

## INTRODUCTION

Obesity has been a growing concern for some time, both in Australia and in the wider international community. During this time, health promotion messages have encouraged people to be more physically active and to eat more healthily; the goal being a healthy weight.

## METHODS

The North West Adelaide Health Study is a representative population cohort study of adults living in the north western region of Adelaide which explores chronic conditions and risk factors. Obesity was defined using body mass index (BMI), calculated from measured data using the formula: weight (kg)/height (m)<sup>2</sup>. The incidence rate (1000 person years) and univariate hazard ratios for participants for selected demographics, chronic conditions and risk factors who were not obese at Stage 1 were examined. Differences in obesity (BMI ≥ 30) between the three stages conducted so far were explored – Stage 1 (2000-03), Stage 2 (2004-06) and Stage 3 (2008-10).

## RESULTS

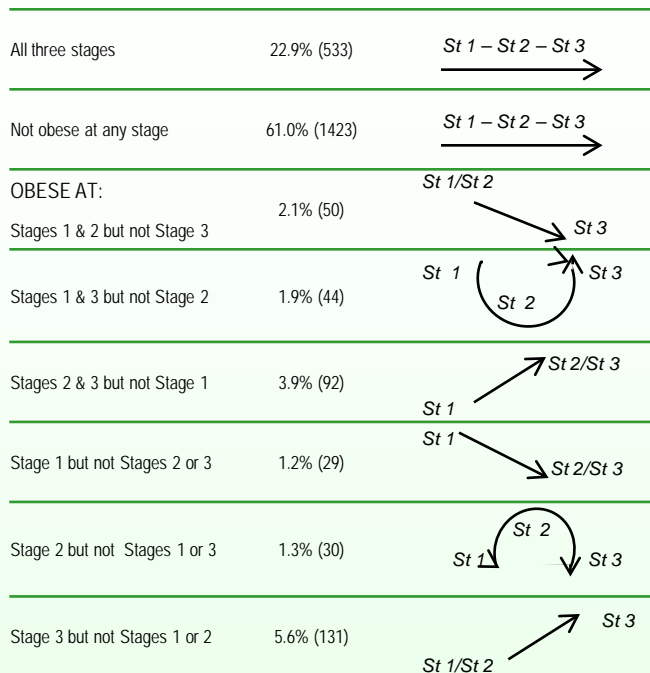
Overall, the prevalence of obesity was:

- Stage 1 - 27.0% (1094/4054) (95% CI 25.4 – 28.6);
- Stage 2 - 29.4% (939/3198) (95% CI 27.3 – 31.5); and
- Stage 3 - 33.4% (831/2486) (95% CI 30.9 – 36.1).

Tables 1 and 2 present the incidence rate per 1000 person years among those participants who were not obese at baseline Stage 1 (321 incident cases). The incidence of obesity was statistically significantly lower among those who were aged 60 years and over or those undertaking home duties or retired, and statistically significantly higher among those who were current smokers or high waist hip ratio than those without these risk factors. Figure 1 shows the obesity status at each stage for the study participants who had their height and weight measured at all three stages (n= 2332).

**Table 1: Obesity incidence rate & univariate hazard ratios - demographics**

Variable	n	New cases	Inc rate	HR (95%CI)	p value
<b>Sex</b>					
Male	1219	163	20.6	1	
Female	1192	158	19.9	0.94 (0.71-1.23)	0.639
<b>Age group</b>					
Up to 49 years	1443	225	23.6	1	
50 to 59 years	339	40	17.1	0.78 (0.56-1.08)	0.138
60 years and over	629	55	13.9	0.61 (0.44-0.83)	<b>0.002</b>
<b>Highest education level obtained*</b>					
Secondary	1007	141	21.5	1	
Trade/apprenticeship/certificate/diploma	1001	140	21.2	0.95 (0.70-1.27)	0.713
Bachelor degree or higher	301	35	17.2	0.73 (0.45-1.17)	0.192
<b>Gross annual household income*</b>					
Up to \$20,000	516	58	17.7	1	
\$20,001- 40,000	591	90	22.4	1.27 (0.87-1.87)	0.212
\$40,001- 60,000	529	83	23.7	1.34 (0.90-2.01)	0.151
More than \$60,000	652	75	17.3	0.96 (0.61-1.50)	0.852
<b>Family structure*</b>					
Two biol/adopt parents & children	808	115	21.6	1	
Adult living with partner, no children	601	73	17.5	0.78 (0.54-1.11)	0.170
Adult living alone	315	37	18	0.79 (0.52-1.19)	0.254
Adults living together (related/unrelated)	227	30	21.8	0.98 (0.60-1.61)	0.948
Step/sole/shared parenting & other	215	42	30.1	1.35 (0.82-2.23)	0.244
<b>Marital status*</b>					
Married/defacto	1550	207	19.9	1	
Separated/divorced	185	23	18.6	0.93 (0.64-1.35)	0.714
Widowed	160	15	15.8	0.80 (0.51-1.26)	0.343
Never married	503	75	23.5	1.10 (0.71-1.69)	0.669
<b>Work status*</b>					
Full time employed	952	156	24.5	1	
Part time/casual employed	416	57	20.4	0.82 (0.56-1.21)	0.311
Unemployed	83	12	24.1	1.12 (0.46-2.76)	0.801
Home duties/retired	750	78	16.3	0.69 (0.51-0.94)	<b>0.017</b>
Student/other	178	16	13.7	0.58 (0.29-1.16)	0.121



**Figure 1: Proportion of obese participants across all three stages**

## CONCLUSION

Obesity continues to add to the burden of chronic conditions within our communities, adversely influencing other risk factors. The evidence provided by the North West Adelaide Health Study aims to help with targeted strategies by health professionals aiming at halting or slowing people's progression along the chronic disease continuum.

**Table 2: Obesity incidence rate & univariate hazard ratios – chronic conditions and risk factors**

Variable	n	New cases	Inc rate	HR (95%CI)	p value
<b>Cardiovascular disease</b>					
No	2262	301	20.1	1	
Yes	147	19	21.8	1.14 (0.70-1.85)	0.597
<b>Diabetes</b>					
No	2301	308	20.3	1	
Yes	110	13	19	1.03 (0.60-1.76)	0.921
<b>Arthritis</b>					
No	1786	241	20.3	1	
Yes	457	62	20.6	1.04 (0.77-1.40)	0.812
<b>Current mental health condition</b>					
No	2109	263	19	1	
Yes	286	53	27.7	1.41 (1.00-2.01)	0.053
<b>Smoking*</b>					
Non-smoker	1131	122	16.4	1	
Ex-smoker	704	90	19.8	1.22 (0.92-1.65)	0.169
Current smoker	568	108	28.5	1.60 (1.12-2.29)	<b>0.010</b>
<b>Alcohol risk</b>					
Non-drinker/ No risk	1269	153	16.7	1	
Low risk	973	140	21.3	1.06 (0.80-1.41)	0.69
Intermediate to very high risk	158	28	26.7	1.32 (0.73-2.38)	0.363
<b>Physical activity</b>					
Sedentary	590	86	21.9	1	
Undertakes some exercise	1620	212	19.9	0.93 (0.69-1.26)	0.649
<b>High waist hip ratio<sup>‡</sup></b>					
No	2157	278	19.4	1	
Yes	254	43	27.6	1.41 (1.02-1.96)	<b>0.040</b>
<b>High total cholesterol (≥5.5mmol/L)<sup>‡</sup></b>					
No	1537	208	20.9	1	
Yes	846	110	19.3	0.89 (0.68-1.17)	0.416
<b>High blood pressure (≥140/90mmHg)<sup>‡</sup></b>					
No	1796	234	19.7	1	
Yes	616	87	21.6	1.09 (0.83-1.45)	0.529

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

<sup>‡</sup> Biomedically measured