

Knowledge and Awareness of Vitamin A Deficiency among Mothers of Malnourished Children in Gadarif Pediatrics Teaching Hospital, Gadarif State, Eastern Sudan 2020

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Abstract

Background: Vitamin A deficiency is a common form of micronutrient malnutrition affecting children worldwide. Diet contains specific micronutrients like vitamin A plays importance role in growth and development and normal functioning of the visual system. Children of mothers having poor knowledge of diet and nutrition are more exposure to VAD. The aim of the present study was to determine VAD among children in Gadarif peditrics teaching hospital, eastern Sudan and to assess mother's awareness of vitamin A status through knowledge of the importance of vitamin A, vitamin A sources and the vitamin A deficiency disorders.

Subjects and Methods: This was a cross-sectional study conducted from 1st January 2020 to 1st June 2020. A total of 41 mothers and their children (< 16 year old) with confirmed Vitamin A deficiency was selected. A structured questionnaire was used to collect data.

Results: Most (56.1%) of the children fall in the category of 4 - 6 years. The mother mean age was 28.9 years, 23 (56.1%) of respondents were from rural background. 20 (48.8%) mothers was illiterate and only 4 (10) mothers studied university. Most respondents (53.7%) had no knowledge about food sources of Vitamin A. 31.7% of mothers responded had the knowledge that vitamin A deficiency leads to night blindness. 53.7% had no knowledge of vitamin A prophylaxis program with statistical significant ($p = 0.000$) in illiterate mothers as compare to literate mother.

Conclusion: This study revealed that knowledge of the mothers of children with VAD regarding the importance of vitamin A, VAD disorders and vitamin A prophylaxis was low.

Keywords: Children; Mothers; Vitamin A Deficiency; Night Blindness; Prophylaxis; Sudan

Introduction

Vitamin A deficiency (VAD) is a serious public health problem in children less than 5 year old in developing countries [1]. Vitamin A is a fat-soluble vitamin [2] and is an essential nutrient for the normal functioning of the visual system, and maintenance of cell function

for growth, epithelial integrity, red blood cell production, immunity and reproduction [1]. Severe vitamin A deficiency impairs numerous functions leading to vitamin A deficiency disorders, such as anaemia, xerophthalmia that causes preventable childhood blindness and also increased risk of morbidity and mortality from childhood infections including diarrheal disease, respiratory infections and measles [3,4].

About 250,000 to 500,000 children in developing countries become blind each year due to vitamin A deficiency, with the highest prevalence in Africa and Southeast Asia [5].

In Africa, 2% of preschool-age children are affected by night blindness which is four times higher than the proportion in South East Asia (0.5%). Moreover, almost half of the children affected globally are found in Africa [6]. VAD alone is responsible for almost 6% of child deaths under the age of 5 years in Africa [1]. Vitamin A deficiency in Sudan is an important public health problem, particularly in rural areas (Ministry of Health 1988). Few studies have been done in Sudan to determine the prevalence of VAD among children staying in traditional boarding schools [7-9]. The diet provided to the children at these schools is mostly nutritionally deficient in vitamin A [7]. Diet contains specific micronutrients plays importance role in growth and development. Children of mothers having poor knowledge of diet and nutrition are 2.5 times more likely to have VAD [10]. Awareness about VAD can lead to early detection and thereby decrease the morbidity and mortality.

Aim of the Study

Therefore, the aim of the present study was to determine VAD among children in Gadarif pediatrics teaching hospital, eastern Sudan and other aspect of this study was to assessment of mother's awareness of vitamin A status through knowledge of the importance of vitamin A, available vitamin A sources, vitamin A deficiency disorders and prophylaxis.

Subjects and Methods

This was a cross-sectional study conducted from 1st January 2020 to 1st June 2020 to investigate Vitamin A deficiency among children in Gadarif pediatrics teaching hospital, eastern Sudan and to assess mother's knowledge regarding vitamin A deficiency and their disorders. A total of 41 mothers and their children (< 16 year old) with confirmed Vitamin A deficiency was selected. A semi-structured questionnaire was used to collect data.

Ethical issues

The study protocol was submitted to and approved by faculty of medicine and health science nursing program, Gadarif University then permission was taken from the manager of Gadarif hospital to collect the data and the interviews of mothers of children were conducted after obtaining informed verbal consent.

Statistical analysis

The data were analyzed using Statistical package for Social Science version 20. *P* value of < 0.05 was considered statistically significant.

Results

This study composed of 41 children with VAD and their mothers. Most (56.1%) of the children fall in the category of 4 - 6 years (Table 1).

Age/year	Frequency	Percentage %
0 - 3	8	19.5
4 - 6	23	56.1
7 - 10	6	14.6
11 - 15	4	9.8

Table 1: Shows children's age distribution.

The mother mean age was 28.9 years (range 21 - 39 years), 23 (56.1%) of respondents were from rural background (Figure 1).

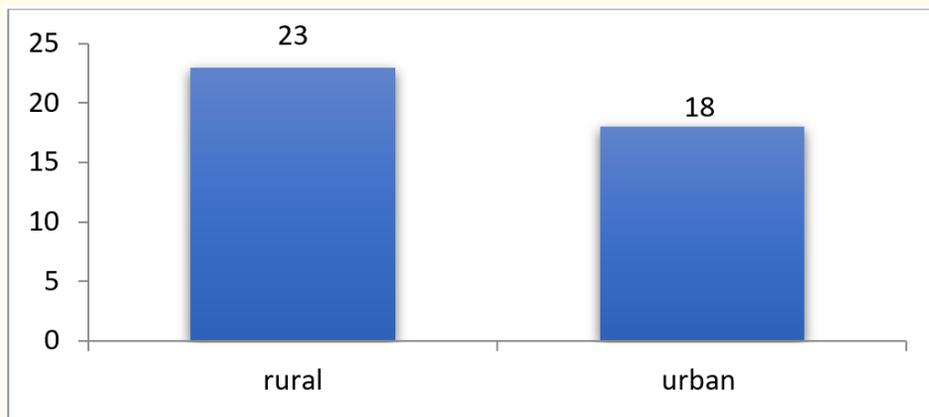


Figure 1: Residence of subject study.

20 (48.8%) mothers was illiterate and only 4 (10) mothers studied university (Figure 2).

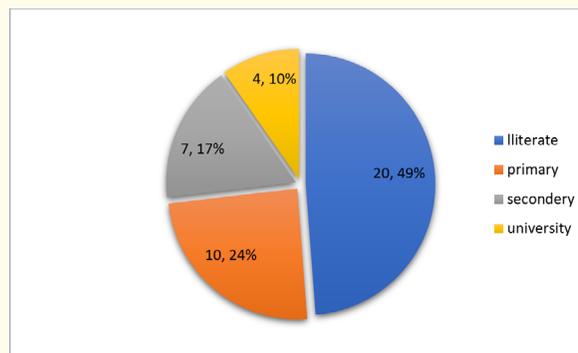


Figure 1: Residence of subject study.

Concerning the respondents knowledge about the meaning of VAD, 20 (48.8%) of the respondents knew while 21 (51.2%) of the respondents did not know the meaning. Regarding knowledge of the respondents about the food sources of Vitamin A, most respondents 22 (53.7%) had no knowledge and the rest 19 (46.3%), had knowledge about food sources of Vitamin A. Regarding mother’s estimated monthly income, 17 (41.5%) of respondents have low monthly incomes (Table 2).

Economical status	Frequency	Percentage %
Good	9	22.0
Low	17	41.5
Moderate	15	36.6
Total	41	100

Table 2: Economical status.

13 (31.7%) of mothers responded had the knowledge that vitamin A deficiency leads to night blindness, while 20 (45.8%) of mothers did not know about any vitamin A deficiency disorders (Table 3).

Knowledge of mothers regarding vitamin A deficiency disorders	Frequency	Percentage %
Night blindness	13	31.7
Dry skin	8	19.5
Bitots spots	0	0
Growth retardation	0	0
Corneal ulcer (scars)	0	0
don't know	20	48.8
Total	41	100

Table 3: Show knowledge of mothers regarding vitamin A deficiency disorders.

Among mothers of vitamin A-deficient children, 53.7% had no knowledge of vitamin A prophylaxis program with statistical significant (p = 0.000) in illiterate mothers as compare to literate mother (Table 4 and 5).

Knowledge of mothers about vitamin A prophylaxis program	Frequency	Percentage %
Intake foods rich in Vitamin A	11	26.8
Intake foods rich in Vitamin A and Vitamin A supplementation	8	19.5
Don't know	22	53.7
Total	41	100

Table 4: Knowledge of mothers about vitamin A prophylaxis program.

Literacy	Prophylaxis			
	Intake foods rich in Vitamin A	Food rich in Vitamin +supplementary	Don't know	p value
Illiterate	2	0	18	0.000
Primary	6	0	4	
Secondary	3	4	0	
University	0	4	0	
Total	11	8	22	

Table 5: Show association between literacy status and prophylaxis.

Discussion

Vitamin A deficiency remains a public health problem in Africa including Sudan. In the present study most (42%) of the children fall in the category of 4 - 6 years and VAD was observed more frequent in male, this was consistent with the previous finding [11]. The male more exposure to VAD may be spent a lot of time out of home more than female children, thus increasing their susceptibility to diarrheal diseases and exposure to intestinal parasites, such as Giardia, Ascaris, and hookworm which in turn can affect vitamin A status by increasing loss of nutrients and reducing the dietary absorption of vitamin A [12,13].

The finding of this study identified that the mother mean age was 28.9 years and 23 (56.1%) of respondents mother were from rural background, this was agree with previous study [14].

Current study revealed that 51.2% of the respondents did not know the meaning of VAD. 49% of mothers were illiterate. Jiang., *et al.* (2006) observed that Vitamin A status was associated with literacy status of mothers [15]. In the present study mother’s estimated monthly income, 41.5% of respondents have low monthly incomes. Some previous studies reported that parents have higher schooling have higher income that influence the health of the children and, consequently, nutritional deficiencies [16,17].

Concerning Knowledge of the respondents about the food sources of Vitamin A, this study revealed that most respondents 53.7% had no knowledge about food sources of Vitamin A, this finding was agree with previous studies that revealed majorities of mother respondents had no knowledge about the foods rich in vitamin A with the frequency of 80% and 67.4% respectively [18,19]. Ajaiyeoba (2001) said malnutrition is not due to poverty as much as ignorance of what to eat, in order to meet the requirements of good vitamin A nutriture [20]. In this study, mothers having poor knowledge of diet and nutrition are 2 times than mothers had the knowledge.

In VAD the eye undergoes a series of changes, beginning with night blindness that mean the inability to see under low levels of illumination. This reflects the important role of Vitamin A (retinol) in the formation of rhodopsin, the visual pigment essential to the retinal receptors that responsible for dark adaptation [21,22]. In the current study 31.7% of mothers responded had the knowledge that vitamin A deficiency leads to night blindness, this finding was slightly higher than that in study carried out by Sheth., *et al.* 2016 who documented that 23.0% mothers told that vitamin A deficiency leads to night blindness. In our study 45.8% of mothers responded had no knowledge about any of vitamin A deficiency disorders, this was lower than other study [19] In this study non-Knowledge of vitamin A prophylaxis program was statistically significant ($p = 0.000$) in illiterate mothers, previous study observed knowledge of vitamin A prophylaxis programme was significantly more in literate mother as compare to illiterate mother [19].

Conclusion

In our study vitamin A deficiency was higher among male children ≥ 5 years old. Also this study revealed that knowledge of the mothers of children with VAD regarding the importance of vitamin A, VAD disorders and vitamin A prophylaxis was low.

Recommendations

To improve knowledge of the mothers about the important of vitamin A and to increase their awareness about the problems resulted from vitamin A deficiency, effective teaching program should be done particularly in rural area.

Conflict of Interests

The authors declare that, they do not have any conflict of interest regarding this study.

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