Abstract
An Investigation of Dietary Iron Intake and Literacy among 11–14 Year Old Females in New Zealand †

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Abstract: Iron deficiency is the most prevalent micronutrient deficiency globally and is a common diagnosis in adolescent females. Causal factors for this population include low dietary iron intake, iron bioavailability, increased iron requirements and excessive iron losses. Iron intakes of adolescent females were last analysed in the 2002 New Zealand Children’s Nutrition Survey, reporting an average intake of 9.9mg/day. Up-to-date information on dietary iron intake and literacy in adolescent females is not available to health professionals. Therefore, this study’s aim was to determine dietary iron literacy and its associations with dietary intakes of iron-rich foods in young adolescent females within New Zealand. Females (n = 286) aged 11–14 years from all-girls schools around New Zealand were recruited to complete an anonymous online questionnaire. The questionnaire comprised demographic questions, an adapted iron literacy questionnaire and a validated iron food frequency questionnaire. The results suggest a moderate level of iron literacy in most participants (66.8%, n = 191), with 21.7% (n = 62) demonstrating low dietary iron literacy and 11.5% (n = 33) demonstrating high dietary iron literacy. Vegetarian, pescatarian, and vegan participants had higher iron knowledge scores than those not on a particular diet (p = 0.001). Age had a weak relationship with iron knowledge score category (χ² = 6.27, p = 0.044). Significant differences were found between ethnic groups and food group consumption frequency. Seafood and legumes, eggs, nuts and seeds were eaten more frequently among Asian participants, while iron-fortified foods were eaten more frequently among Māori participants. Participants from higher decile schools were found to consume red meat (p = 0.009), seafood (p = 0.024) and fruit (p = 0.021) more frequently than those from moderate decile schools. There was no relationship between dietary iron literacy score and intake of iron-rich foods. Our results demonstrate that iron literacy is low to moderate among adolescent females within New Zealand and is not associated with current dietary iron intake behaviours. Future studies may consider educational interventions to change intake behaviours, and objective measures of iron status and food intake via biochemical data and food recalls.

Keywords: iron; iron intake; iron knowledge; literacy; dietary iron; dietary patterns; adolescents

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someone other than the researcher(s), please contact Professor Craig Johnson, Director of Research Ethics, by emailing humanethics@massey.ac.nz (reference 4000025457).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study, prior to their completion of the questionnaire.

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