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Development and validation of a dietary diversity questionnaire for New Zealand women

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Adrianna Hepburn

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Abstract

Background: Dietary guidelines recommend eating a variety of food and food groups. Dietary diversity is the count of individual food items and/or food groups consumed during a defined period of time. In developing countries dietary diversity reflects food accessibility, household food security, socioeconomic status and nutritional adequacy of individual diets.

Aim: To develop and validate a dietary diversity questionnaire (DDQ) that accurately reflects the nutritional adequacy and optimisation of New Zealand women's diets.

Method: A DDQ was developed based on intake of New Zealand women. Women aged 16-45 years (n=101) completed the DDQ based on their food intake over a seven period. A four-day weighed food record (FR) was also completed as a reference dietary assessment method. Measures of dietary diversity (dietary diversity scores (DDS) and food variety scores (FVS)) were calculated from both the DDQ and FR and compared using correlation coefficients and Wilcoxon Signed-Rank Test. Nutrient adequacy ratios (NAR) and nutrient optimisation ratios (NOR) were calculated from the FR and assessed against DDS and FVS using correlation coefficients. Cross-tabulation of DDS and FVS was conducted to investigate their ability to determine adequate and optimal nutrient intake.

Results: The median (25, 75 percentile) DDS (food groups) and FVS (food items) per week was 23 (21, 23) (maximum 25) and 75 (61, 87) (maximum 237), respectively. The intake of nutritious food items was classified as medium (31 – 60 food items), with a nutritious FVS of 49. Correlations were present between all dietary diversity measures calculated from the DDQ and FR. The mean \pm SD of NAR was 0.94 ± 0.04 , suggesting near adequate nutrient intakes. The mean \pm SD of NOR was 0.84 ± 0.16 , suggesting high but not optimal nutrient intakes. Specifically, intakes were not optimal for iron, iodine and zinc. The intake of nutritious food groups was significantly correlated to the mean adequacy and optimisation ratios, $r=.199$ ($P=0.046$) and $r=.258$ ($P=0.009$), respectively.

Conclusions: The DDQ is a relatively valid method for assessing dietary intake in New Zealand women. Further research is required to investigate associations between dietary diversity and health outcomes.

Key words: Dietary diversity, nutrient adequacy, validation

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