KNOWLEDGE LEVELS ON VITAMIN A AMONG THE CAREGIVERS OF CHILDREN AGED 12 TO 59 MONTHS IN GATUNGA WARD, THARAKA-NITHI COUNTY

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ABSTRACT

Knowledge levels on Vitamin A among care givers are critical in dietary interventions that support the achievement of nutrition priority outcomes. Lack of knowledge on levels on Vitamin A among care giver may lead to deficiency which causes depressed immune response, impaired movement of iron, poor growth, night blindness and xerophthalmia which are a major public health concerns. The study objective was to assess knowledge levels on Vitamin A among the caregivers of children aged 12 to 59 months in Gatunga ward, Tharaka-Nithi County. The target population were 370 caregivers of children aged 12 to 59 months who were clustered and sampled using purposive cluster and random sampling. A cross sectional descriptive study design was used to guide this study. Primary data was collected using semi-structured questionnaires and key informant interviews schedules from caregivers and key informants respectively. Quantitative data was analysed using Statistical Package for Social Sciences Version 20 while qualitative data was organized and analysed thematically. The study established that the majority (62.9%) of the caregivers received information on Vitamin A from health workers. It was also revealed that husbands, friends and caregivers' mothers, mass media (Radio) and religious leaders contributed minimal in providing information on Vitamin A accounting to less than 10%. It emerged that only 23.5% of the caregivers were conversant of the benefits of Vitamin A. However, the study found that though the caregivers had received Vitamin A information, majority (86.8%) had in adequate knowledge. The lack of adequate information on Vitamin A explains why just only 23.5% were conversant of the benefits of Vitamin A. It emerged from the study that the caregivers spend very little on buying food rich in Vitamin A in a month with majority spending KSh. 80. This expenditure is quite little to buy enough Vitamin A-rich foods. The tested hypothesis on the influence of Vitamin A knowledge of the uptake of vitamin using Chi square test returned p>.004). These results show that the knowledge on Vitamin A among the caregivers was not adequate to influence Vitamin A uptake in Gatunga Ward.

Key words: **Vitamin A-rich foods, vitamin A knowledge levels, care giver, source of vitamin A information, and consumption of Vitamin A.**

INTRODUCTION

Vitamin A is the name of a group of fat-soluble retinoids, including retinol, retinal, and retiny and is found in plant and animal sources. According to World Health Organisation (WHO), Vitamin A deficiency (VAD) is defined as "tissue concentrations of Vitamin A low enough to have adverse health consequences despite showing no clinical evidence of Xerophthalmia" (Sommerburg, Siems & Kraemer, 2013). Sommer and Davidson (2002) refer to VAD as having less than 20 µg of stored in the liver. Vitamin A is essential in body chemical for proper function of eye vision, body cell division, and differentiation as well as reproduction (Khillan, 2014). Vitamin A is essential for a strong functioning of immune system to support children health, growth and development according to United Nations Children's Fund UNICEF (2013). It's further argued that inadequate intake of Vitamin A intake among children poses risk developing illness, blindness, measles, and diarrhoea and even death. According by Smith (2012), Vitamin A is part of the component that forms surface linings of the eye, respiratory, urinary, and intestinal tracts essential for the functioning of the immune

system. As noted by World Health Organisation (WHO), Vitamin A is essential for proper foetal development right from the embryonic stage (WHO, 2015). From these observations its therefore clear for maintenance of good health and prevention of diseases adequate intake of Vitamin A is important.

There are a number of interventions adopted to address VAD. Nair, Augustine and Konapur (2016) posit that the primary intervention measure is to avail adequate Vitamin A intake through dietary diversification and disseminating correct information. These primary interventions become effective and more feasible if properly promoted in the communities by targeting caregivers. Knowledge on inexpensive and available Vitamin A diet sources is key in eradicating VAD. Gilbert (2013), noted that misinformation that only animal based Vitamin A sources is the best has potential of reducing intake of adequate Vitamin A. However plant based Vitamin A sources are largely consumed as opposed to animal based ones in the developing world. However, these plants based food sources do not provide enough active Vitamin A. Diversification of intake of Vitamin A rich food and provision of adequate information on the same is a feasible remedy of preventing VAD.

Maternal nutritional knowledge and caregiver knowledge of nutritional aspects fundamentally contribute to nutritional status of children. This knowledge affects food choices and preparation by caregivers. Williams et al., (2012) observed that promoting maternal nutrition knowledge in social economically poor areas may represent an important opportunity for improving diet in children. Sometimes maternal nutritional knowledge may substitute for schooling especially at lower levels of income. Nutrition education presents another avenue of increasing knowledge of Vitamin A uptake. Nutrition education is critical in changing habits which contribute to intake of poor diet. The challenges of insufficient Vitamin A intake is a question of ignorance due to lack of knowledge among the caregivers. This can be addressed by carrying out Nutrition education. Nutrition education is critical in ensuring caregivers gain knowledge, skills and motivation to make wise dietary and lifestyle choices (Kulwa, Verstraeten, Bouckaert, Mamiro, Kolsteren & Lachat, 2014). Also nutrition knowledge by primary caregivers should include age of introducing solid food into infants' diet, frequency of feeding, types of solid foods to be given. Education should also impact knowledge that will help mothers cope with perception of her own child's nutritional status.

PROBLEM STATEMENT

The coverage of Vitamin A supplementation in Kenya was between 20-30% and was not evenly distributed across the country (UNICEF, 2016). The Kenya health survey established that 64.4% of children aged 6 – 23 months in Eastern Province consumed foods rich in VA (KNBS, 2014). It also established that only 73.9 % of children aged between 6 – 59 months had received VAS in the previous six months preceding the study. The findings were attributed to poverty, dearth of adequate information on benefits of Vitamin A and cultural misinformation.

Tharaka-Nithi County is categorized among the Arid and Semi-Arid Lands (ASAL). It's one of the regions that suffer from food insecurity due to constant draught leading to VAD (GoK, 2014) The report also noted the residents' lack of sufficient information on VA intake which has the likelihood of affecting vulnerable children nutritional status. Lack of adequate knowledge levels among care givers may lead to possibility of the child getting vitamin supplementation beyond nine months. The lack of adequate knowledge on Vitamin A may be due to inadequate outreach services and poor facility based services. These revelations therefore means a lot need to be done to address the micro-nutrient deficiency among the vulnerable groups. Few children (12 to 59 months) complete the national schedule for VA supplementation making them liable of suffering from VAD. No studies have been conducted to establish the Vitamin A knowledge levels among care givers in Gatunga Ward. The study therefore examined the knowledge levels Vitamin A among care givers of children (12 to 59 months) in Gatunga Ward.

OBJECTIVES OF THE STUDY

The specific objective was to assess knowledge levels on Vitamin A among the caregivers of children aged 12 to 59 months in Gatunga ward, Tharaka-Nithi County

LITERATURE REVIEW

Babatunde et al. (2011) observed that prevalence of malnutrition including one involving Vitamin A deficiency is high in mostly developing world. This has leads to a situation where by approximately 183 million children are underweight, 226 million children are stunted and 67 million children are underweight. Malnutrition is all over the world and all nations including the developed and developing nations. It is a health problem which is related to literacy of mothers and other caregivers (Khan & Ali, 2010). Therefore if social conditions and caregivers' literacy are improved, this might help improve Vitamin A nutritional status. Williams et al., (2012) records that, promoting caregiver and paternal knowledge of Vitamin A nutritional status may provide an avenue to improve diet in children from disadvantaged neighbourhoods. Mothers are the foremost primary caregivers for their children and their understanding of nutrition and health measures strongly relate to the care they give. To a large extent, other factors like social economic characteristics determine nutritional status of children.

Education of caregivers on feeding practices is crucial in ensuring children are fed with adequate and correct food commodities. Education targeting caregivers has been used as an intervention measure of addressing VAD with varied successes. In Kenya according to Abuya, Ciera and Kimani-Murage (2012), inclusion of nutritional education at child health and maternal clinics operates on the assumption that caregivers' knowledge can have an impact on children's nutritional status. Brown (2016), argues that educational interventions on Vitamin A to the caregivers should focus on basic knowledge regarding sources as well as symptoms of deficiency. In addition education on Vitamin A to primary caregivers should emphasize on increasing variety of foods rich carotenoids grown in home gardens.

Multi-sectoral approach like health programme support and school feeding programmes is another strategy of creating knowledge of Vitamin A (Pepino, 2014). This approach according to Aliyar, Gelli and Hamdani (2015), have been found to be effective in enhancing knowledge of Vitamin A and improve school attendance, retention of students, children growth and improve performance of the school. Inayati et al. (2012) found out that by caregivers in school offering nutritious meals to children in African schools can help in their health and well-being and can stimulate their families to send them to school. The school feeding programme can play a huge role in helping curb communities' health problems. The primary caregivers in schools include teachers who should be taught on nutritional knowledge and interventions like micro nutrient supplementation. Nutritional education has been shown to improve knowledge, skills, physical activities and health status for school going children. This approach need to be used to address vitamin deficiency for pre-schoolers.

Infant and child growth and monitoring are an important tool for informing nutritional deficiencies among the infants and children. According to Marotz (2014), growth and monitoring of infants and children increases knowledge about children growth and helps to improve caring practices. This serve as a core activity in an integrated child health and nutritional programme for addressing nutrients deficiencies like Vitamin A. Growth monitoring teaches mothers, health workers and families about diet and how illness affects growth and thus stimulates individual initiatives to improved practices.

RESEARCH METHODOLOGY

Study design

The study adopted a cross sectional descriptive study design. This research design was appropriate to collect both quantitative and qualitative data. Primary data was solicited using semi structured questionnaires to determine the level of knowledge on VA among the care givers of children aged between 12 to 59 months.

Study participants

The study respondents were caregivers of the children aged 12 to 59 months who had resided in Gatunga Ward for at least 12 months. The participants comprised of male and female who were present during data collection period.

Data collection

Eight research assistants with a minimum qualification of secondary school level of education certificate were recruited from the study area and trained by the principal researcher on the purpose and objectives of the study. They were trained on the study objectives, methodology, interview skills and maintenance ethics during and after data collection. They were also trained on administering data collection instrument, interviewing techniques, actual data collection and recording, ethics and. Respondents (caregivers) filled questionnaires with the

help of research assistants. As well, key informants were orally interviewed by the researcher using interview guide.

Statistical analysis

Primary data collected using questionnaires was cleaned, coded and then keyed into Statistical Package for Social Sciences (SPSS) Version 20 computer software used for data analysis. Mean, variance, standard deviation and percentages descriptive statistics were computed to analyse quantitative primary data collected using questionnaires. Analysed quantitative data was organized and summarized using tables and charts. Knowledge levels on Vitamin A among the caregivers focused on source of information on Vitamin A, benefits of Vitamin A, Adequacy of information on food rich in Vitamin A, expenditure for buying food rich in Vitamin A. The influence of caregiver levels on knowledge of Vitamin A (independent variable) on the intake of Vitamin A was tested using Chi square where a p value of <0.05 was considered significant. A Chi-Square p value of more that is 0.05 was an indicator that tested variables did not vary meaning there was no statistical difference among the group variables. Chi Square p values equal or less than 0.05 indicated the tested variables varied significantly - meaning there was statistical difference among the group variables explored.

Ethical Considerations

Research approval, ethical clearance and research permit were granted by Kenyatta University Graduate School, Kenyatta University Ethical Review Committee and National Council of Science, Technology and Innovation respectively. Informed consent was obtained from respondents. Finally permission to collect data was granted by the National and County government.

RESEARCH RESULTS

Source of Information on Vitamin A

Sources of knowledge of foods rich Vitamin A is critical in ensuring caregivers provide such foods. The study therefore found it prudent to establish where the caregivers got information regarding Vitamin A (Table 1).

Table 1: Source of information on Vitamin A

Source of information on Vitamin A	**Responses**	
	Count	**Per cent of Cases**
Health worker	**302**	**97.1**
Other members of the family	45	14.5
Husband	40	12.9

Friends	31	10.0
Mother	25	8.0
Radio	23	7.4
Pastor/priest/imam	14	4.5
Total	**480**	**154.3**

NB: *data was analysed from multiple responses*

Table 1 shows that majority 302(97.1%) of the respondents got information on Vitamin A from health workers followed by 45(14.5%) from other members of the family other than their husbands and mothers. The role of health workers as the main source of information on Vitamin A can be attributed to their responsibility of educating caregivers on health matters. Worth noting is the low contribution of media (radio) and religious persons on providing information on Vitamin A.

Age at which the Child was first given Vitamin A Supplementation

The respondents were asked to indicate the age of the child when they first received Vitamin A supplementation. This was necessary in order to determine if the supplementation was done at the right age according to WHO (2011) guidelines which recommends first supplementation to start at 6 months (Figure 1).

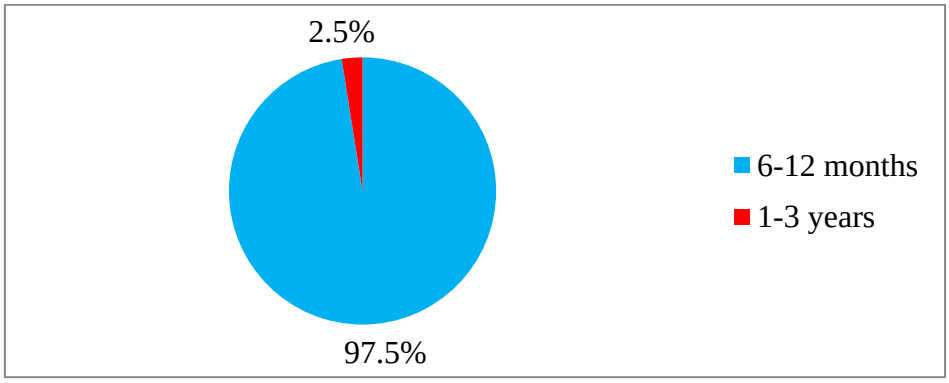

Figure 1: Age at which the baby was first given Vitamin A supplementation

As presented in Figure 1, majority (97.5%) indicated they received first Vitamin A supplementation at the age of 6-12 months while the remainder at the age of 1-3 years. The above findings confirm that the majority of the target children received their first Vitamin A supplementation at the correct recommended age as per WHO (2011) guidelines. The high number of children given Vitamin A supplementation at the age 6-12 months is attributed to the deliberate effort by the government to ensure wide coverage all over the country.

Benefits of Vitamin A

The respondents were asked to indicate if they knew of any of the benefits of Vitamin A. This was necessary in order to establish if the information provided has made respondents realise the benefits of Vitamin A (Figure 2).

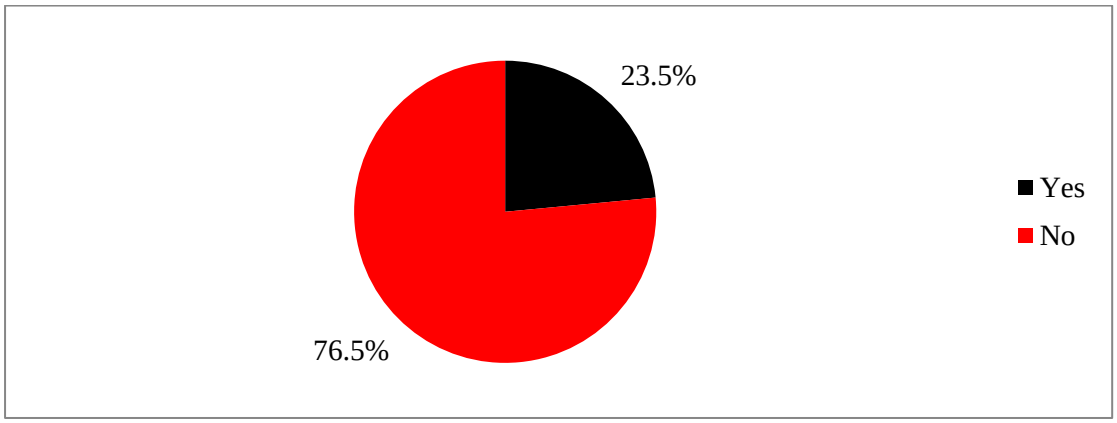

Figure 2: Benefits of Vitamin A

As shown in Figure 2, majority, 76.5% of the respondents indicated they were not aware of the benefits of Vitamin A as compared to only 23.5% of the caregivers who were aware. From the study findings, it's clear that information availed to caregivers did not make them recognize the benefits of Vitamin A. This revelation implies that the information available on Vitamin A among the respondents is not holistic in terms of impacting broad based knowledge and attitudes.

Adequacy of Information on Food Rich in Vitamin A

The study sought to establish the adequacy of information received from different sources regarding Vitamin A (Figure 3).

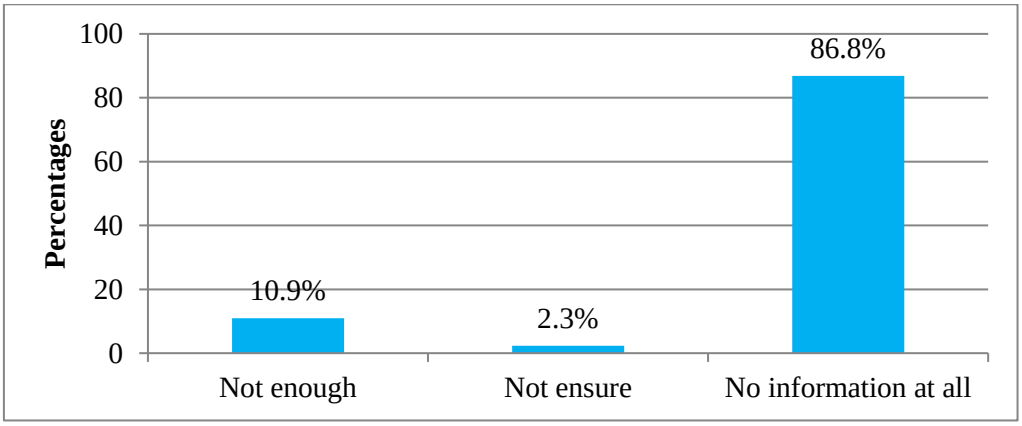

Figure 3: Adequacy of information on food rich in Vitamin A

Figure 3 show that overwhelmingly 86.8% of the respondents did not have adequate information on Vitamin A. These findings imply that time allocated for dissemination on Vitamin A information is not adequate. These findings are supported by the revelation of one health service provider who had this to say;

> "…. Information of Vitamin A is normally provided to mothers during pre and post-natal visit in health facilities. There is also an education health programme carried out in the health facilities targeting every patient who visit a health facility in specific days. This health education intervention is not specific to Vitamin A only and the time allocated in not adequate to disseminate enough information on any given topic. Vitamin A supplementation is also done during polio eradication interventions and at that time there is little time available to administer polio and Vitamin A and give enough information. (Informants OI, Gatunga Ward: September, 2016).

The above revelation can be attributed to lack of specific programmes for addressing holistically the Vitamin A issues.

Expenditure for Buying Food Rich in Vitamin A

The study sought to establish the respondents' expenditure on buying Vitamin A-rich foods in a month. This was important in order to assess the amount spent on buying Vitamin A-rich foods (Table 2).

Table 2: Expenditure for buying food rich in Vitamin A

Expenditure	Mean	Mode	Min	Max	SD
Ksh.	182.12	80	40	1000	127.277

NB: N=278 represents the respondents who answered the question

The analysed data in Table 2 shows that most of the respondents spent Ksh 80 and an average of Ksh 182.12 on buying Vitamin A-rich foods in a month. These amounts of money are too low to buy enough Vitamin A-rich vegetables, fruits and meats considering the high cost of these commodities in the study area. These findings imply that children may not get sufficient Vitamin A from the foods they produce from their farms. The reliance on farming as source of income which is not sufficient due to lack of adequate rainfall could be attributed to low spending on foods rich in Vitamin A. It can also be attributed to lack of adequate information on the benefit of Vitamin As established in this study.

DISCUSSION OF THE FINDINGS

It emerged from the study that the majority (62.9%) of the caregivers received information on Vitamin A from health workers. These findings imply health workers are the major source of information on Vitamin A. This is attributed to their role for educating caregivers especially mothers during anti and post-natal clinics. This was confirmed by health promoters and medics in health facilities who confided that health practitioners have the responsibility of educating mothers on the nutritional requirements of children. However, the study also established that due to distance to the health facilities, poverty and remoteness of the study location, caregivers rarely attend pre and post-natal clinics regularly. The study revealed that husbands, friends and caregivers' mothers, mass media (Radio) and religious leaders

contributed minimal in providing information on Vitamin A accounting to less than 10%. This could be attributed to lack of relevant information on the sources of food rich in Vitamin A and their benefits. VAD thought a major problem facing developing countries especially in the arid rural areas where information on vitamin is not readily available. The high score of health workers being the main source of knowledge is supported by Abuya, et al. (2012), who argued that maternal clinics over the best avenue of nutritional education for mothers.

It emerged that care givers were aware of the correct age of children when Vitamin A supplementation was given. This observation is supported by Njue, Makokha and Mutai (2010) who noted that the government of Kenya has constantly provided Vitamin A supplementation to children 6-12 months at the right time. These revelations show that the Kenya government is performing well as per the WHO (2011) guidelines.

The study established largely caregivers lacked adequate information on food rich in Vitamin A. The findings of inadequate information is in agreement with the findings by Kamau et al. (2012) who argued that the main factors affecting utilisation of VAS services was lack of information and awareness among both health workers and mothers.

On the benefits of Vitamin A it was established that only 23.5% of the caregivers were conversant. This number is very low and can be attributed to low education revealed in this study (Figure 2). The lack of knowledge of Vitamin A to the child explains the reason for low responses and knowledge of the foods rich in Vitamin A as depicted in Table 4.8. When asked to indicate on the adequacy of information they have on Vitamin A the respondent indicated they had inadequate information. This was so because majority (86.8%) indicated they had no information at while only 10.9% had some information though was not enough. The lack of adequate information on Vitamin A explains why just only 23.5% were conversant of the benefits of Vitamin A. This revelation implies that information in possession by caregivers was not adequate to ensure they feed their children with right foods to alleviate VAD. These findings of low knowledge of the benefits of Vitamin A is supported by Kamau et al. (2012) who noted that caregivers knew its good for the baby but were not aware on the specific benefits.

It emerged from the study that the caregivers spend very little on buying food rich in Vitamin A in a month with majority spending KSh. 80. This expenditure is quite little to buy enough Vitamin A-rich foods. This amount is too little to buy meat based sources. It can be argued that lack of adequate information on Vitamin A coupled with lack of cultivation of green leafy vegetables and fruits in their farms and low income the children in the study are likely to suffer from VAD.

The tested hypothesis on the influence of Vitamin A knowledge of the uptake of vitamin using Chi square test returned p>.004). These results show that the knowledge on Vitamin A among the caregivers was not adequate to influence Vitamin A uptake in Gatunga Ward. These revelations are an indicator caregiver's lack adequate knowledge of Vitamin A. This

explains why caregivers had insufficient information Vitamin A-rich foods, sources of food rich in Vitamin A, and the benefits of Vitamin A as noted in the study.

CONCLUSION

From the study it was concluded that the health practitioners were the major source of Vitamin A information as compared to husbands and friends. The mass media plays little part in disseminating Vitamin A information. It is also concluded that information available on Vitamin A was not adequate and did not inform the caregivers on the benefits of this vitamin. In summary the study found that there is little knowledge of Vitamin A and as result the children in the study site had low intake.

RECOMMENDATIONS

1. The study found that the caregivers have in adequate information on the sources Vitamin A-rich foods and Vitamin A supplementation. To address this gap, the study recommends that the government and stakeholders need to develop a policy of ensuring caregivers are adequately educated on the Vitamin A-rich foods, the benefits and the importance of supplementation.
2. It was found that caregivers had no knowledge of the benefits of Vitamin A to the health of their children. This study recommends on the government to come up with strategy of ensuring the caregivers are informed of the benefits of Vitamin A and not concentrate on just giving out supplements.

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