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A Study to Assess the Nutritional Health Status of Lactating Mothers Residing In Rural Areas of Tirupati.

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Abstract:
Back ground: *During the lactation period, mothers are at an increased risk of nutritional deficiencies due to improper dietary patterns, physiological changes, and various socio-demographic factors. The present study aimed to examine the nutritional status, dietary intake, and related factors among lactating women in rural areas of tirupati.*
Methods: *The present study adapted to quasi experimental design. The population included 60 lactating mothers. Purposive sample technique were used. The nutritional status and food intake of the participants were assessed using the 24-hour dietary recall (24HDR) and dietary FFQ questionnaires.*
Results*: Nutrient intake of the respondents compared with Recommended dietary allowance(RDA),intakeofenergy(2234±445kcal),protein(63.67gm±20.7gm),fat(35±14.6gm),carbohydrate(419.53±106.8gm),vitamin(63.40±19.5mg),iron(27.69±8.76mg),calcium(1066.01±506.8mg).Majority of lactating women were taking (58%)of calcium supplementation and(25%)of multivitamins respectively. Regarding general health problems (57%)with headache,(53%)with weakness. haemoglobin levels (50%) of lactating mothers having below 12mg/dl. food consumption pattern (100%) cereals and millets and pulses regularly .fruits were consumed weekly.*
Conclusion*: The nutritional status of lactating mothers according to their BMI and dietary intake was below normal. Frequency food intake showed that intake of millets, fruits, pulses, and green leafy vegetables were considered as low. Haemoglobin levels of mothers were low when compared with standard value*.
Keywords: *Nutritional status, Dietary intake pattern, Lactating mothers*

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I. Introduction:

lactation is the process of making human milk is secreted through the mammary glands. Lactation is a biological, hormonal response that occurs during and after pregnancy to feed a newborn baby. Your body triggers specific hormones to initiate milk production and ejection (releasing of milk) The hormone prolactin controls the amount of milk you produce, and begins producing prolactin early in pregnancy. At first, the high levels of estrogen, progesterone and other pregnancy hormones suppress prolactin. Once you deliver the placenta, that pregnancy hormones drop and prolactin takes charge.

When your baby suckles, it stimulates nerves that tell your body to release prolactin and oxytocin. Prolactin causes the alveoli to make milk and oxytocin causes muscle contractions that push out of the alveoli and through the milk ducts.

When milk is released, it's called a "let-down," and it takes about 30 seconds of suckling before the let-down occurs. Because you can't control which breast receives the hormones, the let-down can cause milk to drip from both nipples. Suckling from the nipple can initiate lactation, either with a breast pump or by a baby.

Nutritional status in pregnancy and lactation is one of the most important determinants of women's health. Nutritional status is an indication of overall wellbeing of the population.

Need for the study

Breastfeeding is considered the ideal method to provide new born and infants with energy and nutrients for optimal growth, development, and good health. A study among lactating women has shown that a healthy diet has both short- and long-term beneficial health effects for both mothers and children. Especially during the lactation period, mothers are at an increased risk of nutritional deficiencies due to improper dietary patterns, physiological changes, and various socio-demographic factors. A recent study demonstrated that the vitamins B_1, B_2, B_6, B_12, A, and D; iodine, and essential fatty acids are important nutrients for an optimal level of breast

milk production. Long term insufficient caloric intake can also affect the quality and quantity of breast milk; resulting in malnutrition of the infants[1]

The nutritional status of women and children is a good indicator of the overall well-being of a society and reflects the household food security status, general health, and social conditions. Therefore, it is vital to continuously monitor dietary intake and the nutritional status of lactating mothers, particularly in resource-poor settings. Few studies have addressed the dietary intake of lactating women in Iran.Two studies have reported that the calorie intake of lactating mothers in the northern provinces of Iran (Mazandaran and East Azerbaijan) was lower than the Dietary Reference Intake (DRI).Another study also conducted in Khorramabad reported an adequate intake of energy and macronutrients by lactating mothers; however, a lack of certain micronutrients (calcium, iodine, magnesium, phosphorus, and zinc; the vitamins A, D, B_2, B_9, and C) was observed. The majority of the reported studies have solely focused on prenatal nutrition, but the nutritional status of lactating women has been overlooked. Studies in other countries have also reported improper nutritional patterns and nutrient deficiencies among lactating women. Further research on this topic was considered necessary because of the importance of a sufficient dietary intake during lactation, limited studies in the literature, discrepancy in the findings of various Iranian studies, and the low sample size of many studies. As a direct result, the present study aimed to examine the nutritional status, dietary intake, and related factors among lactating women in the urban and rural areas of Khorramabad, Iran. We believe that the outcome of the present study would significantly contribute to the design of national dietary guidelines for lactating women.[2]

OBJECTIVES OF THE STUDY

- Toassess the nutritional status of the lactating mothers.
- To assess the dietary intake pattern among lactating mothers.
- To compare the nutrition and health status with dietary intake pattern among postnatal lactating mothers.

II. Review Of Litareture

Mary Frances Picciano., (2014) Reports stated that Nutritional needs are increased during pregnancy and lactation for support of foetal and infant growth and development along with alterations in maternal tissues and metabolism. Total nutrient needs are not necessarily the sum of those accumulated in maternal tissues, products of pregnancy and lactation and those attributable to the maintenance of non-reproducing women. Maternal metabolism is adjusted through the elaboration of hormones that serve as mediators, redirecting nutrients to highly specialized maternal tissues specific to reproduction (i.e., placenta and mammary gland). It is most unlikely that the heightened nutrient needs for successful reproduction can always be met from the maternal diet. Requirements for energy-yielding macronutrients increase modestly compared with several micronutrients that are unevenly distributed among foods[3]

Ye Ding, Wiwik Indayati.,(2020) A study wasconducted on the nutritional status of lactating mothers (LMs) is related to their own health and significantly impacts the secretion of breast-milk, and subsequently the growth and development of infants. Due to the influence of regional economy, traditional habits, and lack of nutrition knowledge, the problem of poor dietary nutrition among Chinese LMs is prominent. We aimed to evaluate and compare the dietary and nutrient intakes in LMs from urban and rural areas in China to provide baseline data for the implementation of relevant health guidance and strategies methods were amulti-stage sampling method was used to recruit urban and rural LMs from 13 provinces and municipalities in China. An online dietary record using food photographs was employed to keep track of what the LMs had eaten in 2 days in the form of face-to-face interview. A total of 954 participants were included in the final analysis. Data expressed as quartiles P50 (P25; P75) were compared using the Mann-Whitney U-test (level of significance: $p < 0.05$).

The results are interpreted consumption of staple food was higher in the rural (283.37 g/d) than in the urban areas (263.21 g/d). The consumption of vegetables, fruits, fish, shrimp, and shellfish, milk and dairy products was lower than the recommended amounts in both areas, and the insufficient intake of these food types was more serious in rural areas. While the energy intake of 83.8% of all LMs was lower than the estimated energy reference, it was comparable in the urban and rural areas. The intake of macronutrients (carbohydrates, protein, and fats) in rural areas was lower than in urban areas. The intake of some vitamins (VA, VB_1, VB_2, VB_9 and VC) and minerals (calcium, magnesium, iodine and copper) was not ideal for LMs in both rural and urban areas. To be concluded Overall, the dietary intake in LMs was lower than the recommended levels. Many essential nutrients failed to meet the recommended doses, both in the urban and rural areas. The deficiencies in micronutrients were more prevalent in rural compared to urban areas. Educating LMs about women's health and appropriate dietary intake is, therefore, essential[4].

Cheryl A. Lovelady et al.,(2006) The purpose of this report was to identify and evaluate dietary changes in women who were participating in a study on the effects of weight loss in overweight lactating women on the growth of their infants. Women were randomly assigned at 4 weeks postpartum to either restrict energy intake by 500 kcal/day (diet and exercise group) or to maintain usual dietary intake (control group) for 10 weeks. The

diet and exercise group significantly decreased fats, sweetened drinks, sweets and desserts, snack foods, and energy intake. Micronutrient intake decreased in the diet and exercise group; however, mean intakes were not significantly different from those of the control group except for calcium and vitamin D. Both groups consumed less than 76% of the Recommended Dietary Allowance for vitamins E and C at the end of the study. Mean intake of all other nutrients was adequate in both groups. These results suggest that overweight lactating women can restrict their energy intake by 500 kcal per day by decreasing consumption of foods high in fat and simple sugars. However, they must be advised to increase their intakes of foods high in calcium and vitamin D. Increased intake of fruits and vegetables should also be recommended to all lactating women, as well as multivitamin and calcium supplements to those who do not consume adequate amounts of these foods[5].

III. Methodology

RESEARCH APPROCH

- An non experimental approach was used to find out the nutritional and health status of the lactating mothers.

RESEARCH DESIGN

- Descriptive research design was adopted to this study.

SETTING:

- The study was conducted in rural areas of tirupati.

TARGET POPULATION

- It comprises postnatal lactating mothers.

ACCESSIBLE POULATION

- It comprises of lactating mothers age groups between(18-29)yrs.

SAMPLE

- The study sample comprised of lactating mothers who fulfilled the inclusion criteria.

SAMPLE SIZE

- 60 samples were used.

SAMPLING TECHNIQUE

- The investigator selected samples by non-probability purposive Sampling technique.

SAMPLE SELECTION

Inclusion criteria:

- Postnatal lactating mothers between the age group 18-29.
- Postnatal lactating mothers who are able to speak Telugu and English.

Exclusion criteria:

- Postnatal lactating mothers who are not willing to participate.
- Postnatal lactating mothers age above 29 yrs.

DESCRIPTION OF THE TOOL

Section A Description of the demographic variables

- Age,Type of family, Occupation Education, Monthly income.

Section B : Anthropometric measurements

- Height(cm),Weight(kg),BMI(kg/m^2)

Section C: Dietary information

- Food habits
- Meal pattern
- Food frequency consumption
- Nutrient adequacy

Section D: Health information

- General health problems
- HB levels

IV. results

Dietary information

TABLE 1 percentage distribution of the respondent's habits to their food.

SNO	Food habits	Frequency (N)	Percentage%
1	Vegetarian	6	10
2	Non-vegetarian	54	90
	total	60	100

Fig 1Lactating mothers food habits

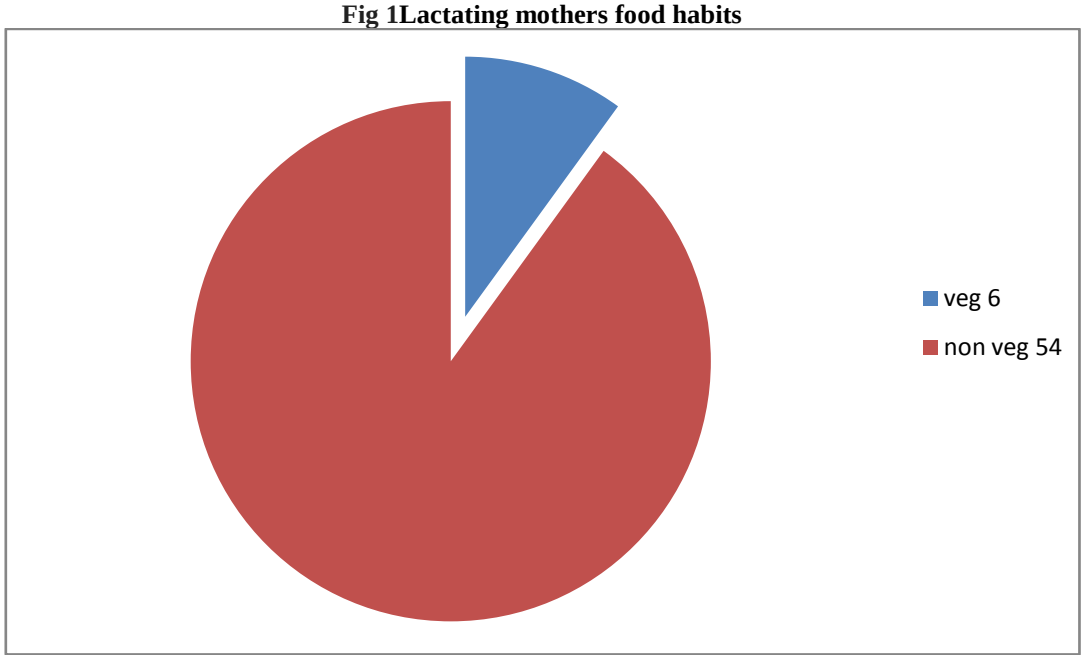

TABLE 2: frequency of food consumption pattern among lactating mothers.

sno	Food groups	Frequency food consumption						
		daily	%	weekly	%	occasionally	%	
1	cereals	60	100	-	-	-	-	
2	pulses	20	33	35	58	5	8	
3	G.L.veg	15	25	38	63	7	12	
4	Roots&tubers	2	3	28	47	30	50	
5	vegetables	60	100	-	-	-	-	
6	fruits	7	12	24	40	29	48	
7	Meats&poultry	-	-	50	83	10	16	
8	Milk&milk products	60	100	-	-	-	-	
9	Oils&fats	60	-	-	-	-	-	
10	Sugars &jaggery	60	100	-	-	-	-	

Table 2 shows that (100%)of cereals, pulses were consumed weekly (58%)and (33%), green leafy vegetables weekly by(63%)and(25%),fruits are taking occasionally by (48%)and some of the mothers consumed weekly(40%),meat products were consumed weekly (83%)and some of them(16%) occasionally.

Dietary assessment

Table 3 shows that Energy (2234.27±445kcal) ,Protein (63.67±20.7gm), Fat(35±14.6gm), Carbohydrates (419±106.8gm), vitamin C (63.40±19.5mg), iron(27.69±8.76mg), calcium (1066.01±506.8mg) intake were lower than the recommendations.

Table 3 Nutrient intake of the lactating mothers compared with Recommended Dietary Allowances

Nutrient	Mean intake	RDA
Energy	2234.27±445kcal	2425kcl
Protein	63.67±20.7gm	65gm
Fat	35±14.6gm	45gm
Carbohydrate	419.53±106.8gm	440gm
Vitamin C	63.40±19.5mg	80mg
Iron	27.69±8.76	38mg
Calcium	1066.01±506mg	1000mg

Fig 2 Nutrient intake of the lactating mothers.

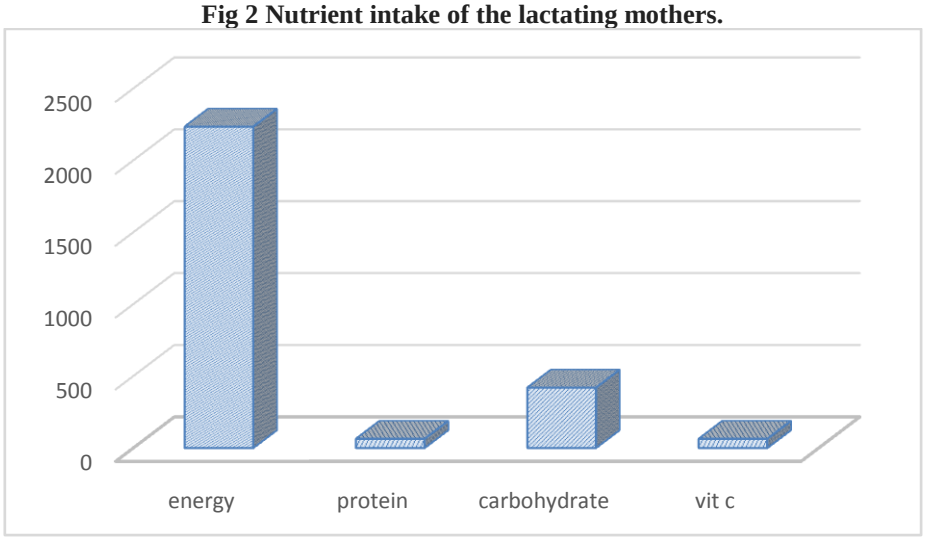

Table 4 percentage distribution haemoglobin levels among postnatal lactating mothers.

S.NO	HB levels mg/dl	Lactating mothers	Percentage%
1	Below 12	30	50
2	12-14	25	42
3	14 and above	5	8
	Total	60	100

The above table shows that 50% of lactating mother Hb levels below 12mg/dl,42%were 12-14mg/dl,8% are in above 14mg/dl respectively.

V. Conclusion :

The nutritional and health status, dietary pattern, among lactating mothers according to BMI and dietary intake was below normal. The frequency of food intake shoed that intake of millets ,fruits, pulses, and green leafy vegetables were considerably low which need to be increased. Haemoglobin levels of the lactating mothers were also low when compared to standard value.

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