North West Adelaide Health Study

Risk Factors

Cholesterol

Stage 2

Epidemiological Series Report # 2007-20

April 2007

University of South Australia

THE UNIVERSITY OF ADELAIDE AUSTRALIA

Government of South Australia
Department of Health

Introduction

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

A fasting blood sample was used to measure total blood cholesterol levels (TBC) in the clinic. High cholesterol can be determined using a number of different measurements; however this summary is concerned with TBC. High cholesterol was defined as TBC being greater than or equal to 5.5 mmol/L[1].

Incidence of high cholesterol

The annual incidence of developing high cholesterol levels in Stage 2 from normal cholesterol levels in Stage 1 was 45.4 incident cases per 1000 in the adult population.

The annual incidence of reducing cholesterol from high to normal between Stage 1 and Stage 2 was 29.2 cases per 1000 in the adult population.

The prevalence of high cholesterol in Stage 1 was 36.1%, which increased to 40.6% at Stage 2.

Prevalence of high cholesterol – Stage 1 & Stage 2

The prevalence of high cholesterol according to clinical assessment for both Stage 1 and Stage 2 is shown in Table 1. Overall, in Stage 1 **36.1%** (95% CI 34.6-37.6) and in Stage 2 **40.6%** (95% CI 38.9-42.3) of study participants had high cholesterol.

Table 1: Prevalence of total blood cholesterol >= 5.5 mmol/L (Clinical Assessment)

	Stage 1		Stage 2	
	n	**%**	**n**	**%**
Normal	2551	63.9	1892	59.4
High total blood cholesterol >= 5.5 mmol/L	1441	36.1	1292	40.6
Total	3992*	100.0	3184*	100.0

* Note: (Stage 1) 68 participants and (Stage 2) 22 participants did not have blood results and were excluded.

Transition to and from high cholesterol

Overall, 14.5% (95% CI 13.3-15.7) had normal cholesterol in Stage 1 and high cholesterol in Stage 2, and 26.2% (95% CI 24.7-27.8) had high cholesterol in Stage 1 and Stage 2 (Table 2).

Overall, 14.5% went from normal cholesterol levels in Stage 1 to a high level in Stage 2.

Table 2: The transition to and from high cholesterol

Stage 1	**Stage 2**	**n**	**%**
Normal cholesterol	Normal cholesterol	1572	50.0
Normal cholesterol	High cholesterol	455	14.5
High cholesterol	High cholesterol	823	26.2
High cholesterol	Normal cholesterol	294	9.3
Total		3144	100.0

[1] Australian Institute of Health and Welfare and National Stroke Foundation of Australia. *Heart, Stroke and Vascular Disease Australian Facts 2001*. Canberra, AIHW 2001.

Demographic profile of people with high cholesterol

The prevalence of high cholesterol was statistically significantly higher among those aged 25 years and over, adults living with partner with no children, and those earning $20,001 to $40,000. The prevalence of high cholesterol was statistically significantly lower among those with a bachelor degree or higher, those living with other related or unrelated adults, those who had never been married, and those who worked part time or were a student (Table 3).

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

Variable	n	%	OR	(95% CI)	p value
Sex					
Male	633/1559	40.6	1.00		
Female	658/1624	40.5	1.00	(0.87-1.15)	0.96
Age group					
20 to 24 years	15/226	6.8	1.00		
25 to 34 years	202/676	29.9	5.82	(3.38-10.01)	**<0.001**
35 to 44 years	273/646	42.3	10.02	(5.84-17.19)	**<0.001**
45 to 54 years	292/565	51.6	14.58	(8.48-25.08)	**<0.001**
55 to 64 years	244/435	56.0	17.39	(10.03-30.15)	**<0.001**
65 to 74 years	138/324	42.5	10.11	(5.76-17.72)	**<0.001**
75 years and over	128/311	41.1	9.54	(5.43-16.76)	**<0.001**
Highest education level obtained*					
Secondary	593/1410	42.1	1.00		
Trade/apprenticeship/cert/diploma	493/1168	42.2	1.01	(0.86-1.18)	0.95
Bachelor degree or higher	182/543	33.5	0.69	(0.56-0.85)	**0.001**
Gross annual household income*					
Up to $20,000	228/597	38.2	1.00		
$20,001- 40,000	325/721	45.1	1.33	(1.07-1.66)	**0.01**
$40,001- 60,000	273/687	39.7	1.07	(0.85-1.33)	0.58
More than $60,000	405/1036	39.1	1.04	(0.84-1.28)	0.73
Family structure*					
Family & children, 2 biological/adoptive parents	475/1194	39.8	1.00		
Adult living with partner, no children	399/845	47.2	1.35	(1.13-1.61)	**0.001**
Adult living alone	174/425	41.0	1.05	(0.84-1.32)	0.68
Adults – related/unrelated, living together	103/333	31.0	0.68	(0.52-0.88)	**0.004**
Step/sole/shared parenting & other	123/332	37.1	0.89	(0.69-1.15)	0.37
Marital status*					
Married or living with partner	958/2121	45.2	1.00		
Separated/divorced	118/270	43.6	0.94	(0.73-1.21)	0.61
Widowed	99/208	47.5	1.10	(0.83-1.46)	0.52
Never married	112/562	19.9	0.30	(0.24-0.38)	**<0.001**
Work status*					
Full time employed	608/1428	42.6	1.00		
Part time/casual employed	186/530	35.1	0.73	(0.59-0.90)	**0.003**
Unemployed	29/76	38.3	0.84	(0.52-1.35)	0.46
Home duties/retired	425/977	43.5	1.04	(0.88-1.22)	0.68
Student/other	35/148	23.9	0.42	(0.29-0.63)	**<0.001**

*Not stated category not reported

Those with high cholesterol were significantly more likely to be:

- *aged 25 and over;*
- *earn between $20,000 and $40,000; &*
- *live with other adults but without children.*

High cholesterol was significantly more likely to be among those who had arthritis.

Chronic Condition profile of high cholesterol

High cholesterol was statistically significantly more likely among those who had arthritis and significantly less likely among those with cardiovascular disease or diabetes than in those without these conditions (Table 4).

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

Variable	n	%	OR	(95% CI)	p value
Diabetes*					
No	1228/2939	41.8	1.00		
Yes	60/226	26.5	0.50	(0.37-0.68)	**<0.001**
Asthma*					
No	1075/2664	40.4	1.00		
Yes	216/519	41.6	1.05	(0.87-1.27)	0.60
COPD*					
No	1214/2979	40.8	1.00		
Yes	56/149	37.9	0.89	(0.63-1.24)	0.48
Cardiovascular Disease*					
No	1227/2939	41.8	1.00		
Yes	44/202	22.0	0.39	(0.28-0.55)	**<0.001**
Arthritis*					
No	956/2475	38.6	1.00		
Yes	309/653	47.4	1.43	(1.20-1.70)	**<0.001**
Mental Health Condition*					
No	1065/2662	40.0	1.00		
Yes	207/477	43.3	1.15	(0.94-1.40)	0.17

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

People with high cholesterol have significantly higher quality of life scores for the Physical Functioning and Role Physical dimensions of the SF-36.

Quality of Life profile of high cholesterol

Figure 1 shows the mean scores of the SF-36 subscales for people with normal or high total blood cholesterol. People with high cholesterol scored statistically significantly higher on the Physical Functioning and Role Physical dimensions, when compared to those with normal cholesterol.

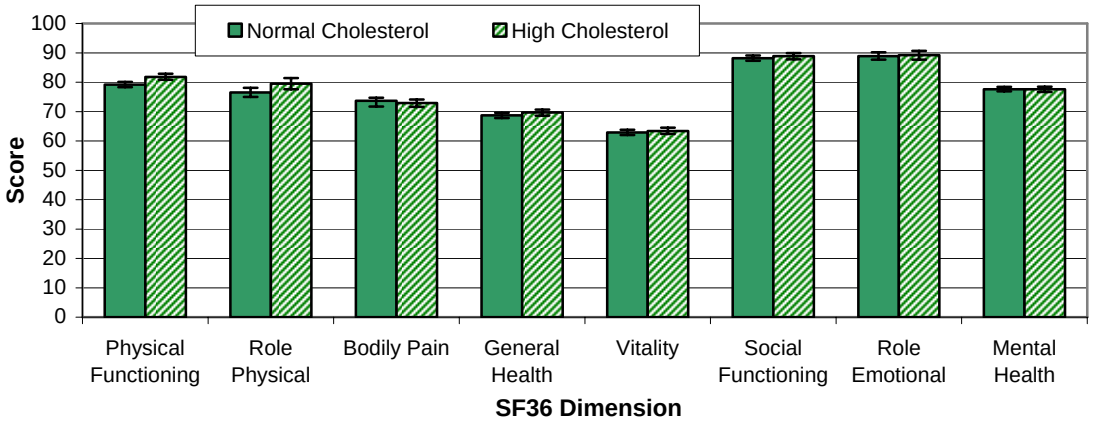

Figure 1: SF-36 mean scores for Normal and High Total Blood Cholesterol

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.