

## Investigating the association between fish consumption, dietary patterns and selenium status in Seychellois pregnant women

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Fish is a rich source of selenium (Se), a powerful antioxidant which is essential for human reproduction and child neurodevelopment<sup>(1)</sup>. Se deficiency has been associated with numerous pregnancy complications, demonstrating that an insufficient Se concentration can affect maternal and child health<sup>(2)</sup>. According to current European recommendations, women should consume 60 µg Se/d<sup>(3)</sup>. Inadequate Se intake and status has been reported in Europe, the United Kingdom, and the Middle East<sup>(4)</sup>. There has been limited research to investigate the effect of fish consumption on the Se status of pregnant women, particularly those with high fish consumption. The aim of this study was to examine the relationship between dietary patterns, fish consumption, and Se status in a high fish-eating cohort of Seychellois pregnant women. A total of n = 1536 pregnant women were enrolled onto the Seychelles Child Development and Nutrition Study Cohort 2. At 28 weeks' gestation, women provided a blood sample which was used to determine serum total Se status using ICP-MS. Food Frequency Questionnaires (FFQ) were also completed at this time to evaluate habitual dietary habits (n = 267). Principal component analysis (PCA) was used to determine dietary patterns and the varimax rotation was used to identify which food groups were most frequently consumed in each of the dietary patterns<sup>(5)</sup>. A Fish Use Questionnaire (FUQ) was also used to assess fish intakes. In this cohort, with a mean (SD) of 8.5 (4.7) fish meals /week, the median (IQR) Se status of pregnant women at 28 weeks' gestation was 102 (92, 115) µg/L. Regression analyses, controlling for age and BMI, showed that there was a significant association between total fish intake and serum Se status (= 0.60, P = 0.027). A total of four dietary patterns were identified, however, there were no significant associations between any dietary pattern and serum Se status. In this high fish-eating cohort, fish intake was an indicator of Se status. The serum Se concentrations during pregnancy were within the optimal range of 90–105 µg/L, which is essential for adequate Selenoprotein P expression<sup>(3)</sup>. The effects of prenatal selenium status on birth outcomes in this cohort need to be further investigated.

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