International Journal of Community Medicine and Public Health
Xavier AU et al. Int J Community Med Public Health. 2020 May;7(5):1875-1879
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20201998

Original Research Article

Dietary pattern and nutritional status among lactating women in North Karnataka

Antony Unni Xavier[1], Amgiasvasanth A. M.[2]*

[1]Department of Community Medicine, SUT Academy of Medical Sciences, Vattapara, Thiruvananthapuram, Kerala, India
[2]Assistant programme manager, NHM, Office of Deputy Director of Health Service, Nagercoil, Tamil Nadu, India

Received: 20 February 2020
Revised: 05 April 2020
Accepted: 06 April 2020

***Correspondence:**
Dr. Amgiasvasanth A. M.,
E-mail: amgiasvasanth@gmail.com

ABSTRACT

Background: Women from low-income settings are considered as nutritionally vulnerable. This risk is augmented during pregnancy and lactation as food nutrient requirement increases. Lactating mothers are subjected to nutritional stresses which are further exaggerated by frequent pregnancies resulting in high maternal mortality and health risk for children. Attainment of millennium development goals (MDG) by our country is largely dependent on the health of mothers and children, which in turn is influenced by diet. Objective of this study was to assess the nutritional status and associated factors of lactating women. To assess diet pattern of lactating women

Methods: Cross-sectional study carried out for a period of three month by house to house visit in the urban field practice area of SDMCMSH, Dharwad. Taking prevalence of malnutrition among lactating mothers (15-49 years) as 50, sample size was calculated to be 100 using n=4pq/d×d. Data analysed using the IBMSPSS 20.0.

Results: Majority of mothers were housewives and in the age group of 20-25 year. >80% of the participants did not take additional meals during lactation. >60% of women from low socioeconomic state were malnourished and >55% of women from high socioeconomic state but working is malnourished.

Conclusions: Dietary intakes of the lactating women are insufficient compared to national recommendations. Low socioeconomic condition and working status of mother are important predictors of malnourishment. Effective nutritional education of families and communities is recommended to improve dietary practices and result in adequate nutrition.

Keywords: Diet, Lactating mothers, Nutrition

INTRODUCTION

Women from low-income settings are considered as nutritionally vulnerable.[1] This risk is augmented during pregnancy and lactation as food nutrient requirement increases. Lactating mothers are subjected to nutritional stresses which are further exaggerated by frequent pregnancies resulting in high maternal mortality and health risk for children. As per the World Health Organization, the nutritional status of women of reproductive age is important, as effects of undernutrition are propagated to future generations. More than one-third of Indian women in the reproductive age group are in a state of chronic nutritional deficiency during the preconception period leading to poor health and likely resulting in low birth weight babies.[2] Attainment of millennium development goals (MDG) by our country is largely dependent on the health of mothers and children, which in turn is influenced by diet. Finally, a women's health affects the household economic well-being, and as a woman with poor health will be less productive in the labor force. While malnutrition is prevalent among all

segments of the population, poor nutrition among women begins infancy and continues throughout their lifetime.[3] It is reported that a lactating woman should produce about 700 to 800 ml of milk per day and this requires an extra energy need of about 500 calories per day. Women who are Severely malnourished have reduced lactation performance, thus, the quantity of milk produced depends a lot on the mother's diet.[4] The diet consumed by the mother will not only fulfill her own nutritional needs but will also enable her to produce enough milk for her infant.[5]

Table 1: As per NHFS- 4 (2015-2016) survey (Karnataka key indicators).[7]

Karnataka - key indicators	NFHS-4 (2015-16)			NFHS-3
Nutritional status of adults (age 15-49 years)	**Urban**	**Rural**	**Total**	**Total**
Women whose body mass index (BMI) is below normal (BMI <18.5 kg/m^2) 14 (%)	16.2	24.3	20.7	35.4
Men whose body mass index (BMI) is below normal (BMI <18.5 kg/m^2) (%)	14.2	18.4	16.5	33.9
Women who are overweight or obese (BMI ≥25.0 kg/m^2) 14 (%)	31.8	16.6	23.3	15.3
Men who are overweight or obese (BMI ≥25.0 kg/m^2) (%)	28.6	17.1	22.1	10.9

Energy or calorie needs during lactation are based upon the women's basal metabolic rate, age, activity, how much breast milk is being produced, and other factor. While calorie is needed for milk production, the mother does not need to eat substantially more than she did in her pre-pregnancy state to sustain milk production.[6]

Objectives

The objective of the study was to assess the nutritional status and associated factors of lactating women and to assess diet pattern of lactating women.

METHODS

Study design: Population based cross sectional study.

Study setting

Urban field practice area of SDM College of Medical Sciences and Hospital Dharwad, Karnataka, India.

Study participants

Lactating mothers (15-49 years) who gives consent for participating in the study, Urban field practice area of SDM College of Medical Sciences and Hospital Dharwad, Karnataka, India.

Data collection

House to house visit in the urban field practice area of SDMCMSH, Dharwad, using pre tested, semi structured questionnaire. Lactating women were examined for anthropometric measurement included recording of weight and height, and dietary pattern using 24 hours recall method in which respondent was asked to name approximate amounts the foods eaten during the previous day at each meal and between meals. The questionnaire covered demographic characteristics of the subjects. These are namely age, sex, occupation, education religious type of family and marital status.

Sample size

Taking prevalence of malnutrition among lactating mothers (15-49 years) as 50, sample size was calculated to be 100 using n=4pq/d×d. Total line list of lactating mothers in the urban field practice area was collected from ICDS teachers, out of total 400 lactating mother line list 100 were selected using systematic sampling method every 4th lactating mothers were selected.

Study duration

Three-month July 2014 to September2014.

Data analysis

The data was entered using Epi data, version 3.1 and analyzed using the statistical package for social sciences (SPSS), version 20.

Descriptive statistics like percentages and proportions were applied. Chi-square test was applied to find out the association between two or more attributes. The one sample t-test is used to test the statistical difference between a sample mean and a known or hypothesized value of the mean in the population. A p value of <0.05 was considered to be the criteria for statistical significance SPSS 20.0.

RESULTS

Table 2 shows the age wise distribution of study subjects, it was found that majority of study subjects were in the age group of 20-25 years 63%.

Figure 1 shows in present study majority of study subject were in the BMI of <18.5 and 18.5-22.99.

Figure 2 shows diet pattern of lactating women shows that more calories intake was seen during dinner when compare to breakfast.

Table 2: Socio-demographic profile of lactating mother.

Variable		Frequency (n=100)
Age (in years)	<20	11
	20-25	63
	25-30	24
	>30	2
	Total	100
Education	Illiterate	15
	Primary school	12
	High school	29
	Secondary	21
	Graduate	21
	Postgraduate	2
	Total	100
Husband occupation	Unemployed	3
	Agriculturist	18
	Labourer	35
	Businessman	27
	Others	17
	Total	100
Religion	Hindu	53
	Muslim	38
	Christian	6
	Others	3
	Total	100
Type of family	Nuclear	43
	Joint	33
	Three generation	24
	Total	100

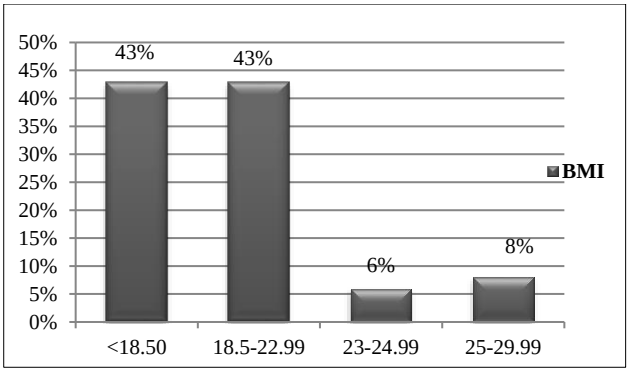

Figure 1: BMI calculation of lactating mother.

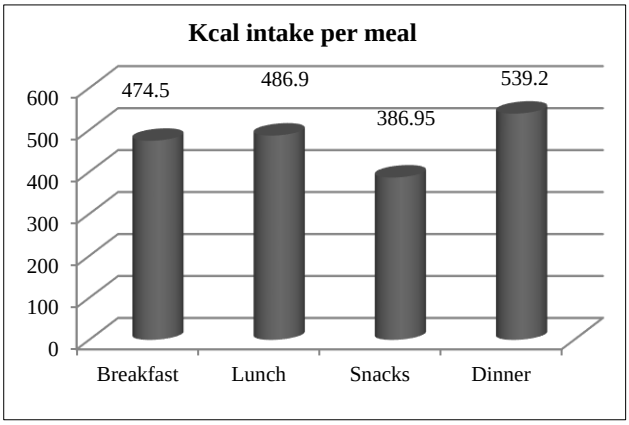

Figure 2: Average kilo-calorie intake of lactating mother.

Table 3: Association of socio-demographic variables with the nutritional status (BMI).

Variable	BMI<18.5	BMI>18.5	Pearson chi-square	
			Value	P value
Occupational status				
House wife	40	40	7.997	0.005 (Fisher's test)
Working women	3	17		
Educational status				
Illiterate	10	20	1.634	0.201
literate	33	37		
Family size				
2-5 members	21	23	0.716	0.397
>5 members	22	34		

Table 4: One sample t-test to compare sample mean with RDA standard.

			N	Mean	SD	Std. error
			100	1896.09	252.95	25.29
Test value= 2500						
	t-test	df	Sig. (2-tailed) p value	Mean difference	95% CI	
					Lower	Upper
Total kcal	23.875	99	0.001	-603.91000	-654.1009	-553.7191

Table 3 shows that when compare socio-demographic variables (occupation) with the nutritional status (BMI) was found to be statistically significant with (p=0.005).

Table 4 in present study average kcal intake of lactating mother 1896.09. When compare with sample mean (1896.09 kcal) with recommended daily allowances i.e. 2500 kcal significant association with p value <0.001.

DISCUSSION

Age wise distribution of study subjects, it was found that majority of study subjects were in the age group of 20-25 years was 63%, in Kashmir study done by Khan et al shows 32.7% were in the age group of <25.[8]

BMI of study subject were in the value of <18.5 and 18.5-22.99, a study done by Malhotra et al shows, 28% were had normal BMI i.e. 18.5 kg/m^2-22.5 kg/m^2, 44% were little overweight i.e. BMI between 22.5 kg/m^2-25 kg/m^2 and 16% were obese i.e. BMI >23 kg/m^2.[6] In present study (BMI <18.5 kg/m^2) among the lactating mothers was 43%. Similar study conducted in Andhra Pradesh shows 60% and similar study conducted in Kashmir shows 45.5% and Similar study conducted in Ethiopia shows 25%.[1,9,10]

Average calorie intake of lactating mother was 1896.09 kcal, study done by Malhotra et al shows average calorie intake of lactating women was 1986.8 kcal which was below the RDA i.e. 2425 kcal because they were not consuming proper food.6. Energy intakes of the lactating women in the study area (mean=1896.09 kcal/day) were less than the recommended nutrient (2500 kcal) Kashmir study shows 41.3% deficient caloric intakes 10 and Ethiopia study shows less than the recommended nutrient intakes.[1] Diet pattern of lactating women shows that more calories intake was seen during dinner when compare to breakfast.

When compare socio-demographic variables (occupation) with the nutritional status (BMI) of lactating mother was found to be statistically significant with (p=0.005). A study done by Veghari et al, shows that no correlation was observed between father's job and maternal BMI.[11] When compare with sample mean (1896.09 kcal) of lactating mother with recommended daily allowances of calorie intake i.e. 2500 kcal shows significant association with p value <0.001.

Limitations of this study were 24-hour recall method is used. Since it is a short-term retrospective method it is more prone to errors. No investigations or interventions used to find nutritional status of lactating mother. Protein micro and macro nutrients are not assessed

CONCLUSION

In present study majority of study subject were in the BMI of <18.5 and 18.5-22.99. In this study average kcal intake of lactating mother 1896.09 kcal which was below the RDA i.e. 2500 kcal, using one sample t test when compare with sample mean (1896.09 kcal) with recommended daily allowances i.e. 2500 kcal significant association with p value <0.001 and comparing socio-demographic variables (occupation) with the nutritional status (BMI) was found to be statistically significant with (p=0.005). Diet pattern of lactating women shows that more calories intake was seen during dinner when compare to breakfast. Furthermore, research are required to determine protein, micro and macro nutrients deficiency.

Recommendations

- Effective nutritional education of families and communities is recommended to improve dietary practices and nutrition.
- Furthermore, research is required to determine the factors impeding the transfer of health and nutrition education in to action research is required to determine protein, micro and macro nutrients deficiency.
- As well as to assess the dietary adequacy of the lactating mothers in the study area.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Haileslassie K, Mulugeta A, Girma M. Feeding practices, nutritional status and associated factors of lactating women in Samre Woreda, South Eastern Zone of Tigray, Ethiopia. Nutr J. 2013;12(1):1.
2. Mastiholi SC, Somannavar MS, Vernekar SS, Kumar SY, Dhaded SM, Herekar VR, et al. Food insecurity and nutritional status of preconception women in a rural population of North Karnataka, India. Reprod Health. 2018;15(1):90.
3. Rao KM, Balakrishna N, Arlappa N, Laxmaiah A, Brahmam GNV. Diet and nutritional status of women in India. J Hum Ecol. 2010;29(3):165-70.
4. Allen LH. B vitamins in breast milk: relative importance of maternal status and intake, and effects on infant status and function. Adv Nutr. 2012;3(3):362-9.
5. Ogechi UP. A study of the nutritional status and dietary intake of lactating women in Umuahia, Nigeria. Am J Heal Res. 2014;2(1):20.
6. Malhotra P. Nutritional awareness among lactating Indian Women. Adv Res Gastroenterol Hepatol. 2016;1(3):1-7.
7. International Institute for Population Sciences (IIPS) Macro International. State Fact Sheet Karnataka, National Family Health Survey 4; 2017:4.
8. Khan YM, Khan A, No BEH. Status of Lactating Women in Jammu, Kashmir. Int J Adv Res Technol. 2012;1(4):1-10.
9. Bamji MS, Muthy PVVS, Williams L, Vishnu M, Vardhana Rao MV. Maternal nutritional status and practies and perinatal, neonatal mortality in rural Andhra Pradesh, India. Indian J Med Res. 2008;127(1):44-51.
10. Khan YM, Khan A. A study on factors influencing the nutritional status of lactating women in Jammu,

Kashmir and Ladakh regions. Inter J Adv Res Technol. 2012;1(4):65-74.
11. Veghari G, Mansourian A, Abdollahi A. Breastfeeding status and some related factors in Northern Iran. Oman Med J. 2011;26(5):342-8.

Cite this article as: Xavier AU, Amgiasvasanth AM. Dietary pattern and nutritional status among lactating women in North Karnataka. Int J Community Med Public Health 2020;7:1875-9.