



Risk Factors

Blood pressure

Stage 2

Epidemiological Series Report # 2007-18

April 2007

Introduction

The following overview presents the prevalence and incidence of high blood pressure among the participants of the North West Adelaide Health Study, and the demographics and chronic conditions associated with high blood pressure. 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 high blood pressure

Blood pressure was measured in the clinic using a standard, calibrated blood pressure sphygmomanometer. Two blood pressure measurements were recorded, five to ten minutes apart, while the participant was relaxed and seated. The average of these two recorded measures was used in the analyses. High blood pressure (hypertension) was defined as systolic blood pressure greater than or equal to 140 mmHg and/or diastolic blood pressure greater than or equal to 90 mmHg¹.

Incidence of high blood pressure

The annual incidence of developing high blood pressure between Stage 1 and Stage 2 was 33.6 incident cases per 1000 in the adult population.

The annual incidence of reducing blood pressure from high to normal between Stage 1 and Stage 2 was 30.8 cases per 1000 in the adult population.

Prevalence of high blood pressure – Stage 1 & Stage 2

The proportion of participants with high blood pressure was **26.8%** (95% CI 25.5-28.2) in Stage 1 and **25.8%** (95% CI 24.3-27.4) in Stage 2 (Table 1).

Table 1: Prevalence of high blood pressure

	Stage 1		Stage 2	
	n	%	n	%
Normal	2970	73.2	2354	74.2
High blood pressure	1090	26.8	820	25.8
Total	4060	100.0	3173*	100.0

* Note: (Stage 2) 33 participants had missing data for blood pressure and were excluded.

Transition to and from high blood pressure

Overall, 10.5% (95% CI 9.5-11.6) had normal blood pressure in Stage 1 and high blood pressure in Stage 2 and 15.3% (95% CI 14.1-16.6) had high blood pressure in Stage 1 and Stage 2 (Table 2).

Table 2: The transition to and from high blood pressure

Stage 1	Stage 2	n	%
Normal BP	Normal BP	2040	64.3
Normal BP	High BP	333	10.5
High BP	High BP	487	15.3
High BP	Normal BP	314	9.9
Total		3173	100.0

¹ National Heart Foundation of Australia. *Risk Factor Prevalence Study. Survey No 3 – 1989.*

The prevalence of high blood pressure in Stage 1 was 26.8%, compared to 25.8% in Stage 2.

Overall, 10.5% of the cohort had normal blood pressure in Stage 1 and high blood pressure in Stage 2.

High blood pressure was significantly more likely to be among those who were: male; in older age groups; had a secondary level of education, had a household income of \$20,000 or less per annum; adults living with partner, no children, or adults living alone, widowed; retired or undertaking home duties.

Demographic profile of people with high blood pressure

In Stage 2, the prevalence of high blood pressure was statistically significantly higher among those in the older age groups, adults living with a partner and no children or living alone or with unrelated adults, or those widowed, retired or undertaking home duties. The prevalence was statistically significantly lower among those who were female, had achieved an educational level of trade, apprenticeship, certificate or diploma or bachelor degree or higher, had never been married, had an income greater than \$20,000, or were employed part time or casual or a student (Table 3).

Table 3: Univariate Odds Ratios for demographic variables associated with high blood pressure

Variable	n	%	OR	(95% CI)	p value
Sex					
Male	475/1565	30.3	1.00		
Female	345/1609	21.4	0.63	(0.53-0.74)	<0.001
Age group					
20 to 49 years	242/1833	13.2	1.00		
50 to 59 years	191/536	35.7	3.65	(2.92-4.55)	<0.001
60 years and over	387/804	48.1	6.09	(5.02-7.39)	<0.001
Highest education level obtained*					
Secondary	422/1410	29.9	1.00		
Trade/apprenticeship/ cert/diploma	301/1159	26.0	0.82	(0.69-0.98)	0.03
Bachelor degree or higher	79/538	14.6	0.40	(0.31- 0.52)	<0.001
Gross annual household income*					
Up to \$20,000	213/598	35.6	1.00		
\$20,001-40,000	224/717	31.2	0.82	(0.65-1.03)	0.09
\$40,001-60,000	146/682	21.4	0.49	(0.38-0.63)	<0.001
More than \$60,000	178/1032	17.2	0.38	(0.30-0.47)	<0.001
Family structure*					
Family & children, 2 biological/adoptive parents	228/1183	19.3	1.00		
Adult living with partner, no children	289/840	34.4	2.20	(1.79-2.69)	<0.001
Adult living alone	144/427	33.8	2.14	(1.67-2.74)	<0.001
Adults-related/unrelated, living together	81/335	24.3	1.35	(1.01-1.80)	0.04
Step/sole/shared parenting & other	51/331	15.4	0.77	(0.55-1.07)	0.11
Marital status*					
Married or living with partner	571/2108	27.1	1.00		
Separated/divorced	73/271	27.1	1.00	(0.75-1.33)	1.00
Widowed	104/210	49.3	2.62	(1.97-3.49)	<0.001
Never married	58/557	10.5	0.32	(0.24-0.42)	<0.001
Work status*					
Full time employed	293/1416	20.7	1.00		
Part time/casual employed	75/527	14.3	0.64	(0.48-0.84)	0.001
Unemployed	19/75	25.4	1.31	(0.77-2.24)	0.33
Home duties/retired	396/977	40.6	2.62	(2.18-3.13)	<0.001
Student/other	22/149	14.7	0.66	(0.41-1.06)	0.08

*Not stated category not reported

Chronic condition profile of high blood pressure

In Stage 2, the prevalence of high blood pressure was statistically significantly higher among those who had diabetes, COPD, cardiovascular disease, or arthritis (Table 4).

Table 4: Univariate Odds Ratios for chronic conditions associated with high Blood Pressure

Variable	n	%	OR	(95% CI)	p value
Diabetes*					
No	701/2924	24.0	1.00		
Yes	109/227	48.2	2.95	(2.24-3.88)	<0.001
Asthma*					
No	674/2655	25.4	1.00		
Yes	146/518	28.2	1.15	(0.94-1.43)	0.18
COPD*					
No	740/2969	24.9	1.00		
Yes	62/149	41.3	2.12	(1.52-2.97)	<0.001
Cardiovascular Disease*					
No	725/2926	24.8	1.00		
Yes	87/203	42.9	2.28	(1.70-3.05)	<0.001
Arthritis*					
No	537/2464	21.8	1.00		
Yes	272/653	41.6	2.56	(2.13-3.07)	<0.001
Mental Health Condition*					
No	690/2647	26.1	1.00		
Yes	123/481	25.5	0.97	(0.78-1.22)	0.81

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

Quality of life profile of people with high blood pressure

Figure 1 shows the mean scores, controlled for age and sex, of the SF-36 subscales for participants in Stage 2 who did and did not have high blood pressure. People with high blood pressure scored statistically significantly lower on the general health dimension.

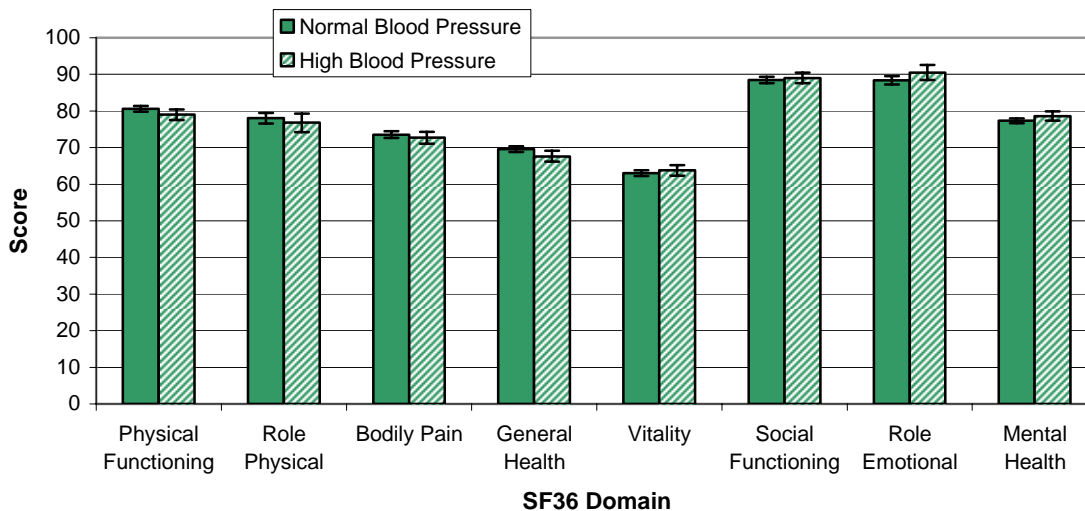


Figure 1: SF-36 mean scores for people who did and did not have high blood pressure

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/

CONTACT DETAILS:

Population Research & Outcome Studies Unit – South Australian Department of Health
 PO Box 287 Rundle Mall Level 8 CitiCentre, 11 Hindmarsh Square, Adelaide SA 5000
 Telephone (08) 8226 7042 Facsimile (08) 8226 6244. Email: pros@health.sa.gov.au

Acknowledgment is made of the contribution to the success of the study by research, clinic and recruiting staff, and for the generosity of the NWAHS participants in the giving of their time and effort.

High blood pressure was significantly higher among those who had diabetes, COPD, cardiovascular disease and arthritis.

People with high blood pressure have significantly lower quality of life scores in the area of General Health.