

## Knowledge, Attitude and Practice of Mothers Regarding Iodized Salt in Selected Communities in Ibadan, Oyo State

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### ABSTRACT

*Iodine deficiency disorder (IDD) is a public health problem in developing countries such as Nigeria and universal salt iodization has been chosen to be the basic measure for sustainable elimination of IDD. This study evaluated the knowledge, attitude and practice of mothers regarding iodized salt in selected communities in Ibadan. The study was carried out among 250 purposively selected mothers of under-5 children in three randomly selected local government area of Ibadan, Oyo state, Nigeria. A structured interview schedule was used to obtain relevant information from the respondents. Data were analyzed using Statistical Package for Social Sciences version 15. Level of significance was 5%. Chi square test was used to test for the relationship between variables. Less than a third (22.1%) had less than secondary education. About 52% were either full housewives or petty traders. Seventy nine percent have heard about iodized salt but only 48.4% know the main sources of iodine was iodized salt while 51.6% had inadequate knowledge about the sources of iodized salt. Most of the mother (58.0%) had positive attitude towards iodized salt. More than half of the mothers (53.2%) had poor practices regarding iodized salt. Knowledge about iodized salt was found to be significantly associated with usage of iodized. There was association between the attitude and consumption of iodized. The study showed that most mothers with children under 5 years in Ibadan had positive attitude towards iodized salt, however, their knowledge and practices were inadequate.*

**Keywords:** attitude; iodized salt; knowledge; mothers of under-5; practice

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### INTRODUCTION

Iodine is required during the synthesis of thyroid hormones, which plays 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 post natal life (Sebotsa *et al.*, 2009). Iodine deficiency disorders (IDD) has been adopted to describe the spectrum of effects of iodine deficiency that include goiter, endemic cretinism, psychomotor delay and increased pre- and post-natal mortality (Takele *et al.*, 2003). The consequences of iodine deficiency can be found at all stages of life, but mostly in vulnerable groups such as children, adolescents and pregnant women (Dragan *et al.*, 2006)

Globally, Iodine deficiency disorders (IDDs) are associated with many thyroid related diseases including hypothyroidism, hyperthyroidism, goiter and cretinism and also inherit real risk of coronary artery diseases, autoimmune disorders, psychiatric disorders, cognitive impairment and cancer. (Patrick, 2008, Verheesen and Schweitzer, 2008, Simone, 2010). Iodine deficiency disorders remain a significant public health problem in many countries. Recent studies have shown that over 200 million people in the world are affected by the most visible symptom of iodine deficiency disorder (Takele *et al.*, 2003). Globally, 30% of the world's population is

affected by iodine deficiency disorders and more than 150 million people are affected in Africa alone. (Takele *et al.*, 2003). According to World Health Organisation estimates, goiter is present in 28.3% of the African population and approximately 25% of the global burden of iodine deficiency as measured by disability-adjusted life years (DALYS) occurs in Africa (Okosieme, 2006). Lar *et al* (2007) reported that goiter rate in Nigeria was between 15% and 59% which still makes it a public health problem. The prevalence of iodine deficiency disorders was established by measurement of total goiter rate and the total goiter rate for Nigeria was put at 20%, thereby generating public health concern (Egbuta *et al.*, 2002).

The most effective preventive measures against iodine deficiency disorder is universal salt iodization recommended by the International Iodine Deficiency Disorders Elimination Program (Okosieme, 2006). All food-grade salt, used in household and food processing should be fortified with iodine as a safe and effective strategy for the prevention and control of iodine deficiency disorders in populations living in stable and emergency settings. (WHO, 2014). This study is therefore necessary to provide information on the knowledge,

attitude and practice of mothers regarding iodized salt in Ibadan, Oyo state.

## MATERIALS AND METHODS

### *Study Description*

The descriptive study was carried out in three randomly selected local governments' areas (LGA) which include: Ibadan North Local Government, Ido Local Government and Ibadan South-East Local Government. A community was selected from each of the selected LGA using simple random sampling technique. A systematic purposive sampling technique was used to select households consisting of mothers with children under 5 years of age. The sampling unit was household and after selection of first household by lottery method, every 4<sup>th</sup> household that have mothers with under 5 (U-5) children was selected for the assessment of knowledge attitude and practice of mothers regarding iodized salt and iodine deficiency disorders.

Eighty three percent of people who are familiar with iodized was used as prevalence and 95% confidence interval was used to get minimums sample size. Using formula according to the Food and Agricultural Organization (1995) a sample size of 216 subjects was gotten which was rounded up to 250 subjects that were included in the study.

A pretested and validated structured, interview schedule was used to collect information on the socio-demographic characteristics, knowledge, attitude and practice of mothers on iodized salt and iodine deficiency disorders.

Knowledge was assessed using ten questions relating to iodine deficiency disorder and iodized salt, every right answer was scored 10 marks and every wrong answer was scored zero. Knowledge score was calculated for each respondent, a score of 50<sup>th</sup> percentile or less were categorized as inadequate knowledge while knowledge score above 50<sup>th</sup> percentile were categorized adequate knowledge.

To assess respondents attitude towards iodized salt, 5-point likert scale was constructed by asking respondents series of positive and negative statements to reflect underlying attitude in a variety of ways. Attitude statements had five possible responses; strongly agree, agree, uncertain, strongly disagree, and disagree. For positive statements, response including strongly agree and agree were categorized as positive attitude while strongly disagree, disagree and uncertain were categorized as negative attitude and vice versa. Every right answer was scored twelve and half and every wrong answer was scored zero. Marking the total attitude score summed up to hundred, those with score greater than 50<sup>th</sup> percentile were rated to have positive attitude and those with score of 50<sup>th</sup> percentile and below were rated to have negative attitude.

Practices were assessed by asking questions about the cooking practices and habit of purchase of iodized salt. Every good practice was scored 7.7 marks and wrong/bad practice was scored zero. The practice score was calculated for each respondent out of a hundred. Practice score above 50<sup>th</sup> percentile were labeled good practice

while practice score of 50<sup>th</sup> percentile and below were labeled poor practice.

### *Statistical analysis*

Data obtained were analyzed using SPSS windows version 15. The level of significance was set at 5%. Descriptive statistics was used to summarize the continuous variables while Chi square test was used to evaluate the relationship between variables.

## RESULTS

Table 1 shows the socio demographic status of the respondents. The mean age of respondents was 28years, most of the mothers were petty traders, 11% of the respondents had no formal or primary education and a high percentage (71.7%) of the respondents earned less than #15,000 monthly.

### **Knowledge of respondents on iodized salt and iodine deficiency disorder**

Table 2 shows the knowledge of respondent. Majority (51.8%) of the respondents lacked knowledge of what iodine is; only 48.4% indicated that iodine is a mineral and knew that iodized salt is the main source of iodine in their foods, Also, 79.4% of the respondents indicated that they have heard about iodized salt and 48.5% of the respondents identified iodized salt through labeling, 28.7% identified iodized salt through the taste, 17.8% identified through texture while 5.0% identified it through colour.

### **Attitude of Respondents Regarding Iodized Salt**

Table 3 shows the attitude of the mothers. Some (48.4%) usually buy iodized salt and less than half of the respondents (47.6%) disagreed that iodized salt incur more cost,42.4% of the respondents .disagreed that food cooked with iodized salt is less delicious,48.0% agreed to giving children iodized salt. More than half of the respondents (57.8%) agreed to using iodized salt exclusively.

### **Practice regarding iodized salt**

Table 4 shows that more than half (51.6%)of the respondents had inadequate knowledge about iodine and iodized salt,58% of the respondents had positive attitude regarding iodized salt,53.2% of the respondents had poor practice towards iodized salt.

Table 5 shows that less than average of the respondents (48.4%) indicated they usually read the label of the packaging during purchase of salt and more than average (79.9%) of the respondents obtained their salt from local shops.

## DISCUSSION

The results of this study showed that more than average (51.6%) of the respondents had inadequate knowledge of iodine and iodized salt but more than half of the respondents were aware that iodized salt is important for children and pregnant women and most of the respondents were aware of its health benefits.

**Table 1:** Socio-demographic characteristics of the respondents.

Group	Number Frequency	Percentage
<b>Age</b>		
16-25years	97	38.7
26-30years	107	42.8
Above 35 years	46	18.5
<b>Place of Residence</b>		
Urban	84	33.6
Sub-Urban	82	32.8
Rural	84	33.6
<b>Religion</b>		
Islam	77	30.6
Christianity	167	66.9
Traditional	6	2.5
<b>Highest Level of Education</b>		
No Formal Education	28	11.1
Primary School	40	16
Secondary School	78	31.1
Tertiary Education	104	41.6
<b>Employment Status</b>		
Full Housewife	37	14.6
Petty Trader	121	48.6
Employed	92	36.9
<b>Household Income Per Month</b>		
Less than N5,000	73	29.2
N5,000-N10,000	69	27.5
N11,000-N15,000	37	15
N16,000-N20,000	23	9.2
Above N20,000	48	19.2
<b>Type of Housing</b>		
Brick	30	12
Concrete	220	88
<b>Total</b>	<b>250</b>	<b>100</b>

A similar result was reported by Dragan *et al* (2006) who found that the participants were not well informed about the importance of using iodized salt in prevention of iodine deficiency disorders. It was reported that only half of the participants in Dragan's study (49.1%) knew of iodine deficiency disorders. Most of them were familiar with goiter (70.2%) while only 14.5% are able to single out stillbirth as a consequence of iodine deficiency disorders. Similar result was also reported by Gul Nawaz Khan *et al*, (2012) that the respondents were not well informed about the advantages of using iodised salt in prevention of IDD. Most of them were familiar with goiter, while 17.1% of the respondents in Sindh and 42.2% in Punjab mentioned that use of iodised salt helped to prevent goiter. With regard to the factors that influence the use of iodized salt and iodine consumption, the results showed that literacy status and thorough awareness of IDD influence positively the usage of iodized salt (Okosieme, 2006).. The result was contrary to the survey conducted by Palafox *et al* (2002) among school children,

mothers/caregivers (of 1-5 years old children), pregnant and lactating women in selected Philippine, all the three groups of respondents were more knowledgeable on the sources of the micronutrients than on the deficiency diseases arising from lack of a particular nutrient. The study further revealed that more than half (58.0%) of the mothers had positive attitude towards iodized salt and agreed that iodized salt does not incur more cost than its benefits and it has no negative effect on the taste of food. Regardless of the fact that not all the respondents are aware of iodine and its deficiencies, 82.3% of the respondents agreed to iodine being added to table salt and this finding is similar to the study of Takele *et al*(2003) conducted among the food caterers and shopkeepers which showed that half of the caterers (50.0%) and 80.0% of the shopkeepers had favorable attitude towards iodized salt. Study on patients with hyperthyroidism in Free State of South Africa indicated that the patients agreed to iodine being added to salt (Sebotsa *et al.*, 2009).

**Table 2:** Percentage Distribution of respondents on knowledge regarding iodized salt and iodine deficiency disorders.

Parameter	Frequency	Percentage
What is Iodine?		
Mineral	121	48.4
Main source of iodine in your foods		
Iodized salt	121	48.4
Have you heard about iodized salt?		
Yes	199	79.4
No	51	20.6
How do you identify iodized salt?		
Labeling	121	48.5
Taste	71	28.7
Texture	45	17.8
Colour	13	5
Effects of iodized salt?		
At least one	95	38.1
Two or more	41	16.2
No idea	114	45.7
Do you know that iodized salt prevents IDD?		
Yes	138	55
No	103	41.3
No Response	9	3.7
Have you ever seen iodized salt?		
Yes	208	83.2
No	42	16.8
Is iodized salt sold in your locality?		
Yes	189	75.6
No	61	24.4
Is iodized salt important for children?		
Yes	201	80.6
No	49	19.4
Is iodized salt important for everybody?		
Yes	193	77.3
No	57	22.7
Total	250	100

IDD: Iodine deficiency disorder

*Attitudes of mothers regarding iodized salt*

**Table 3:** Attitude of respondents regarding iodized salt.

Variables	Agree	Uncertain	Disagree
Do you buy iodized salt?	121 (48.4%)	-	129 (51.6%)
Iodized salt incur more cost than its benefits	21(8.4%)	110(44.0%)	119(47.6%)
Food prepared with iodized salt taste less delicious than non-iodized salt does	87(34.8%)	57(22.8%)	106(42.4%)
Giving iodized salt to children is good for them	120(48.0%)	50(20.0%)	80(32.0%)
Iodized salt should be handled and stored properly	171(68.4%)	66(26.4%)	13(5.2%)
Iodized salt needs greater care to store	152(65.0%)	71(30.3%)	11(4.7%)
Using iodized salt exclusively	144(57.8%)	77(30.6%)	29(11.6%)
Every member of my family should use iodized salt exclusively	141(56.5%)	80(31.9%)	29(11.6%)
Iodine should be added to table salt for preparing meals	205(82.0%)	23(9.2%)	22(8.8%)

**Table 4:** Knowledge, attitude and practice of respondents in each community.

	Abadina	Oranyan	Apete	Total
<b>Knowledge</b>				
0-50% (Inadequate)	34(40.5%)	53(63.9%)	42(50.6%)	129(51.6%)
Above 50% (Adequate)	50(59.5%)	30(36.1%)	41(49.4%)	121(48.4%)
Total	84(100.0%)	83(100.0%)	83(100.0%)	250(100%)
<b>Attitude</b>				
0-50% (Negative)	33(39.3%)	26(31.3%)	46(55.4%)	105(42.0%)
Above 50% (Positive)	51(60.7%)	57(68.7%)	37(44.6%)	145(58.0%)
Total	84(100.0%)	83(100.0%)	83(100.0%)	250(100%)
<b>Practice</b>				
0-50% (Poor)	48(57.1%)	29(34.9%)	56(67.5%)	133(53.2%)
Above 50% (Good)	36(42.9%)	54(65.1%)	27(32.5%)	117(46.8%)
Total	84(100.0%)	83(100.0%)	83(100.0%)	250(100%)

**Table 5:** Practice of respondents regarding iodized salt.

Parameters	Frequency	Percentage
What Brand name of salt do you use?		
Anapuna Salt (Iodized salt)	88	35.2
Dangote Salt (Iodized salt)	77	30.8
Mr Chef (Iodized salt)	40	16
Puno Salt (Non iodized salt)	45	18
Why do you choose the brand?		
Taste	91	36.3
Cost	31	12.5
Availability	80	32.1
None	48	19.2
Salt brand iodized salt		
Yes	121	48.4
No	129	51.6
Reading product label		
Yes	121	48.4
No	91	36.4
Cannot read	38	15.2
Source of salt		
Shops	200	80
Street vendors/hawkers	48	19.2
Salt producers	2	0.8
Frequency of purchase		
Every week	84	33.6
Every month	105	42
Every 2 months	32	12.8
Every 3 months	20	8
Once in 6 months	9	3.6
Quantity purchased		
Small bag	131	52.4
Big bag	26	10.4
Tins/other household measures	93	37.2
Time of adding salt to food		
Late end of cooking	48	19.2
In the early beginning	75	30
In the middle of cooking	127	50.8
Expose of salt to sunlight		
Yes	25	10
No	225	90
Types of storage		
Open container	55	22
Container with hole at that op	31	12.4
Glass container with lid	33	13.2
Plastic bag in which the salt was bought	131	52.4
Type of container		
Moist container	12	4.8
Dry container	238	95.2
Reasons for buying iodized salt		
They are the type salt available in the locality	129	51.6
Doctor's recommendation	70	28
Shop assistant's recommendation	51	20.4
Total	250	100

The results of this survey indicates that despite the inadequate knowledge and positive attitude of the respondents toward iodized salt, 53.2% of the respondents had poor practices towards iodized salt and this is similar to the study conducted by Takele *et al* (2003) who reported that higher education level was

significantly associated with good practices (no habit of sunlight exposure of salt) ( $P = 0.002$ ), better education may influence good practices therefore, the poor practice recorded in this study may be linked to the inadequate knowledge of the mothers and this may suggest the need for more awareness and better education

on iodine, iodized salt and the right practices in iodized salt usage because 80% of the respondents in this study generally add salt to food at the early beginning and in the middle of cooking their foods, more than half (54.0%) of the respondents stored their salt in the plastic bags in which the salt was bought which indicates a poor practice among the respondents because iodine is a volatile substance which is lost when salts are not properly stored. There was a significant relationship between knowledge of mothers and iodized salt usage, there was also a relationship between some socio demographic characteristics (level of education, household income) of respondent and usage of iodized salt and this agreed with the study conducted by Van *et al* (2000) that with regards to the influencing factors on usage of iodized salt and intake of iodine, literacy status and thorough awareness on iodine deficiency disorders of the respondents influences positively the usage of iodized salt.

## CONCLUSION

The result of the survey showed that most mothers with children under 5 years in Ibadan had positive attitude towards iodized salt, however, their knowledge and practices were inadequate and this might be the characteristics of women in other parts of Nigeria. This indicates the need for continuous and intensive public enlightenment campaign and effective monitoring regarding proper use and storage of iodized salt and the consequence of its deficiency to health.

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