

BMI keeps on going up - and reflections on the Diabesity Symposium

23 March 2017

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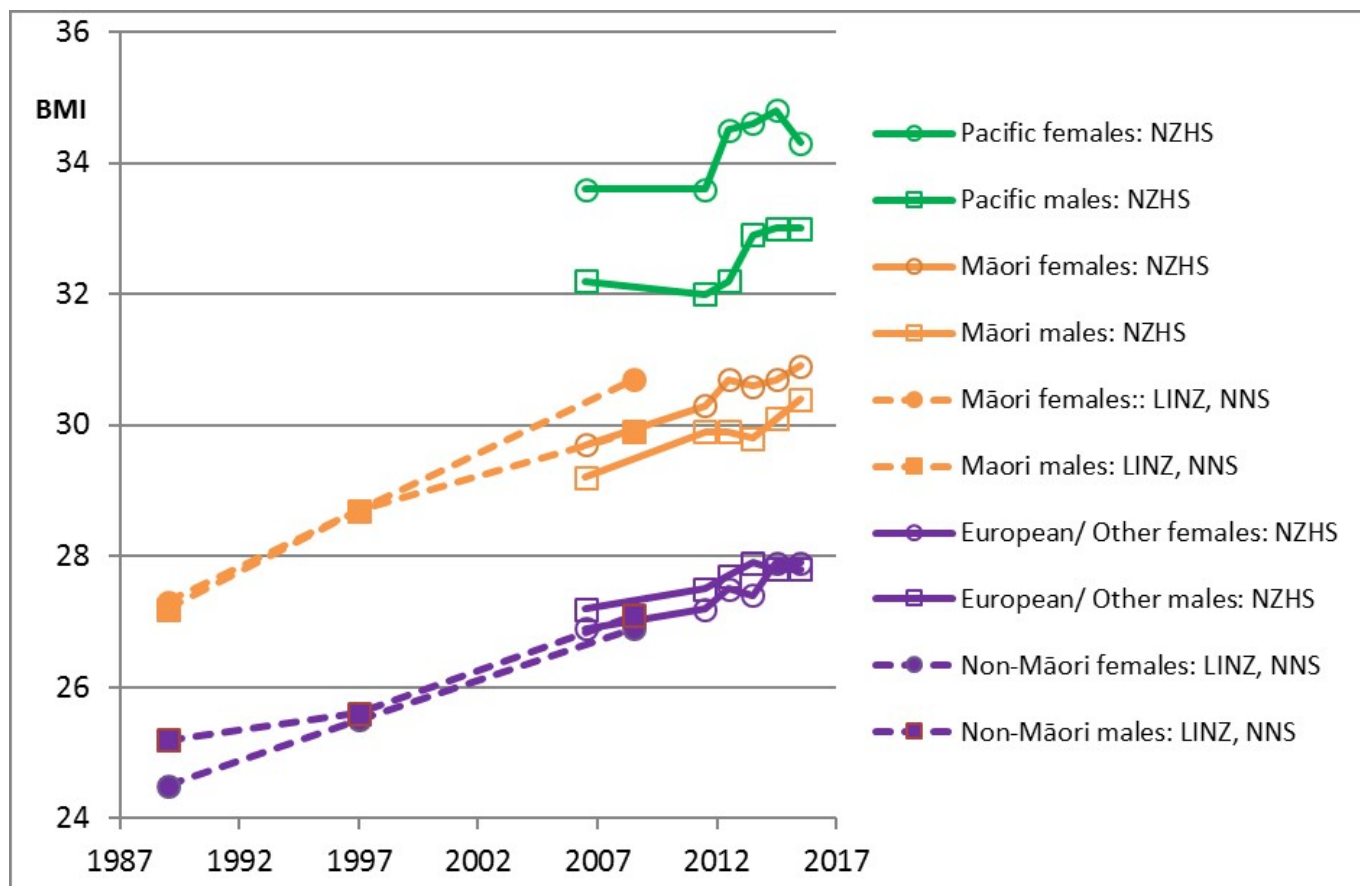
Is body mass index (BMI) relentlessly increasing in NZ, or plateauing?

In this blog we present trends in BMI by ethnicity in NZ going back to the 1980s. Over the last four decades the annual increase in BMI is linear, relentless increasing; no sign of a plateau, yet. Given this trend, The Diabesity Crisis symposium just held in Auckland, under the auspices of the Better Start and Healthier Lives National Science Challenges and Edgar Diabetes and Obesity Research seems aptly named. What are the forthcoming research and policy priorities?

The Ministry of Health has a very user friendly tool for accessing Health Survey data, including for trends over time. Using this tool, body mass index (BMI) has shown statistically significant increases over the last 10 years for both Māori and European/Other. But are these increases slowing? And how do they compare with past trends? There is nothing like a long time series to gain an understanding about trajectories.

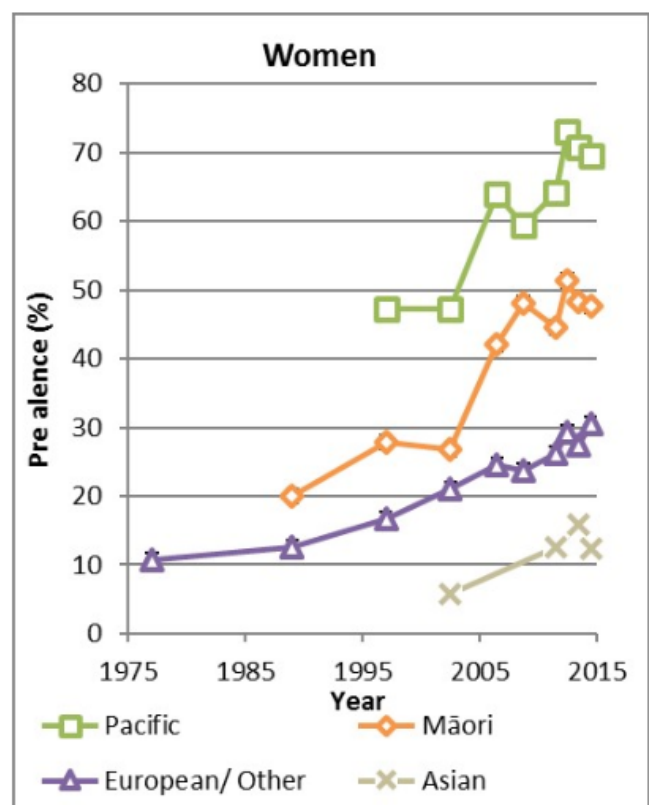
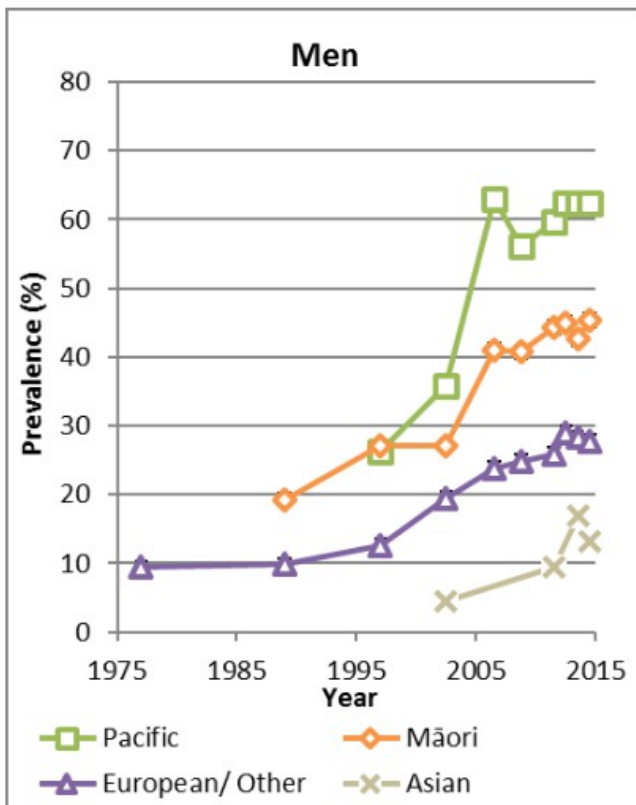
We have previously collated data on trends in body weight, energy intake, saturated fat intake, and smoking as far back as we could go, in the book *The Healthy Country*.¹For this blog we pulled out the data on adult BMI from 1989 (Life in New Zealand Survey) and the National Nutrition Surveys in 1997 and 2008-09, and tacked them on to annual NZHS data from 2006/07 to 2015/16. The results are shown in the graph below.

Figure 1: Average adult BMI by sex by ethnicity in NZ (LINZ =Life in NZ Survey; NNS = National Nutrition Survey; NZHS = NZ Health Survey)



Previously we have collated trends in prevalence of obesity (i.e. BMI > 30)²; the trends are also inexorable. Figure below.

Figure 2: Prevalence of adult obesity sex by ethnicity in NZ (Source: Teng et al, 2016²)



Footnotes: The crude obesity prevalence rates from National Nutrition Surveys (NNS) and New Zealand Health Surveys (NZHS) use an obesity definition of a BMI of ≥ 30 , except for Māori and Pacific peoples before 2000 when it was ≥ 32 . The age group was 15+ year olds except for in 1977 (20–64 years) and 1989 (15–74 years). European/Other obesity figures in 1977 and 1989 are estimated from the total population.

The adult NZ graphs show a persistent, monotonic and linear increase over the last 30 years. A relentless increase – at least for Māori and European – with no evidence of plateauing.

Internationally, similar inexorable trends are seen in the USA³, although in the UK there appears to be some flattening off in adult BMI trends. And perhaps in Auckland, NZ, there is some falling off of obesity rates among pre-school Pacifica (page 24 of this report) – but it is early days.

Against this backdrop, the Better Start and Healthier Lives National Sciences Challenges and Edgar Diabetes and Obesity Research hosted *The Diabetes Crisis* symposium last Friday, preceded by a Kim Hill convened panel debate on the cost of sugar on Thursday night (watch for an announcement of when this will play on Radio New Zealand).

The seminar included a range of informative ‘overview’ presentations.

- Evidence that intense early childhood interventions can reduce child obesity – but as soon as the intervention stops, the BMI reverts back to what it would have been with no intervention. One answer for this sobering lack of persistent benefit is to keep going with interventions throughout childhood. This may even be cost effective if – eventually – the rates of diseases are lessened in the (distant) future. However, it is hard to escape the reality that child BMI is largely influenced by the environment (e.g. the evidence produced by KidsCam), so tackling the obesogenic environment has to

be the main area of focus.

- Intriguing findings on sleep and the gut microbiome; kids who sleep longer each night may put on less weight, and a diverse gut microbiome may be protective against developing obesity.
- Even more intriguing is the emerging evidence that faecal transplants from thin mammals (in mice experiments mainly) can reverse obesity – however more human trials are required to understand what the benefit of this approach may be for a public health intervention.
- The benefits of high intensity interval training (physical activity); if programmes can be designed that appeal to and engage teenagers, substantial gains may be possible here.
- The link between obesity and diabetes is well known. But there is fascinating evidence emerging of how gastric bypass surgery works mostly by changing hormones – not so much the mechanical effects of restriction. Bypass surgery is a near-miraculous treatment (even cure) for most obese patients with diabetes. But neither can we afford ‘gastric bypass surgery for all’ nor is it a particularly palatable solution. However, the rapidly advancing understanding of the genetics and hormones of obesity is deepening our understanding of the obesity epidemic, and should lead to new drug treatments as a complement to intense community-wide prevention.
- The ripe opportunity for primary care to provide brief counselling, but ironically the poor evidence on effectiveness means making any firm recommendations is difficult – even to the point of suggesting that the evidence is so weak for counselling in primary care that using healthy lifestyle smart phone Apps may be (far) more cost effective. (We in BODE³ are looking closely at this area at the moment, as is Dr Coppell at the University of Otago and the Healthier Lives OLA-ORA project.)
- On the prevention front, the focused evidence-based package for now (i.e. immediate priorities) is four things:
 - Taxes on sugary drinks (and watch this space for a broader package of taxes and subsidies once sugary drinks taxed)
 - Greatly reducing junk food marketing to children (TV, sports sponsorship)
 - Widespread implementation of simple, effective front of package labelling
 - Healthy food policies in schools and public institutions (the current Government childhood obesity strategy focuses on DHBs, neglecting schools thus far)

There was a collective view that there was no single solution, but a multipronged approach was required to prevent and manage the diabetes crisis.

Onwards with policy, to hopefully turn around the BMI trends shown above.

References

1. Woodward A, Blakely T. *The Healthy Country? A History of Life and Death in New Zealand*. Auckland: University of Auckland Press; 2014.
2. Teng AM, Atkinson J, Disney G, et al. Ethnic inequalities in cancer incidence and mortality: census-linked cohort studies with 87 million years of person-time follow-up. *BMC Cancer* 2016; **16**(1): 755.
3. Freedman DS, Zemel BS, Ogden CL. Secular trends for skinfolds differ from those for BMI and waist circumference among adults examined in NHANES from 1988-1994 through 2009-2010. *Am J Clin Nutr* 2017; **105**(1): 169-7

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