

A Comparative Study on the Awareness of Adolescent Girls and Old Age Women on the Role of Iodine and its Impact of their Health Conditions

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ABSTRACT

The present study has been carried out on 200 adolescent girls and old age women above 50 years of Muzaffarpur and East Champaran district of Bihar to study the awareness of adolescent girls and old age women on the role of iodine and its impact of their health conditions. The percentage of ignorance upon importance of iodine was high (85.50%), the condition which make people unable to understand the role of iodine present in food or any goitrogens which inhibit the absorption of iodine in body. The main source of information was advertisement on TV making adolescent girls more aware than old age women. The symptoms of thyroidism due to iodine deficiency had been observed in form of palpable neck among 7.00 per cent respondents and visible goitre among 2.00 per cent respondents. The deficiency of iodine is not visible among more than 90 per cent respondents. It does not mean that they are completely normal. The deficiency of iodine may be in subclinical stage and hence, not visible clinically. The continuous monitoring, supervision and awareness creation are recommended to make the people free from these conditions.

Key Words : Adolescent girls, Old women, Iodine, Thyroidism, Health conditions

INTRODUCTION

Iodine is found primarily in plants grown in iodine-sufficient soil and in seafood, particularly kelp and saltwater fish. A concept introduced in 1983 stated that a population not receiving the daily requirements of iodine experiences developmental abnormalities in all age groups. These include not only goiter with impaired thyroid function but also decreased fertility, increased perinatal mortality, retarded growth, and impairment of mental development, including its extreme form, endemic cretinism. Further in 1985, with the support of the United Nations Children's Fund (UNICEF), WHO, and the Australian government, the International Council for Control of Iodine Deficiency Disorders (ICCIDD) was founded in order to bridge the gap between available knowledge on IDD and its application, and to achieve the sustainable elimination of IDD (Hetzl *et al.*, 1988; Aghini-Lombardi *et al.*, 1995; Chandra *et al.*, 2003).

The World Health Organization (WHO) reports that despite efforts at salt iodization, 2 billion people (approximately 29%) worldwide are iodine deficient (De Bonoist *et al.*, 2007). Health effects of iodine deficiency are substantial, and deficiency is currently the leading cause of brain damage. In addition, hypothyroidism, goiter, cretinism, cognitive and neurological disorders, gastric cancer, and breast disease have been associated with iodine deficiency.

There are a number of factors responsible for iodine deficiency; awareness and knowledge are the important ones affecting the health conditions of the people (Appel *et al.*, 2011). Considering the role of adolescents girls as 'to be the guiding force' and old age women as 'guiding force'; the present investigation has been planned to study the awareness of adolescent girls and old age women on the role of iodine and its impact of their health conditions.

How to cite this Article: Kumari, Pratibha and Singh, Bandana (2019). A Comparative Study on the Awareness of Adolescent Girls and Old Age Women on the Role of Iodine and its Impact of their Health Conditions. *Internat. J. Appl. Soc. Sci.*, 6 (3) : 609-612.

METHODOLOGY

The study was carried out in Muzaffarpur and East Champaran districts located in North Bihar. A total of fifty (50) adolescent girls of age between 12 to 19 years and 50 old age women were selected from each of both districts. Thus, the total number of respondents under the study was 200 (two hundred). The primary data had been collected through survey method with the help of schedule developed for the purpose. The respondents were interacted for the study and observed for physical examination (Alexander *et al.*, 2017).

Technique to examine the state of thyroidism:

The thyroid gland normally lies just caudal to the thyroid cartilage in the anterior neck. The respondent was asked to hold a glass of water and be seated. The head of the respondent was placed in slight hyperextension with good crosslight falling on the anterior neck and then the respondent was asked to swallow. The outline of the thyroid gland in thin individuals can be observed frequently as a protuberance on both sides of the trachea. The respondent has been observed for abnormal enlargement, contour, asymmetry, and masses while she swallows repeatedly. The neck was inspected for abnormal masses and prominent pulsations.

RESULTS AND DISCUSSION

Data on awareness of the respondents upon importance of iodine in the human body in study area have been collected and presented in Table 1. It has been

observed that 100 per cent of the women respondents either in Muzaffarpur or in East Champaran districts are ignorant about the role of iodine in human body. In case of girl respondents also, majority of them are ignorant. The percentage of such ignorance was found to be 76.00 per cent in Muzaffarpur district and 66.00 per cent in East Champaran district. Overall, out of 200 respondents, 85.50 per cent are ignorant (Table 1). They do not understand the need of iodine in the growth and development of human body. Definitely, they will not be able to take care of the iodine present in food or any goitrogens which inhibit the absorption of iodine in body.

The deficiency of iodine/ thyroidism may result into mental problem, underweight, overweight, goitre, infertility, myxoedema, high blood pressure, pre-mature death of babies etc. The respondents were assessed for the awareness on the effect of thyroidism on health and data collected have been presented in Table 2.

The respondents were mainly having idea upon the results of deficiency of iodine into goitre. Out of total 200 respondents, 14.50 per cent respondents were having knowledge of occurrence of goitre due to iodine deficiency followed by 2.00 per cent respondents regarding mental problem and 1.50 per cent respondents regarding the cases of underweight and overweight. The respondents were not having idea about the occurrence of infertility, myxoedema, high blood pressure, pre-mature death of baby etc. due to thyroidism either in Muzaffarpur or in East Champaran district. Even the limited knowledge was observed among girls only. None of the women respondents was having any idea. Out of total 29 girl

Table 1 : Awareness of respondents on the role of iodine for human body

Study area	Respondents	Yes	No	Total
Muzaffarpur	Girls (n = 50)	12 (24.00)	38 (76.00)	50 (100.00)
	Women (n = 50)	0 (0.00)	50 (100.00)	50 (100.00)
East Champaran	Girls (n = 50)	17 (34.00)	33 (66.00)	50 (100.00)
	Women (n = 50)	0 (0.00)	50 (100.00)	50 (100.00)
	Total (N= 200)	29 (14.50)	171 (85.50)	200 (100.00)

Figures in parentheses indicate the percentage.

Table 2 : Impact of thyroidism on health

Statement	Muzaffarpur		East Champaran		Total (N = 200)
	Girls (n = 50)	Women (n = 50)	Girls (n = 50)	Women (n = 50)	
Mental problem	2 (4.00)	0 (0.00)	2 (4.00)	0 (0.00)	4 (2.00)
Underweight	2 (4.00)	0 (0.00)	1 (2.00)	0 (0.00)	3 (1.50)
Overweight	2 (4.00)	0 (0.00)	1 (2.00)	0 (0.00)	3 (1.50)
Goitre	12 (24.00)	0 (0.00)	17 (34.00)	0 (00.00)	29 (14.50)
Infertility	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)

respondents, 17 respondents (34.00%) from East Champaran and 12 respondents (24.00%) from Muzaffarpur district were having idea that deficiency of iodine results into goitre. Four per cent respondents each from East Champaran and Muzaffarpur district were having idea that mental problem may occur due to deficiency of iodine.

Though limited respondents were having awareness on the occurrence of goitre/mental problems due to deficiency of iodine, they were assessed for the source from where they got such knowledge. The data on the source of information regarding the importance of iodine has been presented in Table 3.

It is revealed from Table 3 that in Muzaffarpur district, 4.00 per cent girl respondents each got such knowledge from family members and advertisement whereas 8.00 per cent girl respondents got such knowledge from school. In East Champaran district, 2.00 per cent girl respondents each got such knowledge from family members and 10.00 per cent from advertisement whereas 22.00 per cent girl respondents got such knowledge from school. Out of total 200 respondents, only 14.50 per cent respondents that too only girl respondents were having knowledge on the importance of iodine for health. Main source of information for these students was school (9.50%). Some of them got such information from advertisement on TV (3.50%) and other members of the family (1.50%). Hence, the school may be an excellent platform for passing such information to their students.

Health conditions of girls and women:

In case of hypothyroidism the body lacks sufficient thyroid hormone. Since the main purpose of thyroid hormone is to “run the body’s metabolism,” it is understandable that people with this condition will have symptoms associated with a slow metabolism. Millions of people are currently hypothyroid and don’t know it. There are several other rare causes of hypothyroidism, one of them being a completely “normal” thyroid gland that is not making enough hormone because of a problem in the pituitary gland. If the pituitary does not produce enough thyroid stimulating hormone (TSH) then the thyroid simply does not have the “signal” to make hormone. So it doesn’t. The hypothyroidism commonly results into fatigue, weakness, weight gain or increased difficulty losing weight, coarse and dry hair, dry and rough pale skin, hair loss, cold intolerance, muscle cramps and frequent muscle aches, constipation, depression, irritability, memory loss, abnormal menstrual cycles, decreased libido etc. Each individual patient may have any number of these symptoms, and they will vary with the severity of the thyroid hormone deficiency and the length of time the body has been deprived of the proper amount of hormone. Because the body is expecting a certain amount of thyroid hormone the pituitary will make additional thyroid stimulating hormone (TSH) in an attempt to entice the thyroid to produce more hormone. This constant bombardment with high levels of TSH may cause the thyroid gland to become enlarged and form a goiter (termed a “compensatory goiter”). Left untreated, the symptoms of hypothyroidism will usually progress. Rarely,

Table 3 : Awareness on the source of information on importance of iodine

Study area	Respondents	Family member	Health workers	Advertisement	Newspaper	School	Total
Muzaffarpur	Girls (n = 50)	2 (4.00)	0 (0.00)	2 (4.00)	0 (0.00)	8 (8.00)	12 (4.00)
	Women (n = 50)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
East Champaran	Girls (n = 50)	1 (2.00)	0 (0.00)	5 (10.00)	0 (0.00)	11 (22.00)	17 (8.50)
	Women (n = 50)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
	Total (N= 200)	3 (1.50)	0 (0.00)	7 (3.50)	0 (0.00)	19 (9.50)	29 (14.50)

Table 4 : Presence of symptoms of iodine deficiency among adolescents and women

Study area	Respondents	Palpable neck	Visible goitre	Not visible	Total
Muzaffarpur	Girls (n = 50)	3 (6.00)	0 (0.00)	47 (94.00)	50 (100.00)
	Women (n = 50)	8 (16.00)	2 (4.00)	40 (80.00)	50 (100.00)
East Champaran	Girls (n = 50)	1 (2.00)	0 (0.00)	49 (98.00)	50 (100.00)
	Women (n = 50)	2 (4.00)	2 (4.00)	46 (92.00)	50 (100.00)
	Total (N= 200)	14 (7.00)	4 (2.00)	182 (91.0)	200 (100.00)

Figures in parentheses indicate the percentage

complications can result in severe life-threatening depression, heart failure, or coma.

In the present investigation, the data on health conditions of adolescent girls of 12-19 years and old age women above 50 years of age has been collected and presented in Table 4.

The symptoms of thyroidism due to iodine deficiency had been observed among girls and women respondents in Muzaffarpur and East Champaran districts. Among 91.00 per cent respondents, the iodine deficiency was not visible. Among 7.00 per cent respondents, the case of palpable neck was observed, whereas there was the case of visible goitre among 2.00 per cent respondents. The case of palpable neck was highest (16.00%) among women followed by 6.00 per cent among girls of Muzaffarpur district. There was only 4.00 per cent and 2.00 per cent cases of palpable neck among women and girl respondents, respectively in East Champaran district. Altogether, among 98.00 per cent girls in East Champaran district, the deficiency symptoms of iodine were not visible followed by 94.00 per cent girls in Muzaffarpur district, 92.00 per cent women in East Champaran district and 80.00 per cent women in Muzaffarpur district. It does not give the green signal that all of these respondents do not have deficiency of iodine and they are completely normal.

The deficiency of iodine may be in subclinical stage and hence, not visible clinically. The continuous monitoring, supervision and awareness creation are required to make the people free from these conditions.

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