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Dietary intakes and body composition of Māori and Pacific women in the women’s EXPLORE study

A thesis presented in partial fulfilment of the requirements for the degree of

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Abstract

The most thorough record of dietary intake among New Zealand (NZ) Māori and Pacific women was undertaken in the 2008 NZ Adult Nutrition Survey, but it did not consider the relationship with body composition. The aim of this study was to investigate the relationship between dietary intake and body composition (particularly body mass index (BMI) and body fat (BF) percentage) of all Māori (n=79) and Pacific (n=75) women (16-45 years old) recruited in the women’s EXPLORE study. Anthropometric data was measured using weight, height, and air displacement plethysmography (BodPod), while dietary data was assessed using a validated, 220-item, semi-quantitative food frequency questionnaire. On average, the BMI (28.2 kg/m²) and BF (34.6%) of Māori women classified them as overweight, while the average BMI (31.9 kg/m²) and BF (37.8%) of Pacific women classified them as obese. There were significant positive correlations between the BMI and BF percentage of Māori (r=0.86) and Pacific women (r=0.87), which suggests BMI is a good indicator of BF percentage in these populations. The percentage of Māori and Pacific women who exceeded their estimated energy requirement was similar and identical to the percentage of women found in the obese BF percentage groups, respectively. Dietary intake was compared with NZ guidelines, revealing that both groups of women consumed inadequate carbohydrate. In contrast, both groups consumed excess total and saturated fat, and sodium in excess of the upper level, mostly due to high intakes of takeaways. Takeaways were also the top contributor of total energy (13.4%), protein (13.4%) and fat (17.7%) in Pacific women. Obese Māori women consumed more takeaways (42.7%) than non-obese. Obese Pacific women consumed more discretionary breads, cereals and starchy foods (e.g. iced buns, croissants and paraoa parai (fry bread)) (210%) than non-obese. Recommendations include reducing takeaways, fats (e.g. butter), and sugar-sweetened beverages. Instead, opt for more complex carbohydrates and leafy green vegetables. Further research should investigate relationships between dietary intake and waist circumference, as well as other factors influencing body composition, such as physical activity and level of deprivation.
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Abbreviations

ADG  Australian Dietary Guidelines
ADP  Air displacement plethysmography
AI   Adequate Intake
AMDR Acceptable Macronutrient Distribution Range
BF   Body fat
BIA  Bioelectrical impedance analysis
BMI  Body Mass Index
BMR  Basal Metabolic Rate
CHD  Coronary heart disease
CVD  Cardiovascular disease
DAS  Dietary assessment software
DF   Dietary fibre
DHHS Diabetes, Heart and Health Study
DPRF Dietary Patterns and Risk Factors study
DXA  Dual-energy X-ray absorptiometry
EAGNZA Eating and Activity Guidelines for New Zealand Adults
EAR  Estimated Average Requirement
EE   Energy expenditure
EER  Estimated Energy Requirement
EI   Energy intake
EXPLORE Examining the Predictors Linking Obesity Related Elements
FAVs Fruit and vegetables
FFM  Fat free mass
FFQ  Food frequency questionnaire