



Risk Factors

Body mass index

Stage 2

Epidemiological Series Report # 2007-19

April 2007

Introduction

The following overview presents the prevalence and incidence of obesity among the participants of the North West Adelaide Health Study, as well as the demographics and chronic conditions associated with high Body Mass Index (BMI). Stage 1 (baseline examination) of the study was conducted between 2000 and 2003, and Stage 2 (second examination) was conducted from 2004 to 2006.

Measurement and definition of obesity

Obesity is generally measured using the BMI. BMI can be calculated using height and weight measurements. Measurements were taken in the clinic using calibrated instruments and standard methods. The formula for calculating BMI is:

$$\text{weight (kg)} / \text{height (m)}^2$$

Incidence of obesity

The annual incidence of obesity between Stage 1 and Stage 2, among those who were not obese, was 18.6 incident cases per 1000 in the adult population.

The annual incidence of reducing BMI from obese to non-obese between Stage 1 and Stage 2 was 10.6 cases per 1000 in the adult population.

Prevalence of obesity – Stage 1 & Stage 2

The prevalence of obesity according to clinical assessment for both Stage 1 and Stage 2 is shown in Table 1. Overall, in Stage 1, **27.0%** (95% CI 25.6-28.4) and in Stage 2, **29.3%** (95% CI 27.8-30.9) of study participants were obese.

Table 1: Prevalence of BMI category

	Stage 1		Stage 2	
	n	%	n	%
Underweight (under 18.50)	49	1.2	43	1.3
Normal (18.5 to 24.9)	1442	35.5	1022	31.9
Overweight (25 to 29.9)	1471	36.3	1196	37.4
Obese (30 and over)	1095	27.0	938	29.3
Total	4058	100.0	3199	100.0

* Note: (Stage 1) 2 participants and (Stage 2) 7 participants did not provide measurements and were excluded

Transition to and from obesity

Overall, 6.1% (95% CI 5.3-6.9) were not obese according to BMI in Stage 1 and were obese in Stage 2 and 23.2% (95% CI 21.8-24.7) were obese in Stage 1 and Stage 2 (Table 2).

Table 2: The transition to and from obesity

Stage 1	Stage 2	n	%
Non obese	Non obese	2155	67.4
Non obese	Obese	193	6.1
Obese	Obese	743	23.2
Obese	Non Obese	106	3.3
Total		3197	100.0

The prevalence of obesity at Stage 1 was 27.0%, which increased to 29.3% at Stage 2.

Overall, 6.1% of participants were not obese in Stage 1 but were in Stage 2.

Demographic profile of people classified as obese

The prevalence of obesity as measured by body mass index was statistically significantly higher among those over 25 years and less than 75 years, and adults living with a partner but not with children, or sole parents. The prevalence of obesity was significantly lower among those with a bachelor degree or higher, or a trade, apprenticeship, certificate or diploma, those earning above \$40,000, or those who had never been married (Table 3).

Table 3: Univariate Odds Ratios for demographic variables associated with obesity

Variable	n	%	OR	(95% CI)	p value
Sex					
Male	440/1572	28.0	1.00		
Female	498/1627	30.6	1.13	(0.97-1.32)	0.11
Age group					
20 to 24 years	36/226	15.8	1.00		
25 to 34 years	184/680	27.1	1.98	(1.33-2.93)	0.001
35 to 44 years	182/650	27.9	2.06	(1.39-3.07)	<0.001
45 to 54 years	193/566	34.1	2.76	(1.85-4.10)	<0.001
55 to 64 years	164/437	37.7	3.22	(2.14-4.83)	<0.001
65 to 74 years	108/325	33.2	2.64	(1.73-4.04)	<0.001
75 years and over	72/315	22.7	1.57	(1.00-2.44)	0.05
Highest education level obtained					
Secondary	474/1418	33.4	1.00		
Trade/apprenticeship/cert/diploma	340/1169	29.1	0.82	(0.69-0.97)	0.02
Bachelor degree or higher	102/545	18.7	0.46	(0.36-0.58)	<0.001
Gross annual household income					
Up to \$20,000	210/601	34.9	1.00		
\$20,001- \$40,000	230/725	31.8	0.87	(0.69- 1.10)	0.24
\$40,001- \$60,000	199/686	29.1	0.77	(0.61- 0.97)	0.03
More than \$60,000	259/1040	24.9	0.62	(0.50- 0.77)	<0.001
Family structure					
Family & children, 2 biological/adoptive parents	332/1198	27.7	1.00		
Adult living with partner, no children	271/847	32.0	1.23	(1.01-1.48)	0.04
Adult living alone	112/427	26.2	0.93	(0.72-1.19)	0.54
Adults – related/unrelated, living together	93/336	27.6	1.00	(0.76-1.31)	0.98
Step/sole/shared parenting & other	114/332	34.3	1.36	(1.05-1.76)	0.02
Marital status					
Married or living with partner	652/2126	30.6	1.00		
Separated/divorced	87/272	32.2	1.07	(0.84-1.41)	0.61
Widowed	53/211	25.3	0.77	(0.56-1.06)	0.11
Never married	137/564	24.2	0.72	(0.59-0.90)	0.003
Work status					
Full time employed	409/1433	28.4	1.00		
Part time/casual employed	158/528	30.0	1.08	(0.87-1.34)	0.49
Unemployed	26/76	34.7	1.34	(0.83-2.18)	0.24
Home duties/retired	303/982	30.8	1.12	(0.94-1.34)	0.20
Student/other	32/149	21.7	0.70	(0.47-1.05)	0.08

*Not stated category not reported

Those categorised as obese were more likely to be:

- aged 25 years and over and less than 75;
- adults living with a partner without children or a sole parent.

Obesity was statistically significantly more likely among those who had diabetes, asthma, cardiovascular disease, arthritis or a mental health condition.

Chronic condition profile of obesity

Obesity was statistically significantly more likely among those who had diabetes, asthma, cardiovascular disease, arthritis or a mental health condition than in those without these conditions (Table 4).

Table 4: Univariate Odds Ratios for Chronic Conditions associated with obesity

Variable	n	%	OR	(95% CI)	p value
Diabetes*					
No	821/2948	27.9	1.00		
Yes	110/228	48.3	2.42	(1.84-3.18)	<0.001
Asthma*					
No	760/2678	28.4	1.00		
Yes	178/520	34.3	1.32	(1.08-1.61)	0.007
COPD*					
No	883/2993	29.5	1.00		
Yes	33/150	21.9	0.67	(0.45-1.00)	0.05
Cardiovascular Disease*					
No	864/2984	28.9	1.00		
Yes	67/171	39.5	1.60	(1.17-2.20)	0.004
Arthritis*					
No	680/2487	27.3	1.00		
Yes	248/655	37.9	1.62	(1.35-1.94)	<0.001
Mental Health Condition*					
No	752/2672	28.2	1.00		
Yes	178/482	36.8	1.49	(1.21-1.82)	<0.001

* Don't know/ refused/ not stated category not reported

People with obesity have significantly lower quality of life scores for all dimensions of the SF-36 except for Mental Health.

Quality of Life profile of obesity

Figure 1 shows the mean scores of the SF-36 subscales for participants classified as non obese and obese. Those classified as obese scored statistically significantly lower on all dimensions of the SF-36 except for Mental Health when compared with those in the other BMI categories.

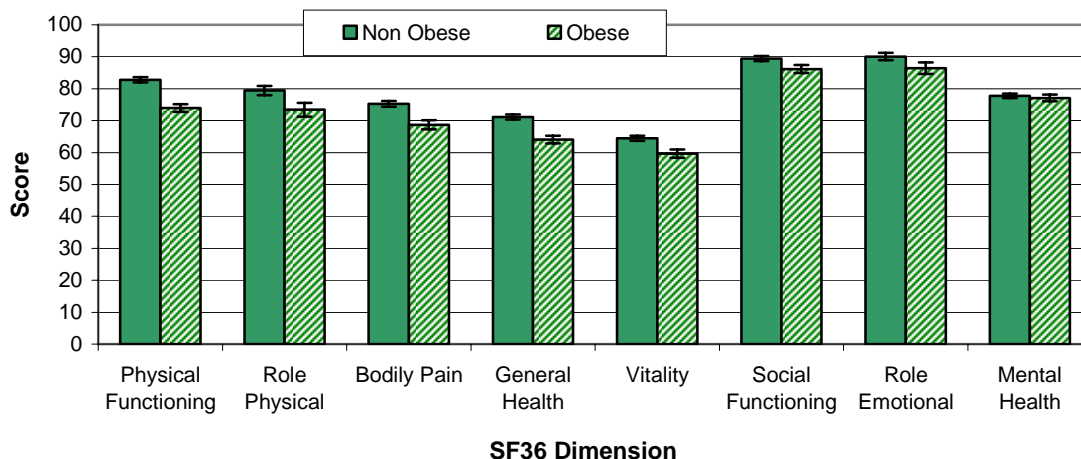


Figure 1: SF-36 mean scores for those categorized as Non obese and Obese

This document is one of a series of reports concerning Stage 2 of the North West Adelaide Health Study. Please see website for other reports in the series - www.health.sa.gov.au/pros/

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