

# A Study on Nutritional Status & Potential Factors Affecting their Food Consumption Pattern of Lactating Mothers, Attending Immunization Clinic of a Tertiary Care Centre - A Cross-Sectional Study

Dr. Ajisha A S<sup>1</sup>, Dr. Shilpa Lanjewar<sup>2</sup>, Dr. Uday Narlawar<sup>3</sup>

<sup>1</sup>Junior Resident, Department of Community Medicine, Govt. Medical College and Hospital, Nagpur, 440003, India

<sup>2</sup>Associate Professor, Department of Community Medicine, Govt. Medical College and Hospital, Nagpur, 440003, India

<sup>3</sup>HOD & Professor, Department of Community Medicine, Govt. Medical College and Hospital, Nagpur, 440003, India

**Abstract:** ***Background:** The period of lactation is a relatively brief and very special time with her new-born baby as a good memory in a women's life. It is observed from various nutritional surveys that the nutritional status of lactating mothers and infants is not satisfactory, due food restrictions. With this background, the study was conducted to assess the nutritional status of lactating mothers. **Objectives:** The study aims to assess the nutritional status and the potential factors affecting food consumption pattern of lactating mothers. **Methodology:** A cross sectional study was applied to 313 lactating mothers attending immunization clinic of a tertiary care centre, India. Data on nutritional status & potential factors including socio-demographic profile, family factors, and health services factor, social environmental, and social cultural factors affecting food consumption pattern of lactating mothers using a structured questionnaire were collected and analysed. **Results:** 26.2% of the subjects had low BMI (<18.5), whereas 9.6% were overweight and obese. Under nutrition (low BMI) was found to be more common among women less than 24 years of age, Hindu religion, residing in rural areas, with primary or lower education, home makers, those belonging to lower socio-economic status (class IV & class V), primiparas, vegetarian mothers and all was found to be statistically significant. Women with secondary or higher education, working women, age >24 years, monthly family income of more than 10000, Women who follow the MCH guide book, who had good perception on health education & counselling consumed more variety of foods and was found to be stastically significant.*

**Keywords:** Lactating mothers, BMI, potential factors, food consumption pattern

## 1. Introduction

Good nutritional status of women is important for their good health and working capacity, as well as for the health of their offspring. During pregnancy and lactation, women are more vulnerable to under nutrition than others at reproductive age, due to increased energy and nutrient requirements (Desalegn, Lambert, Riedel, Negese, & Biesalski, 2018)<sup>1</sup>. A lactating mother will need to take some extra care to assure that she produces and provides to her infant high-quality breast milk. Lactating mothers, who eat a nutritious diet, ensure good health for they are essential for optimal growth pattern for their babies. Restricting food items during pregnancy and while breastfeeding can affect the health and nutrition of both the mother and her child, particularly as both are already nutritionally vulnerable. Together with maternal nutrition and health during pregnancy, these first 1000 days of the child's life, from inception to 23 months of age, are viewed as an important "window of opportunity" to improve nutrition outcomes (MoH & UNICEF, 2012)<sup>2</sup>. The study in Vientiane capital (Barennes et al., 2009)<sup>3</sup> reported that contrasting with a high antenatal care attendance (91%) and delivery under health professional supervision (72%), a high prevalence of traditional practices was found after delivery 93% of lactating women reported a restricted diet or food taboos. Therefore, assessing the nutritional status and multiple factors that drive the lactating mothers to make decisions about choosing foods to consume might be the key

to enhance their nutritional status by improving intake of healthy and nutritious foods.

### Objectives

- To assess the nutritional status of lactating mothers attending the Immunization clinic of a tertiary care center.
- To determine the potential factors associated with food consumption pattern of lactating mothers.

## 2. Materials & Methods

**Study Subjects:** The lactating mothers having children 0-24 months of age attending immunization clinic.

**Study Design:** Hospital based cross sectional observational study.

**Study Setting:** a tertiary care centre, India.

**Study Duration:** 3 months.

**Inclusion Criteria:** all lactating mothers of age group 18-45, who gave consent to participate in the study.

**Exclusion Criteria:** mothers of age <18 & >45, who were not breast feeding, not willing to participate and whose children were more than 24 months of age.

**Sample Size & Sampling Technique:** with reference to study article by Dr Sarmila mallik et al (4), with the prevalence of 28.4% of low BMI, with the precision of 5%,  $z=1.96$  with the formula  $z^2pq/d^2$ ; the sample size was calculated as 313. Convenience sampling was used as sampling technique.

**Data Collection & Analysis:** During the interview, to obtain informed consent, objectives of the study were explained to the respondents before the interview was commenced. A structured questionnaire was administered containing the following sections of sociodemographic details, dietary profile, nutritional status, family factors, and health services factor, social environmental, and social cultural factors affecting the maternal health. Family factor were to ask for the barriers of food consumption, like their income or social economic status. Health services factor was to focus on the nutrition education services for lactating woman provided after the delivery. Socio culture and environment factors were to focus on food available for lactating mothers, degree of difficulty with the taboo condition (food restriction) believed by mothers to be helpful for breast feeding. Data analysis was done using suitable statistical methods.

#### Ethical Consideration-

- Approval from Institutional Ethics Committee was sought.
- Necessary approvals were taken from the respective authorities.
- Informed consent was obtained in their vernacular language after explaining purpose of the study.

### 3. Results

Table 1 shows the general characteristics of study participants-A total of 313 lactating mothers with an age group of 18-45 years were interviewed, with a response rate of 100%. Majority of mothers (57.5%) were in the age group of 20-24 years. Majority of them were Hindus (67%) & residing in urban area (71.8%). Majority have primary or lower education (70.96%), more than half are homemakers (62.3%), Most of them belonged to socio-economic class IV (36.1%) & V (30.35%), Majority of the study subjects were primipara (62.6%).

Table 2 shows the dietary profile where most of the study subjects (68.7%) were non vegetarians. All mothers consumed pulses & grains, dairy products by (96.5%), green leafy vegetables were taken by majority of the study subjects (95.8%)fruits were taken by (92.65%)of mothers. Nutritional status of lactating mothers, where (26.2%) of the subjects had low BMI (<18.5), whereas 9.6% were overweight and obese. Majority (55.9%) had food consumption pattern of eating more than 4 food groups & (44.1%) had a pattern of eating less than 4 food groups.

Table 3 shows the potential factor-family factors (98%) were having a monthly family income <10000 & only one third of women (32.3%) made decision to buy food and majority (67.7%) by husband or by other family member. Majority of the family has bought food from market nearby (91%), more than half of them (79.9%) reported that Frequency of food

purchase for household consumption was Less than three time a week.

Table 4 presented health service factors contributing to food consumption pattern among lactating women. Most of lactating mother (68.7%) has been educated for the food consumption from the medical staffs in hospital. More than half of lactating mother (67.7%) had followed the hospital's guide book during lactation (MCH guide book), and (69.6%) of lactating mother had good perception on health care provider health education and counseling. Majority of lactating mothers (92.3%) buy food at community market. The main is reason to buy food from this place, because availability of various products (17.6%), safety (17.9%), and fresh (64.5%). When asking about perception on advertisement, respondents mostly had good perception (84.6%). Majority of lactating mothers (91%) believes traditional family food consumption habit. However, 87.8% of respondents reported they practice traditional family food consumption habit, out of which 38.1% Faced difficulty following food restriction during lactation period.

Table 5 shows association of BMI with sociodemographic profile. Under nutrition (low BMI) was found to be more common among women less than 24 years of age, Hindu religion, residing in rural areas, with primary or lower education, home makers, those belonging to lower socio-economic status (class IV & class V), primiparas, vegetarian mothers and all was found to be statically significant.

Table 6 shows association of potential factors with the food consumption pattern i.e. eating more or less variety of food. Women with secondary or higher education, working women, age >24 years, monthly family income of more than 10000, Women who follow the MCH guide book, & who had good perception on health education & counselling consumed more variety of foods and was found to be statistically significant.

### 4. Discussion

In the present study, 26.2% of the mothers were under nourished. Under nutrition or low BMI was found to be more common in young mother, in those coming from lower socio-economic status family, in Hindu women. Low BMI was observed in 36.6% of Ladakhi women, 10% of women in Kashmir and 19.3% mothers in Jammu, 28.4% in Kolkata in similar studies.

#### Potential factors associated with food consumption pattern

Almost all respondents confirmed that they forbid the intake of certain food items during pregnancy due to belief on traditional family food consumption habit and almost all respondents practice of traditional family food consumption habit. The key factors were the respondent's good nutritional practice of receiving health education or counselling from health care providers. Family factor is important and influenced the access to food; the study reported that only one third of mother could decide to buy food for household consumption as other family members also have more decision making to buy food. The food access was

depending on location and convenient status. Similar findings from other developing countries among lactating mother (Alam, van Raaij, Haut vast, Yunus, & Fuchs, 2003)<sup>5</sup>, (Ogechi, 2014)<sup>6</sup> was also found. This study found almost all lactating women received health education and counselling from health care providers. Having MCH guidebook for each woman is positive effect as it provides particular information on nutrition food during breastfeeding.

## 5. Limitations

There was a limitation of geographic area, as mother who took child to hospital for vaccination was only included and the lactating mother in community might not be recruited into this study.

The recall bias might be occurred because the age of children was older than 12 months.

## 6. Conclusions

Young mothers, particularly those from lower socio-economic status suffered from under nutrition. The majority of the lactating mother has been educated for the food consumption from the staff, doctor in hospital. Health education or counselling from health care providers related to micronutrient and lactating mothers had good perception on health care provider health education and counselling. Potential Factors including socio-demographic, individual, family and environmental factors had significant role to food consumption pattern.

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**Conflicts of Interest:** no conflicts of interest was noted

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**Table 1: Sociodemographic Profile**

Table 1: Sociodemographic profile	Number (313)	Percentage
<b>Age in years</b>		
<20	15	4.8%
20-24	180	57.5%
25-29	100	31.9%
>30	18	5.8%
<b>Religion</b>		
Hindu	210	67%
Christian	10	3.25%
Muslim	10	3.25%
Others	83	26.5%
<b>Residence</b>		
Urban	225	71.8%
Rural	88	28.2%

<b>Educational Status</b>		
Primary school and lower	220	70.96%
Secondary school and higher	93	29.04%
<b>Occupation</b>		
Home maker	195	62.3%
Working	118	37.7%
<b>Socioeconomically status</b>		
I	25	8%
II	30	9.58%
III	50	15.97%
IV	113	36.1%
V	95	30.35%
<b>parity</b>		
primipara	196	62.6%
2nd	86	27.5%
3rd or more	31	9.9%

Table 2: nutritional status & dietary profile	Number (313)	Percentage
<b>BMI</b>		
<18.5 (Underweight)	82	26.2%
<b>18.5-24.99 (normal)</b>	<b>201</b>	<b>64.2%</b>
>24.99 (overweight & obese)	30	9.6%
<b>Type of diet</b>		
Vegetarian	98	31.3%
<b>Non Vegetarian</b>	<b>215</b>	<b>68.7%</b>
<b>Food Consumption Pattern</b>		
<b>Pulses &amp; Grains</b>	<b>313</b>	<b>100%</b>
Green Leafy Vegetables	300	95.8%
Fruits	290	92.65%
Dairy Products	302	96.5%
<b>Food Pattern</b>		
Less Than 4 food groups	138	44.1%
<b>Eat More than 4 food groups</b>	<b>175</b>	<b>55.9%</b>

Table 3: family factors	Number (313)	Percentage
<b>Monthly Family Income</b>		
>10000	25	8%
<10000	288	92%
<b>Decision Making to buy Food</b>		
Husband/family member	212	67.7%
Women	101	32.3%
<b>Food Purchase for Household Consumption</b>		
nearby market	285	91%
standardized market	28	9%
<b>Frequency of food purchase for household consumption</b>		
Less than three times a week	250	79.9%
More than three times a week	63	20.1%

Table 4: other potential factors	Number	Percentage
<b>Health Service Factors</b>		
Received Health Education or Counseling from Health Care Providers	215 (313)	68.7%
Practices Based on the Hospital guide Book during Lactation	212 (313)	67.7%
Good Perception on Health Care Provider Health Education and Counseling	218 (313)	69.6%
<b>Social Environmental Factors</b>		
<b>Place for vegetables purchase</b>		
<b>Community Market</b>	<b>289 (313)</b>	<b>92.3%</b>
Other Places	24 (313)	7.7%
<b>Reason of purchasing on this place</b>		
<b>Fresh</b>	<b>202 (289)</b>	<b>64.5%</b>
Having various of products	55 (289)	17.6%
safety	56 (289)	17.9%
<b>Perception on food advertisement</b>	265 (313)	84.6%
<b>Social Cultural Factors</b>		
<b>Food Restrictions</b>		
Believes traditional family food consumption habit	285 (313)	91%
Practices traditional family food consumption habit	275 (313)	87.8%

Difficulty following food restriction during lactation period	105 (275)	38.1%
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Table 5: Sociodemographic details	Underweight (82)	normal & over weight (231)	Chi square	p value
<b>Age</b>				
<24 years	42	153	5.8085	0.015949
>24 years	40	78		
<b>Religion</b>				
Hindu	72	138	21.589	<0.00001
Others	10	93		
<b>Residence</b>				
Urban	27	198	83.4385	<0.00001
Rural	55	33		
<b>Education</b>				
Primary and Lower	75	145	23.8568	<0.00001
Secondary and Above	7	86		
<b>Occupation</b>				
Home Maker	64	131	11.7326	0.000614
Working Women	18	100		
<b>Socioeconomic Status</b>				
Up to III	7	98	31.1746	<0.00001
IV, V	75	133		
<b>Parity</b>				
Primi	42	154	6.1691	0.013
More Than 2	20	77		
<b>Type of Diet</b>				
Vegetarian	68	30	137.6432	<0.00001
Non Vegetarian	14	201		

Table 6: potential factors	food consumption of <4 groups (138)	food consumption of >4 groups (175)	chi square	p value
<b>Education</b>				
Primary or Lower	135	85	89.6294	<0.00001
Secondary or Higher	3	90		
<b>Occupation</b>				
Home Maker	120	75	63.8866	<0.00001
Working Women	18	100		
<b>Age</b>				
<24 years	110	85	31.8527	<0.00001
>24 years	28	90		
<b>Monthly Family Income</b>				
>10000	5	20	6.3961	0.011437
<10000	133	155		
<b>Practices based on the hospital guide book during lactation</b>				
Yes	129	83	74.8613	<0.00001
No	9	92		
<b>Good Perception on health care provider health education and counseling</b>				
Yes	131	87	74.6127	<0.00001
No	7	88		