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Awareness about breast feeding practices and vitamin A deficiency among mothers in Srikakulam district of Andhra Pradesh, South India

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ABSTRACT

Background: To assess the awareness about breast feeding practices and to assess the knowledge, attitude and practice about the signs and symptoms of vitamin A deficiency (VAD) and vitamin A rich foods intake among mothers of children below 5 years in the Srikakulam district of Andhra Pradesh (AP) in South India.

Methods: A population based cross-sectional study was conducted on 284 mothers (age range 14 to 36 years) during June 2011 and September 2011. A combined simple and systematic random sampling strategy was used to select mothers from one tribal, rural and semi urban area with a representative sample of the Srikakulam district. A standardized structured questionnaire that was developed and validated by the National institute of nutrition, Hyderabad was utilized for this study.

Results: The awareness of vitamin A and night blindness was 68.7% (95% confidence intervals (CI): 62.9–74.0) (n=195) and 93.7% (95% CI: 90.2–96.2) (n=266) respectively. The knowledge of signs and symptoms of vitamin A deficiency (VAD) was nil among illiterate mothers and low among literates; with primary education, adjusted odds ratio (OR): 0.01 (95% CI: 0.00, 0.06) and with secondary education, OR: 0.19 (95% CI: 0.06, 0.62) compared to mothers with graduation and above.

Conclusions: There is a need to increase the awareness and knowledge about VAD among mothers with children below 5 years in the southern state of AP.

Keywords: Vitamin A deficiency, Knowledge, Awareness, Practice, Breast feeding, Andhra Pradesh

INTRODUCTION

Malnutrition is a public health problem which poses a threat to life in the developing world. One in every four children under five years of age is underweight including 146 million children in the developing world. Globally, poor nutrition contributes to about 5-6 million children deaths per year and more than half of the total deaths take place in India.

Blindness in children due to malnutrition is a major public health problem in developing world. Vitamin A deficiency (VAD) is one of the causes of blindness in children. The causes of VAD are due to inappropriate feeding, poor access to health services and poor sanitation.² Lack of vitamin A and other nutrients has consequences for systemic and ocular health as well as visual function. Poverty is one of the significant risk factor for poor intake of vitamin A rich foods among poor children in India. Vitamin A reduces precursors to blindness in children.² According to national family health survey conducted in India, only 18% of eligible children received vitamin A supplementation under government universal vitamin A supplementation program.³ The low intake of vitamin A was due to lack of awareness among mothers due to

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illiteracy and improper nutritional education in communities. According to the knowledge, attitude and practice (KAP) survey conducted by the National nutritional monitoring bureau, only 41% of the mothers of pre-school children aged 1 to 5 years were aware of night blindness and 24% of mothers were aware of listed food containing vitamin A.4 Vitamin A content is very high in colostrum (the milk secreted in the first 4 to 6 days postpartum), and remains high in transitional milk (days 7-21 postpartum). A study conducted in Uttar Pradesh revealed that about 47.2% of the mothers were not aware of the benefit of the exclusive breast feeding.⁵ This study concluded that creating an awareness of the advantages of exclusive breastfeeding would strengthen and support practice of breastfeeding and avoid an early introduction to complementary foods for socio cultural reasons.⁵

This study was conducted in an economically backward coastal district of Srikakulam in AP with the aim to assess the KAP on VAD and vitamin A rich food intake. In addition, the study was also focused to understand the awareness on breast feeding practices among mothers having children less than 5 years old in this district.

METHODS

A population based cross-sectional study was conducted in Srikakulam district of Andhra Pradesh (AP) during July to September 2011. As part of this study, four mandalas were selected namely Seethampeta a tribal Mandal, Rajam, Ponduru and Srikakulam for this study. From these four Mandalas a total of 15 villages have been randomly selected from which a total of 308 mothers were sampled such that they were representative to the population of Srikakulam district. These mothers were selected by using systematic random sampling procedure. The study protocol was approved by the Institutional Review Board of L. V. Prasad Eye Institute, Hyderabad, India and was conducted in accordance with the tenets of the Helsinki Declaration.

Study design and participants

In semi urban area of Srikakulam district 308 mothers of 0 to 5 years aged children with the help of anganwadi worker (AWW) were selected. From these a total of 60 mothers were selected by using systematic random sampling procedure. The remaining 248 mothers from rest of the selected areas were also drawn randomly by using the similar procedure. Of these 308 mothers contacted as part of the study, a total of 284 mothers were responded to the study questionnaire with a response rate of 92.2%. A trained field investigator administered the semi structured questionnaire in the field with the help of the local AWW.

Sample size and sampling procedure

Sample size was selected on the baseline estimate on the present nutritional awareness levels surveyed by National nutrition monitoring bureau and calculated with WHO

sample size calculator.¹ According to NNMB micronutrient survey it was reported that 24% of mothers were aware the importance of nutrition intake in the prevention of vitamin A deficiency. Considering this base line estimate, the required sample size for this study was according to World Health Organization (WHO) sample size calculator estimated to be 308 mothers with 5% level of significant with a precision of 10% and dropout rate of 10%.

Pilot study

A modified standard NIN questionnaire was used in the pilot study. As part of the pilot study, the questionnaire was pretested on 22 mothers based on the experience of which the questionnaire was modified and standardized before administering in the main survey.

Data collection procedures using semi structured questionnaire

The team members visited the households of the selected mothers. The principal investigator (PI) was introduced by the local ASHA/anganwadi worker to the mothers. The PI informed the mothers the purpose of his visit and requested for an interview. Thus their consent was taken before the interview. Questions were asked in a systematic way and they were further probed if response given were not clear. It was ensured that all questions were asked and answers recorded on a standard format (i.e. on questionnaire where place allotted to note answers). The interviews were done at respondent's household and the data were collected on household information and KAP questionnaire was administered.

Data analysis

The descriptive statistics were described in the first instance. Standard univariable analysis of either chi-square test or fisher's exact test were used as appropriate followed by multivariable logistic regression method to study the knowledge and awareness levels of mothers on signs and symptoms, vitamin A rich foods, vitamin A supplementation through prophylaxis program. All statistical analyses were carried out using software statistical package for the social sciences (SPSS) 17.0 (SPSS, Chicago, IL, USA) for Windows. A two tailed p value <0.05 was considered to be statistically significant.

RESULTS

A total of 284 mothers from 15 villages in Srikakulam district were investigated. The particulars were coverage according to domicile is presented in Table 1. The mean age of mothers interviewed in the survey was 24.21±3.38 years and age ranged from 17 to 36 years. The majority of them were Hindus (94.4%) and other religions were (5.6%). About 63% of the mothers surveyed, belonged to backward communities/classes who were economically, socially and educationally left behind. About 8.5% belongs

to higher castes, about 17.6% belonged to scheduled castes. The proportion of no formal education mothers were maximum in the rural area 22.3% (n=37), followed by tribal 17.7% (n=11) to low of about 7.1% (n=4) in semi urban.

The majority of mothers in the survey were house wives 64.8% (n=184). About 28.6% mothers were either agricultural labour 18.0% (n=51) or other labour 10.6% (n=30). The mean income of the mothers surveyed was Rs.4500 per month. The majority of the mothers family income was about 51.8% (n=147) falling between Rs.2001 to 4500 per month. About 16.1% (n=10) of mothers belonged to tribal areas and were in below the poverty line. About 56.3% (n=160) of the mothers were residing in joint families.

Approximately, 95.4% (n=271) mothers were consuming mix food (Mixed food means consuming both vegetarian and Non-vegetarian food items). The majority of the mothers were residing in concrete houses with slabs- about 65.1% (n=185), while about 13% (n=37) were residing in either hut or katchha house.

It was found that 93.7 % (95% CI: 90.2%-96.2%, n=266) of the mothers were aware of night blindness. About 82.4% (n=233, 95% CI: 77.1%-86.3%) mothers knew the meaning of night blindness as being unable to see at dim light or at night. The inadequacy of vitamin A rich foods intake was the reason for night blindness as reported by 5.6 % (n=16) and 22.5% (n=64) reported as deficiency of vitamin A rich food. Awareness of the mothers on vitamin A was about 68.7% (n=195, 95% CI: 62.9%-74.0%). Out of 284 mothers interviewed, 22.5% (n=64) mothers knew that the causes of night blindness and 34.5% (n=98) of mothers knew that intake of vitamin A rich foods could prevent VAD. A total of 37.0% (n=105) respondents knew about the prevention of vitamin A deficiency. About 43% (n=122) of the mothers knew about the importance of vitamin A supplementation to their children. The majority of mothers 98.9% (n=281) knew about the importance of the colostrums as a source of vitamin A.

About 86.3% (n=245) of the mothers knew about initiating complimentary feeding to their children after 6 months of age. Out of 284, 30.65% (n=87) of the mothers knew important sources of vitamin A rich food through Anganwadi Worker and 26.4% (n=75) of the mothers known by their friends and relatives. A total of 284, (100%) of the mothers knew that breast milk is best sources of vitamin A.

Table 3 revealed the univariable and multivariable associations between various demographic and awareness on vitamin A deficiency and symptoms. Increased education status is associated with increased awareness levels. The striking finding of this study showed that the awareness of vitamin A deficiency was significantly higher among those mothers residing in tribal and rural areas when compared to the mothers residing in urban areas (Table 3).

Table 4 showed the results of univariable and multivariable logistic regression associations of various demographic factors on knowledge on symptoms and signs of vitamin A deficiency. The knowledge on symptoms of vitamin A deficiency was significantly less among no formal education and below graduates' educated mothers (Table 4). The knowledge was also significantly less among those mothers whose occupation was labour and those who were home makers when compared to the mothers who were involved with business and were employed with the government.

Table 5 showed the univariable and multivariable logistic regression associations of various demographic factors with knowledge on vitamin A rich foods. As was observed in case of knowledge on symptoms and signs of vitamin A deficiency, a similar trend was noticed in the associations of knowledge on vitamin A rich foods (Table 5).

Table 1: Demographic profile of mothers.

Variable and category	Respondents; N=284	Percentage (%)
Age (in years)		
14-18	5	1.8
19-23	122	43.0
24-28	126	44.4
29-33	29	10.2
34+	2	0.7
Area of residence		
Tribal	62	21.8
Rural	166	58.5
Semi urban	56	19.7
Religion		
Hindu	268	94.4
Others	16	5.6
Caste		
Schedule tribe (ST)	31	10.9

Continued.

Variable and category	Respondents; N=284	Percentage (%)
Schedule caste (SC)	50	17.6
Back ward classes (BC)	179	63.0
Other caste (OC)	24	8.5
Female literacy		
Illiterate	52	18.3
Primary education	114	40.1
Intermediate	70	24.6
Graduation and above	48	17.0
Family income Rs. per month		
<2000	10	3.5
2001-4500	147	51.8
4501-7500	69	24.3
7501 and above	58	20.4
Occupation		
House wife	184	64.8
Agriculture labour	51	18.0
Skilled labour	30	13
Private employee	6	2.1
Govt. employee	8	2.8
Others	5	1.8
Family size		
Nuclear	124	43.7
Joint	160	56.3
Children		
Female <5 years	196	48.6
Male <5 years	208	51.4
Total	404	
Food		
Vegetarian	13	4.6
Mixed	271	95.4
Houses		
Hut	18	6.3
Mud+asbestos	4	1.4
Brick+hut	15	5.3
Brick+asbestos	62	21.8
Slab	185	65.1
Water sources		
Well	-	-
Bore well	173	60.9
Tap	111	39.1
Stream water	-	-
Others	-	-
Toilets		
Yes	137	48.2
No	147	51.8

Table 2: Knowledge about vitamin A and vitamin A deficiency.

Particulars	Place of re	Place of residency				
Farticulars	Tribal	Rural	Urban	Total		
N	N=62	N=166	N=56	N=284		
Causes of night blindness	N (%)	N (%)	N (%)	•		
Hereditary	1 (20.0)	4 (80.0)	0	5 (100)		
Dietary inadequacy	3 (18.8)	7 (43.8)	6 (37.5)	16 (100)		

Continued.

Particulars	Place of resid	ency			
raruculars	Tribal	Rural	Urban	Total	
Deficiency of vitamin A foods	13 (20.3)	33 (51.6)	18 (28.1)	64 (100)	
Others	4 (80.0)	1 (20.0)	0	5 (100)	
Do not know	33 (22.9)	87 (60.4)	24 (16.7)	144 (100)	
Signs and symptoms of VAD					
Bitots spots	0	1	0	1	
White scar on the cornea	0	0	0	0	
Total blindness	0	0	0	0	
Night blindness	7 (17.1)	23 (56.1)	11 (26.8)	41 (100)	
Donot know	30 (23.8)	72 (57.1)	24 (19.0)	126 (100)	
Mode of prevention for VAD		•			
Consult doctor	1 (50.0)	1 (50.0)	0	2 (100)	
Intake of vitamin A rich food	20 (20.4)	53 (54.1)	25 (25.5)	98* (100)	
Use of home remedies	1 (100.0)	0	0	1 (100)	
Supplementation of vitamin A	1 (14.3)	4 (57.1)	2 (28.6)	7 (100)	
Others	0	2 (100.0)	0	2 (100)	
Do not know	31 (25.4)	71 (58.2)	20 (16.4)	122 (100)	

Out of 284, a total of 98(34%) mothers told vitamin A is rich food to prevent VAD

Table 3: Univariate and multivariate logistic regression analysis of factors associated with awareness on vitamin A deficiency.

Factors	Total sample	Knowledge on vitamin A, N (%)	Un adjusted OR (95 % CI)	P value	Adjusted OR 95% CI	P value
Age (in years)						
14-18	5	4 (80.0)	1.00		1.00	
19-23	122	77 (63.1)	0.43 (0.05-3.95)	0.454	0.38 (0.02-6.33)	0.497
24-28	126	86 (68.3)	0.54 (0.06-4.97)	0.584	0.43 (0.02-7.17)	0.554
≥29	31	28 (90.3)	2.33 (0.19-28.25)	0.505	4.39 (0.16-123.61)	0.385
Family						
Nuclear	124	85 (68.5)	1.00 (0.50-1.64)	0.971	0.87 (0.41-1.83)	0.711
Joint	160	110 (68.8)	1.00		1.00	
Place of residence			•			
Tribal	62	46 (74.2)	1.25 (0.56-2.80)	0.583	6.36 (1.37-29.49)	0.018
Rural	166	110 (66.3)	0.86 (0.45-1.65)	0.642	6.01 (1.61-22.42)	0.008
Urban	56	39 (69.3)	1.00		1.00	
Occupation						
Home makers	184	145 (78.8)	0.44 (0.09-1.98)	0.282	1.05 (0.15-7.33)	0.962
Labour	81	33 (40.7)	0.08 (0.02-0.37)	0.001	0.47 (0.06-3.42)	0.452
Others	19	17 (89.5)	1.00		1.00	
Income			•			
≤2000	10	9 (90.0)	0.32 (0.03-3.92)	0.374	8.63 (0.33-226.76)	0.196
2001-4500	147	84 (57.1)	0.05 (0.01-0.20)	< 0.0001	0.26 (0.03-1.94)	0.187
4500-7000	69	46 (66.7)	0.07 (0.02-0.32)	0.001	0.28 (0.4-1.82)	0.187
≥7500	58	56 (96.6)	1.00		1.00	
Education						
Illiterate	52	9 (17.3)	1.00		1.00	
Primary education	114	72 (63.2)	8.20 (3.23-18.47)	< 0.001	1.54 (4.93-48.13)	< 0.0001
Intermediate	70	66 (94.3)	78.83 (22.8-272.10)	< 0.0001	122.0 (26.0-572.6)	< 0.0001
Graduation and above	48	48 (100.0)				

Table 4: Univariate and multivariate logistic regression analysis of factors associated with knowledge on signs and symptoms.

Factors	Total sample	Knowledge on signs and symptoms, n (%)	Un adjusted OR (95 %CI)	P value	Adjusted OR 95% CI	P value
Age (in years)						
14-18	5	1 (20.0)	1.00		1.00	
19-23	122	7 (5.7)	0.24 (0.02-2.47)	0.233	0.38 (0.02-5.27)	0.476
24-28	126	24 (19.0)	0.94 (0.10-8.81)	0.958	0.84 (0.05-12.46)	0.899
≥29	31	11 (35.5)	2.20 (0.22-22.19)	0.504	0.87 (0.05-15.37)	0.928
Family						
Nuclear	124	20 (16.1)	1.15 (0.59-2.19)	0.683	1.57 (0.64-3.88)	0.322
Joint	160	23 (14.4)	1.00		1.00	
Place of residence	•					•
Tribal	62	7 (11.3)	0.52 (0.18-1.45)	0.213	4.07 (0.71-23.43)	0.116
Rural	166	25 (15.1)	0.72 (0.33-1.59)	0.422	2.38 (0.78-7.22)	0.126
Urban	56	11. (57.9)	1.00		1.00	
Occupation						
House wife	184	30 (16.3)	0.14 (0.05-0.38)	< 0.0001	0.19 (0.05-0.74)	0.016
Labour	81	2 (2.5)	0.02 (0.00-0.09)	< 0.0001	0.14 (0.01-1.16)	0.069
Others	19	11 (57.9)	1.00		1.00	
Income	•					•
≤2000	10	0 (0.0)				
2001-4500	147	10 (6.8)	0.11 (0.05-0.26)	< 0.0001		0.859
4500-7000	69	10 (14.5)	0.26 (0.11-0.61)	0.002	1.14 (0.26-4.85)	0.512
≥7500	58	23 (39.7)	1.00		1.15 (0.44-5.05)	
Education					1.00	
Illiterate	52	0 (0.0)				
Primary education	114	1 (0.9)	0.01 (0.00-0.05)	< 0.0001	0.01 (0.00-0.06)	< 0.0001
Intermediate	70	15 (21.4)	0.21 (0.09-0.47)	< 0.0001	0.19 (0.06-0.62)	0.006
Graduation and above	48	27 (56.3)	1.00		1.00	

Table 5. Univariate and multivariate logistic regression analysis of factors associated with knowledge on vitamin A rich foods.

Factors	Total sample	Knowledge vitamin A rich foods	Un adjusted OR (95 %CI)	P value	Adjusted OR 95% CI	P value
Age (in years)				•		
14-18	5	4 (80.0)	1.00	-	1.00	-
19-23	122	55 (45.1)	0.24 (0.02-2.47)	0.233	0.38 (0.02-5.27)	0.476
24-28	126	71 (56.3)	0.94 (0.10-8.81)	0.958	0.84 (0.05-12.46)	0.899
≥29	31	24 (77.4)	2.20 (0.21-22.19)	0.504	0.87 (0.05-15.37)	0.928
Family						
Nuclear	124	69 (55.6)	1.14 (0.59-2.79)	0.683	1.57 (0.64-3.88)	0.322
Joint	160	85 (53.1)	0.52 (0.18-1.45)		1.00	
Place of residence						
Tribal	62	36 (58.1)	0.52 (0.18-1.45)	0.213	4.07 (0.71-23.43)	0.116
Rural	166	84 (50.6)	0.72 (0.33-1.58)	0.422	2.37 (0.78-7.22)	0.126
Urban	56	34 (60.7)	1.00		1.00	
Occupation						
House wife	184	115 (62.5)	0.14 (0.05-0.38)	0.0001	0.19 (0.05-0.74)	0.016
Labour	81	23 (28.4)	0.12 (0.00-0.09)	0.0001	0.14 (0.01-1.16)	0.069
Others	19	16 (84.2)	1.00		1.00	

Continued.

Factors	Total sample	Knowledge vitamin A rich foods	Un adjusted OR (95 %CI)	P value	Adjusted OR 95% CI	P value
Income	•	•		•		
≤2000	10	5 (50.0)	-	-	-	
2001-4500	147	62 (42.2)	0.11 (0.04-0.25)	0.0001	1.14 (0.26-4.85)	0.859
4500-7000	69	37 (53.6)	0.25 (0.11-0.60)	0.002	1.50 (0.44-5.05)	0.512
≥7500	58	50 (86.2)	1.00	•	1.00	
Education						
Illiterate	52	7 (13.5)	· -	-	-	-
Primary education	114	48 (42.1)	0.01 (0.00-0.05)	0.0001	0.01 (.00-0.06)	0.001
Intermediate	70	53 (75.7)	0.21 (0.09-0.47)	0.0001	0.19 (0.06-0.62)	0.006
Graduation and above	48	46 (95.8)	1.00	-	1.00	

DISCUSSION

Awareness on signs and symptoms regarding vitamin A deficiency and knowledge on vitamin A rich foods in mothers is essential to understand the complication of vitamin A deficiency and also utilize the services of integrated child development scheme (ICDS) and universal vitamin a supplementation (UVAS) of the government of India. This study showed that the awareness of night blindness (93.7%) and vitamin A (98.7%) was significantly higher among the mothers studied in this Srikakulam district of Andhra Pradesh. However, they have poor knowledge on signs and symptoms of vitamin A deficiency (14.4%) which is much less than the accepted cut-off point by WHO. In our studied population, 34.4% of the mothers felt that intake of vitamin A rich foods can prevent the vitamin A deficiency. Studies conducted previously in 2006 by NNMB in India showed that 41% of the mothers were aware of night blindness which was significantly (p<0.01) less when compared to our study finding.1 The study also investigated the role of foods on the knowledge and prevention of vitamin A deficiency. The study reported that 18.4% of mothers felt the consumption of green leafy vegetables can prevent the vitamin A deficiency, which is much lesser than the estimate we found in our study (46.5%).

In our study, a significant proportion of the mothers (98.9%) knew about the importance of the colostrum for the baby a finding which is very important as far as the nutritional feeding of the new born is concerned. This awareness may be due to the cultural practices and elderly people at home insisting on feeding the baby immediately after the birth. Our study results showed that the colostrums feed was started within an hour of the delivery in the tribal mothers 72.6% (n=45) when compared to mothers residing in rural 47% (n=78) and urban 32% (n=18). These findings across different study area statistically significant (p=0.0006). This could be due to home delivery practices followed in tribal area, whereas in rural and urban areas institutional deliveries were quite common and most of them undergone caesarian section, therefore, colostrums is not fed till the mother was recovered from post operation condition. A study conducted in our neighborhood country Pakistan in 2005 revealed that 76% of mothers gave gutti (one kind of supplementary food) as first fed and only 24% of mothers were fed colostrums as first feed, which is significantly less in comparison to the finding that we observed in our study.⁶ It showed that our studied mothers in tribal as well as rural were good practices regarding breast feeding and weaning.

According to the WHO guidelines, the child is required on exclusive breastfeed for about 6 months. In our studied sample, only 52.8% of the mothers were exclusively breastfeeding up to 6 months and 9.9% of the mothers reported that they were exclusive breastfeeding their babies up to one year. The majority of the mothers (58%) started the supplementary food for their babies after 6 months of age. Of these, 38.7% of the mothers started commercial complementary powdered weaning food (cerelac) as the first supplementary food to their children. When compared to the mothers residing in the urban areas, mothers residing in tribal and rural areas were feeding commercially made foods to their children.

According to NNMB study reported previously, 58% of the preschool children received one dose of massive vitamin A during previous one year of the survey conducted. In our study, 77.9% of the babies received the vitamin A supplementation during previous one year, which is close to the national finding reported by NNMB. When we probed mothers further on the reasons for not offering vitamin A supplementation to their children, 44% of mothers reported that they were not aware of vitamin A supplementation. However, previously conducted NNMB study reported that 34% of the studied mothers in India were not aware of vitamin A supplementation. However, they were aware of first two doses feeding of vitamin A supplementation, but not about further doses. In our studied we observed that government community health workers MPHA providing vitamin A supplementation and nutritional supplements and nutritional and health education is provided by the Anganwadi teacher at the anangwadi center (30.6).

The awareness of vitamin A and night blindness was 68.7% and 93.7% respectively in this population. However, as per the NNMB survey reported the awareness

on night blindness among mothers was only 57% in this district which is much less than the level of awareness found in this study. The increase in awareness on night blindness among mothers over the 5 years period might be because of the various government programs on health nutrition through mass media, ICDS and health awareness campaigns by health staff and Anganwadi workers in grass root level that are in place in this district. The knowledge on signs and symptoms of vitamin A deficiency was nil among illiterate mothers and significantly less among literates; upto primary education and up to intermediate education as compared to mothers with graduation and above. The knowledge on vitamin A was significantly less among mothers whose occupation was labour and housewives. Similar observations were noticed with respect to knowledge on vitamin A rich foods. Significantly less awareness and knowledge on vitamin A rich foods in those illiterate mothers, housewives, and labours has reflected in terms of food intake of vitamin A rich foods in our study population. This indicates that higher levels of knowledge on signs and symptoms of vitamin A deficiency and vitamin A rich foods among literate mothers and mothers involved with private and government employees have been translated in terms of sufficient intake (>3 days a week) vitamin A rich foods such as GLV's, carrots and eggs. However, majority (68.3%) of the mothers are feeding their children with milk for more than three days a week. This finding is of important as far as the nutritional feeding of the babies is concerned. Majority of the mothers reported that they are feeding seasonal fruits to their babies in this studied population.

In our study regarding the vitamin A supplementation, 20.4% of mothers knew that the first dose of vitamin A was given to their children at 9th or 10 month, however, they were not aware of universal vitamin A supplementation program. Only about 21.1% (n=60) of children had received one dose of vitamin A in this population during first 10 months of the child's age. The last dose during previous one year was given in only 32% (n=92) of babies. As per NNMB survey, 30% of mothers reported that their children had one dose of vitamin A supplementation at the age of 12 months and about 36% of children received vitamin A supplementation last dose previous one year. ¹

The source of information regarding intake of vitamin A rich foods was from AWW in 30.6% mothers followed by friends and relatives in 26.4% of mothers. The multipurpose health assistant (MPHA-F) as the source of information on nutritional education was only 18.3%, which was much less than the awareness levels provided anganwadi worker, friends and relatives. This indicates that MPHA (F) who was responsible to provide vitamin A supplementation with immunization was not playing a major role in creating awareness and nutritional education regarding vitamin A supplementation or importance of vitamin A rich food intake in this population. This may be due to MPHA has multiple responsibilities like ensuring immunization, periodically check-ups of prenatal women

and supply of iron folic acid tablets, family planning cases motivation and follow-ups, school health programs and other national programs like tuberculosis, leprosy and polio immunization programs. Because of this MPHA (F) might be spending less time in creating awareness and education about vitamin A deficiency. As per NNMB survey only 13% of mothers were received nutritional education on VAD, consumption of GLVs, vitamin A supplementation and signs and symptoms of VAD and kitchen gardens.

In our study it was observed that cultural practices have strong influence on the infant and child feeding practices even though availability of vitamin rich foods are plenty like in seasons mango which are rich a rich source of beta carotenes has not been consumed by the lactating mothers (59.2%) as it is believed that consumption of mangoes causes ill health to babies. In our studied population, significant proportions are aware of worm infestation (96.1%). Traditional neem juice leaves (57.4%) are used as a juice to get rid of worms.

CONCLUSION

In conclusion, vitamin A deficiency and its awareness levels including symptoms have public health implications in the studied area. The study showed that awareness levels have moderately increased when compared to the estimates reported by NNMB survey conducted five years ago in the same district. It can be further improved with basic health nutritional education on importance of locally available vitamin A rich foods in their daily diet, and creating awareness on homemade complimentary foods that are rich in vitamin A foods is needed. There is an urgent need strengthen IEC activities and the program of universal vitamin A supplementation of massive dose vitamin A to all children up to 5 years of age by multipurpose health assistants (male and female).

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