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Knowledge, attitude and practice (KAP) towards iodized salt utilization in HaweltiKebelle, Axum, Tigray, Ethiopia, 2015

Hadgu Gerensea, Abadit Yohannse, Berhe Baymot, Hagos Atsbha, Kidan Nguse, Leterbrhan Gebru, Selemun G/kel

ABSTRACT

Background: Iodine is regarded as one of the most important trace elements in the human body which required during the synthesis of thyroid hormones. Globally, 30% of the world's population is affected by IDD and more than 150,000 million people are affected in Africa alone. In Ethiopia, one out of every 1000 is a cretin, and about 50,000 perinatal deaths are occurring annually due to iodine deficiency disorders. In Ethiopia, there are scarce studies on knowledge, attitude and practice of iodized salt utilization. So this study may give some clue on this issue and may base line for other researches. Aims: To assess knowledge, attitude and practice towards iodized salt utilization in HaweltiKebelle, Axum Town, North Ethiopia, 2015. Methods: A Cross-sectional quantitative study among 4763 households of Hawelti Kebelle was conducted by a face-to-face interviewing technique. Data was entered and analyzed using SPSS version 16. Results: Majority (81%) of the respondents indicated that they heard deficiency of iodine in the environment and insufficient intake of iodine in the human body and some of the respondents were received information from television and radio 85 (60%), about iodine deficiency disorders and preventing them and majority of the respondents (83%) know why buy iodized salt because it is healthy and from the respondents 03 (2%) do not buy iodized salt because they do not know why it is necessary. Conclusion: Based on the finding of this study, Knowledge, Attitude and Practice on utilization of iodized salt at household level was good. Using iodized salt, stored salt in a closed container with lid, heard about iodized salt, adding salt at the end of cooking was good.

Keywords: Attitude, Iodized salt, Knowledge, Practices

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INTRODUCTION

Iodine is regarded as one of the most important trace elements in the human body which required during the

synthesis of thyroid hormones, which play a determining role in the process of the early growth and development of most organs, especially the brain, in human subjects during fetal and early postnatal life [1].

Globally, 30% of the world's population is affected by IDD and more than 150,000 million people are affected in Africa alone. In Ethiopia, one out of every 1000 is a cretin, and about 50,000 perinatal deaths are occurring annually due to iodine deficiency disorders, 26% of the total population have goiter and 62% of the population is at risk of IDD according to national survey made by the previous Ethiopian Nutrition Institute [2]. Iodine deficiency disorders are a global problem, and it is estimated that IDDs affect two billion people worldwide [3].

The greatest cause of preventable brain damage in childhood is iodine deficiency, caused by a low dietary supply of iodine. This is the primary motivation behind the current worldwide drive to eliminate iodine deficiency through the strategy of universal salt iodization [4].

The World Health Organization (WHO)/United Nations Children's Fund (UNICEF)/International Council for the Control of Iodine Deficiency Disorders (ICCIDD) have approved a cut-off point of 20–40 parts per million (ppm) for iodine in salt. The goal is to have 90% of households using adequately iodized salt (≥ 15 ppm iodine) and to use salt iodine testing as an indicator for monitoring progress towards universal salt iodization (USI) [5].

Universal salt iodization (USI) is the most widely practiced intervention in eliminating iodine deficiency disorders (IDDs). Salt iodine testing is an important "process" indicator for monitoring progress towards USI [6].

The Quality and Standards Authority of Ethiopia, has set the iodine level to be 60–80 ppm as potassium iodate, after making allowance for losses of iodine during storage and distribution. In Ethiopia, the average consumption of salt per capita per day is 10 grams and salt with iodine content of 60 mg/kg would therefore satisfy the recommended daily requirement of 150 μg of iodine per person to prevent IDD [7]. But, there was no data that indicates the iodine level of salt both at the retail and consumption levels. Even most studies done outside the country did not try to see the knowledge, attitude and practice (KAP) of Utilization. Especially in Ethiopia there are scarce studies on knowledge, attitude and practice of iodized salt utilization. So this study may give some clue on this issue and may base line for other researches.

OBJECTIVES

General objective

To assess knowledge, attitude and practice (KAP) towards iodized salt utilization in Hawelti Kebelle, Axum, North Ethiopia, 2015.

Specific objectives

- To determine knowledge about iodized salt utilization.
- To describe attitude towards iodized salt utilization.
- To determine iodized salt utilization.

MATERIALS AND METHODS

Study Area Period

The study was conducted from 01 to 06 June 2015.

Study designs

Cross sectional community based study design were used to assess KAP on iodized salt utilization in Hawelti Kebelle.

Population

Source population

- All households living in Hawelti Kebelle were source population.

Study populations

✓ All households of Hawelti Kebelle in 2015 year.

Inclusive and exclusive criteria

Inclusive criteria

➢ All households of Hawelti Kebelle.

Exclusive criteria

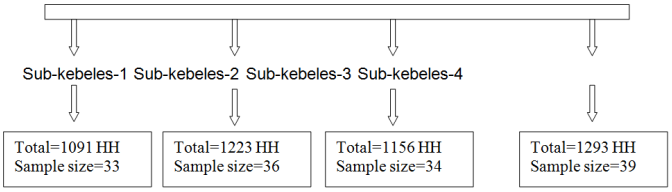
- Critically ill individuals.
- If did not well heard (difficult of hearing) for interview technique.

Sample size determination and sampling technique

The sample size for the quantitative survey was determined by using single proportion for finite population with 95% confidence interval, marginal error (d) of 5% and the proportion of house hold who practiced iodine salt with the prevalence of iodized salt utilization was used 9.6%. By adding non-response rate of 10%, the total sample of house hold was 130.

To obtain a representative sample systematic sampling technique was used to select the study population based on the proportion of the number of households, but the first house hold was selected randomly. All households

at Hawelti Kebelle administration were eligible for the study. Hawelti kebele have four sub-kebeles in which the households were selected proportionally for each sub-kebele.



Data collection

The data was collected by nurse students. The data was collected using structured questionnaire by a face-to-face interviewing technique. The questionnaire were prepared in English language then translated to Tigrigna and then translated to English by other person to check the validity. The questionnaire consists of questions about iodized salt such as knowledge, attitude and practice towards iodine salt.

Operational definition

Good knowledge: When the participant answer more than 50% of about knowledge questions.

Poor knowledge: When the participant answer less than 50% of about knowledge questions.

Positive attitude: When the participant answer more than 50% of about attitude.

Negative attitude: When the participant answer less than 50% of about attitude.

Good practice: When the participant practicing more than half questions of about practice.

Poor practice: When the participant practicing less than half questions of about practice.

Data quality control

To assure the quality of data the activities were done by briefing about the questionnaire to data collector for one day prior to data collection. Collected data was checked for its completeness and clarity on daily basis and correction was made accordingly. Follow-up and supervision were conducted by supervisor during data collection.

Data processing and analysis

Data were analyzed by using SPSS. Different forms of analysis like descriptive statistics and cross tabulation was used to describe the finding.

Ethical consideration

Before data collection, official letter from Aksum University department of nursing was obtained then oral consent from Hawelti Kebelle administration as well as from participants. The purpose of the study was to explained to all study participants; they were also inform that all of their responses were confidential and anonymous, and they have all the right not to be involved in the study or not to answer any of the questions. Ethical approval was issued by Hawelti Kebelle administration.

RESULTS

Socio demographic Status

Socio-demographic information on the study participants is presented in Table 1. A total of 142 households included during the interview from Hawelti Kebelle (04 ketena) with response rate of 100%. From the total 142 households have 549 members of families; majority 68 (47.8%) respondents are from 30–34 years old. Majority 130 (91.5%) religion of the community who participated in the study were orthodox Christians. Educational status of the respondents are 32 (22.5%) college and above, 24 (17%) grade 11–12, 33 (23.2%) grade 9-10, 37 (26%) grade 1–8 & 16 (11%) illiterate. From the total number of families, the family size is 3.8/HH. For further see Table 1 (Hadgu, 2015).

Knowledge Status

Responses given by the study participants to the knowledge questions are indicated in Table 2. As given in Table 2, majority 115 (81%) of the respondents indicated that they heard deficiency of iodine in the environment and insufficient intake of iodine in the human body. The study revealed that majority of the respondents 120 (85%), they heard of the effects of iodine deficiency on the human body and knowledge of iodized salt was quite high 114 (80%) makes up iodine deficiency in the body. In addition, 115 (81%), indicate that an inadequate intake of iodized salt can lead to the development of goiter and some of the respondents were received information from Television and Radio 85 (60%), about iodine deficiency disorders and preventing them but from printed material was the least 03 (2%). Majority of the respondents 118 (83%) know why buy iodized salt because it is healthy & from the majority of the respondents 03 (60%) do not buy iodized salt because they do not know why it is necessary. For further see Figure 1 (Hadgu, 2015) and Table 2 (Hadgu, 2015).

Attitude Status

Responses given by the study participants to the Attitude questions are indicated in Table 3. As given in Table 3, majority 113 (80%) of the respondents indicated that their opinion is possible to develop problems related to iodine deficiency through a chronic lack of iodine in body. The study revealed that majority of the respondents 122 (86%), they consumed iodized salt to improve iodine deficiency disorder in the human body and in their opinion 79 (56%), and iodine in the salt affects its taste. Most of

the respondents 109 (77%) the logo tell the quality of the product but 22 (16%) respondents do not know what the logo tell them. In addition, 61 (43%), indicate that their opinion regarding iodine deficiency has a problem in Hawelti Kebelle. For detail see Table 3 (Hadgu, 2015).

Practice Status

Responses given to other questions assessing the practices of respondents are presented in Table 4. The results revealed that majority 137 (96%) buy iodized salt and 110 (78%), add iodized salt at the end of cooking. And some of the respondents 79 (56%) usually purchase salt at the market. Most of the respondents 107 (75%), stored their salt in the recommended way in closed containers. For the 37 (26%) who stored salt in containers without a closed lid and another 02 (1.4%) who stored it in open rubber sachets, there is the likelihood that the iodine content in the salt might drop because of its volatile characteristic. For further see Table 4 (Hadgu, 2015).

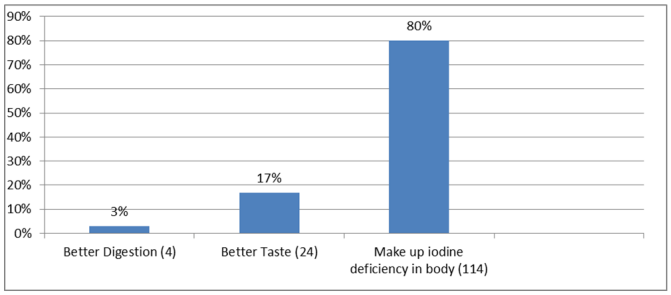


Figure 1: Frequency distribution of knowledge about the Advantage of iodized salt of respondents in Hawelti Kebelle, Axum town, North Ethiopia, 2015.

Table 1: Frequency distribution of selected socio-demographic characteristics of respondents in Hawelti Kebelle Axum town, North Ethiopia 2015 (Hadgu, 2015)

Variable		Frequency	Present
Age in Years	15–19	0	0
	20–24	05	3.5%
	25–29	11	7.7%
	30–34	68	47.8%
	35–39	38	26.7%
	40–44	10	7%
	45–49	03	2.1%
	50–54	02	1.4%
	55–59	03	2.1%
	60–64	0	0
	65+	02	1.4%
Religion	Orthodox	130	91.5%
	Muslim	12	8.5%
	Other	0	None
Educational status	College & above	32	22.5%
	Grade 11–12	24	17%
	Grade 9–10	33	23.2%
	Grade 1–8	37	26%
	Illiterate	16	11%
No. of HH	Total No. family = 549	3.8/HH	-

Source: Primary data

Table 2: Frequency distribution of respondents' knowledge regarding iodized salt and iodine-deficiency disorders in Hawelti Kebelle, Axum town, Tigray, North Ethiopia, 2015. (Hadgu, 2015)

Variable		Freq.	Pre Cent
Have you heard about the problem of a deficiency of iodine in the environment and insufficient intake of iodine in the human body?	Yes	115	81%
	No	27	19%
Have you ever heard of the effects of iodine deficiency on the human body?	Yes	120	85%
	No	22	15%
Which Problems (disorders) of IDDs	Still birth	12	8%
	Heart Pain	03	2%
	Retarded development	15	11%
	Reduced immunity	07	5%
	Memory loss	16	11%
	Goiters	115	81%
	Other	03	2%
Receive information about iodine IDDs and preventing them	Printed material	03	2%
	Television, radio	85	60%
	Medical worker	57	40%
	Member of family	11	8%
	School	13	9%
	Other	01	0.7%
Have you ever heard of iodized salt?	Yes	133	94%
	No	09	6%
Why do not you buy iodized salt?	I do not know why it is necessary	03	60%

Table 2: *(Continued)*

	It is usually more expensive	0	0
	Members of my family do not advise me to	01	20%
	Friends do not advise me to	0	0
	Others	01	20%
Why do you buy iodized salt?	I know that it is healthy	118	83%
	Other kinds of salt are not available	0	O
	Advice from: a doctor	13	9%
	The sales person	01	0.7%
	Members of my family	07	5%
	Friends/ Neighbors	03	2%
	Other	0	-
Do you know the advantages of iodized salt over regular salt?	Yes	125	88%
	No	17	12%
Should salt packaging have information for the buyer about the contents of the product?	Yes	97	68%
	No	06	4%
	I do not know	39	28%
What information would you like to see on the packaging for iodized salt?	Weight	37	26%
	Contents	38	27%
	Health values	51	36%
	Period of storage	15	11%
	Producer	13	9%
	Other	03	2%
Do you think that regular consumption of iodized salt can remove iodine deficiency in the body?	Yes	113	80%
	No	06	4%
	I do not know	23	16%
Why do you think not?	It is not enough	02	33.3%
	We should not eat too much salt	04	66.6%
	Use of salt should be under monitoring by a doctor	0	-

Source: Primary data

Table 3: Frequency distribution of respondents' attitude regarding the perception of iodized salt in Hawelti Kebelle Axum town, Tigray, North Ethiopia, 2015 (Hadgu, 2015)

Variables		Frequency	Percent
In your opinion, is it possible to develop problems related to iodine deficiency through a chronic lack of iodine in your body?	Yes	113	80%
	No	29	20%
From the above what do you need to do about this? To improve IDDs	Play sport	01	0.7%
	Improve the environment	03	2%
	Consume seafood	17	12%
	More and more complete rest	01	0.7%
	Consume iodized salt	122	86%
	Consume vitamins	07	5%
	Consume dairy products	0	-
	Other	0	-
In your opinion, is there a problem regarding iodine deficiency in your Kebelle?	Yes	61	42.9%
	No	81	57%
In your opinion, does iodine in the salt affect its taste?	Yes	79	55.6%
	No	63	44.4%

Source: Primary data

Table 4: Frequency distribution of respondents' practices regarding the use of iodized salt in Hawelti Kebelle, Axum town, North Ethiopia, 2015 (Hadgu, 2015)

Variable		Frequency	Precent
Do you buy iodized salt?	Yes	137	96%
	No	05	4%
Where do you usually purchase salt?	At the supermarket	52	37%
	At the bazaar	11	8%
	At the market	79	56%
	Other	0	-

Table 4: *(Continued)*

How do you usually store your salt?	Store it without a lid	37	26%
	Store it with a closed lid	107	75%
	Other	02	1.4%
Do you usually read the salt packaging?	Yes	101	71%
	No	41	29%
Did you see this logo on your salt?	Yes	120	85%
	No	22	15%
Look for whether it has this logo.	Logo present	43	30%
	Logo absent	12	9%
	Name of producer	29	20%
	Word "iodized" present	80	56%
	Word "iodized" absent	0	-

Source: Primary data

DISCUSSION

Findings regarding knowledge in the present study suggest that majority 81% of the respondents indicated that they heard deficiency of iodine in the environment and insufficient intake of iodine in the human body.

Majority (94%) of the respondents were heard about iodized salt is slightly higher than compared with the findings of a study conducted in Bia District, Ghana [8] but significantly higher than the study conducted in Gondar Town [9]. A significant proportion of the respondents 60% indicated that their major source of information about iodized salt was television and radio; because of town communities are more accessible to electronic media. Forty percent of the respondents indicated that the health workers are their main sources of information regarding iodized salt and similar with a study conducted in Gondar town [9] which is 40.6%. This is very low as compared to a study conducted in LaelayMychew [10] which showed that 60.8% of them obtained information from health workers. Awareness creation and educational activities are sustained mainly in Axum; it is likely that all community would become aware of iodized salt and its importance to human health and wellbeing. Generally, the knowledge of the participants in this study was good.

Findings regarding attitudes in the present study suggest that majority, 88% of the respondents indicated that the taste of iodized salt is different from that of common salt. This is very high as compared to a study conducted in LaelayMychew [10] which shows that 46.2% of households that taste of iodized salt are different from that of common salt. This misconception regarding the differences between the taste of common salt and iodized salt should be corrected through educational messages, particularly because it can act as a barrier and prevent people from using iodized salt.

Findings regarding practice in the present study suggest that high proportion of the respondents 75%, stored their salt in the recommended way in closed containers with a lid at household level. This is slightly high as compared to a study conducted in Ghana [8]) which shows that 62.6% of households have stored in container with a lid. A majority of respondents 78%, add iodized salt at the end of cooking but 18% of them add iodized salt during the process of cooking. This is a very high as compared to a study conducted in Burie and Womberma (West Gojam) which shows that 2% of the respondents add iodized salt at the end of cooking [11].

CONCLUSION

Based on the finding of this study, we can conclude that the knowledge, attitude and practice on utilization of iodized salt at household level were good in Axum town. Using iodized salt, stored salt in a closed container with lid, heard about iodized salt, difference between iodized salt and common salt, adding salt at the end of cooking, and good knowledge, attitude and practice of participants about iodized salt were identified. Hence, households should be sensitized to importance of iodized salt and its proper handling continual and effective use of media for broadcasting health education programs in addition to house-to-house visits by public health workers and health extension workers to sustain and improve on the utilization of iodized salt at the household level.

Recommendation

- Because the study subjects were KAP on iodized salt utilization, in order to reverse the grave consequence of the problem, an immediate creation awareness of iodated salt and establishing a sustainable source are the best options. Moreover, awareness creation on adverse effects of iodine deficiency disorders and appropriate use of iodized salt is highly recommended.
- Continuous and concerted efforts should also be made to strengthen information communication and education (ICE) activities need to be undertaken in order to create awareness about the detrimental effects and prevention of IDD, and encourage iodated salt consumption.
- Further study should be conducted using larger

sample size and use laboratory tests in Axum communities. From the results it is clear that the problem is major public health concern which kills a nation. Therefore, collaborative swift of governmental, non-governmental and concerned bodies is needed.

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Author Contributions

Hadgu Gerensea – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published
Abadit Yohannse – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Berhe Baymot – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Hagos Atsbha – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Kidan Nguse – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Leterbrhan Gebru – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published
Selemun G/kel – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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