



المعهد العالي للصحة العامة
High Institute of Public Health

High Institute of Public Health
Department of Nutrition

Iodine Content in Commonly Consumed Egyptian Foods and Its Dietary Intake among Pregnant Women in Alexandria

**A Thesis submitted in partial fulfillment of the requirements for
the degree of Master of Public Health Sciences**

In

Nutrition

Presented by

Mai Abdallah Mohamed Ragab

B.Sc., Faculty of Science, Alexandria University, 2012

2018

SUMMARY

Iodine is an essential component of the hormones produced by the thyroid gland. Thyroid hormones, and therefore iodine, are essential for mammalian life. Iodine (as iodide) is widely but unevenly distributed in the earth's environment. Iodine is an essential trace element of particular importance to human nutrition. Iodine is an essential component of thyroid hormones, which are important in growth and development.

Maternal iodine deficiency during pregnancy results in fetal iodine deficiency. It is accompanied by higher rates of stillbirths, abortions and congenital abnormalities. It constitutes a threat to early brain development with consequent physical and mental retardation and lower cognitive and motor performance in later life.

Iodine deficiency in populations residing in iodine deficient areas will persist until iodine enters the food chain through addition of iodine to foods (eg, iodisation of salt) or dietary diversification introduces foods produced in iodine-sufficient regions.

The aim of the present study was to study iodine content in commonly consumed Egyptian foods, its dietary intake among pregnant women in Alexandria.

The study was carried out in Family Health Centers affiliated to the Ministry of Health and Population at Alexandria Governorate, Laboratory of Nutrition department in High Institute of Public Health and laboratory of Nutrition department in Pharos University in Alexandria.

A sample of 400 pregnant women at the third trimester attending the selected family health centres included from August 2016 to December 2016 by using cross-sectional study where Pregnant women in first and second trimester and pregnant women with pre-existing thyroid disease were excluded from the current study.

Stratified random sample technique was used. Stratification was based on Alexandria Health districts. Six districts were randomly selected from a list containing 7 health districts in Alexandria. One family health center was selected at random from each district. The required sample size was distributed between family health centers by proportional allocation method according to number of pregnant women attending the selected facilities, yielding 149 pregnant women from Karmouz, 69 pregnant woman from El-Mandara, 52 pregnant woman from Somoha, 64 pregnant woman from Moharam Bek, 34 pregnant woman from El-Gomrouk, and 32 pregnant woman from El-Dekhila health care facility.

Data was collected from pregnant women using pre-designed interviewing questionnaire that include personal data, medical history, dietary habits and life style, dietary intake of iodine. Each pregnant women was asked about consumption frequency of all food items during the previous week with stress on food rich in iodine. Each subject was asked to indicate how often on the average she consumed each food item (number of times per day, per week or less than that).

Identical samples of all foods were subjected to cooking by the main traditional and usual methods of Egyptian cooking and were be prepared for determination of iodine content.

Statistical analyses were conducted using PC with the software version 21 and Microsoft Excel 2010. Descriptive statistics were calculated which included: maximum, minimum, arithmetic mean, standard deviation, and median.

The results of the present study revealed that the prevalence of inadequate iodine intake among pregnant women attending family centers in Alexandria was 28.5%.

The highest iodine content was found in milk and milk products (0.255 ± 0.005), followed by vegetables (0.242 ± 0.007), while the lowest iodine content was found in fruits (0.146 ± 0.005).

Beverages had the highest daily consumption among pregnant women (224.509 ± 187.88), followed by fruits (66.16 ± 55.50), then starch group (59.863 ± 42.520), while sugar and sweet had the lowest daily consumption among pregnant women (7.907 ± 6.540).

The highest mean dietary intake of iodine among pregnant women came from beverages (270.22 ± 27.92), followed by fruits group (115.89 ± 8.10), then starch (82.54 ± 8.43), while the lowest dietary intake of iodine came from sugar and sweets (3.73 ± 1.06).

From data of present study, the following can be concluded:

- Iodine inadequacy was prevalent among pregnant women attending health care facilities in Alexandria based on their dietary intake. About one third (28.8%) of pregnant women had iodine inadequate intake.
- The highest dietary iodine content was found in milk group and milk products followed by vegetables and the lowest iodine content was found in fruits.
- The highest daily iodine intake among pregnant women consumed from beverage followed by fruits and the lowest dietary iodine intake among pregnant women came from sugars and sweets.
- Most of pregnant women consume beverages excessively that were previously deficient in iodine leading to inadequate intake of iodine among them.

From the results of this study, the following is recommended:

1. Encourage intake of dietary supplements containing iodine during pregnancy.
2. Nutrition education for pregnant women about dietary sources of iodine, importance and outcomes of iodine deficiency.
3. Development of validated analytical methods for assessing iodine in food.
4. Regular follow up of iodine nutrition status assessment for pregnant women either by dietary assessment or by estimation of urinary iodine concentration.
5. Governmental legislations and regulations for monitoring of iodized salt production to check iodine level added to salt, to ensure equal distribution of iodine within salt and to increase quality of produced salt.