenty-four-hour dietary records were performed from the second-to fourth day post-partum. The nutrient intake was calculated by using the nutrient content of a food table. The results showed that the concentrations of the major protein types in the breast milk were not significantly different between the two groups. The concentrations of the minor protein types varied markedly with the individuals, with higher concentrations in the breast milk of the Thai mothers. There were no significant differences in terms of the energy and protein intake; however, the sources of energy were different. The total protein and lactoferrin concentrations in the breast milk could be predicted by the maternal daily energy and fat intake.

Olafsdottir, A.S et .al., (2001), conducted study on “ Fat- soluble vitamins in the maternal diet , influences of cod liver oil supplementation and impact of the maternal diet on human milk composition “ . Dietary intake of 77 lactating women was investigated by 24 hours diet recalls and breast milk was taken at the same time. They concluded that there is a relationship between the content of vitamin A and E in human milk and the maternal diet.

Sánchez,C.L et.al., (2008), conducted study on Calcium intake nutritional status in breastfeeding women. The aim of this study was to analyze the diets of 39 healthy, lactating women by a 24-hour dietary recall. Participants were divided into calcium restrictors, (< 1200 mg/day) , and non-restrictors (> 1200 mg/day). The results showed that 64% of the calcium restrictors reported a mean energy intake (2042.7 ± 458.3 kcal), calcium intake (812.4 ± 211.2 mg/day) and vitamin D intake (1.71 ± 1.59 microg/day) below the adequate intake level and lower than non-restrictors estimated intakes ($p < 0.01$).

Seth, A et.al., (2009) , conducted study regarding Vitamin D nutritional status of exclusively breast fed infants and their mothers. 180 healthy lactating mothers and exclusively breast fed infants, 2-24 weeks old, were selected. A high prevalence of vitamin D deficiency was found in lactating mothers and their exclusively breast fed infants. Infants born to mothers with hypovitaminosis D had 3.8 times higher risk of developing hypovitaminosis D as compared to those born to mothers with normal vitamin D levels.

Tawfeek,H.I et.al., (2002), conducted study about Effect of maternal dietary vitamin C intake on the level of vitamin C in breastmilk among nursing mothers in Baghdad, Iraq. The vitamin C content of breastmilk was investigated in a group of nursing mothers attending maternal and child health centers in Baghdad .Two hundred healthy, nonsmoking, 28- to 38-year-old lactating women were studied. The vitamin C content of breast milk was significantly correlated with the maternal intake of vitamin C ($r = 0.61, p < .01$). The results show the need to increase the consumption of vegetables and fruits and to monitor maternal ascorbic acid intake.

Dijkhuizen, M.A et.al.,(2001), conducted study about Concurrent micronutrient deficiencies in lactating mothers and their infants in Indonesia. The aim was the study to investigate the extent to which deficiencies of vitamin A, iron, and zinc coexist and the nutritional relation between lactating mothers and their infants. Marginal vitamin A deficiency was found in 54% of the infants and 18% of the mothers. Above 50% of the mothers and infants were anemic and 17% of the infants and 25% of the mothers were zinc deficient.

Mannion,C.A et.al.,(2007) , conducted study regarding “ Lactating women restricting milk are low on select nutrients “ . The objective of this

study was to assess nutrient adequacy for lactating women and compare their dietary intake, including supplements, between those who restrict milk and those who do not. 175 healthy exclusively breast feeding women (19 -45 yrs) were selected. They were divided in to milk restrictors (RS) who take milk \leq 250 ml / day and non restrictors (NRS) who take milk $>$ 250 ml /day and followed for six months of postpartum . Repeated 24 hours recalls were done. Nutrient intakes were estimated for macronutrients and vitamin C, D, calcium and zinc . Milk restriction was practiced by 23 % of the mothers. Sixty per cent of milk restrictors were reported protein intakes less than estimated average requirement(EAR) compared to 38% of non-restrictors ($\chi^2 = 6.22, p < 0.05$). Mean levels of calcium and vitamin D intake for restrictors were below the adequate intake level and lower than non restrictors . RS had lower energy intake than NRS . Milk restriction is not recommended during lactation and where unavoidable, nutrients provided by milk should be compensated for by other foods or supplements.

Ciangherotti,S et.al., (2001), conducted “ study regarding Maternal dietary poly unsaturated fatty acids(PUFAs) intake and human milk content relationships during the first month of lactation “ . Maternal

dietary fatty acids (FFAs) intake and corresponding human milk composition relationships have been assessed throughout the first month of lactation in 34 lactating women consecutively enrolled. All mothers were on their habitual diet . The results in the present study provide evidence of the relationships between maternal diet and milk composition. The degree of correlation between maternal diet and poly unsaturated fatty acids milk content increases throughout milk maturational process and reaches significance only in mature milk.

Kathleen,J et.al., (2007), conducted study regarding “ Basal and postprandial metabolic rates in lactating and non lactating women “ .The total daily energy needs were estimated at 40 to 44 kcal per kg of body weight for lactating women , compared with 34 to 38 kcal per kg body weight for non lactating women .Basal body temperature is measured under basal conditions, such as 12 hours after eating ,after restful sleep , in the absence of exercise or emotional excitement and in comfortable temperature . This measurement reflects the ranges from 18 to 31 kcal per body weight in lactating women from developing countries to 23 kcal per kg body weight in lactating women from developed countries . The basal metabolic rate and postprandial metabolic rates (PMR; after a meal) were

assessed in lactating and non lactating women after childbirth, and women who did not undergo childbirth. The women were placed on the diet of known protein content, and their energy intake levels were determined by diet records. The production of milk was also measured. Although BMR was similar among all groups of women, PMR was higher in lactating women than in nonlactating women and related to the levels of nitrogen in milk. Thus, the increased energy needs of lactating women are due to milk production and increased PMR; this energy requirement was associated with a 50 % increase in dietary energy intake.

Kulakac, O et.al., (2007), conducted “ The opinions of employed mothers about their own nutrition during lactation “ . The main purpose of the study was to identify the changes employed mothers of infants aged 0-24 months made in their nutrition with the aim of increasing their milk production and extending their breastfeeding period . The 135 full-time employed mothers enrolled in this study came to the Well-Child Clinic. Dietary data were collected from the mothers through questionnaire prepared by the researchers to elicit details about what kind of foods or nutrition supplements women added, avoided or were recommended to avoid or add to their diets. All the mothers made changes in their diets while breastfeeding. The number one change that mothers made in their

diet in order to increase milk production was to increase their fluid intake (38.6%) while the second was to increase their consumption of sweets (25.3%). The main type of food mothers were advised to avoid were dried legumes and grains (28.9%). The most important reason for this was the belief that they increased the chance of newborn colic (89.4%). There were statistically significant differences between foods avoided by breastfeeding mothers related to their age ($\chi^2=6.88, p=.009$), education level and those who mentioned increasing their consumption of fluid while breastfeeding ($\chi^2=13.12, p=.000$).

Kawatra and Sehgal ., (1998), conducted “ A study to explore food and nutrient intake of lactating labourers mothers ” . 200 lactating mothers who in between 4th to 20th months of lactating period were selected randomly. Structured respondent schedule was used to collect information about socio economic status and special foods consumed data on dietary intake was obtained using 24 hours recall method for three consecutive days . There were no variation in the daily meal pattern. Consumption of the food groups was below recommended levels. The data revealed that mean daily protein intake of the mothers was only 38.4 g and that of calories , iron and vitamin A was 544 kcal, 17.5 g, and 337.4 g

respectively . The intake of all the nutrient was much below the level recommended by ICMR . The poor intake was contributed to their poor economic condition and lack of proper nutrition education . There is a need to impact nutrition due to the labourers lactating mothers to make them consume maximum nutrients in the available income and also to improve their economic standard .

Chawla et.al., (1997) , assessed the “Food consumption pattern of pregnancy and lactation in rural Haryana ”. The total sample size was 100 covering all mothers in second half of pregnancy (N = 40) and 0 to 6 months lactation (N= 60) . Data on dietary intake of pregnancy and lactation were collected by 24 hours recall method and compared with recommended dietary allowance . The malnutrition problem among pregnancy and lactating mother is very complex . The study revealed that majority of them do not get even the desirable nutritional requirement of non pregnant and non lactating women .The caste ,occupation and the diet of mothers were energy , protein , vitamin A , calcium . About 38 % of the mothers had haemoglobin level below 10.09 / 100 ml and were anemic. In that 80 % of women no extra food is taken during pregnancy and lactation which in turn reflects the nutritional status of newly born .

Bishnoi et.al., (1999), conducted “ A study on 90 rural lactating women of Haryana “ . A well structured pretested questionnaire schedule was prepared and the data was collected with the help interview method . Information regarding the intake of food for 3 consecutive days was collected from the respondents using 24 hours recall method . It was found that energy intake by majority of lactating mothers (84 %) were marginally adequate , protein intake by lactating mothers (77 %) were marginally inadequate and fat intake were marginally adequate (84 %) . Various nutrients such as calcium, iron , riboflavin and ascorbic acid content were marginally inadequate in all the lactating mothers . Thiamin and niacin intake were marginally adequate only in (17 %) and (34 %) of respondents respectively remaining were consuming marginally inadequate quantities of these nutrients in their diets .

Saccomandi, D et.al., (2003), conducted study regarding Dietary supplements for the lactating mother: influence on the trace element content of milk. Milk production is a complex process where nutritional factors interact with structural hormonal and behavioral influences. The study was carried out on women living in Ferrara and its surrounding area. 32 women were selected and 22 completed it . The effect of dietary

zinc, copper and iodine supplements on the milk concentration of these micronutrients was studied. The present results indicate that in healthy, well-nourished lactating Italian women, whose diet is adequate, the levels of zinc, copper and iodine in milk are not influenced by short-term supplementary intakes and that the milk levels of the trace elements studied are maintained over different levels of intake .

Wagnon, J et.al., (2005) , conducted study regarding Breastfeeding and vegetarian diet . Vegetarian diet in lactating women can induce vitamin B12 deficiency for their children with risk of an impaired neurological development. A 9.5-month-old girl presented with impaired growth and severe hypotonic. She had a macrocytic anemia secondary to vitamin B12 deficiency. MRI showed cerebral atrophy. She was exclusively breastfed. Her mother was also vitamin B12 deficient, secondary to a vegetarian diet. She had a macrocytic anemia when discharged from the maternity. vegetarian diet is a totally inadequate regimen for pregnant and lactating women, especially for their children. Prevention is based on screening, information and vitamin supplementation .

Mishra, G et.al.,(2005), conducted “ A cross sectional study among 60 lactating women to explore the dietary pattern by lactating women in an urban community near Varanasi “ . Mean calories and proteins intakes were 1380 +_ 401.86 Kcal and 46.03 +- 13.20 gm per day respectively . In spite of the fact that majority (70 %) of lactating women increased dietary intake during lactation, Caloric consumption was low. In comparison of recommended dietary allowance consumption of cereals, pulses, green leafy vegetables, milk fruits and non vegetarian foods were inadequate.

B.SUDIES RELATED TO KNOWLEDGE AND ATTITUDE OF MOTHERS TOWARDS DIET DURING LACTATION :

Mujeeb,S.S et.al.,(2007) , conducted “ A study to assess the nutritional beliefs , practices in lactating mothers in urban and rural area of Pakistan “ . 100 lactating mothers were assessed in the area of Lahore. A structured questionnaire was used for the purpose. The age of mothers, type of family, literacy, family income, parity had not significantly influence the nutritional beliefs and practices, only urban and rural differences were statistically significant . (84%) of the lactating mothers had knowledge that diet should be changed by increasing , adding or

avoiding some special food items in the diet during pregnancy and lactation but only (65.5 %) of them practiced . The reason for this deficient knowledge of dietary intake is lack of nutritional knowledge and poor economy. However, this can be overcome by improving nutritional knowledge and dietary attitude of population in general and vulnerable group on the use of locally avoidable , low cost foods and to avoid undue food restriction or taboos .

Shwete Joshi, (2008), conducted study on “A study to determine the effectiveness of planned health teaching on Knowledge related to lactation among the mothers whose babies are admitted in NICU”. The research approach used for this was quasi experimental . Non probability convenient sampling was used . The sample size was 50 lactating mothers. The pretest knowledge score was 57.4% and the post test score was 80.94%. Significant difference (p value > 0.05) between pretest and post test score was statistically tested using paired ‘t’ test and it was found significant ($t=22.6$). There was highly significant association between pretest knowledge score and mother’s education .

Ali ,N.S et.al.,(2004) , conducted study on “Women’s beliefs and practices regarding food restrictions during lactation and pregnancy “. A cross sectional survey was conducted at community health centers, Karachi. A self administered pre coded and pre tested questionnaire was filled by the respondents. More than three fourths of the respondents were literate, (12 %) believed in restricting some food item during pregnancy and about 25 % believed same during lactation. No statistically significant association was found between belief about food restriction during lactation and pregnancy and the educational level of the mothers.

Marilee et.al.,(2004) , conducted study regarding general nutrition related knowledge and beliefs of postpartum women in Brisbane and Canberra .168 post-partum women, who gave birth to a live infant in Brisbane or Canberra. Subjects were drawn from three maternity hospitals in Canberra and one in Brisbane and were interviewed during a seven-day sampling period at each hospital. Almost all the mothers were confident they could feed their families a healthy diet and yet their knowledge of core food requirement was inadequate, with only 1.9 % correctly identifying the recommend intake of fruit, vegetables, protein foods and

cereal foods and only 10.5 % correctly identifying the recommended intake of at least three of these core foods.

Garibay [Vásquez ,E](#) et.al., (2003) This cross-sectional study was carried out in Guadalajara, Mexico, to identify food taboos among nursing mothers who participated in a breast-feeding support programme . 493 nursing mothers who were interviewed 10-45 days after delivery. A chi-square test was used for finding an association among food taboos, mother's characteristics, and demographic variables. 50.3% of the mothers avoided at least one food in their diet after childbirth due to beliefs that it was harmful during breast-feeding. 47% of the mothers avoided three or more foods. Fruits and vegetables (62%) and legumes (20%) were the most-avoided foods. These food taboos were associated with living more than 10 years in Guadalajara city 1.95 [1.25-3.09], $p = 0.002$), breast-feeding experience 1.91 [1.18-3.12], $p = 0.005$), no-prenatal information about breast-feeding 1.59 [1.08-2.34], ($p = 0.01$), and other people's suggestion to complement breast-feeding (OR 1.61 [1.09-2.38], $p = 0.01$).

Kapil ,U et.al., (1997) , A study was conducted to assess the nutrient intake of pregnancy, lactating and non pregnancy, non lactating mothers in the under privileged communities of Rajasthan, India. 750 subjects consisting of 215 pregnancy , 145 lactating and 398 non pregnancy , non lactating women were selected .A pre tested questionnaire was administered to each subjects to elicit information on their nutrient intake .The subjects current dietary intake was assessed by using the 24 hours dietary recall method . Similarly it was found that 47, 84 and (93 %) of the lactating women consumed less than (50 %) of the recommended dietary allowance for calories , fat and calcium respectively .The women in this study belonged to the under privileged communities where purchasing power of the families was low and the knowledge on nutrition was also poor .

Nuss, H et.al., (2006) , conducted on Influence of nutrition attitudes and motivators for eating on postpartum weight status in low-income new mothers. Nutrition attitudes were assessed at 1.5, 6, and 12 months of postpartum. Body weight was measured at each time point and height at 1.5 months to calculate body mass index. Nutrition attitudes at each time were compared with demographic variables and weight status. Obese women had higher barriers to healthful eating subscale means at 1

year compared with normal and overweight subjects at 1.5 and 6 months, and had more barriers than overweight participants at 12 months. Obese individuals also had higher emotional eating subscale scores than did overweight women at 1.5 months and both normal and overweight subjects at 12 months.

Jassie ,S.,(2000), “ A descriptive study was done on Knowledge and attitude of lactating mothers regarding diet during lactation among 75 lactating mothers in selected maternity centers of Madurai “ . Researcher used structured interview schedule and Likert attitude scale to assess the Knowledge and attitude of lactating mothers . Researcher found out that 36 (48 %) of lactating mothers had inadequate knowledge and 39 (62 %) of of lactating mothers had adequate knowledge. 38 (50.6 %) of lactating mothers had unfavourable attitude and 37 (49.4 %) of lactating mothers had favourable attitude towards lactating diet. High positive correlation found between knowledge and attitude scores of lactating mothers about diet during lactation . Significant association ($P < 0.01$) was found between knowledge score of mothers with their education and family monthly income . Significant association ($P < 0.01$) was found between attitude score of mothers with their education and previous breast feeding experiences .

Devas and Mangalam.,(1998), conducted “A study in Semichettipalayam to determine the nutrient intake of the nursing mothers “. Soon after birth the mothers were given one glassful of kanji prepared from cold rice to remove the body pain . Garlic was used extensively as a food to produce more milk . In (20 %) of the families , garlic was tied around the neck and wrist of the infants .Certain foods such as the gas forming foods like sweet potato , and whole cereals were not taken by the mothers because of the beliefs that they would cause complication during the lactation period. Knowledge and perception about foods that increase milk secretion during lactation was appropriate and consumed adequate nutrients .

C .STUDIES RELATED TO DIETARY PRACTICE OF MOTHERS DURING LACTATION .

Kaushik ,D et.al.,(2004), conducted study on Nutritional composition of traditional supplementary foods consumed by lactating women. A study was conducted in India's Udaipur region to learn more about the nutritional content of supplementary foods consumed by mothers during the 1st 3 months of lactation. A food consumption survey

revealed that 6 different supplementary food items were consumed by lactating women in ball form (250 gram). All foods analyzed were rich sources of iron, calcium, phosphorus, and magnesium. All the forms supplementary foods contained the maximum amount of protein, calcium, phosphorus and iron . It appears that the diet of lactating women is given greater attention in the immediate postpartum period than in later stages of lactation .

Rakicioğlu, N et.al.,(2006), conducted study on The effect of Ramadan on maternal nutrition and composition of breast milk. A total of 21 breast-feeding mothers aged between 17 and 38 years who fasted during Ramadan month and volunteered to give milk samples were surveyed. The ages of the infants were between 2 and 5 months. The study was performed during Ramadan and 2 weeks after the end of Ramadan . The results showed that during Ramadan, zinc, magnesium and potassium levels in breast milk decreased significantly ($P < 0.05$). The mother's weight increased approximately 1 kg after Ramadan. Changes in body mass index of the mother were not statistically significant. A significant decrease in vitamin A intake was observed after Ramadan ($P < 0.05$). During Ramadan, energy and

most nutrient intakes except protein and vitamins A and C were found below daily recommended dietary allowances necessary for lactating women. The nutritional status of lactating women was affected by Ramadan fasting.

Strucińska,M.,(2002), This literature concerning selected nutritional and health aspects of applying different vegetarian diets by breastfeeding women was presented. The only two types of vegetarian diets: lactoovo- and semi-vegetarian, when properly composed, seem to be relatively safe for mother and child. The most threatening vegetarian diets for lactating women are those including exclusively products of plant origin . The results of studies performed on mothers consuming these vegetarian diets showed deficiencies in vitamin B12 and vitamin D in mothers and their infants and calcium, only in lactating women . It considered that lactating women on vegetarian diet should have a greater nutritional knowledge in order to avoid deficiencies which would adversely affect mother's and her child's health.

George, G.C et.al., (2005) ,conducted a study about Food choices of low-income women during pregnancy and postpartum. 149 mothers were recruited into a longitudinal cohort design 0 to 1 days following delivery. Dietary choices during pregnancy and the first 6 months postpartum were assessed by validated food frequency questionnaires administered at 6 weeks and 6 months postpartum, respectively. Mean daily servings of grains (7.4 vs 6.2, $P <.004$), vegetables (2.5 vs 2.0, $P <.002$), and fruit (3.4 vs 1.7, $P <.001$) declined following childbirth, while the percentage of energy from fat (37.3% vs 38.4%, $P <.023$) and added sugar (14.4% vs 16.4%, $P <.019$) increased. Women who breastfed their infants at 6 months postpartum reported lower intakes of total fat (34.2% vs 37.9%, $P <.005$) during pregnancy and higher fruit (2.2 vs 1.6, $P <.05$) and vegetable (2.6 vs 1.8, $P <.02$) intakes in postpartum than those who bottle-fed.

Barenes, H et.al., (2009) , conducted study regarding Postpartum traditions and nutrition practices among urban Lao women and their infants in Vientiane, Lao PDR. A cross-sectional study was conducted in 41 randomly selected villages on the outskirts of Vientiane capital city. 300 pairs of infants (< 6 months of age) and their mothers were selected .

Information was collected about pregnancy, delivery and traditional practices through a standardized questionnaire. Dietary intake and food frequency were estimated using the 24 hours recall method . Mothers' and infants' anthropometry was assessed . The results showed that a high antenatal care attendance (91%) and delivery under health professional supervision (72%), a high prevalence of traditional practices was found, including exposure to hot beds of embers (97%), use of traditional herb tea as the only beverage (95%) and restricted diets (90%). 25 mothers (8.3%) were underweight. Mothers had insufficient intake of calories (55.6%), lipids (67.4%), iron (92.0%), vitamins A (99.3%) and C (45%), thiamin (96.6%) and calcium (96.6%).

Sims, L.S., (2000), was conducted Dietary practices of sixty-one nursing mothers who had been breast-feeding their infants an average of four months were examined in relation to their knowledge of nutrition and their attitudes about nutrition, taking vitamin supplements, meal preparation, and meal planning. The women were fairly knowledgeable about nutrition, and most exhibited an attitude that "nutrition is important". This research suggests that nutrition education programs should adopt, as a primary goal, that of instilling positive attitudes about

nutrition and demonstrating to learners that "nutrition is important". Once such attitudes have been formulated, ability to learn and comprehend nutritional facts and concepts will be facilitated, thus resulting in improved dietary intake of crucial nutrients.

Gupta ,M., (1994) , conducted study on Haryana and found that majority of the mothers (61 %) did not favor any kind of food restriction during lactation period on the other hand only (39 %) of the mothers advocated for some sorts of food restriction during lactating period. The food items such as spices, chillies , sour items , egg, meat , fish , fruits , pumpkin , brinjal, bitter guard , onion, garlic and green were prohibited during lactating period . The general concept of these food items were causation of cold and cough to the mothers and nursing babies. The result of the present emphasis that knowledge and attitude will diminish their wrong concepts of food habits through various health education Medias.

Malkachalnani .,(1998), conducted study regarding food avoidance by breast feeding mothers in south east Queen lands. A group of 123 lactating mothers were studied in south eastern Queen lands . (73 %) of mothers eliminated some foods from their own diet to prevent problem or

to treat existing condition in their infants. The commonest food to be excluded was cabbage , followed by chocolate , other vegetables and fruits . A few mothers stopped taking cow's milk products .The mothers obtained the information from many sources including family, friends, book and health professionals. Avoidance of this food was a common practice. Mothers who had avoided some foods had significantly greater weight loss between 1-3 months after delivery than those who ate a fat free diet but maternal food restriction had no significant effect on the weight gain of their infants.

Smitha Balaji, V.D.,(1997), states that, in some places, dietary restrictions are continued for a long time up to 11 months after delivery, leading to depletion of nutrition's in the maternal body .Their tradition does not recommended leafy vegetable and tubers. Green leafy vegetable are considered to be difficult to digest and may disturb the quality of breast milk. Other food items restricted during lactation were salt and sour foods ground nuts, curd, tamarind, egg, etc.

Sandipdas., (1998), In Gujarat perfectly healthy and vulnerable foods such as dhal , green leafy vegetables , rice , curds and fruits are avoided by lactating mothers . In Chennai rice , curd , green leafy vegetables considered a must and in Gujarat a halwa prepared from cracked wheat is given soon after delivery where as in Chennai wheat is kept on liquid diet for two days after delivery and given solid food only on the 3d day .

Jayalakshmi and Neelakandan., (1999) , conducted study on the food habits of the rural population in the village Deenampalayam , Tirupur . They found out that the foods taken during lactation period are agathi , dried fish and garlic to increase the milk secretion . Milk, vegetables, fruits, egg, ragi kali, flesh foods , and greens were believed to give strength to the baby. It was seen that the protective foods like vegetables, fruits and egg were not consumed due to economic inability and ignorance. Curd , puffed rice , green , drumstick , pulses and grained nuts are avoided because it was difficult to digest ,cold and were gas producing .The study points out the food beliefs prevailing in the rural areas .

CHAPTER - III
METHODOLOGY

Research Methodology

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

Research Approach:

The research approach for this study is evaluative approach.

Research Design

The design for the study is pre experimental design. One group pre test and post test design.

| Group | Pretest | Intervention | Posttest |
|-------|---------|--------------|----------|
| 1 | O_1 | X | O_2 |

The symbols used are explained as:

- Group 1 = Primipara mothers who had undergone caesarean section .
- O1 = Pretest - Collection of demographic data, assessment of knowledge, attitude and practice scores regarding diet during lactation.
- X = Structured teaching programme on diet during lactation.
- O2 = Post test - Assessment of knowledge, attitude, practice scores regarding diet during lactation.

SETTING OF THE STUDY:

The study was conducted at Kasturba memorial hospital, Dindigul, has got 300 beds with male medical ward, male surgical ward , female medical ward , female surgical ward, labour ward , postnatal ward, O.P.D., operation theatre, post operative ward, NICU, emergency ward. Post natal ward has two units, one for normal delivery mothers and another one for caesarean mothers which consists of 40 beds. Approximately monthly about 350 - 400 deliveries were conducted in

month, in which 250 mothers undergo normal delivery, 100 mothers undergo cesaerean section.

POPULATION

Primi para mothers who were admitted in kasturba memorial hospital at Dindigul .

SAMPLE:

Sample constitutes primi para caesarean mothers who were admitted in post natal ward at kasturba memorial hospital ,Dindigul .

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria :

- Primi Para caesarean Mothers who remained for more than 3-8 days.
- Mothers who can understand and speak Tamil.
- Those who are willing to participate.

Exclusion criteria:

- Mothers who have contraindication to breast feeding.
- Mothers who have psychiatric problems.
- Mothers who have got any dietary restrictions.

SAMPLE SIZE:

The Sample size was 50 primipara caesarean mothers.

SAMPLING TECHNIQUE

The sampling technique for study was non probability purposive sampling technique.

DESCRIPTION OF THE TOOL:

Part - I

It deals with demographic variables such as age, education, occupation, type of family , religion , family monthly income, area of residence and food pattern .

Part - II

This section consists of structured interview schedule to assess the knowledge regarding diet during lactation. It consists of 20 Multiple choice questions with four options among which, one is the correct response.

Part - III

This section consists of five point likert scale to assess the attitude of primi para caesarean mothers regarding diet during lactation. It consists

of 10 statements out of which 5 were positive statements and 5 were negative statements .

Part - IV

Structured interview schedule to assess the practice regarding diet during lactation among primipara caesarean mothers. It consists of 15 dichotomous questions with alternative response of “yes” or “No” .

SCORING PROCEDURE

Part - II

The multiple choice questions were used to assess the knowledge regarding diet during lactation. It consists of 20 items . For right answer score and for 1, wrong answer score 0 is given . The total score is 20.

Knowledge score

| Level of Knowledge | Score | Percentage |
|-------------------------------|--------------|-------------------|
| Adequate knowledge | 13-20 | 67-100% |
| Moderately adequate Knowledge | 7-12 | 34-66% |
| Inadequate Knowledge | 0-6 | Less than 33% |

Part-III

Attitude five point likert scales consists of 10 statements.

There are five positive statements and five negative statements.

Positive attitude:

| | | |
|-------------------|---|---|
| Strongly agree | - | 5 |
| Agree | - | 4 |
| Uncertain | - | 3 |
| Disagree | - | 2 |
| Strongly disagree | - | 1 |

Negative attitude:

| | | |
|-------------------|---|---|
| Strongly agree | - | 1 |
| Agree | - | 2 |
| Uncertain | - | 3 |
| Disagree | - | 4 |
| Strongly disagree | - | 5 |

Attitude Score :

| Level of Attitude | Score | Percentage |
|--------------------------------|-------|---------------|
| Favourable attitude | 34-50 | 67-100% |
| Moderately favourable attitude | 18-33 | 35-66% |
| Unfavourable attitude | <17 | Less than 34% |

Part - IV

Structured interview schedule with dichotomous questions to assess the practice regarding diet during lactation. It consists of 15 questions. There are 2 responses 'Yes' (or) 'No'. A score of one (1) is allotted to correct response and (0) to the wrong answer. The total score is 15 .

Practice score

| Level of Knowledge on practice | Score | Percentage |
|--------------------------------|--------|---------------|
| Adequate practice | 11- 15 | 67-100 % |
| Moderately adequate practice | 6-10 | 34-66% |
| Inadequate practice | 0-5 | Less than 33% |

VALIDITY AND RELIABILITY OF THE TOOL.

Validity:

The validity of the tool was established in consultation with guide and four Nursing experts in the field of obstetrics and Gynecological nursing and one dietitian . The tool was modified according to the suggestions and recommendations of experts.

Reliability:

The reliability of the structured knowledge questionnaire was established by stability and internal consistency . Stability was assessed by test retest method, Karl Pearson co-efficient formula was used . The value was found to be reliable($r= 0.93$) . The internal consistency was assessed by the split half method, the Spearman's brown prophecy formula was used . The value was found to be reliable ($R = 0.88$) .

The reliability of the attitude five point likert scale was established by stability and internal consistency . Stability was assessed by test retest method, Karl Pearson co-efficient formula was used . The value was found to be reliable ($r= 0.94$) . The internal consistency was assessed by the split

half method, the Spearman's brown prophecy formula was used . The value was found to be reliable ($R = 0.96$) .

The reliability of the practice was computed by test-retest method where Karl Pearson correlation of co-efficient formula was used and the value was found to be reliable ($r=0.93$). Internal consistency was assessed by split half method using Spearman's Brown Prophecy formula. The value was found to be reliable ($R=0.83$).

PILOT STUDY

The pilot study was conducted in Nevathetha Hospital, Dharapuram , for a period of 7 days .The investigator obtained written permission from the medical officer and oral permission was obtained from each participant prior to the study. The purpose of the study was explained to the subjects prior to the study. The study was conducted on 5 primi para mothers, who met the inclusion criteria were selected by using purposive sampling technique, 1-2 samples were taken per day on the 4th post operative day . The knowledge , attitude and practice of primi para mothers regarding diet during lactation was assessed by conducting pretest. On the same day structured teaching programme was given to the

mothers individually for 45 minutes using compact disc with laptop. Post test was conducted on the 5th day after structured teaching programme for the same mothers by using same questionnaire and the effectiveness was evaluated. Data were analyzed and findings of the pilot study showed that mean post test knowledge score (12) was higher than the mean pretest knowledge score (7). The mean post test practice score (10.4) was higher than the mean pretest practice score (7.8) and the mean post test attitude (37) scores showed favourable attitude . It was found that it is feasible and practicable to conduct the main study.

DATA COLLECTION PROCEDURE

The study was conducted at Kasturba Memorial Hospital, Dindigul. The data was collected for the period of 5 weeks. Before conducting the study, written permission was obtained from Medical Officer , Nursing superintendent, HOD of the obstetric and gynaecology department .

The purpose of the study was explained to the subjects prior to the study. The samples were interviewed by the researcher those who met the inclusion criteria by using purposive sampling technique. The investigator

introduced about the study and rapport was established to collect the demographic variables.

The first day (4th post operative day) , the pre test was conducted by using structured interview schedule on knowledge and practice items and five point likert scale was used to assess the attitude . One hour was spent to conduct pre test for each mothers . After pre test of the same day, structured teaching programme was given to the primi para mothers individually by using compact disc with laptop for about 45 minutes. The time period for data collection was between 9 am to 5 pm . About 2-3 samples were taken per day. The effectiveness was assessed by conducting post test on 5th day after structured teaching programme by using the same questionnaire with the mothers.

PLAN FOR DATA ANALYSIS

| S. No | Data analysis | Methods | Remarks |
|-------|------------------------|--|--|
| 1. | Descriptive statistics | Frequency, Percentage Mean ,Standard Deviation | <ul style="list-style-type: none"> To describe the demographic variables of primipara mothers . To assess the pre and post test knowledge, attitude and practice scores regarding diet during lactation among primi para mothers . |
| 2. | Inferential statistics | Paired 't' test | <ul style="list-style-type: none"> To evaluate the effectiveness of structured teaching programme on diet during lactation. |
| 3. | | Karl Pearson Coefficient Correlation | <ul style="list-style-type: none"> To find out the relationship between post test knowledge and practice score regarding diet during lactation. To find out the relationship between post test knowledge and attitude score regarding diet during lactation. |

| | | | |
|----|--|-----------------|---|
| 4. | | Chi square test | <ul style="list-style-type: none"> • To find out the association between post test knowledge scores with their selected demographic variables regarding diet during lactation . • To find out the association between post test attitude scores with their selected demographic variables regarding diet during lactation . |
|----|--|-----------------|---|

PROTECTION OF HUMAN SUBJECT

The proposed study was conducted after the approval of dissertation committee. The written permission was obtained from Medical Officer, Kasturba Memorial Hospital, Dindigul. Oral consent of each subject was obtained before starting the data collection. Assurance was given to them that confidentiality of each individual would be maintained.

CHAPTER- IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of collected data from 50 primi para mothers to assess the effectiveness of structured teaching programme regarding diet during lactation in terms of Knowledge , Attitude and Practice among primipara mothers in Kasturba Memorial Hospital , Dindigul .The data was coded and analyzed as per objectives of the study under following headlines.

ORGANIZATION OF DATA

The data has been tabulated and organized as follows:

Section - A : Distribution of demographic variables.

Section - B : Comparison between pre and posttest knowledge , Attitude and Practice scores regarding diet during lactation among primipara mothers .

Section - C : Correlation of posttest knowledge scores with attitude scores regarding diet during lactation among primipara mothers .

Section - D : Correlation of posttest knowledge scores with practice scores regarding diet during lactation among primipara mothers .

Section - E : Association of post test knowledge scores regarding diet during lactation among the primi para mothers with their selected demographic variables.

Section - F : Association of post test attitude scores regarding diet during lactation among the primi para mothers with their selected demographic variables.

SECTION - A : Distribution of demographic variables

Table 1 : Frequency and percentage distribution of demographic variables of primi para mothers .

n=50

| S. No | Demographic variables | Frequency (f) | Percentage (%) |
|--------------|---|----------------------|-----------------------|
| 1. | Age | | |
| | a) < 25 yrs | 31 | 62 |
| | b) 26- 30 Yrs | 10 | 20 |
| | c) 31- 35 Yrs | 6 | 12 |
| | d) > 36 Yrs | 3 | 6 |
| 2. | Educational status of the mother | | |
| | a) No formal Education | 3 | 6 |
| | b) Primary Education | 15 | 30 |
| | c) Middle School | 15 | 30 |
| | d) Higher Secondary Education | 14 | 28 |
| | e) Graduate and above | 3 | 6 |

| | | | |
|-----------|--|-------------------------|---------------------------|
| 3. | Occupation a) Private b) Government c) Self Employee d) Coolie e) House Wife | 9 10 5 3 23 | 18 20 10 6 46 |
| 4. | Type of Family a) Joint Family b) Nuclear Family | 32 18 | 64 36 |
| 5. | Religion a) Hindu b) Muslim c) Christian | 41 6 3 | 82 12 6 |
| 6. | Total family Income per month a) < Rs. 2000 b) Rs 2001 - Rs. 5000 c) Rs . 5001 And above | 13 30 7 | 26 60 14 |
| 7. | Area of Residence a) Urban b) Rural | 4 46 | 8 92 |
| 8. | Food pattern a) Vegetarian b) Non - Vegetarian | 11 39 | 22 78 |

Table 1 Showed the distribution of demographic variables Age, Educational status of the mother, Occupation, Type of Family , Religion, Total family Income per month , Area of Residence and Food pattern .

With regard to age , 62 % of mothers were below 25 years, 20 % of mothers were between 26- 30 years , 12 % of mothers were between 31- 35 years , 6 % of mothers were below 36 years . (Fig . 2)

Regarding educational status of the mother, 6% of mothers were no formal education, 30% of mothers were primary education, 30 % of mothers were middle school ,28 % of mothers were higher secondary education and 6% of mothers were graduate and above. (Fig . 3)

In relation to occupation , 18 % of mothers were Private employee ,20 % of mothers were government employee , 10 % of mothers were self employee , 6 % of mothers were coolie , and 46 % of mothers were house wife's. (Fig . 4)

About type of family, 64 % of mothers were from joint family, and only 36 % of mothers belongs to nuclear family. (Fig . 5)

With regard to religion, 82 % of mothers were Hindus, 12 % of mothers were Christian and 6 % of mothers were Muslims. (Fig . 6)

In relation to income 26 % of mothers were below Rs. 2000 , 60 % of mothers were between Rs . 2001-5000, and 14 % of mothers % were Rs . 5000 and above . (Fig . 7)

With regard to area of residence 8 % of mothers were urban area, and 92 % of mothers were from rural area. (Fig . 8)

Regarding food pattern 22% of mothers were Vegetarian , 78 % of mothers were Non -vegetarian . (Fig . 9)

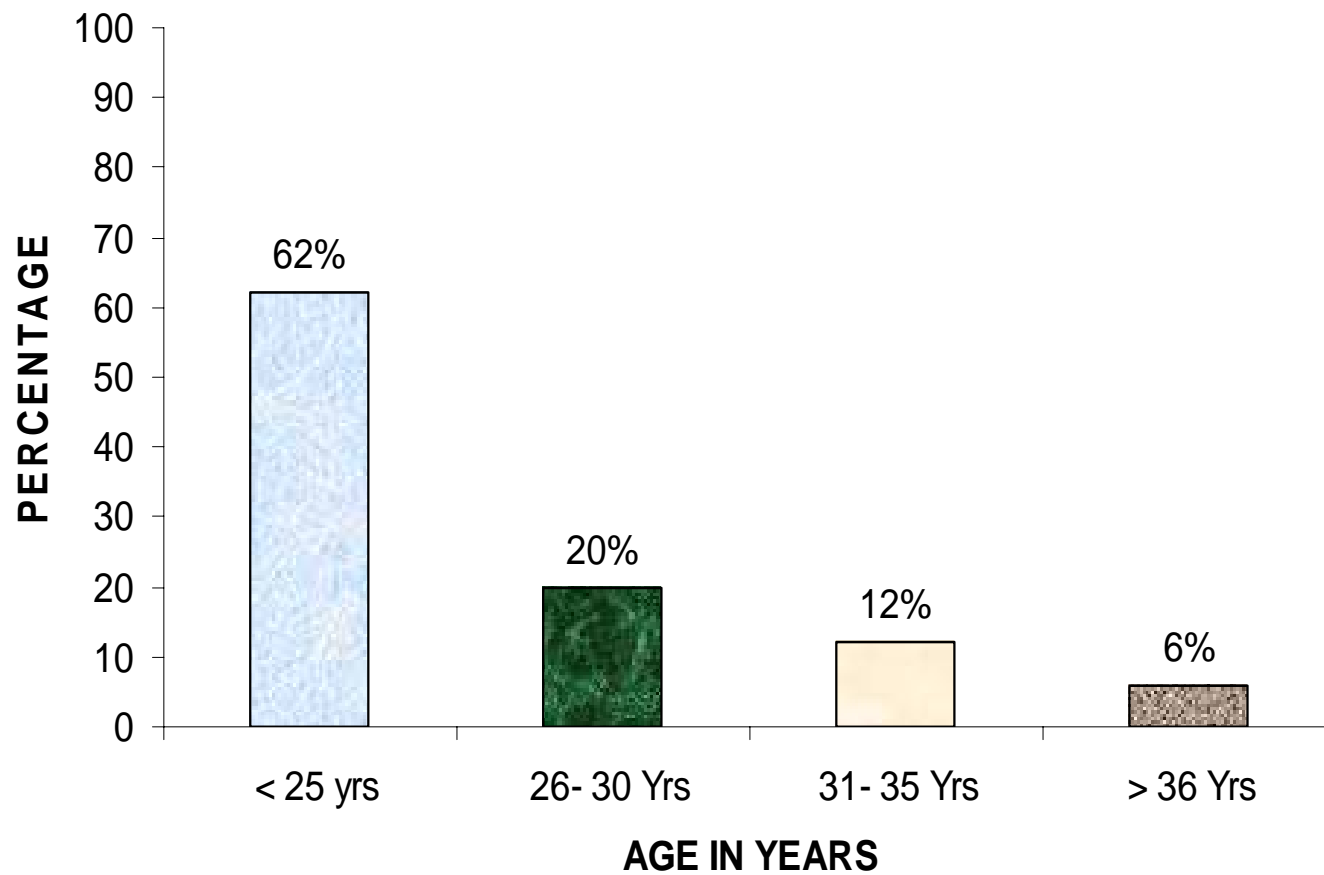


Fig 2 . Percentage distribution of the primi para mothers according to their Age .

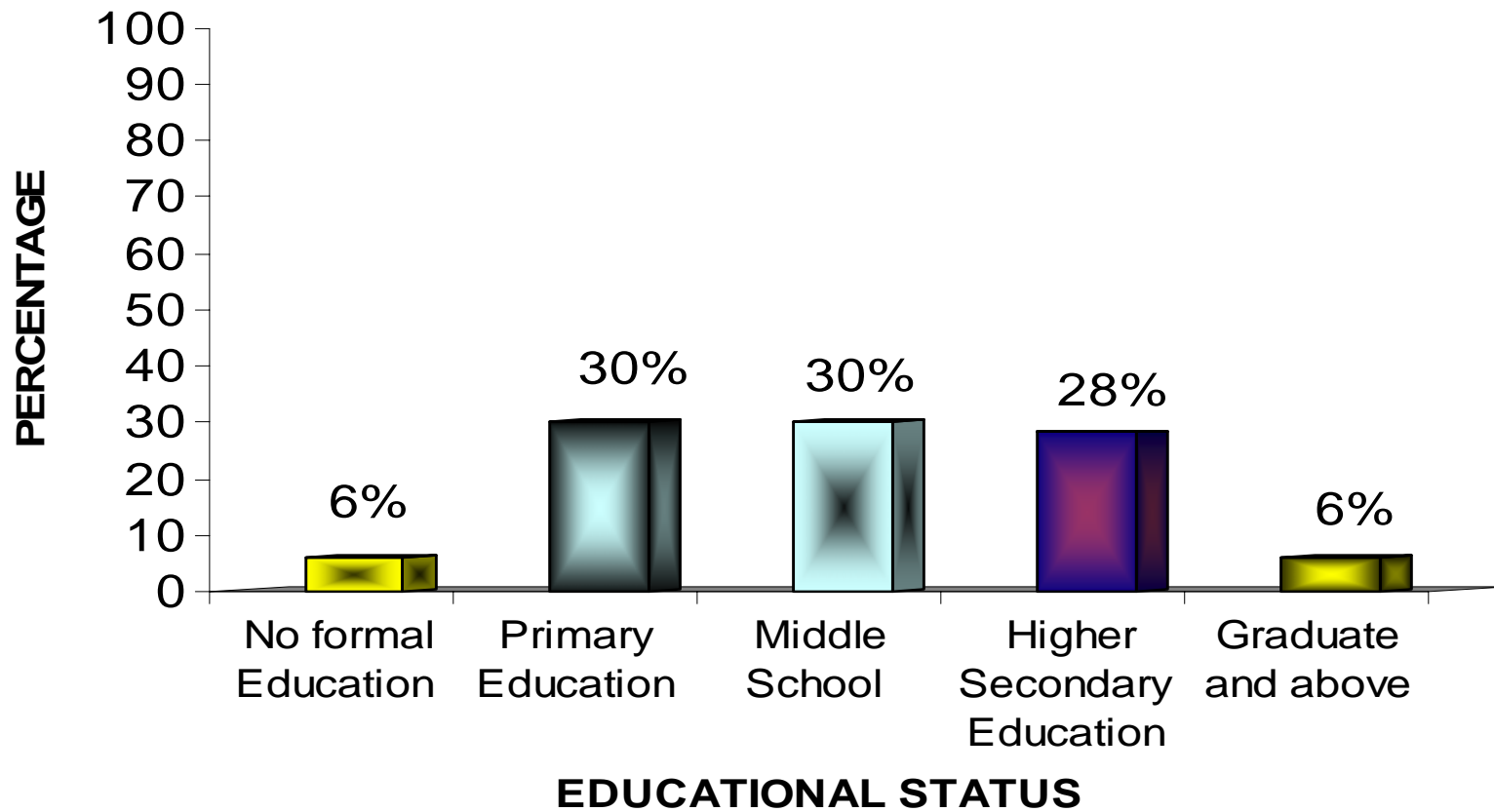


Fig 3 . Percentage distribution of primi para mothers according to their Education .

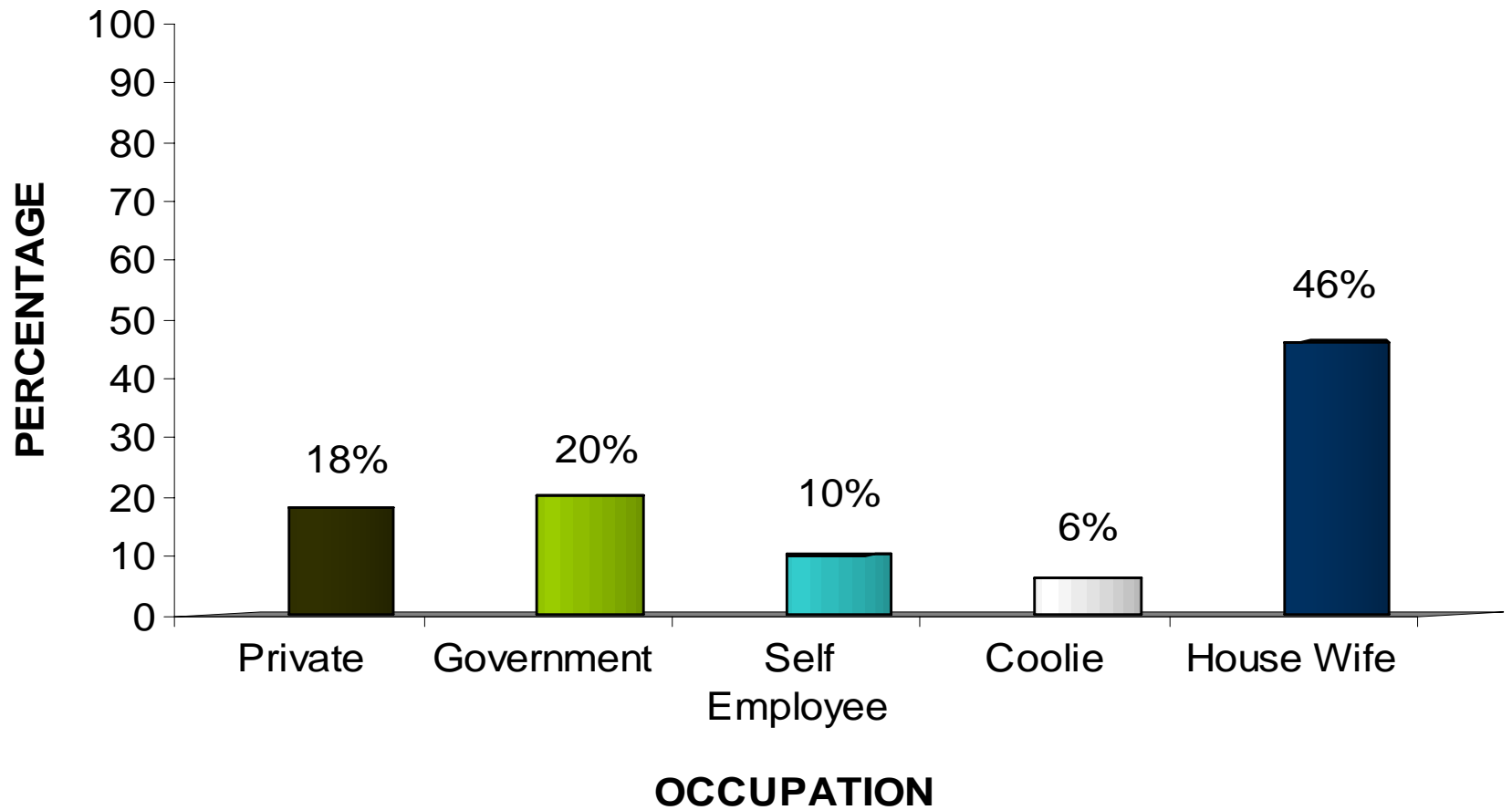
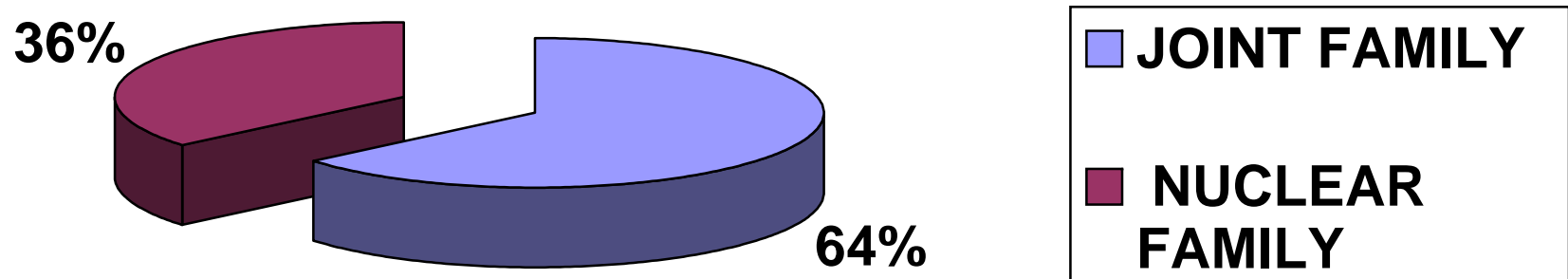


Fig 4 . Percentage distribution of primi para mothers according to their Occupation.



TYPE OF FAMILY

Fig 5 . Percentage distribution of primi para mothers according to type of Family .

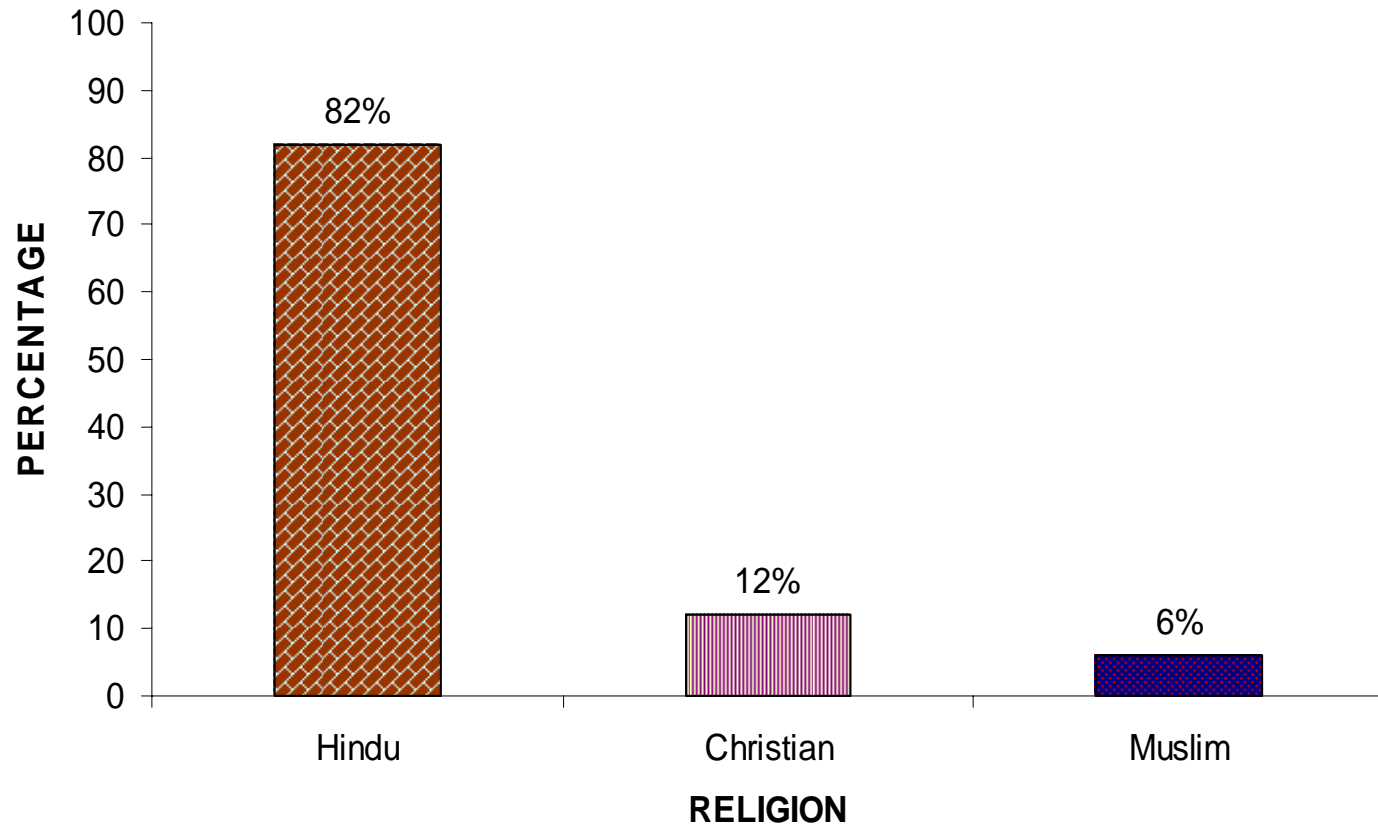


Fig 6 . Percentage distribution of primi para mothers according to their Religion .

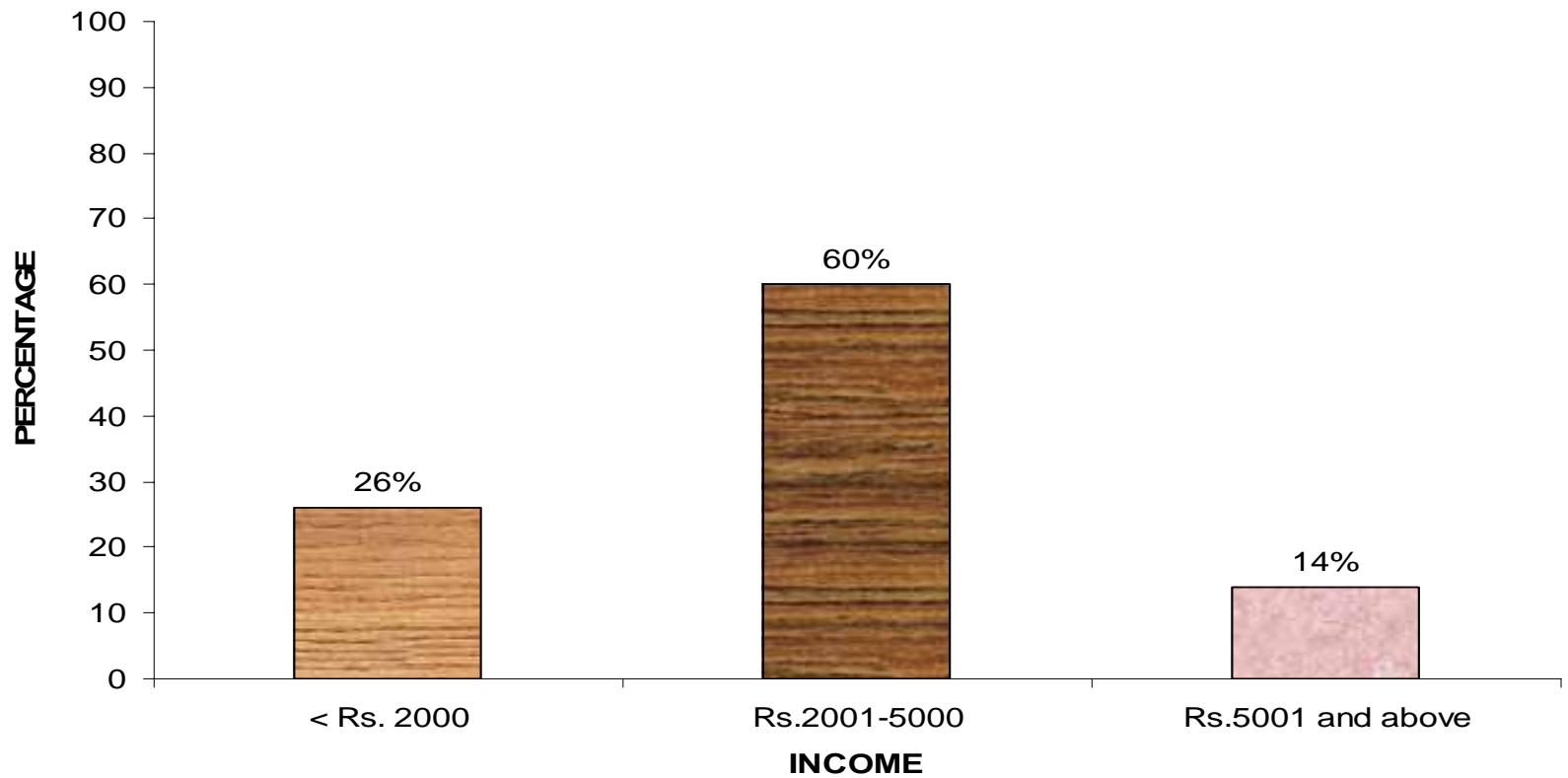
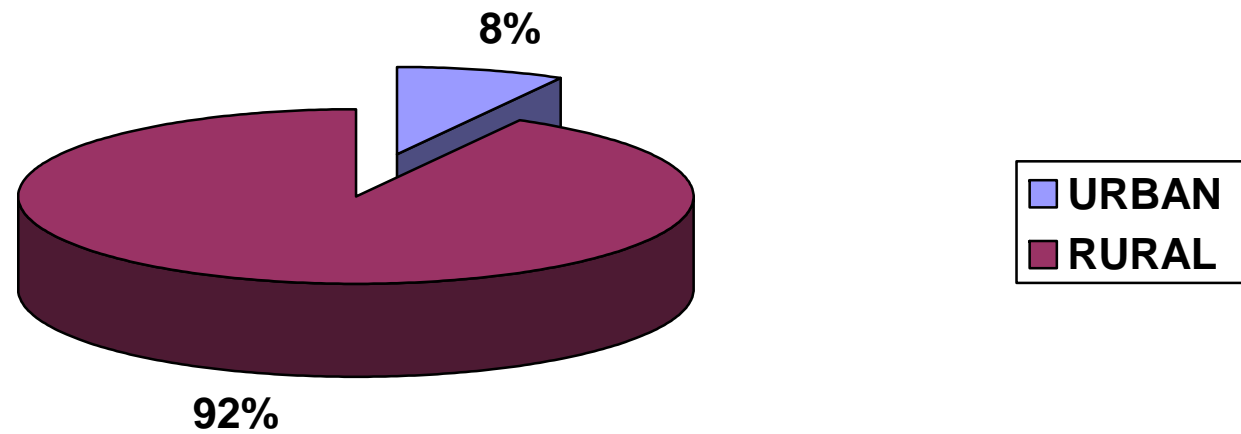
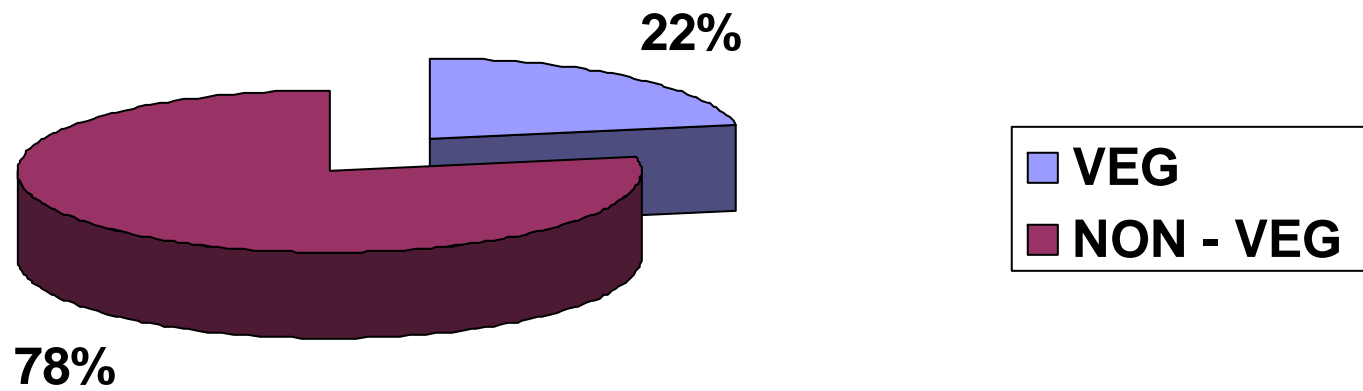


Fig 7 . Percentage distribution of primi para mothers according to their monthly Income .



RESIDENCE

Fig 8 . Percentage distribution of primi para mothers according to their Residence.



FOOD PATTERN

Fig 9 . Percentage distribution of primi para mothers according to their Food Pattern .

SECTION - B : Comparison between pre and posttest knowledge , Attitude and Practice scores regarding diet during lactation among primipara mothers .

Table - 2 : Comparison of the pretest and posttest knowledge scores regarding diet during lactation among primipara mothers .

n = 50

| LEVEL OF KNOWLEDGE | Pretest | | Post test | |
|----------------------|---------|-----|-----------|-----|
| | F | % | F | % |
| Adequate | - | - | 22 | 44 |
| Moderately Adequate | 31 | 62 | 27 | 54 |
| Inadequate knowledge | 19 | 38 | 1 | 2 |
| Total | 50 | 100 | 50 | 100 |

Table 2 : showed that in pretest among 50 primipara mothers 31 (62%) of the mothers had Moderately adequate knowledge, 19(38%) of the mothers had inadequate knowledge regarding diet during lactation .

In posttest among 50 primi para mothers majority 27 (54%) of the mothers had adequate knowledge and 22 (44%)of the mothers had moderately adequate knowledge and 1 (2 %) of the mothers had inadequate knowledge regarding diet during lactation.

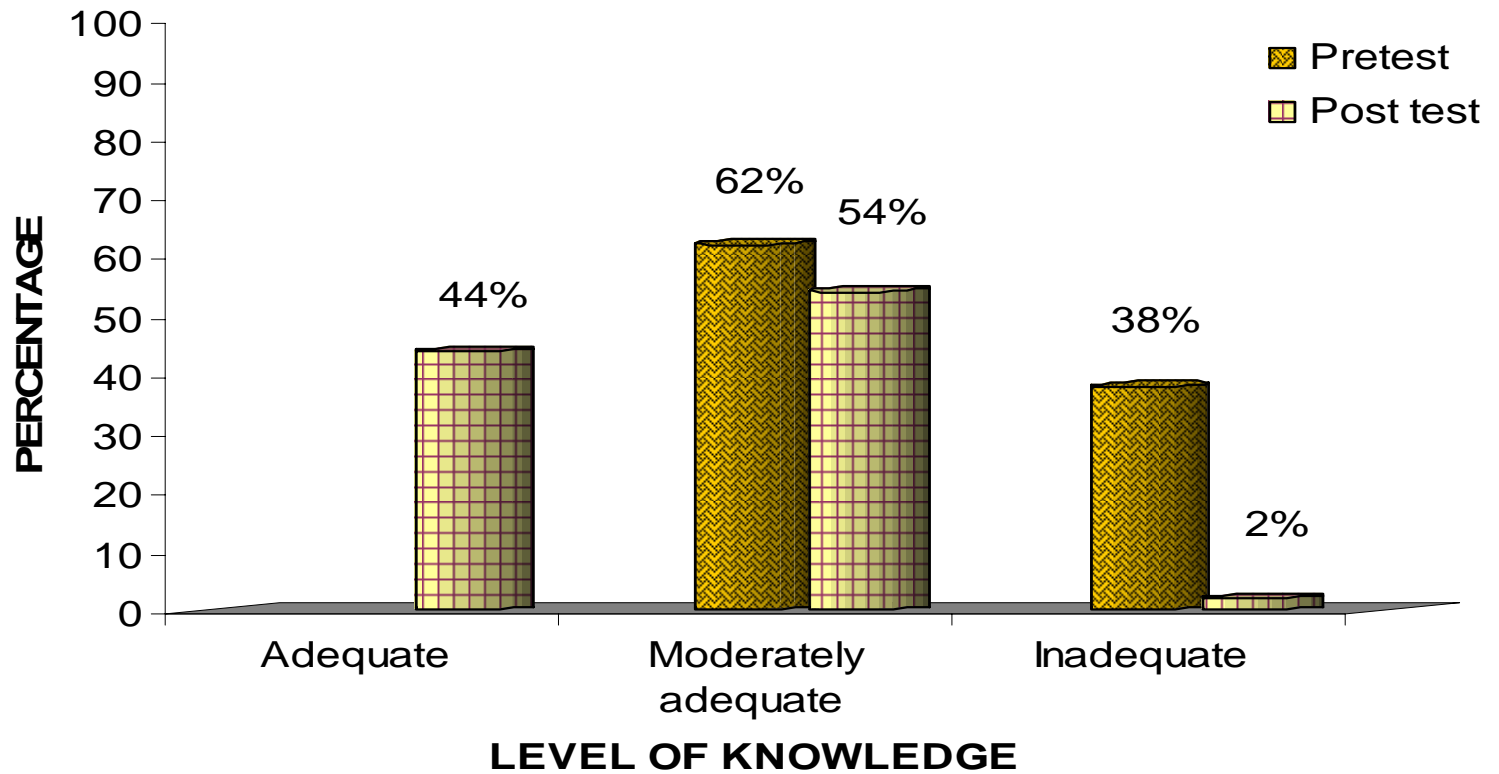


Fig 10 . Comparison of pre test and post test level of knowledge scores among primi para mothers.

Table - 3 : Comparison of the pretest and posttest attitude scores regarding diet during lactation among primipara mothers

n =50

| ATTITUDE | Pretest | | Post test | |
|--------------------------------|-----------|------------|-----------|------------|
| | F | % | F | % |
| Favourable Attitude | - | - | 23 | 46 |
| Moderately Favourable Attitude | 35 | 70 | 27 | 54 |
| Un Favourable Attitude | 15 | 30 | - | - |
| Total | 50 | 100 | 50 | 100 |

Table 3 : Showed that in pretest among 50 primipara mothers , 35 (70%) of the mothers had moderately favourable attitude , 15 (30%) of the mothers had unfavourable attitude regarding diet during lactation .

In posttest among 50 primi para mothers 23 (46%) of mothers had favourable attitude and 27(54%) of the mothers had moderately favourable attitude regarding diet during lactation.

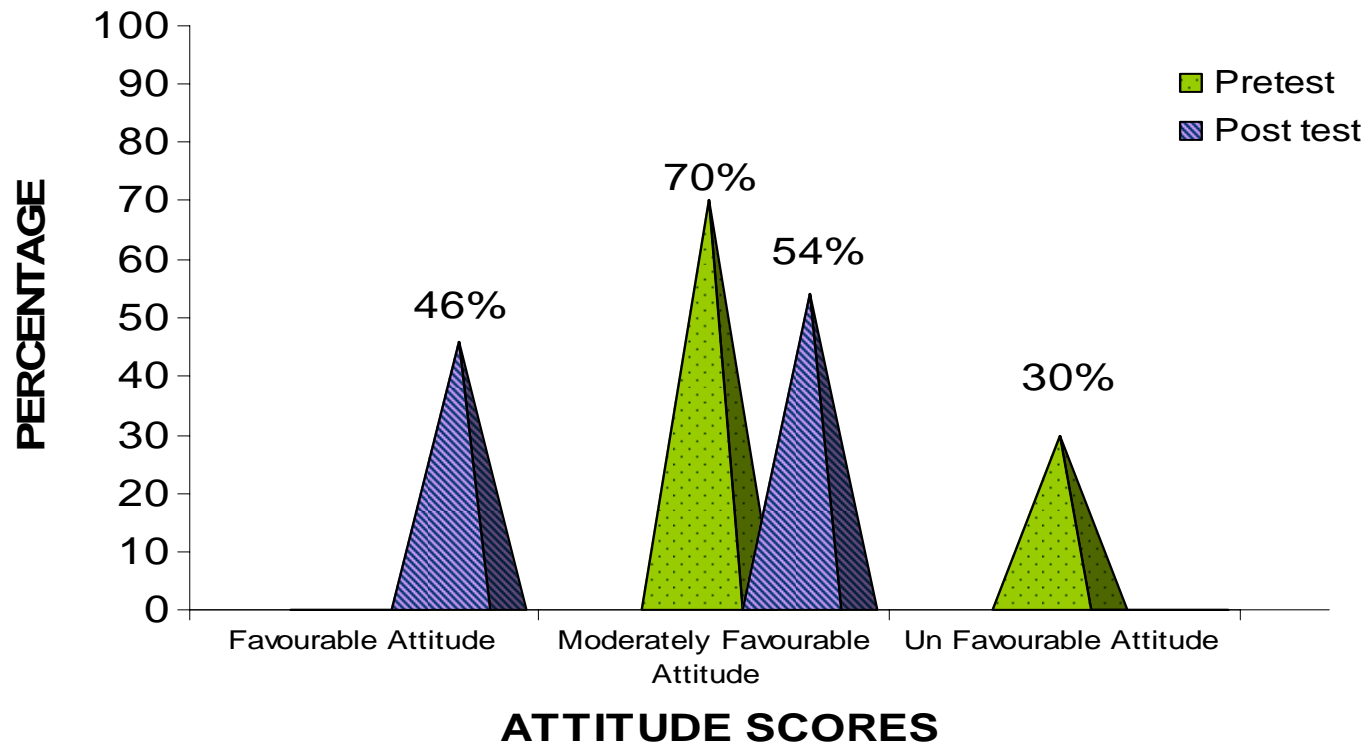


Fig 11. Percentage wise comparison of pre test and post test level of attitude scores among primi para mothers .

Table - 4 : Comparison of the pretest and posttest practice scores regarding diet during lactation among primipara mothers .

n =50

| PRACTICE | Pretest | | Post test | |
|------------------------------|-----------|------------|-----------|------------|
| | F | % | F | % |
| Adequate practice | - | - | 22 | 44 |
| Moderately adequate practice | 36 | 72 | 28 | 56 |
| Inadequate practice | 14 | 28 | - | - |
| Total | 50 | 100 | 50 | 100 |

Table 4 : Showed that in pretest among 50 primi mothers , 36 (72%) of the mothers had moderately adequate practice, 14(28 %) of the mothers had inadequate practice regarding diet during lactation.

In posttest among 50 primi para mothers 22 (44%) of the mothers had adequate practice and 28 (56%) of the mothers had moderately adequate practice regarding diet during lactation .

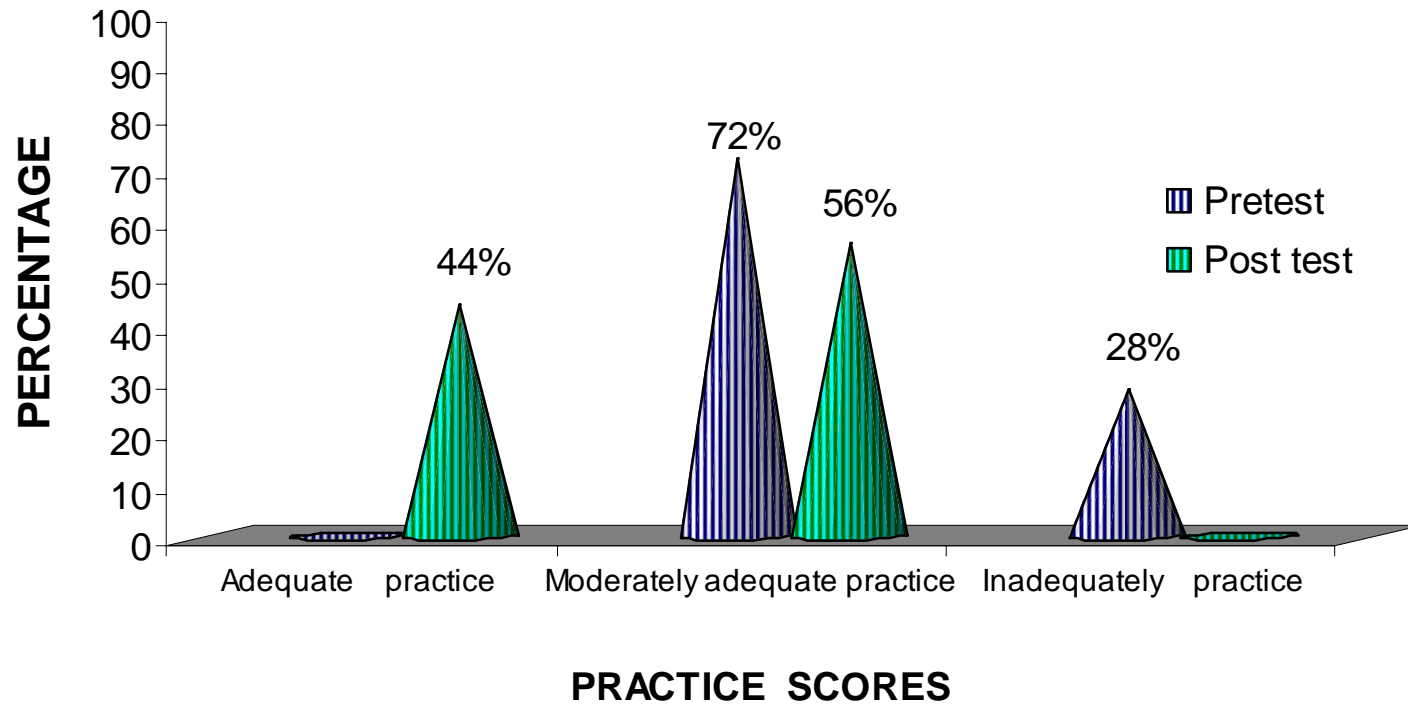


Fig 12. Comparison of pre test and post test level of practice scores among primipara mothers .

Table - 5 : Comparison of mean , standard deviation and paired 't' value of pre and post test knowledge scores among primi para mothers.

n = 50

| Sl. No. | Variable | Mean | SD | 't'Value | Table Value |
|----------------|-----------------|-------------|-----------|-----------------|--------------------|
| 1. | Pretest | 7.34 | 1.76 | | |
| 2. | Post test | 10.3 | 3.24 | 7.21 | 2.000 |

df=49

(P < 0.05)

Table 5 : showed that mean pretest and post test knowledge scores of primi para mothers regarding diet during lactation were 7.34 (SD±1.76) and 10.3 (SD±3.24) respectively. The table 't' value is 2.000 and the calculated 't' value is 7.21 , which was significant at 0.05 level . From the findings , it was clear that the mothers gained knowledge after implementing structured teaching programme.

Table 6: Comparison of mean , standard deviation and paired 't' value of pre and post test attitude scores among primi para mothers .

n =50

| Sl. No. | Variable | Mean | SD | 't' Value | Table Value |
|---------|-----------|-------|------|-----------|-------------|
| 1. | Pretest | 21.58 | 4.6 | 16.2 | 2.000 |
| 2. | Post test | 32.62 | 4.09 | | |

df=49

(P < 0.05)

Table 6 showed that mean pretest and post test attitude scores of mothers regarding diet during lactation were 21.58 (SD±4.6) and 32.62 (SD±4.09) respectively. The table 't' value is 2.000 and the calculated 't' value is 25.6 , which was significant at 0.05 level . From the findings , it was clear that the mothers gained positive attitude after implementing structured teaching programme.

Table - 7: Comparison of mean , standard deviation and paired't' value of pre and post test practice scores among primi para mothers .

n =50

| Sl. No. | Variable | Mean | SD | 't' Value | Table Value |
|---------|-----------|------|------|-----------|-------------|
| 1. | Pretest | 6.8 | 1.63 | 10.38 | 2.000 |
| 2. | Post test | 9.5 | 1.97 | | |

df=49

(P < 0.05)

Table 7 : showed that mean pretest and post test practice scores of mothers regarding diet during lactation were 6.8 (SD±1.63) and 9.5 (SD±1.97) respectively. The table 't' value is 2.000 and the calculated 't' value is 10.38, which was significant at 0.05 level . From the findings , it was clear that the mothers gained practice after implementing structured teaching programme.

SECTION - C : Correlation of posttest knowledge scores with attitude scores regarding diet during lactation among primipara mothers

Table - 8 : Correlation of mean post test knowledge and attitude scores regarding diet during lactation among primipara mothers.

n = 50

| Sl. No. | Variable | Mean Scores | Co efficient of correlation | Table Value |
|----------------|---------------------|--------------------|------------------------------------|--------------------|
| 1. | Post test Knowledge | 10.3 | 0.92 | 0.273 |
| 2. | Post test Attitude | 32.62 | | |

df =48

(P < 0.05)

Table 8 : showed that there was positive correlation (r=0.92) between mean post test knowledge and attitude scores of mothers regarding diet during lactation .

SECTION - D : Correlation of posttest knowledge scores with practice scores regarding diet during lactation among primipara mothers

Table -9 : Correlation of mean post test knowledge and practice scores regarding diet during lactation among primipara mothers

n = 50

| Sl. No. | Variable | Mean Scores | Co efficient of correlation | Table Value |
|----------------|---------------------|--------------------|------------------------------------|--------------------|
| 1. | Post test Knowledge | 10.3 | 0.92 | 0.273 |
| 2. | Post test Practice | 9.5 | | |

df =48 **(P < 0.05)**

Table 9 showed that there was positive correlation ($r=0.92$) between mean post test knowledge and practice scores of mothers regarding diet during lactation .

SECTION E : Association of post test knowledge scores regarding diet during lactation among primi para mothers with their selected demographic variables.

Table - 10 : Association of post test knowledge scores regarding diet during lactation among primi para mothers with their selected demographic variables.

n =50

| Sl · No. | Demographic Variable | Level of Knowledge | | | | | | X ² | Table Value | Inference |
|----------------|---|--------------------|----|------------------------|----|------------|---|----------------|----------------|-----------|
| | | Adequate | | Moderately adequate | | Inadequate | | | | |
| | | F | % | F | % | F | % | | | |
| 1. | Age < 25 yrs 26- 30 Yrs 31- 35 Yrs > 36 Yrs | 16 | 32 | 15 | 30 | | - | 2.1 | 3.841 | NS |
| | | 4 | 8 | 6 | 12 | | - | | | |
| | | 1 | 2 | 4 | 8 | 1 | 2 | | | |
| | | 1 | 2 | 2 | 4 | | - | | | |
| 2. | Educational status of the mother No formal Education Primary Education Middle School Higher Secondary Education Graduate and above | 2 | 4 | 1 | 4 | | - | 7.08 | 3.841 | S |
| | | 11 | 20 | 4 | 10 | | - | | | |
| | | 6 | 6 | 8 | 18 | 1 | 2 | | | |
| | | 2 | 12 | 12 | 20 | | - | | | |
| | | 1 | 2 | 2 | 2 | | - | | | |
| | | | | | | | | | | |
| 3. | Occupation Private Government Self Employee Coolie House Wife | 3 | 6 | 6 | 12 | - | - | 1.07 | 3.841 | NS |
| | | 4 | 8 | 6 | 12 | - | - | | | |
| | | 2 | 4 | 3 | 6 | - | - | | | |
| | | 1 | 2 | 2 | 4 | - | - | | | |
| | | 12 | 24 | 10 | 20 | 1 | 2 | | | |
| 4 | Type of Family Joint Family Nuclear Family | 15 | 30 | 17 | 34 | - | - | 0.28 | 3.841 | NS |
| | | 7 | 14 | 10 | 20 | 1 | 2 | | | |

| S. No. | Demographic Variable | Level of Knowledge | | | | | | X ² | Table Value | Inference |
|--------|---|--------------------|----------------|---------------------|---------------|-------------|-------------|----------------|-------------|-----------|
| | | Adequate | | Moderately adequate | | Inadequate | | | | |
| | | F | % | F | % | F | % | | | |
| 5. | Religion Hindu Muslim Christian | 20 1 1 | 40 2 2 | 20 5 2 | 40 10 4 | 1 - - | 2 - - | 2.87 | 3.841 | NS |
| 6. | Total family Income per month Below Rs. 2000 Rs 2001 – Rs. 5000 Rs . 5001 And above | 5 12 5 | 10 24 10 | 8 17 2 | 16 34 4 | - 1 - | - 2 - | 2.47 | 3.841 | NS |
| 7. | Area of Residence Urban Rural | 1 21 | 2 42 | 3 24 | 6 48 | - 1 | - 2 | 0.65 | 3.841 | NS |
| 8. | Food pattern Vegetarian Non – Vegetarian | 7 15 | 14 30 | 4 23 | 8 46 | - 1 | - 2 | 2.19 | 3.841 | NS |

df =1 NS- Not Significant, S- Significant p<0.05 level

Table (10) Chi - square values were calculated to find out the association between knowledge of mothers with age , education , occupation, type of family , religion , income , association with residence and type of food .

Only educational status of the mother ($X^2 = 7.08$) was associated with the knowledge of the mother . Other demographic variables had no association with knowledge regarding diet during lactation

SECTION F: Association of post test attitude scores regarding diet during lactation among primi para mothers with their selected demographic variables.

TABLE 11 : Association of post test attitude scores regarding diet during lactation among primipara mothers with their selected demographic variables

| S. No. | Demographic Variable | Level of attitude | | | | | | X ² | Table Value | Inference |
|--------|--|-------------------|----|-----------------------|----|--------------|---|----------------|-------------|-----------|
| | | Favourable | | Moderately Favourable | | Unfavourable | | | | |
| | | F | % | F | % | F | % | | | |
| 1. | Age < 25 yrs 26- 30 Yrs 31- 35 Yrs > 36 Yrs | 11 | 22 | 20 | 40 | - | - | 1.87 | 3.841 | NS |
| | | 6 | 12 | 4 | 8 | - | - | | | |
| | | 4 | 8 | 2 | 4 | - | - | | | |
| | | 2 | 4 | 1 | 2 | - | - | | | |

| | | | | | | | | | | |
|----|---|----|----|----|----|---|----|------|-------|----|
| 2. | Educational status of the mother | | | | | | | | | |
| | No formal Education | - | - | 3 | 6 | - | - | | | |
| | Primary Education | 5 | 10 | 10 | 20 | - | - | | | |
| | Middle School | 8 | 16 | 7 | 14 | - | - | 1.68 | 3.841 | NS |
| | Higher Secondary Education | 8 | 16 | 6 | 12 | - | - | | | |
| | Graduate and above | 2 | 4 | 1 | 2 | - | - | | | |
| 3. | Occupation | | | | | | | | | |
| | Private | 7 | 14 | 2 | 4 | - | - | | | |
| | Government | 6 | 12 | 4 | 8 | - | - | 6.5 | 3.841 | S |
| | Self Employee | 2 | 4 | 3 | 6 | - | - | | | |
| | Coolie | 2 | 4 | 1 | 2 | - | -- | | | |
| | House Wife | 6 | 12 | 17 | 34 | - | - | | | |
| 4 | Type of Family | | | | | | | | | |
| | Joint Family | 14 | 28 | 18 | 36 | - | - | 0.17 | 3.841 | NS |
| | Nuclear Family | 9 | 18 | 9 | 18 | - | - | | | |
| 5. | Religion | | | | | | | | | |
| | Hindu | 18 | 36 | 23 | 46 | - | - | | | |
| | Muslim | 4 | 8 | 2 | 4 | - | - | 0.38 | 3.841 | NS |
| | Christian | 1 | 2 | 2 | 4 | - | - | | | |
| 6. | Total family Income per month | | | | | | | | | |
| | Below Rs. 2000 | 7 | 14 | 6 | 12 | - | - | 0.98 | 3.841 | NS |
| | Rs 2001 – Rs. 5000 | 14 | 28 | 16 | 32 | - | - | | | |
| | Rs . 5001 And above | 2 | 4 | 5 | 10 | - | - | | | |

| | | | | | | | | | | |
|----|--------------------------|----|----|----|----|---|---|------|-------|-----------|
| 7. | Area of Residence | | | | | | | | | |
| | Urban | 1 | 2 | 3 | 6 | - | - | | | |
| | Rural | 22 | 44 | 24 | 48 | - | - | 0.75 | 3.841 | NS |
| 8. | Food pattern | | | | | | | | | |
| | Vegetarian | 1 | 2 | 10 | 20 | - | - | 7.5 | 3.841 | S |
| | Non - Vegetarian | 22 | 44 | 17 | 34 | - | - | | | |

df = 1 NS- Not Significant, S- Significant p<0.05 level

Table (11) Chi - square values were calculated to find out the association between attitude of mothers with age , education , occupation, type of family, religion , income , residence and type of food.

Demographic variables , occupation of the mother ($X^2 = 6.5$) was associated with the attitude of the mother, and food pattern of the mother ($X^2 = 7.5$) was associated with the attitude of the mother. Other demographic variables had no association with attitude regarding diet during lactation

CHAPTER - V

DISCUSSION

The discussion chapter deals with sample characteristics and objectives of the study. The aim of this present study was to effectiveness of structured teaching programme regarding diet during lactation in terms of Knowledge, Attitude and Practice among primipara mothers in kasturba memorial hospital at Dindigul.

Description of the Sample Characteristics:

With regard to age, 62 % of mothers were below 25 years, 20 % of mothers were between 26- 30 years, 12 % of mothers were between 31- 35 year , 6 % of mothers were below 36 years. Regarding educational status of the mother, 6% of mothers were no formal education, 30% of mothers were primary education, 30 % of mothers were middle school ,28 % of mothers were higher secondary education and 6% of mothers were graduate and above. In relation to occupation , 18 % of mothers were Private employee ,20 % of mothers were government employee , 10 % of mothers were self employee , 6 % of mothers were coolie , and 46 % of

mothers were house wife's. About type of family, 64 % of mothers were from joint family, and only 36 % of mothers belongs to nuclear family.

With regard to religion, 82 % of mothers were Hindus, 12 % of mothers were Christian and 6 % of mothers were Muslims. In relation to income 26 % of mothers were below Rs. 2000 , 60 % of mothers were between Rs . 2001-5000, and 14 %of mothers % were Rs . 5000 and above . With regard to area of residence 8 % of mothers were urban area, and 92 % of mothers were from rural area. Regarding food pattern 22% of mothers were Vegetarian , 78 % of mothers were Non -vegetarian .

This findings are consistent with the study done by Rajalakshmi .,(2008) reported that in relation to income 65% of mothers were between Rs.2001-5000 . In relation to religion 80 % of mothers were Hindus .

The findings of the study were discussed according to the objectives as follows :

1. Assess the pretest knowledge , attitude and practice scores regarding diet during lactation among primipara mothers .
2. Assess the posttest knowledge , attitude and practice scores regarding diet during lactation among primipara mothers .
3. To compare the pretest and post test knowledge , attitude and practice scores regarding diet during lactation among primipara mothers .
4. Correlate the post test knowledge and practice scores regarding diet during lactation among primipara mothers .
5. Correlate the post test knowledge and attitude scores regarding diet during lactation among primipara mothers .
6. Find the association between post test knowledge scores regarding diet during lactation among the primi para mothers with their selected demographic variables.
7. Find the association between post test attitude scores regarding diet during lactation among the primi para mothers with their selected demographic variables.

FIRST OBJECTIVE : Assess the pretest knowledge , attitude and practice scores regarding diet during lactation among primipara mothers.

Pretest knowledge regarding diet during lactation among 50 mothers were assessed , 38% had inadequate knowledge. Regarding practice of the 50 mothers , 28% had inadequate practice in pretest. Regarding attitude of the 50 mothers , 30 % had unfavourable attitude in pretest . It revealed that there was a need for structured teaching programme for mothers regarding diet during lactation.

This findings are consistent with the descriptive study conducted by Jassie , S., (2000), who reported that 52 % of mothers had inadequate knowledge and 50.6 % of mothers had unfavourable attitude towards diet during lactation .

SECOND OBJECTIVE : Assess the posttest knowledge , attitude and practice scores regarding diet during lactation among primipara mothers.

Post test knowledge regarding diet during lactation among 50 mothers were assessed , 44 % had adequate knowledge in posttest. Regarding practice of the 50 mothers , 44 % had adequate practice in post test. Regarding attitude of the 50 mothers , 46 % had adequate attitude in post test . It revealed that the knowledge , Attitude and practice had increased after structured teaching programme.

This study is consistent with the study findings of Shweta joshi (2008) on effectiveness of planned teaching programme on knowledge related to lactation among mothers .Post test knowledge score was 80.94 % In this study it was seen that highly educated mothers had good knowledge .

THIRD OBJECTIVE : Compare the pretest and post test knowledge , attitude and practice scores regarding diet during lactation among primipara mothers .

The assessment of knowledge , Attitude and practice scores of mothers after structured teaching programme had been increased as evidenced by the post test analysis. Table (5) revealed that the level of knowledge of mothers in post test had a mean score of 10.3 (SD±3.24) which was increased compared to the mean score of 7.34 (SD±1.7) in the pretest at $P<0.05$ level of significance.

Hence , H_1 - the mean post test knowledge score was significantly higher than mean pretest knowledge score, hence the hypothesis was accepted.

Table (6) revealed that the level of attitude of mothers in post test had a mean score of 32.62 (SD±4.09) which was increased compared to the mean score of 21.58 (SD±4.6) in the pretest at $P<0.05$ level of significance.

H₂ - the mean post test attitude scores was significantly higher than mean pretest attitude score, hence the hypothesis was accepted.

Table (7) revealed that the level of practice of mothers in post test had a mean score of 9.5 (SD±1.97) which was increased compared to the mean score of 6.8 (SD±1.63) in the pretest at P<0.05 level of significance.

H₃ - the mean post test practice scores was significantly higher than mean pretest practice score, hence the hypothesis was accepted.

This study is consistent with the study findings of Shweta joshi (2008) on effectiveness of planned teaching programme on knowledge related to lactation among mothers .Posttest knowledge score was (80.94%) was higher than and pre test knowledge score (57.4 %) .

FOURTH OBJECTIVE : Correlate the post test knowledge and attitude scores regarding diet during lactation among primipara mothers .

Table (8) shows that there was a positive correlation ($r=0.92$) between mean post test knowledge and attitude scores of mothers regarding diet during lactation . Further it could be inferred that knowledge and attitude depends on each other.

H₄ - there was a significant correlation between post test knowledge score and attitude score, hence the hypothesis was accepted.

This study is consistent with the study conducted by Vijayalakshmi,N.,(2007) on effectiveness of planned teaching programme for mothers about feeding practices . There was positive correlation between post test knowledge and attitude scores (0.46) .

FIFTH OBJECTIVE : Correlate the post test knowledge and practice scores regarding diet during lactation among primipara mothers.

Table (9) shows that there was a positive correlation ($r=0.92$) between mean post test knowledge and practice scores of mothers regarding diet during lactation . Further it could be inferred that knowledge and practice depends on each other.

H₅ - there was a significant correlation between post test knowledge score and practice score, hence the hypothesis was accepted.

SIXTH OBJECTIVE : Find the association of post test knowledge scores regarding diet during lactation among the primi para mothers with their selected demographic variables.

Chi - square values were calculated to find out the association (Table.10) between knowledge of mothers with age ,education, occupation, type of family , religion , income , residence and type of food.

There was an association between educational status of the mothers ($X^2 = 7.08$) with the knowledge of the mothers. Other demographic variables had no association with knowledge regarding diet during lactation among primi para mothers .

This finding is consistent with the descriptive study conducted by Jassie, S., (2000) , who reported that educational status of the mothers was associated with knowledge of the mothers .

SEVENTH OBJECTIVE : Find the association of posttest attitude scores of the mothers with their selected demographic variables.

Chi - square values were calculated to find out the association (Table 11) between attitude of mothers with age , education , occupation, type of family , religion , income , residence and type of food .

There was an association between attitude and occupation ($X^2 = 6.5$) and food pattern of the mother ($X^2 = 7.5$) was associated with the attitude of the mother . Other demographic variables had no association with attitude regarding diet during lactation .

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATION, RECOMMENDATION AND LIMITATION

This chapter deals with summary, conclusion, implications for nursing , recommendation and limitation

The study was done to assess the effectiveness of structured teaching programme regarding diet during lactation in terms of knowledge, attitude and practice among primi para mothers. The research design used for the study was pre experimental design .The research approach used for the study was evaluative approach which was conducted in Kasturba Memorial Hospital at Dindigul. The conceptual frame work based on the Health Belief Model (1974). A sample of 50 primipara mothers were selected who met the inclusion criteria using purposive sampling technique.

MAJOR FINDINGS OF THE STUDY :

- Most of the mothers 62 % were below 25 years.
- Only 6 % were graduate .
- Most of the mothers 54 % mothers were employed .
- Most of the mothers 64 % were from joint family .
- Highest percentage 82 % of mothers were Hindus .
- Highest percentage 60 % of mothers were between Rs . 2001-5000.
- Highest percentage 92 % of mothers were from rural area .
- Most of the mothers 78 % were belongs Non -vegetarian .
- During pretest among 50 primipar mothers 62% of the mothers had Moderately adequate knowledge, 38% of the mothers had inadequate knowledge where as in post test 54% of the primipar mothers had adequate knowledge and 44% of the primipara mothers had moderately adequate knowledge and 2 % of the mothers had inadequate knowledge regarding diet during lactation.
- During , 70% of the mothers had moderately favourable attitude , 30% of the mothers had unfavourable attitude and where as in post test mothers 46% of mothers had favourable attitude and 54% of the mothers had moderately favourable attitude regarding diet during regarding lactation .

- During pretest among 50 primipara mothers , 72% of the mothers had moderately adequate practice, 28 % of the mothers had inadequate practice where as in post test 44% of the mothers had adequate practice and 56% of the mothers had moderately adequate practice regarding diet during lactation .
- Highly significant difference was found between pretest and post test knowledge , attitude and practice scores .
- There was a significant correlation between post test knowledge scores with attitude and practice scores .
- Significant association found between posttest knowledge score of mothers with their education .
- Significant association found between post test attitude score of mothers with their occupation and food pattern.
- The study revealed that the knowledge , attitude and practice score regarding diet during lactation was highly significant after administration of structured teaching programme . Findings showed that the structured teaching programme was effective in improving knowledge ,attitude and practice among primipara mothers regarding diet during lactation . Thus structured teaching programme played an important role in improving knowledge ,

attitude and practice regarding diet during lactation among primi para mothers .

CONCLUSION :

Based on the findings of the study the following conclusions were drawn.

The existing knowledge of mothers regarding diet during lactation were inadequate and moderately adequate. The existing attitude of mothers regarding diet during lactation were unfavourable and moderately favourable attitude. The existing practice of mothers regarding diet during lactation were inadequate and moderately adequate. The structured teaching programme had significantly increased the knowledge ('t' value 7.21) , attitude ('t ' value 16.2) and practice ('t' value 10.3) among mothers regarding diet during lactation .

IMPLICATIONS FOR NURSING :

NURSING SERVICE:

1. The structured teaching programme used to improve the knowledge regarding diet during lactation for primipara mothers
2. Health promotion is a vital function of the nurse and Nurse can use this structured teaching programme among all the mothers in community
3. The structured teaching programme can be used to improve the knowledge regarding diet and utilization to the expectant mothers.

NURSING EDUCATION :

1. Students can utilize the structured teaching programme to give health education to postnatal mothers .
2. Hand out can be used for all the beneficiaries in a community set up.
3. The structured teaching programme can be utilized by the nurses to educate the mothers in sub centers, primary health centers.

NURSING ADMINISTRATION :

1. Nursing administration can utilize the structured teaching programme while conducting in service education programme for directing and motivating the staff towards implementation of nutritional programme.
2. Forecoming students can use this present structured teaching programme as a model for preparing various teaching material such as posters, charts, pamphlets etc.,

NURSING RESEARCH :

1. This study can be effectively utilized by the emerging researchers for their reference purpose
2. This study can be base line for further studies is build upon

RECOMMENDATIONS:

1. Reinforcement and further education can improve the health of the lactating mothers.
2. Comparative study can be conducted in rural and urban areas .
3. This similar study can be replicated on large sample there by findings can be generalized in large population .

4. A similar study can be conducted with non literate groups of mothers using different modes of communication .
5. A similar study can be conducted by administering a booklet on Diet During Lactation which can serve as a reference for the mothers.

LIMITATIONS:

1. It was time consuming for the investigator as it took one hour to collect data from each sample .
2. Some mothers were finding difficulty to sit continuously .

BIBLIOGRAPHY

BOOKS :

1. Anitha, F.P and Abraham Philip ., (2003) . “ **Clinical and Nutrition** “ , (4th ed .) . Oxford University Press , 453.
2. Basvanthappa ,B.T ., (2007). “ **Text Book Of Midwifery And Reproductive Health Nursing** “ , (1st ed.). New Delhi: Jaypee Brothers ,120-124.
3. Cynda Ann Johnson,M.D et. al., (1998). “ **Women’s health care** “ , (Ist ed.) .India : Jaypee brothers , 323-329.
4. Deitra Leonard Lowdermilk et.al., (2000).“**Maternity and Women’s health Care** “,(8th ed.). America : Mosby,779-81.
5. Dutta, D.C.,(2004).“ **Text Book Of Obstetrics**“, (6th ed.). Calcutta: New Central Book Agency,149-50.
6. Garrow, J.S et.al., (1994) . “ **Human Nutrition and Dietetics** “ , (9th ed .). Newyork ; Churchill Livingstone, 376-85 .
7. Ghai,O.P.,(2004).“**Essential paediatrics** “ , (6th ed.).Delhi: Meenakshi Art printers , 116.
8. Ghosh Shanti ., (2004). “ **Nutrition & Child : A Practical Guide** “ , (2nd ed .) .New Delhi :Jaypee Brothers, 102-5 .

9. Gurumani N. (2005), "**An introduction to Biostatics**", (2nd ed.).
New Delhi: MJP publishers (P) Ltd, 211 - 213, 347 - 369. 9.
10. Indrani, T.K ., (2003) ."**Nursing Manual of Nutrition and Therapeutic Diet** ",(1st ed.) .New Delhi : Jaypee Brothers, 104-110.
11. Jacob Annamma., (2005). "**A Comprehensive Text Book of Midwifery**" , (Ist ed.). New Delhi: Jaypee brothers, 485-89.
12. Jarrell Stephen, B. , (1994). **Basic statistics**, 1st edition, USA :W.M. C. Brown Publishers, 108 - 141,
13. Joshi ,Y.K ., (2003) ."**Basics of Clinical Nutrition** " , (1st ed .) .New Delhi: Jaypee Brothers 9-51.
14. Margaret ,A et.al., (2003). "**Myle's Text book of Midwives** " , (14th ed.). New York ; Churchill Livingstone751-52.
15. Park, K., (2007). "**Text Book Of Preventive And Social Medicine**", (19th ed.) .Jabalpur ; H/S Banaridas Bhat Publishers, 444, 451,725, ,518-20.
16. Pillitteri Adele ., (1992). "**Maternal and Child Health Nursing**", (1st ed.). Philadelphia; J.B. Lippincott ,607-610.
17. Polit, F., (2008). "**Nursing Research**", (8th ed.). New Delhi; Wolters Kilewer India P. Ltd, 507-583 .

18. Prabhakara G.N. (2006). **Biostatistics**, 1st edition, Jaypee Brothers Medical publishers (P) Ltd., New Delhi, Page No: 39 – 53.
19. Reader, J et. al., (1997). “**Maternity Nursing Family Newborn and womans Health Care**” (18th ed.). New York : Lippicott, 641-42.
20. Ruth, A et.al., (2000). “**Nutrition and Diet Therapy**” (8th ed.). New York ; Lippin cott , 112-121 .
21. Sam Molly and Geetha, N .,(2000) , “ **A Text book of nutrition for nurses** “ , (1st ed.). New Delhi ; Jaypee Brothers, 94-99.
22. Sundar Rao P.S.S., (1999), “ **An introduction to Bio statistics**” , (3rd ed.). New Delhi; Prentice hall of India P. Ltd ,145.
23. Swaminathan, M .,(2000) . “ **Food & Nutrition**” , (2nd ed .). Vol.I ., Bangalore ; The Bangalore Printing and publishing Co.Ltd , 576-84.
24. Theresyamma, C.P., (2002). “**A guide to Midwifery student** “ (1st ed.). New Delhi; Jaypee Brothers, 134-146.
25. Trula Myers Gorrie., (1998). “**Fundamentals of Maternal Nursing**”,(2nd ed.). London: W.B .Saunders Company,426-28.

JOURNALS

1. Ali, N.S et.al., (2004 Jul- Sep) . “ Women’s beliefs and practices regarding food restrictions during lactation and pregnancy “ , **Journal of Ayurb college** , 16 (3) ,29-31 .
2. [Barennes, H](#) et.al., (2009Mar). “ Postpartum traditions and nutrition practices among urban Lao women and their infants in Vientiane, Lao PDR “ . **European Journal of Clinical Nutrition** , 63(3) , 323-31.
3. Department of Family Welfare., (2005 Jul). “ Essential care management of normal labour “ , **Nightingale Nursing Times**, 1(6) ,21-23.
4. [Dijkhuizen, M.A](#) et.al.,(2001 Apr). “Concurrent micronutrient deficiencies in lactating mothers and their infants in Indonesia “ . **The American Journal of Clinical Nutrition** , 73(4) ,786-91.
5. Kathleen,J et.al., (2007) . “ Basal and postprandial metabolic rates in lactating and non lactating women” , **American Journal of Clinical Nutrition** 26 (2) , 156- 162 .
6. Garibay [Vásquez , E](#) et.al., (2003 Jun). “ Food taboos among nursing mothers of Mexico”, **Journal of Health , population and Nutrition** , 21(2) ,142-9.

7. [George, G.C](#) et.al., (2005 Jun) . “ Food choices of low-income women during pregnancy and postpartum “, **Journal of the American Dietetic Association** , 105(6), 899-907.
8. Giammarioli S .et.al., (2002 Oct) .” Nutrient intake of Italian Women during lactation “ , **International journal of Vitam Nutrition Research**, 72 (5), 329-35.
9. Kapil, U et.al., (2002 Oct) . “ knowledge amongst adolescent girls about nutritive value of foods and diet during diseases ,pregnancy and lactation “ , **Indian Pediatrics** , 28 (10), 1135 - 9 .
10. [Kaushik, D](#) et.al., (2004 Oct). “ Nutritional composition of traditional supplementary foods consumed by lactating women “ , **Indian Journal of Nutrition and Dietetics** , 25(10) ,320-4 .
11. [Kulakac, O](#) et.al., (2007 May) .“ The opinions of employed mothers about their own nutrition during lactation “ , **International Journal of Nursing Studies**, 44(4) , 589-600.
12. Kunz, C ., (2000 Jun) . “ Nutritional and Biochemical properties of Human Milk Clinical Perinatology “ , 26 (2),307 -33 .
13. [Leelahakul, V](#) et.al., (2009 Jun) . “Comparison of the protein composition of breast milk and the nutrient intake between Thai and Japanese mothers “ , **Nursing and health Science** , 11(2) , 180-4 .

14. Marilee et.al., (2004 Jun) .” General nutrition related knowledge and beliefs of postpartum women “ , **Nutrition & Dietetics : The Journal of the Dietician Association of Australia** , (61) , 82-87 .
15. Mujeeb ,S.S et.al., (2007 Feb) . “Assessment the nutritional beliefs practices in lactating mothers in urban and rural area “ , **Journal of Pakistan Medical Association** , 47 (2) , 60 -2 .
16. Mannion, C.A .et.al., (2007 Apr) . “ Lactating Women restricting milk are low on select nutrients “ , **Journal of American College Nutrition** , 26 (2) , 149 - 55 .
17. [Nakamori, M](#) et.al., (2009 Aug) . “Nutritional status of lactating mothers and their breast milk concentration of iron, zinc and copper in rural Vietnam “ , **Journal of Nutritional Science and vitaminology** , 55(4) , 338-45.
18. [Nuss, H](#) et.al., (2006 Nov) . “Influence of nutrition attitudes and motivators for eating on postpartum weight status in low-income new mothers “ ,**Journal of the American Dietetic Association** , 106(11) ,1774-82.
19. Olafsdottir, A.S et.al., (2001) , “Impact on maternal nutrition diet on human milk composition“ , **Annual Nutrition Metab** , 45 (6) ,265-72 .

20. [Paul, A.A](#) et.al., (2003) . “The quantitative effects of maternal dietary energy intake on pregnancy and lactation in rural Gambian women “ , **Transactions of the Royal Society of Tropical Medicine and Hygiene** , 73(6) , 686-92.
21. Picciano ,M.F., (2007 Feb) . “ Human Milk : nutritional aspects of a dynamic food “ , **Journal of Pediatrics** , 48(1), 53-67 .
22. [Rakicioğlu, N](#) et.al., (2006 Jun). “ The effect of Ramadan on maternal nutrition and composition of breast milk “ , **Paediatrics International : Official journal of Japan pediatric Society** , 48(3) ,278-83.
23. [Saccomandi ,D](#) et.al., (2003 Aug) . “Dietary supplements for the lactating mother “ , **Acta Paediatric Supplement** . 88(430), 7-13.
24. [Sánchez, C.L](#) et.al., (2008 Dec).” Calcium intake nutritional status in breastfeeding women “ , **Archivos Latinoamericanos de Nutricion** , 58(4) ,371-6.
25. Scopesi mF et.al., (2001 Oct) . “ Maternal dietary poly unsaturated fatty acids(PUFAs) intake and human milk content relationships during the first month of lactation “ , **Clinical Nutrition** , 20 (5) , 393 -7 .

26. [Seth, A](#) et.al., (2009 Mar). "Vitamin D nutritional status of exclusively breast fed infants and their mothers" , **JPEM** , 22(3) , 241-6.
27. Shwete Joshi.,(2008Jan). "A study to determine the effectiveness of planned health teaching on Knowledge related to lactation among the mothers whose babies are admitted in NICU", *Nightingale Nursing Times* , 61 .
28. [Sims ,L.S](#) .,(2000 Aug) . "Dietary status of lactating women" , **Journal of the American Dietetic Association** , 73(2) ,147-54 .
29. Specker ,B.L., (2004 May) . " Nutritional concerns of lactating women consuming vegetarian diets " , **American Journal of Clinical Nutrition** , 59 (5 suppl), 1182S - 1186S .
30. [Strucińska, M.](#), (2002). " Vegetarian diets of breastfeeding women in the light of dietary recommendations " , **Roczniki Panstwowego Zakkadu Higieny** , 53(1)) ,65-79.
31. Tawfeek ,H.I et.al., (2002 Sep) , " Effect of maternal dietary vitamin C intake on the level of vitamin C in breastmilk among nursing mothers in Baghdad, Iraq" , **Food Nutrition Bull** , 23 (3) , 244 -7.
32. Theobald, H.E .,(2007) . " Eating for Pregnancy and Breast feeding " , **Journal of Family Health Care** , 17 (2) ,45-9 .

33. Udipi ,S.A et.al., (2000 Sep) . “ Nutrition Pregnancy and Lactation”
 , **Journal of Indian Medical Association** , 98 (9),548 -57 .
34. Wagnon , J et.al., (2005 Oct) . “ Breast feeding and Vagan diet “ ,
 Journal of Gynaecologic and Obstetrics Biological Reproduction
 ,34 (6), 610 – 2.
35. Wilson, P.R et.al., (2005 Jan- Feb) . “ Promoting Nutrition in Breast
 feeding Women “, **Journal of Obstetrics Gynaecologic Neonatal
 Nursing** , 34 (1),120-4 .
36. Yoneyama, k et.al., (2004 Dec) .”**Nara University of Education**”, 51
 (12) , 1008 -17.

UNPUBLISHED THESIS

1. Jassie,S.,(2000). “A descriptive study to assess Knowledge and
 attitude of lactating mothers regarding diet during lactation
 among lactating mothers in selected maternity centers of
 Madurai“. The T.N. Dr. M. G.R. Medical University, Chennai.

NET REFERENCE

1. www.medline.com
2. www.babyourbaby.org
3. www.healthline.com
4. www.beliefnet.com
5. www.chw.org
6. <http://www.ncbi.nlm.nih.gov>