



NSW Centre for Overweight and Obesity

the
WEIGHT
of time

*Time influences
on overweight
and obesity*

in
WOMEN





Introduction

We know that adults' weight increases with age, at least until around the age of 55 years or older. Recent National Australian surveys show that men and women of all age groups were heavier in 2000 than in 1995 or 1990. These studies also found that a greater proportion of people of all ages were overweight or obese in 2000 than in the previous surveys.

These studies also suggested that different generations, also known as 'birth cohorts', had different patterns of weight gain. These birth cohort influences mean that the year a person is born and the unique set of experiences people born at that time experience, have an effect on weight gain patterns. People born at other times experience different conditions and have different weight gain patterns. Some birth cohorts or 'generations' are well-known, such as the 'baby boomer' generation, or pre-war generation. For example, Australians born in the first three decades of the twentieth century experienced World War I and II and the Great Depression during their childhood and early adult life. During these times food was scarce and everyday life required high levels of physical activity. This group overall had lower body weights than more recent generations, meaning they were less at risk of becoming obese. Australians born after 1980 were born into an advanced technological society with greater availability of food, a vastly increased range of food products and increasing serving sizes. At the same time, levels of physical activity in everyday life have been decreasing. Together these factors produce an obesogenic environment.

The three National Health surveys, conducted by the Australian Bureau of Statistics for the Australian Institute of Health and Welfare in 1990, 1995 and 2000, produced data which the NSW Centre for Overweight and Obesity has analyzed to find out what effects three time factors -- ageing, the time of the surveys and birth cohort, have on body mass index (BMI) and the prevalence of overweight and obesity. [Note – BMI used as the indicator of weight status, where $BMI = \text{weight (kg)} / \text{height}^2 (M^2)$]

This report provides an overview of key findings of the analyses of the effects of these three time factors on female weight patterns. The complete findings have been published in a comprehensive technical report. The results from the analysis of the effect of birth cohorts have been used to predict the mean body mass index of women in NSW in 2010. The graphs in this report show the results for women, and the results for men are available in a separate document. The overall patterns and implications for men are generally similar to those for women.

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The Weight of Time: Time influences on overweight and obesity in women.

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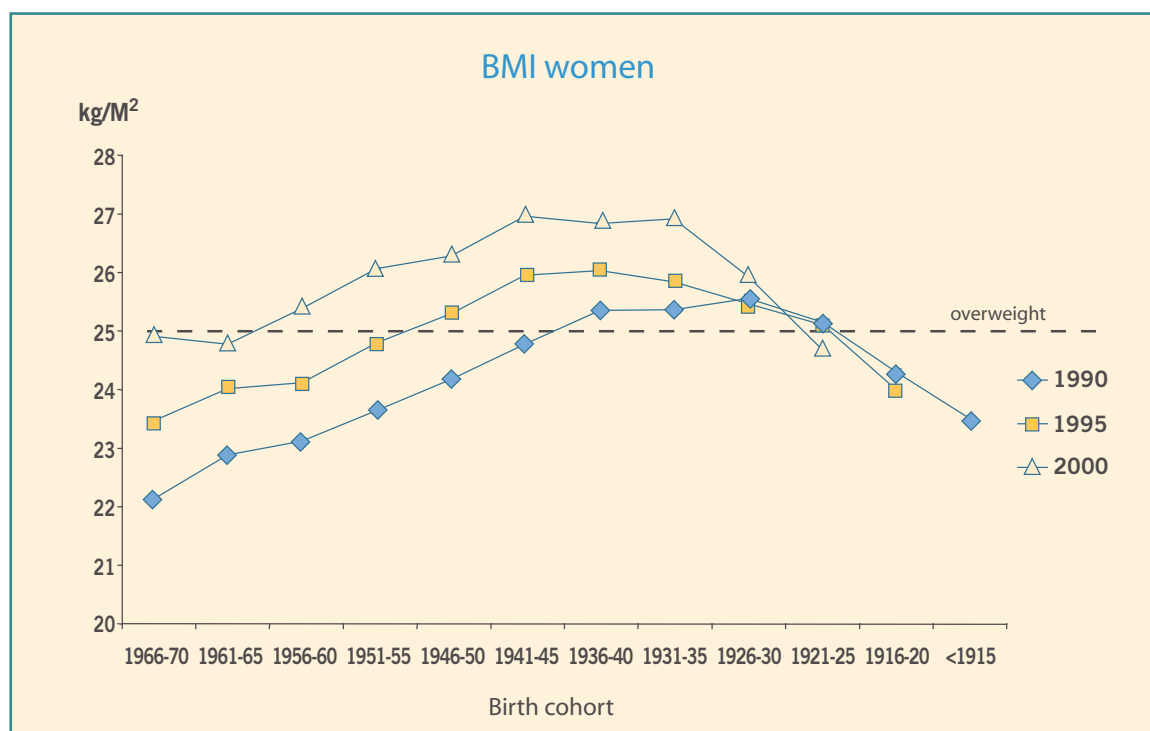


Patterns of weight change (1) in birth cohorts

Weight increases with age in all birth cohorts except people born in 1925 or earlier.

Figure 1 shows changes in average BMI for different birth cohorts of women over ten years. The horizontal axis shows the five-year period each group of women was born in. The vertical axis shows the mean (average) BMI of each birth cohort at the time of each of the three surveys. The graph shows that the mean BMI rises over the 10 year period in the more recent birth cohorts (up to those born in 1931-1935). These increases can be attributed to both increasing age and the effects of environmental factors over the 10 year period. For the youngest cohort, women born between 1966 and 1970, the increase in weight with each survey is most apparent (looking up the Y axis on the graph). In the most recent survey, mean BMI was above the healthy weight range (≥ 25) for women in most birth cohorts. In 1990 only those in the birth cohorts from 1926 until 1936 had a mean BMI in the overweight category.

Figure 1: Mean BMI for women at each National Health Survey by birth cohort.





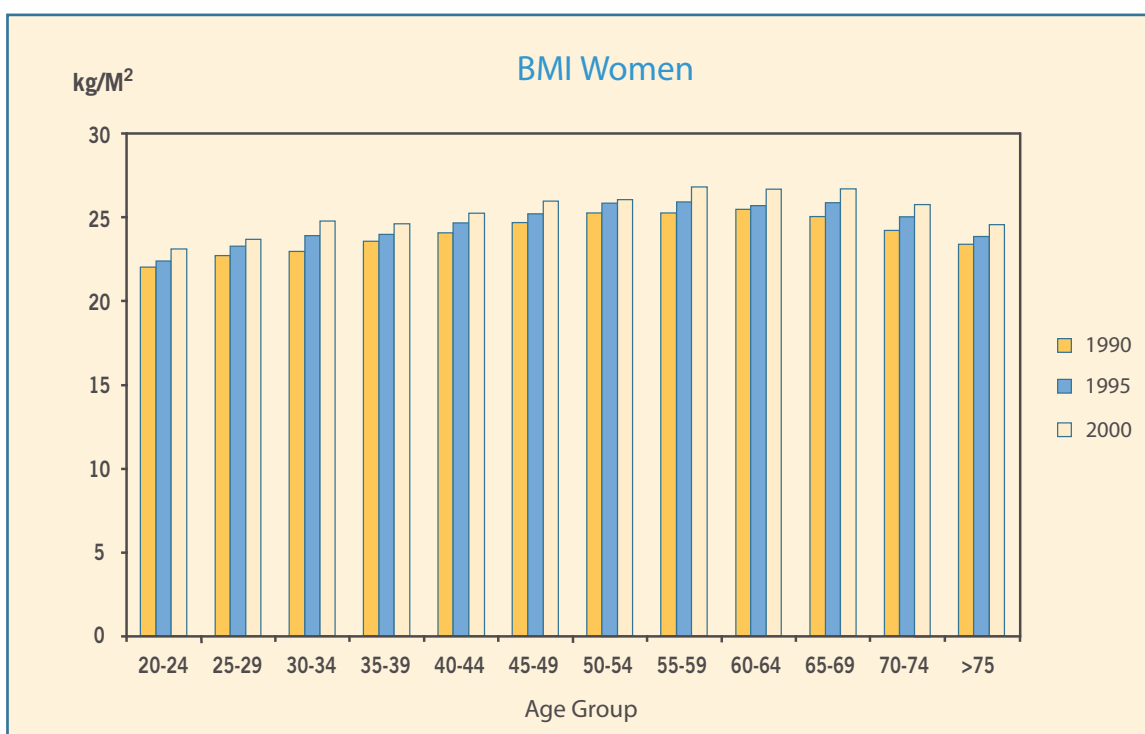
Patterns of weight change (2) by age group

Women in each age group are heavier in 2000 than women in the same age group were at the two previous surveys.

A second way of looking at the patterns of change in weight is shown in Figure 2. Here, the graph shows changes in the mean BMI for each age group at each of the three survey times. The graph shows that for every age group, there have been increases in mean BMI from 1990 to 2000.

These increases can be attributed to changes in environmental factors affecting weight gain and differences between birth cohorts. The environments experienced by everybody changed between 1990 and 2000, arguably becoming more obesogenic. At the same time, differences between generations are apparent, so that women aged 20 to 24 in 1990 have experienced different childhoods and overall environments compared to women aged 20 to 24 years in 2000, and this is affecting their weight.

Figure 2: Mean BMI for aged-matched women for each of the three National Health Surveys.





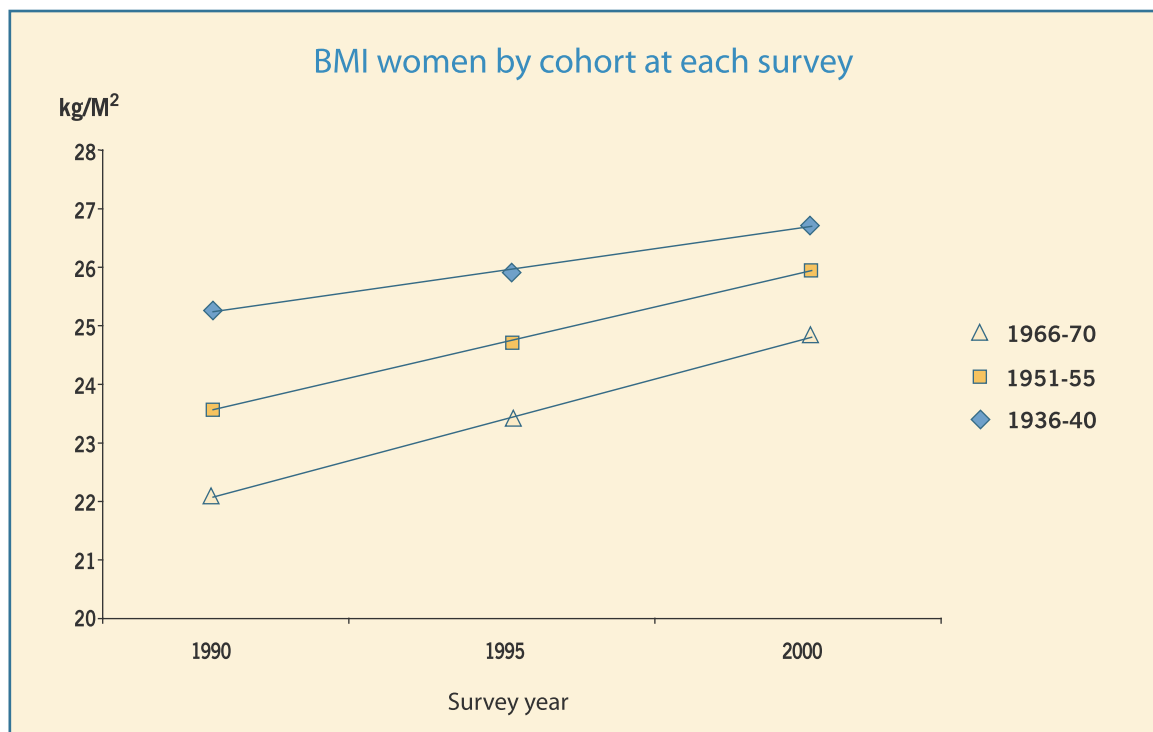
Patterns of weight change (3) with survey time

BMI rising fastest in Generation X women.

The third way of looking at the patterns of change tracks the ten year trajectory in mean BMI for women born in different generations. Figure 3 illustrates this for three different birth cohorts born into different generations: Generation X (born in the period 1966-1970), a group of baby boomers (born 1951-55) and a pre-war generation (born 1936-40).

In this graph, the steeper the slope of the line, the greater the rate of increase in BMI for that generation over the period 1990 to 2000. The lines for each birth cohort are not parallel, showing that each generation is affected differently by the social and environmental changes as they age. Women born in the period 1966-1970 show the greatest increases in mean BMI over the ten-year period.

Figure 3: Mean BMI by birth cohort for women at each of the three National Health Surveys.





Policy-relevant predictions

Using these data, the mean BMI of women in these age groups can be predicted for the year 2010, for NSW (Figure 4, Table 1) and Australia (Figure 5, Table 2). Interestingly, the projections for NSW are different to those for Australia. Current trends show that generation X women in NSW will have a predicted increase in BMI of 12.8% by the year 2010, as compared to 10.8% for generation X women across Australia. In NSW, generation X women are predicted to have the highest average BMI in 2010 of any generation. For Australia as a whole, women in the baby boomer generation are predicted to have the highest average BMI in 2010, compared to other generations of women.

Figure 4: Mean BMI by birth cohort for women in NSW in 1990 through 2000 and projections to 2010.

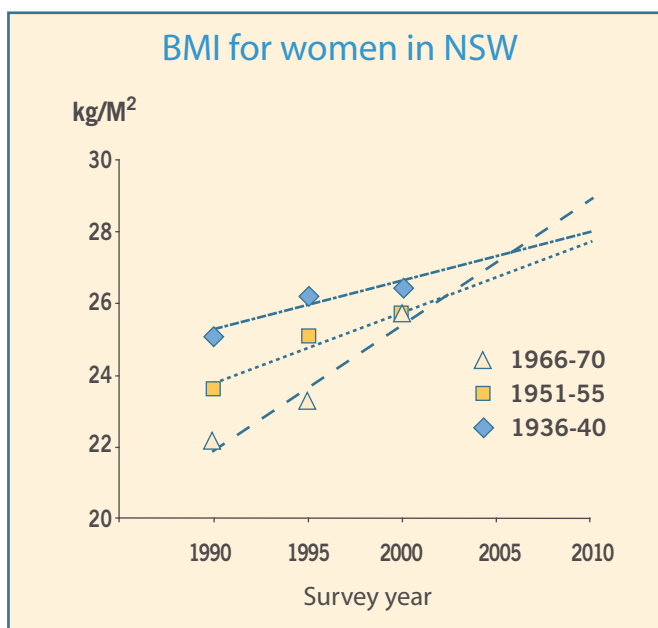


Figure 5: Mean BMI by birth cohort for women in Australia in 1990 through 2000 and projections to 2010.

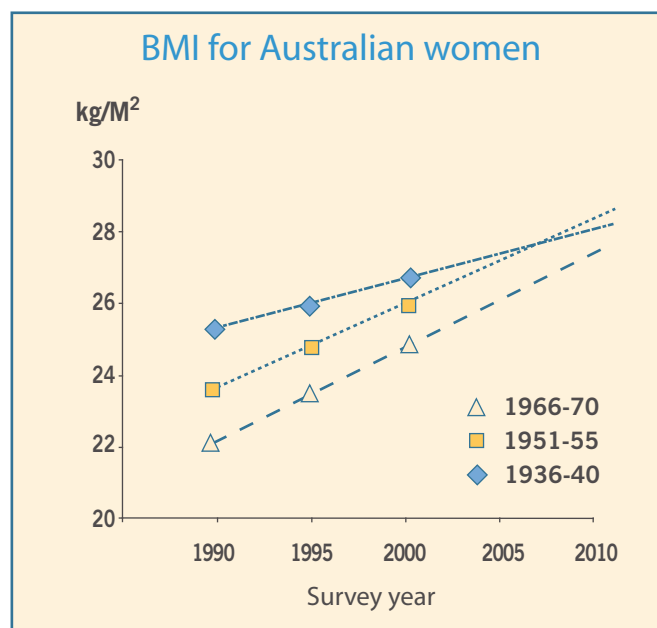


Table 1: Mean BMI for women in NSW in 2000 and predictions for mean BMI in 2010 with percentage changes in the ten-year period.

Birth cohort	Forecast 2010		
	2000 BMI	BMI	% change
1966 to 70	25.5	28.8	12.8
1951 to 55	25.5	27.6	8.3
1936 to 40	26.4	27.9	5.7

Table 2: Mean BMI for women in Australia in 2000 and predictions for mean BMI in 2010 with percentage changes in the ten-year period.

Birth cohort	Forecast 2010		
	2000 BMI	BMI	% change
1966 to 70	24.9	27.6	10.8
1951 to 55	26.0	28.4	9.2
1936 to 40	26.8	28.2	5.2



Conclusions

These analyses show that women's age, the time at which the surveys were conducted and the generation women are born into all influence weight status and patterns of weight change.

Age, survey time and birth cohort also influence what proportion of women are overweight and obese. (More information on these is provided in the Technical Report).

Policy implications - how time factors influence weight

These findings have very significant implications for health services and society.

This research confirms that weight increases are not just a result of ageing. The findings confirm that the times we live in are changing our weight. Younger people are gaining weight faster than previous generations and weight gain is accelerating as modern life influences weight patterns. More people are entering adulthood weighing more. People born in later decades of the twentieth century have spent a greater proportion of their lifetime in obesogenic environments and so more of them are fatter than their parents were at the same age. The data shows that late 20th century people will gain weight as they age at a faster rate than their parents did.

This information can be used to make projections for the future. If these rises in body weight continue at the same rate as occurred in the 1990s, NSW faces an obese future. Generation X women in NSW are gaining weight faster than other generations in NSW, and faster than their peers across Australia. In this scenario, 61.4 per cent of generation X women in NSW would be overweight by 2010.

If we can improve the environmental influences on weight gain, then the BMI start point at which Australians enter adulthood could be stabilized. Initiatives to reduce the environmental factors which drive obesity are important, if we are to protect new generations of children. Generation Xers, people aged between 30 and 40 years, are now the parents of young children. It is particularly important to work with this and future generations to prevent further weight gain and to support them as parents.

References

- ABS (2002) National Health Survey 2001. Canberra: ABS.
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- ABS (1991) National Health Survey 89-90. Canberra: ABS.

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SHORT REPORT

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