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IODINE STATUS OF PREGNANT WOMEN AND CHILDREN AGED 6 TO 12 YEARS
FEEDING FROM THE SAME FOOD BASKET IN MOPANI DISTRICT, LIMPOPO PROVINCE,
SOUTH AFRICA

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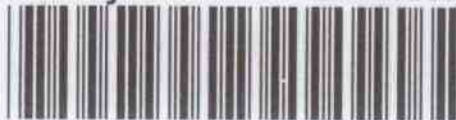
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ABSTRACT

Introduction: Iodine deficiency (ID) is a worldwide problem that leads to impaired cognitive development, clinical goiter and the syndrome of endemic cretinism. Pregnant women and school age children are the most vulnerable groups for ID. Sufficient iodine is required during pregnancy to ensure adequate maternal thyroid hormones production. ID in utero and early childhood damages the developing brain, leading to the loss of millions of intelligent quotient (IQ) points globally.

Objectives: The aim of the study was to assess iodine status of pregnant women and children aged 6 to 12 years feeding from the same food basket in Mopani district, Limpopo Province, South Africa.

Methods: The study was cross-sectional conducted in five municipalities of Mopani District in Limpopo Province. The total number of clinics selected was 41. A total of 565 pregnant women and 116 children aged 6-12 years were recruited. Urine iodine concentration (UIC) and drinking water iodine concentration were analyzed using the Sandell-Kolthoff reaction. The salt samples were analyzed by means of the iodometric titration method. Dried blood spots on filter paper were analyzed for whole blood thyrotropin /Thyroid Stimulating Hormones (TSH) with an immunoassay.

Results: The findings showed that 52.5% of household salt had iodine concentration level more than 15ppm. Most of household drinking water (41.3%) had iodine concentration level greater than 60 μ g/L. The median iodine concentration of drinking water in Mopani District was 46.2 μ g/L. Almost half of pregnant women (44.9%) had UIC level less than 150 μ g/L. The maternal overall median UIC level was 164 μ g/L indicating maternal iodine sufficiency. However, median UIC in the first and third trimesters was below 150 μ g/L, indicating iodine insufficiency. The TSH levels of pregnant women were measured per trimester and majority of study participants had normal TSH levels. Most children (64.3%) had UIC level greater than 300 μ g/L. The median UIC level of children was 386 μ g/L indicating excessive iodine status.

Conclusion: Iodine status of children in this study was excessively high. It was twice times higher than the iodine status of pregnant women. It is difficult to explain this significant difference in iodine status of these two groups since they were feeding from the same food basket. It can then be concluded that the median UIC of school aged children may not be an adequate surrogate for monitoring iodine nutrition in pregnant women as was previously assumed.