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Estimation of dietary iodine intake for adults living in North Sulawesi, Indonesia

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Iodine deficiency disorders (IDD) occur as result of sub-optimal dietary iodine intake which impairs thyroid hormone production. The consequences of deficiency in adults may result in goitre and impaired mental function [(1)]. Globally 2 billion people are thought to be iodine deficient [(1)]. The principle method to tackle IDD is through fortification of salt with iodine [(1)]. Indonesia has a salt iodisation policy in place, with fortification level set at > 30 ppm with potassium iodate (KIO3)[2]. Indonesia is reported to have an adequate iodine status (MUIC 215 (g/L)[3], however, studies found sub-groups of the population to be deficient [(4)]. The aim of this study was to assess the dietary iodine intake of adults living in North Sulawesi, Indonesia.

This small cross-sectional study, recruited adults, aged >18 years. Estimation of dietary iodine intake and salt consumption determined via an interviewer led 24-hour dietary recall using a multiple pass method. Analysis of the nutritional composition of the diet completed in Nutritics, 2020. For the purpose of this study salt was assumed to be fortified with iodine. Statistical analysis conducted in IBM SPSS v26. Results for dietary iodine intake reported as median values and interquartile range (IQR) for the population group overall and for males and females separately. Mann Whitney test performed to compare dietary iodine intakes between males and females. Salt intake reported as mean and S.E.M. Correlation analysis performed to test the potential influence of household income on iodine intake. Dietary iodine intake as a percentage of WHO/FAO Reference Nutrient Intake (RNI) also evaluated.

Thirty adults (males and females) participated in the study, (analysis completed for n 17, thirteen people excluded due to incomplete information), aged 22–68 year's (males n 6, females n 11). Household income was not correlated with iodine intake (p 0.759). Iodine intakes as a percentage of RNI revealed median dietary iodine intakes overall were low compared to RNI (88.02 µg, IQR 34.72, 130.98). Intakes were slightly higher for males (84.17µg, IQR 45.75, 195.97) (56% of the RNI) compared to females (58.11 µg, IQR 34.67, 93.37) (39% of the RNI) although the difference was not significant (p 0.763). Dietary iodine intake positively correlated with quantity of salt consumed (m 2.33 g ± 0.61, p 0.000).

The results from this study suggest dietary iodine intakes for adults are low compared to the RNI despite the assumption iodised salt is used. Further research is required to understand the availability and level of fortification of salt in North Sulawesi, its contribution to iodine intakes, and if cost of salt is a factor for purchasing decisions.

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