

Calorie under-reporting affects national obesity data

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A new study in New Zealand analysing national nutrition data has revealed discrepancies between official reported figures for energy intake and the population's growing body size, which could have serious implications for future efforts to fight bulging waistlines.

The findings appear in a new research paper, which has been published by the *European Journal of Clinical Nutrition* an international scientific peer-reviewed journal, and was authored by researchers from the National Institute for Health Innovation (NIHI), and the Epidemiology and Biostatistics section at the University of Auckland's School of Population Health.

According to the lead author Luke Gemming, a PhD candidate at NIHI investigating novel technologies to assess [dietary intake](#), the findings reveal the population is likely to be consuming far more calories than our national data shows.

"Our most recent national survey revealed a significant increase in the population's body weight and levels of obesity, but conversely reported we were eating substantially fewer calories compared with a decade ago, which is very unlikely," he says.

"People typically underreport what they eat in nutrition surveys, but when the data shows an opposing trend to measured body weights, we have a real problem. What our study found is the proportion of people who underreport has increased substantially over time, and that we are

actually eating more than our nutrition survey data indicates."

The discrepancies in the data pose real risks for the country as they could undermine efforts to reduce population weight and encourage healthier eating, says Gemming.

"It is difficult to gain Government support for nutrition and health campaigns to fight obesity when our national data currently suggests our calorie intakes are decreasing over time," he says.

The research team analysed data from 3919 survey participants who completed the 24-hour dietary recall in the 2008/09 New Zealand Adult Nutrition Survey. Underreporting was assessed using the ratio of reported [energy intake](#) to estimated resting metabolic rate and standard cut-offs were applied to determine the proportion of survey respondents under-reporting energy intakes.

Results were examined by gender, body size, age and ethnicity, and 21% of men and 25% of women participants were found to be underreporting their energy intake, an increase of 75% for men and 19% for women compared with analyses undertaken on the previous national survey conducted in 1997.

The prevalence of underreporting was found to be greater amongst overweight (25%) or obese (30%) respondents compared with those of normal body weight (16%). A greater prevalence of underreporting was also evident amongst Maori (32%) and Pacific Islanders (34%) compared to New Zealand Europeans (24%).

"Surprisingly the greatest increases in prevalence of underreporting over time was observed in people of normal [body weight](#), where rates more than doubled in men, and amongst younger adults aged 15 to 29 where underreporting rates increased by over 75%. Typically these groups are

less prone to underreporting what they eat", says Gemming.

According to Gemming, the higher prevalence of underreporting is likely due to the increased influence of psychosocial factors such as social desirability and body dissatisfaction, and the notion that it's not desirable to report eating unhealthy high-energy foods.

Overall, the study concluded that without technological innovation underreporting of energy intake will continue to be a major limitation of nutrition surveys and that care should be taken when interpreting the data.

In addition, the results from the study suggest that traditional self-reported methods to assess diet require improvement, says Gemming

"Innovation is urgently needed for future surveys using technologies such as smartphone applications and/or wearable cameras which have already demonstrated good potential to reduce the problem of under-reporting," he says.

Provided by University of Auckland

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