



Chronic Conditions

Asthma

Stage 2

Epidemiological Series Report # 2007-01

April 2007

Introduction

The following overview presents the prevalence and incidence of asthma among the participants of the North West Adelaide Health Study, and the demographic and risk factors associated with asthma. Stage 1 (baseline examination) was conducted between 2000 and 2003, and Stage 2 (second examination) was conducted from 2004 to 2006.

Measurement and definition of asthma

Asthma was determined by spirometry based on three pre- and three post-salbutamol measurements. People with current asthma were defined as those who reported having been told by a doctor that they have asthma, or those who had at least a 12% increase in FEV₁ (forced expiratory volume in one second) from pre-Ventolin to post-Ventolin if their absolute difference in FEV₁ was greater than 200ml¹ or an absolute change in FEV₁ of greater than or equal to 400ml.

Incidence of asthma

The annual incidence of developing asthma between Stage 1 and Stage 2 was 24.6 cases per 1000 in the adult population.

Prevalence of asthma – Stage 1 & Stage 2

The prevalence of asthma for both Stage 1 and Stage 2 is shown in Table 1. In Stage 1, **12.5%** (95% CI 11.5-13.6) and in Stage 2, **16.2%** (95% CI 15.0-17.5) of study participants had asthma.

Table 1: Prevalence of asthma

	Stage 1		Stage 2	
	n	%	n	%
No asthma	3549	87.5	2685	83.8
Asthma	509	12.5	520	16.2
Total	4058*	100.0	3205*	100.0

* Note: (Stage 1) 2 participants and (Stage 2) 1 participant had insufficient FEV₁ results or did not state they had been told that they had asthma and were excluded.

Transition to and from asthma

Overall, 7.6% (95% 6.7-8.6) of respondents went from having no asthma in Stage 1 to asthma in Stage 2 and 8.6% (95% 7.7-9.7) had asthma in Stage 1 and Stage 2 (Table 2).

Table 2: The transition to and from asthma

Stage 1	Stage 2	n	%
No asthma	No asthma	2601	81.1
No asthma	Asthma	243	7.6
Asthma	Asthma	277	8.6
Asthma	No asthma	84	2.6
Total		3205	100.0

The high incidence of asthma may be due to the variability of asthma as a disease, and the potential of measuring undiagnosed, but present, asthma in Stage 1. Some respondents that went from asthma to no asthma, or from no asthma to asthma, typically just qualified as having asthma, and could be added to the no asthma/no asthma group.

¹ Adams RJ, Wilson DH, Appleton S, Taylor A, Dal Grande E, Chittleborough CR, Ruffin RE. Underdiagnosed asthma in South Australia. *Thorax* 2003; 58:846-850.

The prevalence of asthma for Stage 2 was 16.2%, which was an increase from 12.5% in Stage 1.

Overall 7.6% of participants had asthma in Stage 2 after not having asthma in Stage 1.

Demographic profile of people with asthma

The prevalence of asthma was statistically significantly higher among those who were female, adults living with a partner, adults living alone or step/sole parents, widowed or never married, or part time employed, unemployed, home duties, retired or a student. The prevalence was statistically significantly lower among those with an income greater than \$20,000, or had achieved an educational level of bachelor degree or higher (Table 3).

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

Variable	n	%	OR	(95% CI)	p value
Sex					
Male	225/1573	14.3	1.00		
Female	295/1632	18.1	1.32	(1.09-1.60)	0.004
Age group					
20 to 49 years	289/1857	15.6	1.00		
50 to 59 years	80/540	14.8	0.94	(0.72-1.23)	0.67
60 years and over	150/808	18.6	1.24	(1.00-1.54)	0.05
Highest education level obtained*					
Secondary	225/1418	18.0	1.00		
Trade/apprenticeship/cert/diploma	188/1170	16.1	0.87	(0.71-1.08)	0.20
Bachelor degree or higher	70/545	12.8	0.67	(0.50-0.89)	0.006
Gross annual household income*					
Up to \$20,000	127/601	21.2	1.00		
\$20,001- 40,000	119/724	16.4	0.73	(0.55-0.97)	0.03
\$40,001- 60,000	98/688	14.2	0.62	(0.46-0.82)	0.001
More than \$60,000	154/1040	14.8	0.65	(0.50-0.84)	0.001
Family structure*					
Family & children, 2 biological/adoptive parents	160/1199	13.4	1.00		
Adult living with partner, no children	148/847	17.5	1.37	(1.08-1.75)	0.01
Adult living alone	92/427	21.7	1.79	(1.35-2.38)	<0.001
Adults – related/unrelated, living together	53/336	15.9	1.22	(0.87-1.71)	0.24
Step/sole/shared parenting/other	60/332	18.1	1.43	(1.03-1.98)	0.03
Marital status*					
Married or living with partner	316/2127	14.9	1.00		
Separated/divorced	53/272	19.5	1.39	(1.00-1.92)	0.05
Widowed	45/210	21.4	1.56	(1.08-2.22)	0.01
Never married	104/564	18.4	1.29	(1.01-1.65)	0.04
Work status*					
Full time employed	187/1433	13.0	1.00		
Part time/casual employed	100/530	18.8	1.54	1.18-2.02	0.001
Unemployed	19/76	25.6	2.30	1.34-3.93	0.002
Home duties/retired	175/982	17.8	1.45	1.16-1.81	0.001
Student/other	28/149	24.0	2.11	1.41-3.17	<0.001

*Not stated category not reported

Those who were obese or had a high waist/hip ratio were more likely to have asthma.

Measured risk factor profile of people with asthma

The prevalence of asthma was statistically significantly higher among those who were obese or had a high waist/hip ratio (Table 4).

Table 4: Univariate Odds Ratios for measured risk factor variables associated with asthma

Variable	n	%	OR	(95% CI)	p value
BMI*					
Underweight/normal	149/1064	14.0	1.00		
Overweight	193/1196	16.2	1.19	(0.94-1.50)	0.15
Obese	178/938	19.0	1.45	(1.14-1.83)	0.002
Waist/hip ratio (>1.0 men, >0.85 women)*					
No	368/2434	15.1	1.00		
Yes	149/737	20.2	1.43	(1.15-1.76)	0.001
High blood pressure (≥140/90mmHg)					
No	372/2353	15.8	1.00		
Yes	146/820	17.8	1.15	(0.94-1.43)	0.18
High total cholesterol (≥5.5mmol/L)					
No	303/1892	16.0	1.00		
Yes	216/1291	16.7	1.05	(0.87-1.27)	0.60

* Not stated category not reported

Quality of life profile of people with asthma

Figure 1 shows the mean scores of the SF-36 subscales for people who did and did not have asthma. People with asthma scored statistically significantly lower on the Physical Functioning, Role Physical, Bodily Pain, General Health, Vitality, Social Functioning and Mental Health domains than people without asthma.

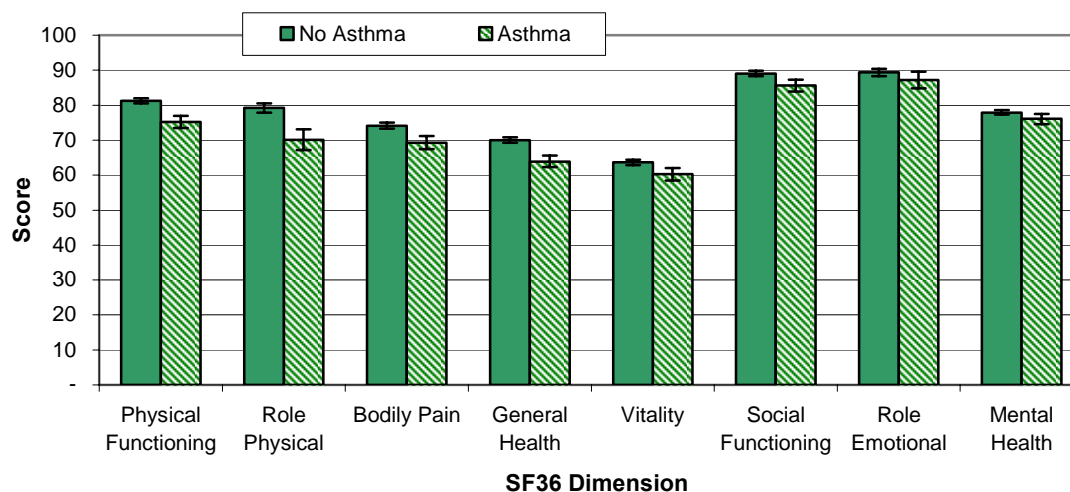


Figure 1: SF-36 mean scores for people who did and did not have asthma

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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People with asthma showed significantly impaired quality of life on several dimensions of the SF-36.