

Overweight and obesity from childhood to adulthood: a follow-up of participants in the 1985 Australian Schools Health and Fitness Survey

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TO THE EDITOR: The recent article by Venn et al reported that childhood overweight carries through into adult overweight and obesity, but that most obese young adults in their study were “healthy” weight as children in 1985.¹ As demonstrated by National Health Surveys, age is one of the strongest predictors of overweight,² with body mass index (BMI) increasing as we grow older. However, there are two additional time-related components influencing obesity.

Since 1985 (when Venn et al reported the prevalence of overweight and obesity in children was less than 10%), the environment appears to have become more obesogenic — a 2004 survey in New South Wales showed that 26% of children were overweight or obese.³ It is not only children who are vulnerable — the percentage of overweight adult Australians increased for almost all age groups from 1990 through 2001, and the mean BMI at which Australians enter adulthood has increased with each subsequent survey. For example, for women aged 20–24 years, mean BMI increased from 22.1 kg/m² (1990) to 22.5 kg/m² (1995) to 23.2 kg/m² (2001) to 23.3 kg/m² (2004). As the heights and weights were self-reported in these surveys, true BMI values may be even higher.

We recently reported that year of birth (birth cohort) also predicts prevalence of overweight and obesity, independent of age and survey period; the prevalence of overweight and obesity in adults increased progressively with birth cohorts born since 1960.⁴ This birth span includes the cohort in the study by Venn et al.¹ While obesity begins in childhood for only a small proportion of adults, the so-called healthy weight children now have a higher mean BMI, giving little margin for the seemingly inevitable increases in weight with ageing, before the population mean BMI reaches the cut-point for overweight and later obesity. The 2004–2005 National Health Survey showed that men reached the overweight cutpoint at 25–29 years and women reached it at 30–34 years.⁵

Given increasing child and adult obesity, the need for allocation of public health resources to improve dietary and physical activity habits is undisputed. However, these data^{1,4} indicate that efforts should be directed to the hard-to-reach group, young adults, to prevent weight gain at this point. This will pose considerable challenges, because this group has minimal contact with health services, and perceives the threat of chronic illness as irrelevant. However, swift intervention is required, not only for their own health and that of their children as they become parents, but also because they will become overconsumers of health care for chronic diseases within a generation.

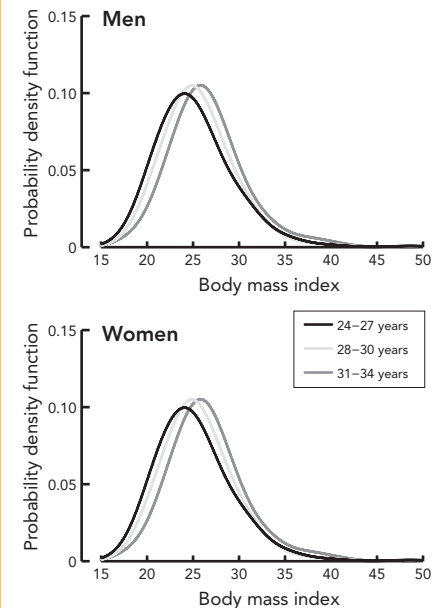
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- Venn AJ, Thomson RJ, Schmidt MD, et al. Overweight and obesity from childhood to adulthood: a follow-up of participants in the 1985 Australian Schools Health and Fitness Survey. *Med J Aust* 2007; 186: 458–460.
- Bennett SA, Magnus P, Gibson D. Obesity trends in older Australians. AIHW Bulletin No. 12. Canberra: Australian Institute of Health and Welfare, 2004. (AIHW Cat. No. AUS 42.)
- Booth M, Okely AD, Denney-Wilson E, et al. NSW Schools Physical Activity and Nutrition Survey (SPANS). Full report. Sydney: NSW Department of Health, 2006. <http://www.health.nsw.gov.au/pubs/2006/spans/index.html> (accessed Jul 2007).
- Allman-Farinelli MA, Chet T, Bauman AE, et al. Age, period and birth cohort effects on prevalence of overweight and obesity in Australian adults from 1990 to 2000. *Eur J Clin Nutr* 2007; Apr 18 [Epub ahead of print]. doi: 10.1038/sj.ejcn.1602769.
- Australian Bureau of Statistics. National Health Survey: summary of results 2004–5. Canberra: ABS, 2006. (ABS Cat. No. 4364.0.) [http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/3B1917236618A042CA25711F00185526/\\$File/43640_2004-05.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/3B1917236618A042CA25711F00185526/$File/43640_2004-05.pdf) (accessed Jul 2007). □

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IN REPLY: Allman-Farinelli et al make an important point about the influence of age, survey period and cohort effects on the prevalence of overweight and obesity. While age and cohort effects could not be clearly separated in the 1985 Australian Schools Health and Fitness Survey, the prevalence of overweight and obesity increased with age in 7–15-year-olds.¹ Our data collected from 4571 of the individuals in that survey at follow-up about 20 years later also showed an increase in the preva-

Distribution of body mass index values for men and women in three different age groups*



* 24–27 years, 757 men and 854 women; 28–30 years, 767 men and 807 women; and 31–34 years, 673 men and 691 women in the 20-year follow-up of the 1985 Australian Schools Health and Fitness Survey. ♦

lence of overweight and obesity with age, although these findings were not presented in our report.²

In the Box, we show the distribution of body mass index (BMI) values for men and women in three age groups (24–27 years, 28–30 years and 31–34 years). Mean BMI values across the age groups were 25.2 kg/m², 25.6 kg/m², and 26.5 kg/m² in men and 23.5 kg/m², 24.2 kg/m², and 24.6 kg/m² in women. The prevalence of obesity (BMI ≥ 30 kg/m²) increased with increasing age as follows:

- age 24–27 years — men 12.2%, women 9.9%;
- age 28–30 years — men 12.3%, women 12.0%; and
- age 31–34 years — men 15.6%, women 14.6%.

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- 1 Magarey AM, Daniels LA, Boulton TJ. Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions. *Med J Aust* 2001; 174: 561-564.
- 2 Venn AJ, Thomson RJ, Schmidt MD, et al. Overweight and obesity from childhood to adulthood: a follow-up of participants in the 1985 Australian Schools Health and Fitness Survey. *Med J Aust* 2007; 186: 458-460. □

A review of policies on alcohol use during pregnancy in Australia and other English-speaking countries, 2006

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TO THE EDITOR: O'Leary and colleagues¹ rightly point to the need for better evidence on whether low to moderate maternal alcohol intake affects the fetus. Evidence to date is weak and inconsistent, largely because alcohol consumption in pregnancy is generally poorly documented,² and few studies have recorded data on factors that could potentially modify fetal exposure. Evidence could come from large pregnancy cohort studies, usually designed to address other issues, but there are no published guidelines on how to collect information relevant to fetal alcohol exposure during gestation. There is, therefore, a great need to define a core dataset for research studies, as well as one that is sufficiently simple to use in routine pregnancy care settings.

We have identified a number of issues that need to be addressed. To stimulate discussion, the Box shows our suggested core dataset.

Suggested core dataset for studies of maternal alcohol intake during gestation and outcome of offspring

As a basis for discussion, we suggest the following dataset:

Baseline

- Weeks of gestation at pregnancy recognition, or expected date of delivery and date that pregnancy was recognised (to allow calculation)
- Height

For specific periods of gestation (eg, from date of start of last menstrual period until pregnancy recognition; from pregnancy recognition to 12 weeks' gestation; from 13 to 28 weeks; and from 28 weeks to term)

- Body weight (eg, at 12 and 28 weeks)
- Alcohol intake — we suggest:
 - Average number of standard alcoholic drinks per week;
 - Average number of days per week on which alcoholic drinks are taken; and
 - Maximum number of drinks on one occasion.
- Whether alcohol is taken with or soon after food (never, sometimes, usually or always)
- Dietary intake of fruit and vegetables
- Use of nutritional supplements ◆

Maternal alcohol intake: Alcohol questionnaires have largely been designed to identify women who are heavy drinkers, misuse alcohol or are alcohol-dependent.³ Questionnaires are needed that capture information on alcohol intake across the range, from minimal to heavy drinking, as well as information on drinking patterns and alcohol intake at different periods of gestation.

Factors that may modify the relationship between maternal intake and fetal alcohol exposure: For a given maternal intake over a given period, maternal blood alcohol level and hence fetal alcohol exposure may vary according to maternal size and body composition. Other factors can affect maternal alcohol absorption and elimination, such as whether alcohol is taken with food,⁴ and possibly maternal genotype.⁵ This information is rarely reported in pregnancy studies.

Factors that may modify effects of alcohol on the fetus: There is animal evidence that maternal micronutrient supplementation may protect the fetus against some of the adverse effects of gestational alcohol exposure.⁶ We need to consider recording supplement use and measures of maternal nutritional intake or status. In well resourced studies, fetal genotype could also be considered.⁶

Researchers with expertise in the field need to reach consensus and provide guidelines on the best way to assess fetal alcohol exposure, so that pregnancy researchers and clinicians with little experience of alcohol research do not need to create their own. Better data should provide better evidence on which to base advice to women who are (or may be) pregnant. Good studies may also provide

explanations for the apparently variable link between maternal alcohol consumption and adverse sequelae in the offspring.

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- 1 O'Leary CM, Heuzenroeder L, Elliott EJ, Bower C. A review of policies on alcohol use during pregnancy in Australia and other English-speaking countries, 2006. *Med J Aust* 2007; 186: 466-471.
- 2 Henderson J, Gray R, Brocklehurst P. Systematic review of effects of low-moderate prenatal alcohol exposure on pregnancy outcome. *BJOG* 2007; 114: 243-252.
- 3 Savage C, Wray J, Ritchey PN, et al. Current screening instruments related to alcohol consumption in pregnancy and a proposed alternative method. *J Obstet Gynecol Neonatal Nurs* 2003; 32: 437-446.
- 4 Kalant H. Effects of food and body composition on blood alcohol curves. *Alcohol Clin Exp Res* 2000; 24: 413-414.
- 5 Warren KR, Li TK. Genetic polymorphisms: impact on the risk of fetal alcohol spectrum disorders. *Birth Defects Res A Clin Mol Teratol* 2005; 73: 195-203.
- 6 Wentzel P, Rydberg U, Eriksson UJ. Antioxidative treatment diminishes ethanol-induced congenital malformations in the rat. *Alcohol Clin Exp Res* 2006; 30: 1752-1760. □

Sue Miers

TO THE EDITOR: I would like to put forward a consumer's perspective in response to the recent article by O'Leary and colleagues.¹

I am puzzled that they concluded that the National Health and Medical Research Council (NHMRC) guideline is in step with policies of the United Kingdom and Canada. My research of Canadian policy suggests that it is in direct contrast to current NHMRC guidelines. Health Canada states very clearly, "Whether you are trying to get pregnant or are pregnant already, stop drinking alcohol",² and "No amount or type of alcohol during pregnancy is considered safe".^{3,4}

The potential harm to the birth mother that results from an abstinence-based message was also raised by O'Leary and colleagues. Elizabeth Russell, the birth mother of two sons affected by prenatal exposure to alcohol, offers an alternative viewpoint:

By not discussing alcohol and pregnancy through misplaced compassion, we are hurting one person for the sake of another. Very few mothers would want that but that is exactly what is happening — children are being sacrificed to ensure that the anxiety level of a mother is kept within acceptable limits — neither mother nor child will benefit from this methodology.⁵