



Prevalence of vitamin A deficiency among children less than 10 years at a Pediatric hospital in a developing country

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Abstract

This descriptive study was carried out at a pediatric hospital aimed to find reasons for the prevalence of vitamin A deficiency among the children less than 10 years and determine method of protection of vitamin A deficiency, the study included all children less than 10 years in a pediatric hospital in 6 months period, the study approved that the prevalence of vitamin A deficiency in male is more than female 55% while in female about 45%. Also the study found that the most infected group by vitamin A deficiency at age group between 2-5 years which represent 25% while the lowest infection at age group between 5-7 years which represent 20%. The study approved that the level of education is so important for parents which contribute very well in raise the awareness and improve deal with infected children and acquire good knowledge toward nutrients that rich in vitamin A. The study concluded that the most reasons of vitamin A deficiency among children are poor absorption of vitamin A in body which represent 40%, lack of breastfeeding which represent 25% in addition to malnutrition which represent 20% from children that they were studied. The study recommended VAD among children should be controlled based on community health activities such as vitamin A distribution, health awareness activities, and surveys to determine the prevalence of vitamin A deficiency and associated risk factors.

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I. Introduction

1.1 Background:

Vitamin A deficiency is the most important cause of preventable blindness in young children and is closely associated with increased frequency of respiratory infections, diarrhea, measles and childhood mortality (National Institute of Nutrition Jamai Osmania, Hyderabad 500 007, India)

The Night blindness is one of the first signs of vitamin A deficiency, Xerophthalmia, keratomalacia, and complete blindness can also occur since Vitamin A has a major role in photo transduction. (WHO, 2001).

Approximately about 250,000 to 500,000 malnourished children in the developing world go blind each year from a deficiency of vitamin A, half of whom die within a year of becoming blind (WHO, 2008).

The United Nations Special Session on Children in 2002 set the elimination of vitamin A deficiency by 2010 (WHO, 2008)

Recent calculations show that nearly 250 million preschool children are sub clinically vitamin A deficient, this is almost 50 % of those in developing countries, today, 30 % of all deficient children are thought to live in Africa (world nutrition, 2010).

Recent studies has shown that about three million have xerophthalmia at any one time; about 90% of these suffer from night blindness and other non-blinding xerophthalmia, 10 % or 300,000 are blind with keratomalacia and this account for about 10% of all blind children in the world. (Donals et al, 2001).

Vitamin A deficiency affect about 25% of young children with equatorial Africa and probably Southern Sudan having some of the highest rates causes about 6% of young child deaths (Purges, 2008).

The most well-known and understood process involving vitamin A is that of vision, Other processes include: growth and development, fertility, impaired immune response, haemopoiesis, regulation of gene expression, cell division, cell differentiation and morphogenesis. [Institute of Medicine, 2001; Gerster, 1997; Ross and Gardner, 1994; McLaren and Frigg, 2001].

1.2 Objective:-

1.2.1 General:

To study the prevalence of vitamin A deficiency among the children less than 10 years at a Pediatric hospital.

1.2.2 Specific:

1- To assess the knowledge, practice and attitude among children at bahri hospital.

2- To determine the prevalence of VAD among the study group

3-to assess the awareness of women about vitamin A Deficiency and the coverage of the target beneficiaries for the supplementation of massive dose of vitamin A .

4-To assess factors related to VAD among respondents

1.3 Hypotheses:

Intake food and neutral matter not rich by vitamin A, awareness to women and pregnant to intake neutral matter rich by vitamin A can reduce risk infect by vitamin A deficiency.

Methodology

3.1 Study Design:

The study design was descriptive cross-sectional Study aiming to study prevalence of vitamin A deficiency among children less than 10 years

3.2 Study population:

Children that there age is less than 10 years and have vitamin A deficiency .

3.3 Sample Size:

All children who found in hospital and infected by vitamin A deficiency about 20 child.

3.4 Data Collection Tools:

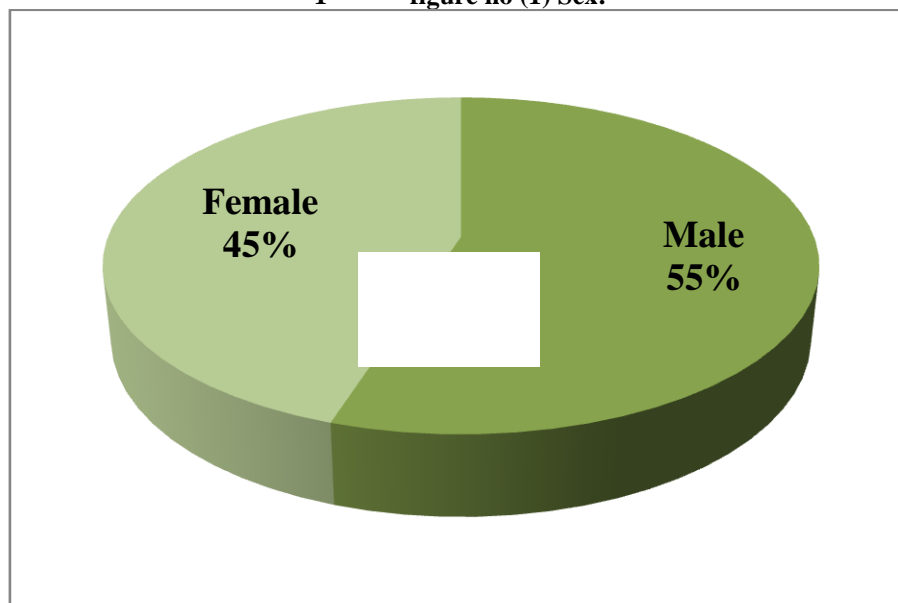
Data were collected by using questionnaire, Interview to the parents and personal observation.

3.5 Data Analysis:

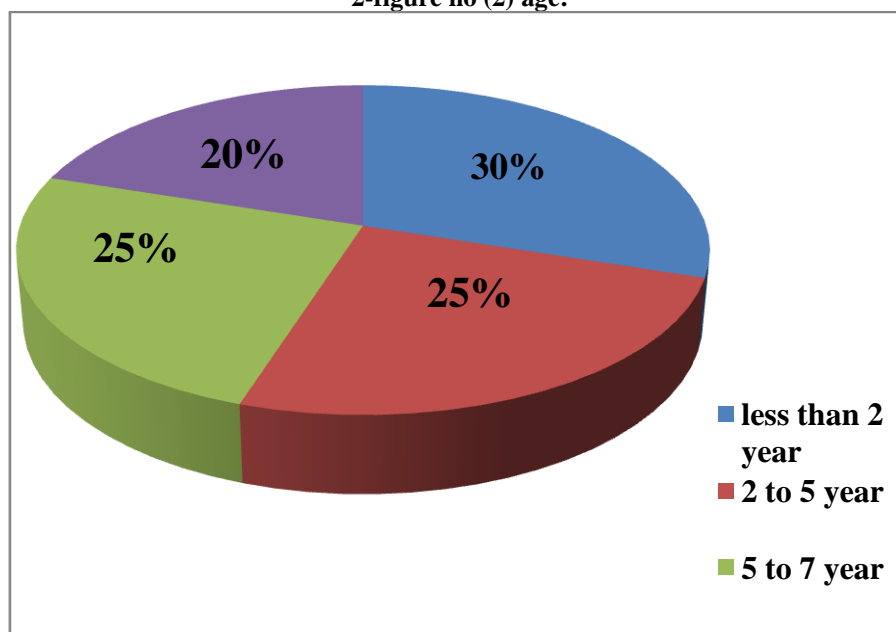
Data were analyzed by SPSS program and Microsoft office excel

Results:

1- **figure no (1) Sex:**



2-figure no (2) age:



3- Table No (1): level of fathers education:

| Variable | Frequency | Percent |
|------------|-----------|---------|
| Illiterate | 3 | 15.0 % |
| khalwa | 1 | 5.0 % |
| Basic | 3 | 15.0 % |
| Secondary | 7 | 35.0 % |
| University | 6 | 30.0 % |
| Total | 20 | 100.0 % |

4- Table No (2): level of mothers education:

| Variable | Frequency | Percent |
|----------------------|-----------|---------|
| Illiterate | 4 | 20.0 % |
| Basic | 6 | 30.0 % |
| Secondary | 3 | 15.0 % |
| University | 4 | 20.0 % |
| Postgraduate Studies | 3 | 15.0 % |
| Total | 20 | 100.0 % |

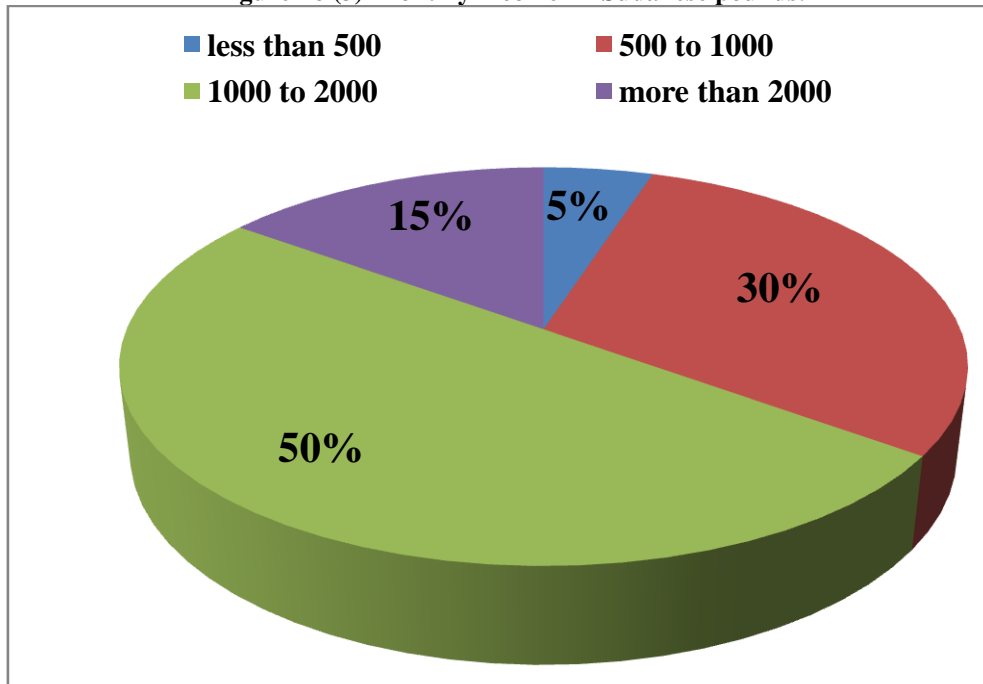
5- Table No (3): occupation of fathers:

| Variable | Frequency | Percent |
|----------------|-----------|---------|
| free works | 11 | 55.0 % |
| Official works | 9 | 45.0 % |
| Total | 20 | 100.0 % |

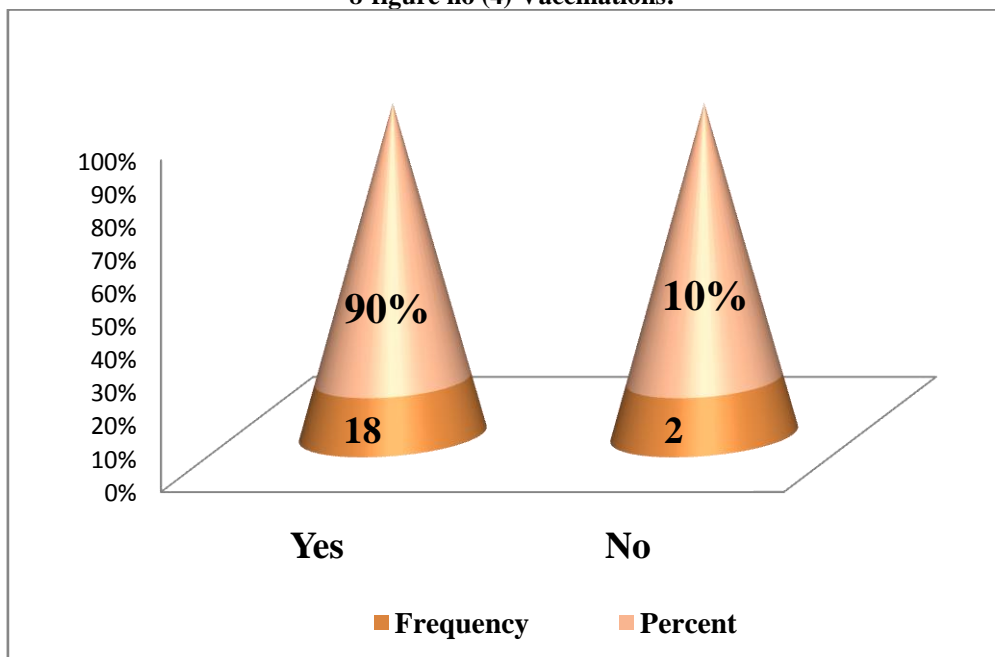
6-Table No (4): occupation of mothers:

| Status | Frequency | Percent |
|------------|-----------|---------|
| house wife | 14 | 70.0 % |
| official | 6 | 30.0 % |
| Total | 20 | 100.0 % |

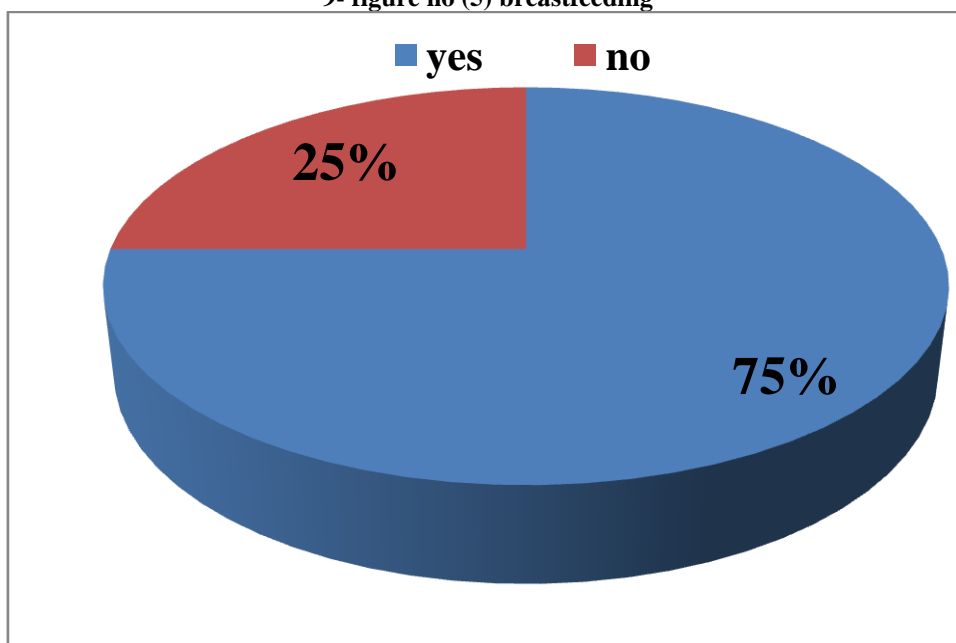
7-figure no (3) monthly income in Sudanese pounds:



8-figure no (4) Vaccinations:



9- figure no (5) breastfeeding



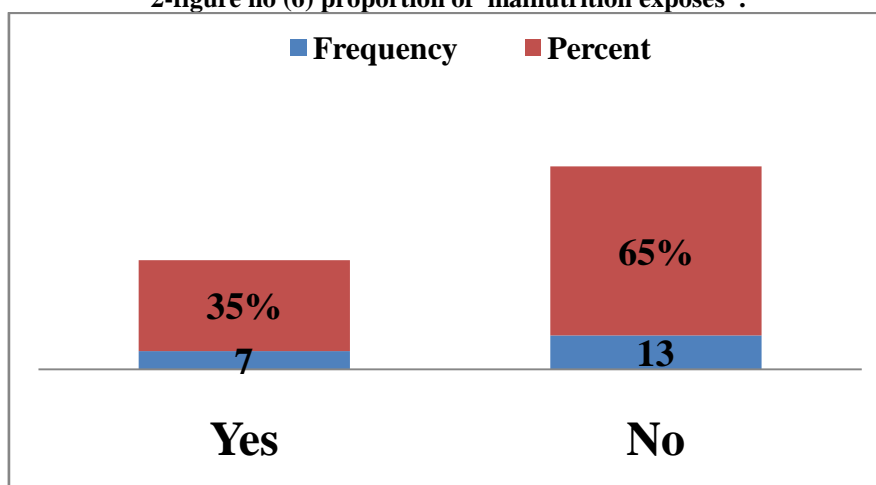
10- Table No (5): show the frequency of period who answer yes:

| Variable | Frequency | Percent |
|----------------|-----------|---------|
| One Year | 4 | 20.0 % |
| Two Year | 11 | 55.0 % |
| Not applicable | 5 | 25.0 % |
| Total | 20 | 100.0 % |

11- Table No (6): types of food not eaten:

| Variable | Frequency | Percent |
|---------------------|-----------|---------|
| Breast Milk Formula | 1 | 5.0 % |
| Goat Milk | 3 | 15.0 % |
| Cow Milk | 1 | 5.0 % |
| Not applicable | 15 | 75.0 % |
| Total | 20 | 100.0 % |

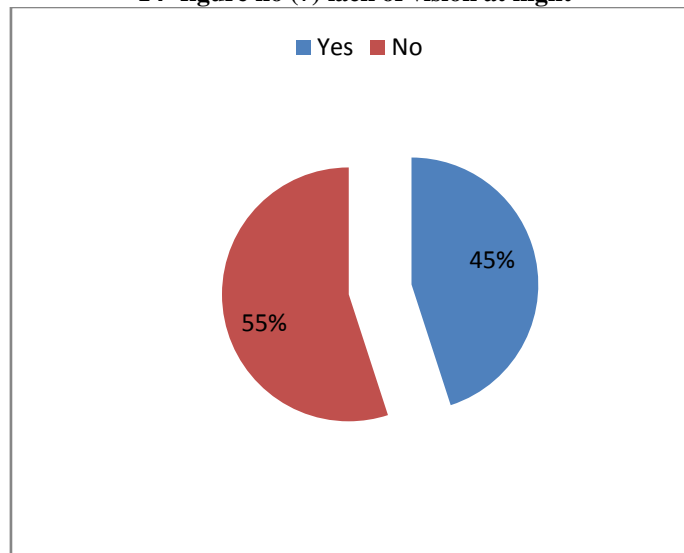
2-figure no (6) proportion of malnutrition exposes :



13- Table No (7): Types of diseases infected the respondent:

| Variable | Frequency | Percent |
|-----------------|-----------|---------|
| Lack Of Calcium | 4 | 20.0 % |
| Anemia | 3 | 15.0 % |
| Not applicable | 13 | 65.0 % |
| Total | 20 | 100.0 % |

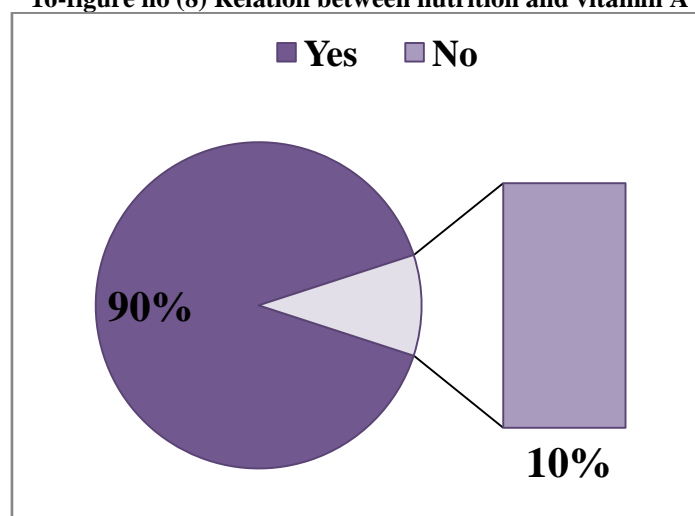
14- figure no (7) lack of vision at night



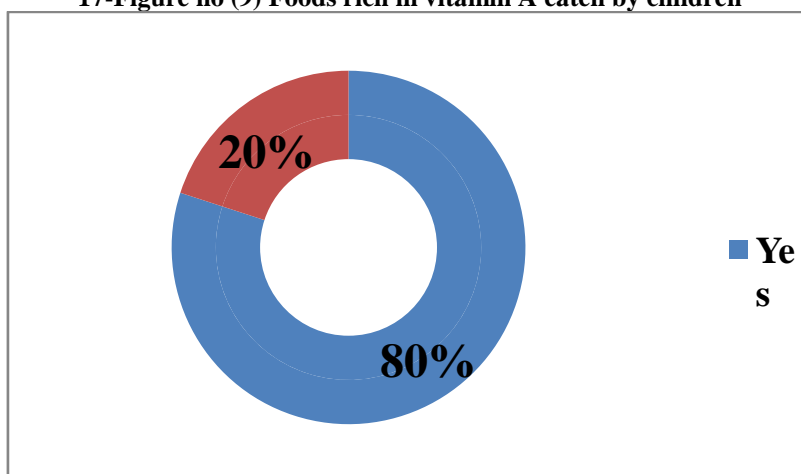
15- Table No (8): frequency of appearing symptoms:

| Variable | Frequency | Percent |
|--------------------|-----------|---------|
| Since Birth | 4 | 20.0 % |
| 3 Year After Birth | 4 | 20.0 % |
| 6 Year After Birth | 1 | 5.0 % |
| Not applicable | 11 | 55.0 % |
| Total | 20 | 100.0 % |

16-figure no (8) Relation between nutrition and vitamin A



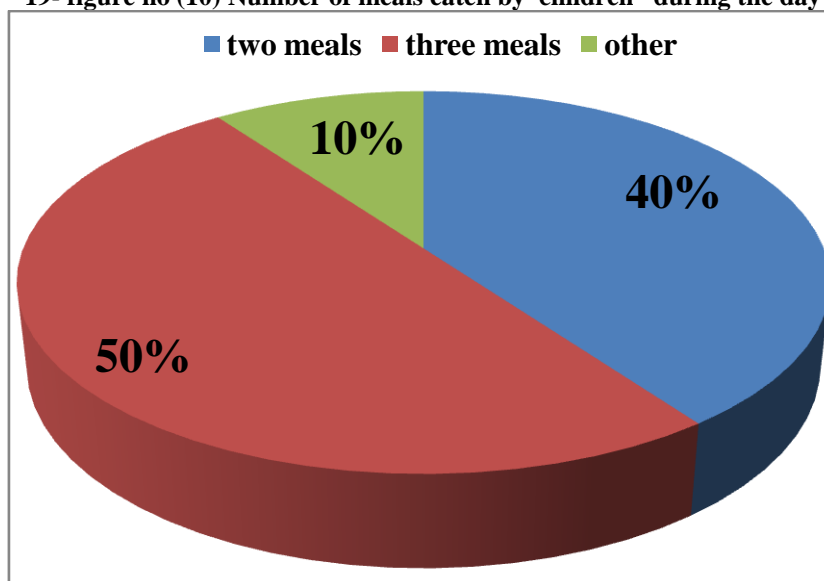
17-Figure no (9) Foods rich in vitamin A eaten by children



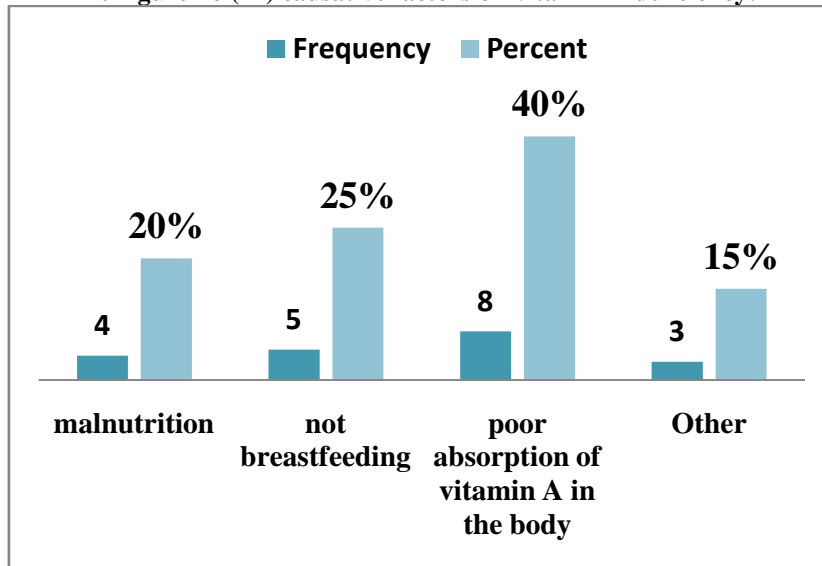
18- Table No (9): types of food eaten by children:

| Variable | Frequency | Percent |
|----------------|-----------|---------|
| Vegetables | 6 | 30.0 % |
| Fruits | 3 | 15.0 % |
| Dairy Products | 7 | 35.0 % |
| Not applicable | 4 | 20.0 % |
| Total | 20 | 100.0 % |

19- figure no (10) Number of meals eaten by children during the day



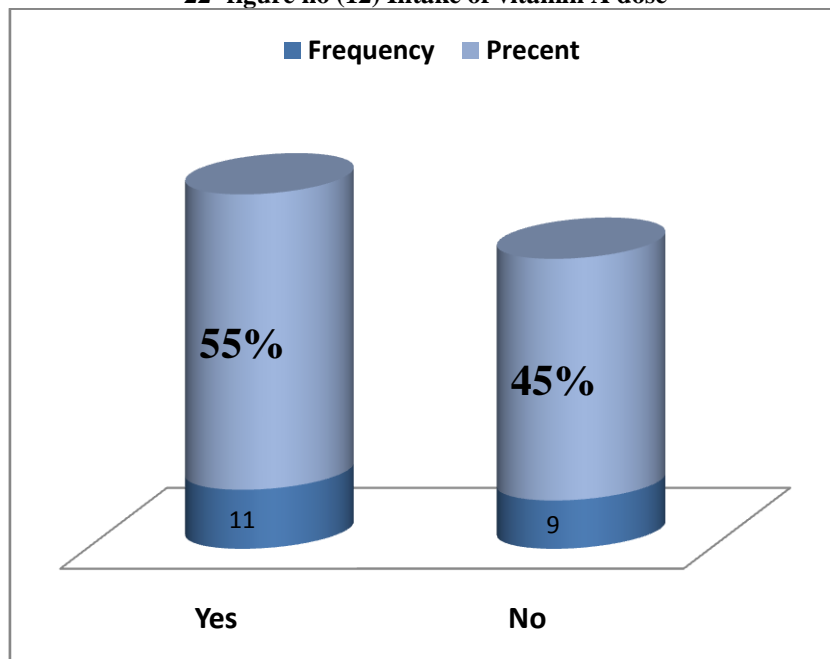
20-figure no (11) causative factors of vitamin A deficiency:



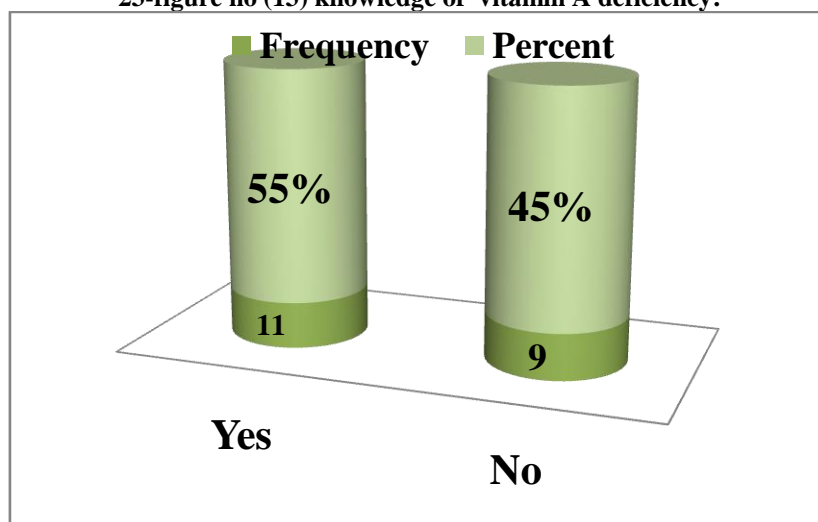
21- Table No (10): symptoms of Vitamin A deficiency:

| Variable | Frequency | Percent |
|----------------------------|-----------|---------|
| Dry Eye | 2 | 20.0 % |
| Low Visibility | 6 | 30.0 % |
| Stunted Growth In Children | 3 | 15.0 % |
| Not applicable | 9 | 45.0 % |
| Total | 20 | 100.0 % |

22- figure no (12) Intake of vitamin A dose



23-figure no (13) knowledge of vitamin A deficiency:



24- Table No (11): frequency of time which taking vitamin A dose:

| Variable | Frequency | Percent |
|----------------|-----------|---------|
| 9 Month | 5 | 25.0 % |
| After One Year | 5 | 25.5 % |
| 18 Month | 1 | 5.0 % |
| Not applicable | 9 | 45.0 % |
| Total | 20 | 100.0 % |

Discussion:

This study was designed to determine the Prevalence of vitamin A deficiency among the children under 10 years at Ahmed Gasim hospital, the represented samples was 20 participates.

The study was clarified that 50% of the family their income ranged between (1000-2000)Sd and 30% of them their income arrange between (500-1000) and gust 15% were more than 2000 while 5% their income were less than 500, that means most of respondents have low income which affect directly to the general health status and childcare because they can't provide child with sufficient needs in addition to lack of proper nutritional materials that lead to expose them to childhood diseases beside vitamin A deficiency.

The Parents' education level is low which the proportion of University education and postgraduate is weak in addition to most of fathers are working in minor works (daily works) and almost mothers are housewives that means they lake awareness of child care and the problems that can occur as a consequence of this.

The educational level of mothers is affect directly to the health of children more than the educational level of fathers, the study show that most of mothers are illiteracy that they educate as primary school only, when interview was made to them, their ignorance of most causative factors that contribute to infection with Vitamin A Deficiency was appeared.

. The study shows that 25% of children uncompleted natural breastfeeding which decrease the immunization and the 75% of children completed the natural breastfeeding.

The study also shows that about 10 % of children uncompleted their vaccination and this percentage can affect to spread of malnutrition diseases.

The study found that most of children that were interviewed were suffer from lack of vision at night and that they represent about 60 % from the rest of children.

The study found that 40% from children were suffering lack of absorption of vitamin A in their body while 25% do not feed normally by breastfeeding where 20% is suffering from malnutrition diseases and 15% is other.

The percentage of the children that they take the dose of vitamin A is 55% and the 45% of the children doesn't take the dose of vitamin A and this concenter a very high proportion.

Conclusion

The study concluded that the poor absorption of vitamin A in body and lack of breast feeding are the major cause of VAD in children, also the VAD in children can cause several diseases such as dry eye, blindness, low visible and stunted growth in children .

Vitamin A deficiency in children have direct relation to the nutrient that rich in vitamin A And it deficiency lead to infect by blindness.

The prevention from VAD among children an important issue that by eat food that rich in vitamin A and, Awareness about all factors related to vitamin A deficiency in addition to immunization .

Vitamin A (retinol) is required by humans for the normal functioning of the visual system, so retinol is transported to ocular tissue and to the retina of the eye by intracellular Binding.

The second main function of vitamin A is in the maintenance of growth and epithelial cellular integrity and immune function in the body.

Recommendations

The study recommended the use of preventive vitamin A doses (vitamin A supplementation) to all children is more necessary.

It is recommended that nutritional conditions of under10 children should be improved through education and food supplies.

Concern should be given to eye problems among malnourished children, Early detection of VAD is important in preventing complications that can end with blindness.

Immunization for children is more important so as to prevent children from vitamin deficiency and other types of male nutrition diseases.

The health education program should be given to the families so as to diffuse awareness to cope with the problems that refer to mal nutrition.

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