



**SUMMARY OF  
KEY BIOMEDICAL FINDINGS,  
POLICY IMPLICATIONS AND  
RESEARCH RECOMMENDATIONS**

**MAY 2002**

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# 1 BACKGROUND

The North West Adelaide Health Study is a collaboration between the North Western Adelaide Health Service (The Queen Elizabeth Hospital and Lyell McEwin Health Service campuses), the South Australian Department of Human Services (Centre for Population Studies in Epidemiology), The University of Adelaide, and the University of South Australia.

This study has been designed to segment a large representative population sample according to stage of disease in order to identify each segment's characteristics and determine how they change over time. This segmentation will allow interventions to be targeted at those who will benefit most in terms of better health outcomes and most efficient use of resources. The better those with specific health problems, diseases, or risk factors are described, the more precisely they can be targeted for policies and interventions that are based on a range of appropriate evidence-based characteristics.

The chronic disease continuum is used to segment the population according to their biomedical stage of disease. Conceptualisation of a continuum asserts that people with chronic conditions are not a homogenous group. Each segment has specific needs that will change as they progress along the continuum. It also asserts that, for greatest impact of interventions, the population should be targeted according to the stage of development along the continuum.

The North West Adelaide Health Study addresses two of the six conditions identified as National Health Priority Areas, namely asthma and diabetes, because of the significant burden that they place on the community in terms of health, social, economic and quality of life costs. The risk factors analysed in relation to diabetes and asthma are also relevant to cardiovascular disease, which is also recognised as a health priority area.

## 2 DIABETES

### 2.1 Key findings

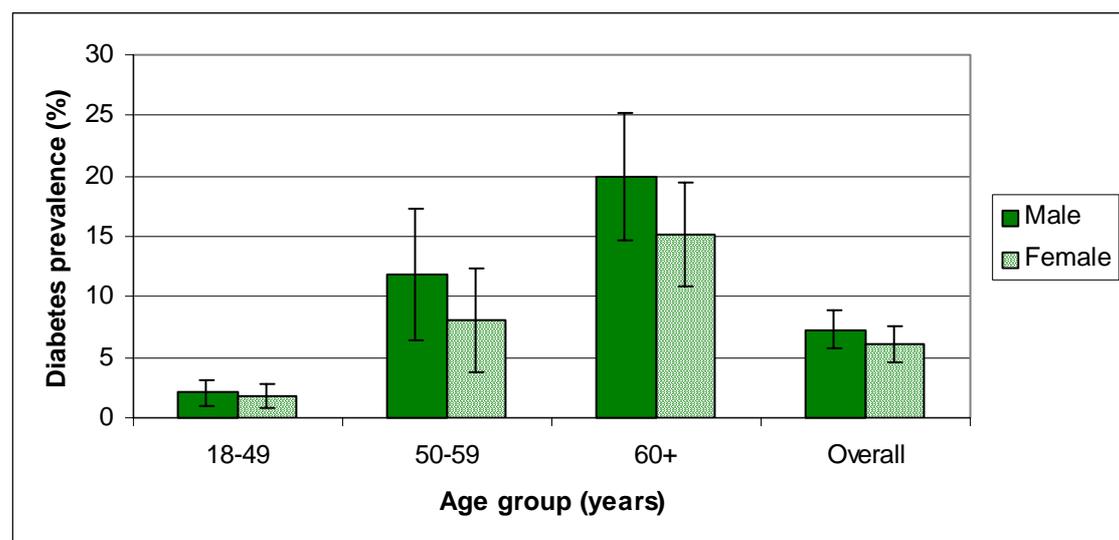
#### 2.1.1 Prevalence

In the North West region of Adelaide 6.7% of adults had diabetes (Figure 1). This includes both people with diagnosed diabetes and those who did not previously know that they had it. Applying this estimate to the South Australian population, approximately 78,900 adults have diabetes.

The prevalence of previously undiagnosed diabetes was 1.2%. This means that for approximately every four people who know they have diabetes, one person has diabetes but does not know it. Given that the results of the national AusDiab study found the ratio of diagnosed:undiagnosed to be 1:1, further investigation needs to examine if this phenomenon is unique to the North West region of Adelaide, or whether it is common to the whole State.

The prevalence of impaired fasting glucose (IFG), a precursor to diabetes, was 5.5%. There are approximately the same number of people with IFG as with diagnosed diabetes.

**Figure 1: Prevalence of diabetes by sex and age group**



## 2.1.2 Risk factors

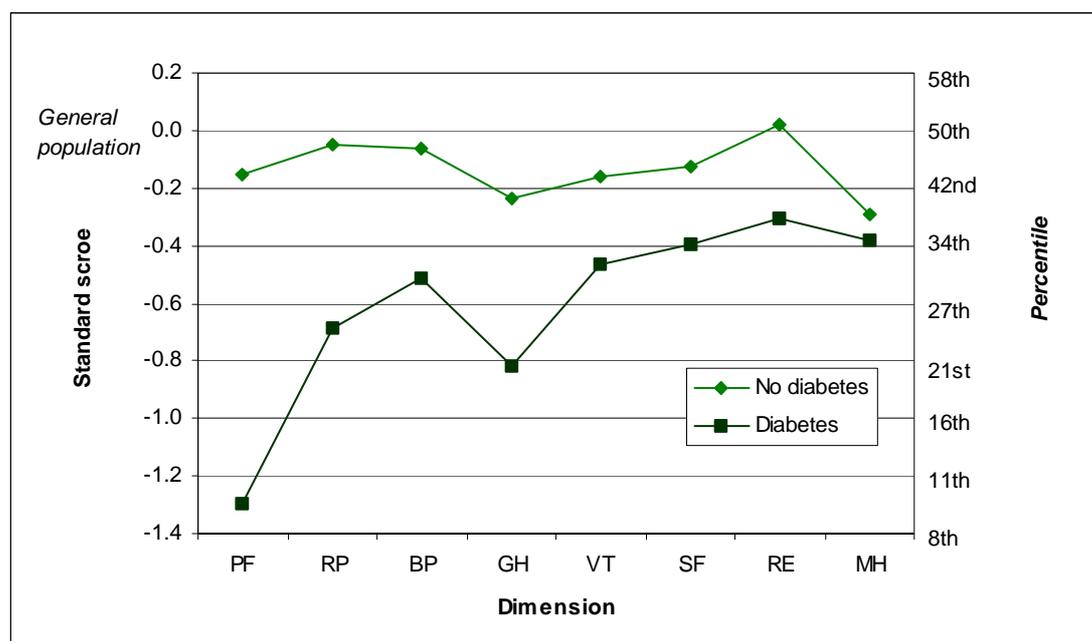
People with IFG were more likely to have other risk factors for developing diabetes than people with normal glucose. People with IFG also had poorer quality of life than people with normal glucose, indicating deterioration even before progression to diabetes.

Of people without diabetes, 45% had two or more risk factors for developing diabetes. Research is required to determine if these people are aware that they are at increased risk of developing diabetes.

## 2.1.3 Quality of life

The quality of life of people with diabetes is more impaired than for people without diabetes, particularly in terms of their physical functioning (Figure 2).

**Figure 2: SF-36 standard scores for people with and without diabetes compared to the general South Australian population**



The quality of life of people with previously undiagnosed diabetes was already significantly impaired in terms of physical functioning,

supporting the case for early detection to provide opportunity for delaying progression of the condition and improving quality of life.

### **2.1.4 Health service use**

People with diabetes use more health services than people without diabetes, although a significant proportion are not attending the health services that they should, such as podiatrists, dietitians and ophthalmologists.

## **2.2 Diabetes policy implications and research recommendations**

- Information from this study should be used to guide planning and policy making beyond the existing national and state diabetes strategies.
- Emerging international evidence, for example from the UK Prospective Diabetes Study, shows that good management and control of blood glucose, blood pressure, and lipid levels is effective in improving health outcomes. That the quality of life of people with diabetes is severely affected, and many people with diabetes have multiple risk factors for complications indicates that diabetes is not being managed as well as it could be. To address this and prevent or delay the development and progression of complications would involve:
  - \* Improved programs for tracking people with diabetes in the primary health care system (eg. diabetes centres, GPs), and providing them with regular care. Links between GPs and other health services will need to be promoted, particularly given the Commonwealth initiatives of the Enhanced Primary Care Package and Practice Incentives Program, which are aimed at improving the coordination of care of people with chronic conditions.
  - \* Improved use of required health services by people with diabetes and improved client-related data collection and analyses to improve health outcomes.

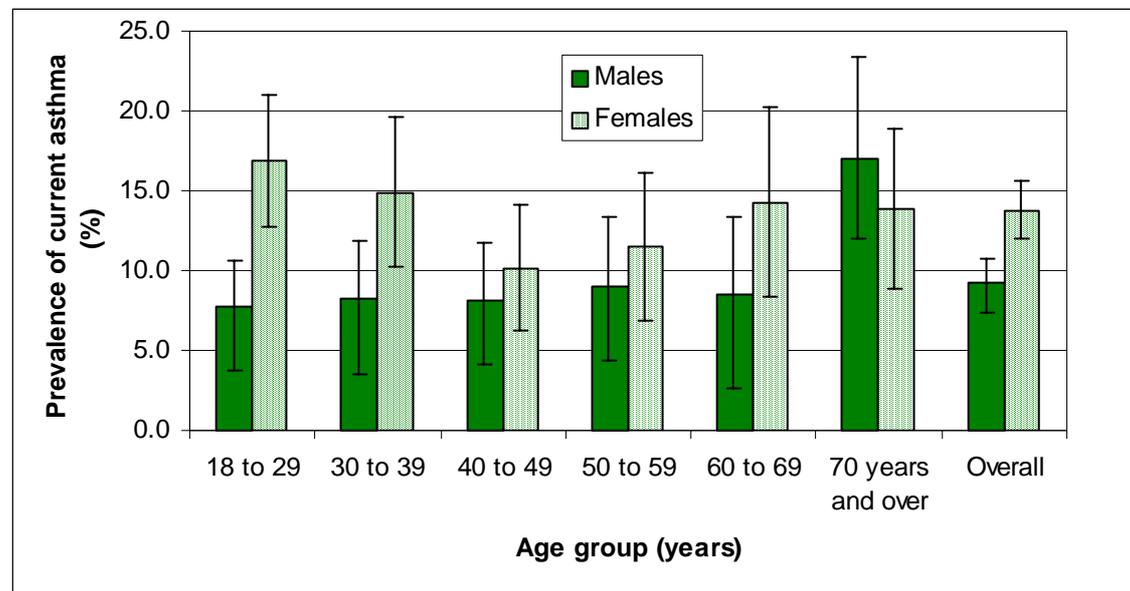
- A large undiagnosed diabetes and impaired fasting glucose group identify an important target group for early detection and care. This is likely to affect health system costs. A more aggressive approach to case finding would involve:
  - \* A public education program on the importance of early detection and who are at risk.
  - \* Improved education of health professionals on the importance of early detection and management.
  - \* Ongoing monitoring and addition to the study cohort to identify more clearly the population with undiagnosed diabetes or IFG and how they may best respond to health policy initiatives.
  - \* Ongoing research to assess the transition from IFG to substantive diabetes.
  - \* Improved health promotion and service programs dealing with diabetes-associated risk factors.
- These recommendations will have implications for the diabetes health services workforce. Audits have shown that the health services workforce is already under-resourced for the functions that it is required to perform. Successful implementation of any policy recommendations will require optimal working relationships between health funders, providers and the community, as well as increased health system resources and support.

## 3 ASTHMA

### 3.1 Key findings

In the North West region of Adelaide 11.6% of adults had asthma (Figure 3). This includes people who reported that they were told by a doctor that they had current asthma and people who were diagnosed with asthma but did not know they had it. Applying this estimate to the South Australian population, approximately 131,000 adults have current asthma.

**Figure 3: Prevalence of asthma by sex and age group**



The prevalence of previously undiagnosed asthma among adults living in the North West region of Adelaide was at least 2.2%. This equates to approximately 26,000 adults in South Australia who have asthma but do not know it.

A high prevalence of asthma was seen among females, and people who were retired, home duties or student, had low educational level, from low income groups, and born in Australia or the United Kingdom or Ireland. People with previously undiagnosed asthma were found to be aged over 50 years, to be born in the United Kingdom, Ireland, Europe, USSR or the Baltic States, to be widowed, and to be retired or home duties.

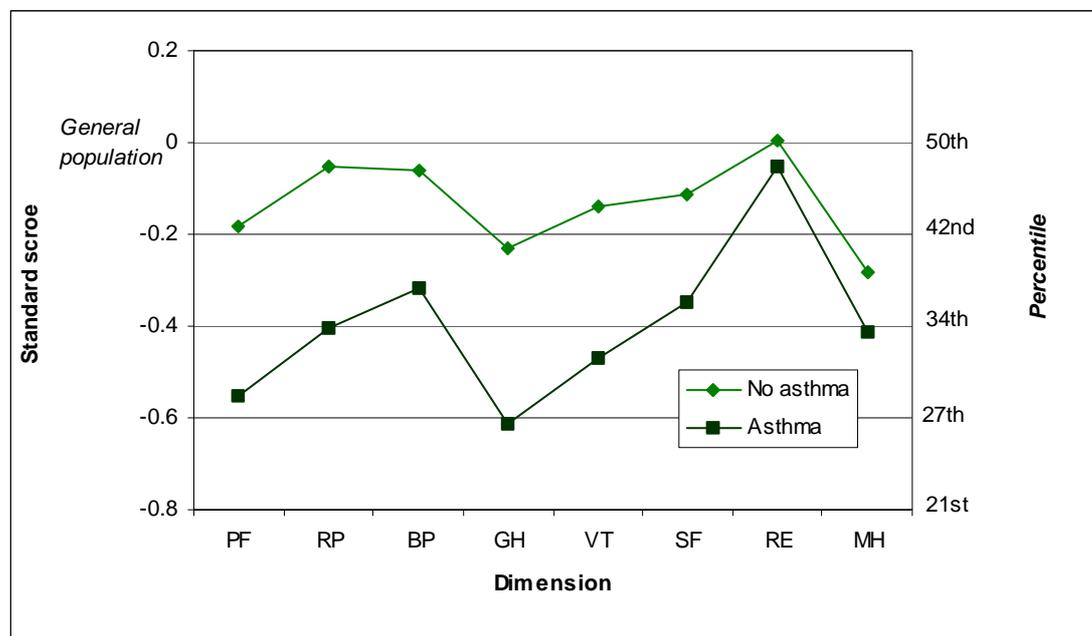
People with asthma were more likely than people without asthma to be allergic to rye grass, cat, house dust mites, alternaria and feather, and to have taken respiratory medications.

### 3.1.1 Quality of life

The quality of life of people with asthma is more impaired than people without asthma. Asthma had a severe effect on general health, and a moderate effect on physical functioning, role-physical, vitality and mental health (Figure 4).

Previously undiagnosed asthma has a significant effect on quality of life, with a severe effect on physical functioning, and a moderate effect on role-physical, general health and vitality.

**Figure 4: SF-36 standard scores for people reporting or diagnosed with and without current asthma compared to the general South Australian population**



### 3.1.2 Health service use

People with asthma use more health services than people without asthma, in particular general practitioner, hospital accident and emergency, hospital clinic, eye specialist or ophthalmologist or podiatrist services in South Australia.

## 3.2 Asthma policy implications and research recommendations

- People with previously undiagnosed current asthma represent approximately one-fifth of the asthma population. Detection and diagnosis of this group remains a priority so that people with undiagnosed asthma can be in a position to control and manage their condition and reduce their risk of hospitalisation and health service use.
- The quality of life of people with diagnosed asthma was severely impaired in terms of their general health. This highlights the need for improved management strategies for asthma to improve quality of life.
- The quality of life of people with previously undiagnosed asthma is already severely impaired in terms of their physical functioning, further supporting the case for detection and diagnosis of these people. Once they are diagnosed, good management and control of their condition will positively affect their quality of life.
- There is a need to put in place research strategies to understand reasons for lack of asthma diagnosis and impaired quality of life in previously diagnosed asthmatics. This means exploring:
  - \* Patients' perceptions of symptoms;
  - \* Access to medical care and drug availability;
  - \* Patients' attitudes towards medicines; and
  - \* Medical practitioners' awareness of issues in diagnosing asthma.

This knowledge is the first step in improving asthma outcomes.

- A significantly lower proportion of people with undiagnosed current asthma than diagnosed current asthma saw a general practitioner in the

last 12 months, which may partly explain why they remain undiagnosed. This supports the need to screen for asthma in annual health checks.

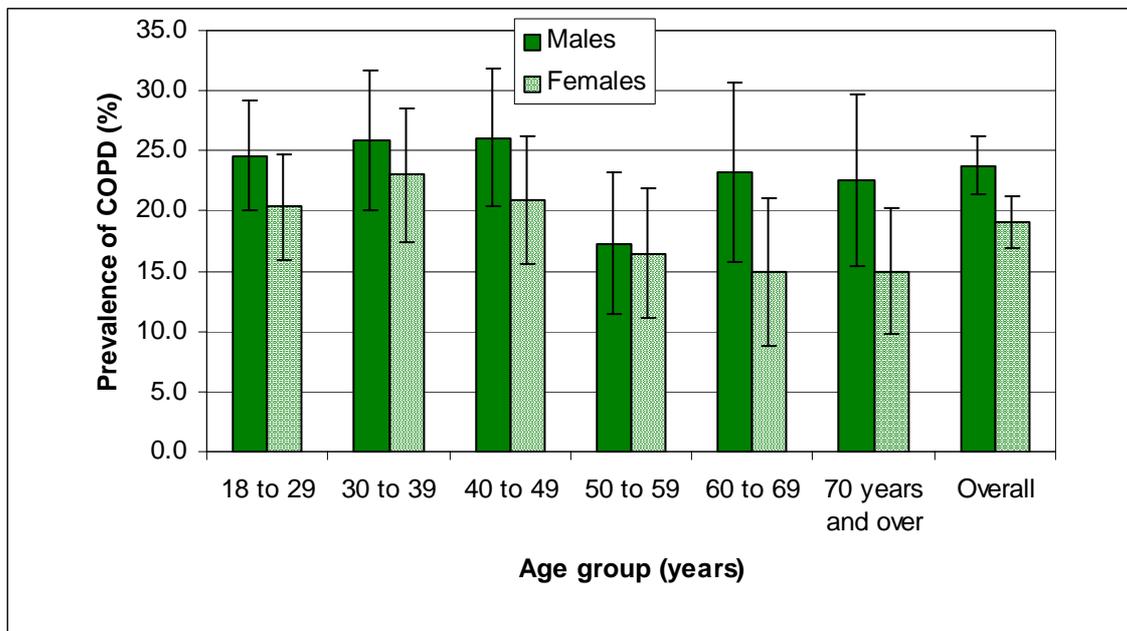
- Undiagnosed asthma was found to be more prevalent in the older age groups. This is an important target group for general practitioners.
- A large proportion of the South Australian population have current diagnosed asthma and of these a large proportion are previously undiagnosed. They are higher users of hospital and accident and emergency services and therefore a high cost health group. Effective management of asthma is a priority and would involve the following:
  - \* Effective use of written asthma management plans.
  - \* The ability of all asthmatics to effectively self-manage their asthma on a daily basis and use preventer medication where prescribed.
  - \* The ability of all asthmatics to effectively self-manage slow onset attacks.
- Associated asthma literature identifies the need for extended research with the asthma population to identify management difficulties as follows:
  - \* Identify asthmatics' perceptions of severity compared with the reality of their severity.
  - \* Knowledge of management strategies and how to deal with a slow onset attack.
  - \* Their perception and use of preventer medication.
  - \* Their perception and use of health services for asthma.
  - \* Associated psycho-social difficulties.

## 4 CHRONIC OBSTRUCTIVE PULMONARY DISEASE

### 4.1 Key findings

This study estimated that 20.1% of adults in the North West region of Adelaide had COPD. This includes both people with diagnosed COPD and those who did not previously know that they had it. The majority had mild COPD. Applying this estimate to the South Australian population, an estimated 324,600 adults have COPD (Figure 5).

**Figure 5: Prevalence of COPD by sex and age group**

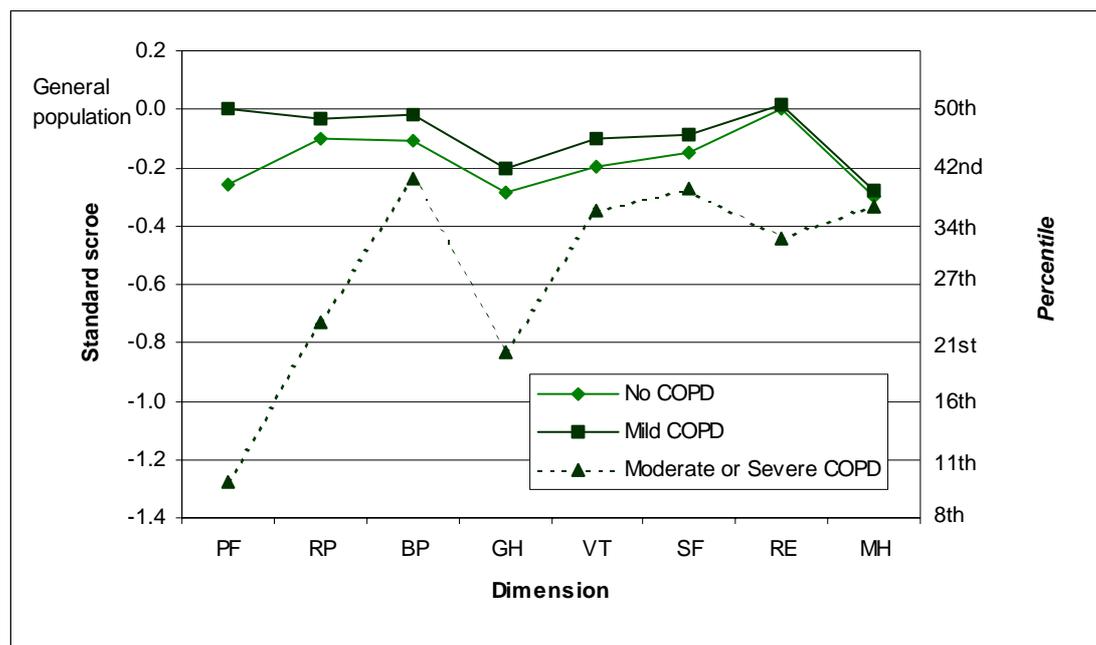


The prevalence of previously undiagnosed COPD was 19.9% or 226,100 people in South Australia have undiagnosed COPD. This means that for approximately every person with COPD, 13 people have COPD but do not know it, although the majority of these unknown cases are mild in severity.

People with COPD were more likely than people without COPD to be ex-smokers or light to heavy smokers, and to be classified as intermediate to very high alcohol risk drinkers.

People classified as having moderate or severe COPD were severely impaired on physical functioning, role-physical and general health, and moderately impaired on role-emotional. (Figure 6).

**Figure 6: SF-36 standard scores for people with and without COPD compared to the general South Australian population**



People with previously undiagnosed COPD were more likely to be male, to be in the younger age groups, living in the western suburbs, and to have an education level of trade, apprenticeship, certificate or diploma, and less likely to be a student, performing home duties or retired.

## 4.2 Chronic obstructive pulmonary disease policy implications and research recommendations

- Almost one-fifth of the North West Adelaide adult population has COPD but has not been diagnosed. Early detection of COPD is important and guidelines are required for primary care to identify

those with early symptoms and those at risk (ie smokers and occupational risk).

- People with undiagnosed COPD were hardly impaired, compared to people with diagnosed COPD, in terms of quality of life. The natural history of COPD is one of progressive airflow deterioration. Simple spirometric measures should occur in all people at risk (smokers and others of occupational risk) to detect early stage COPD and to act to prevent further deterioration and complications.
- The prevalence of COPD was more than double for moderate and heavy smokers, and was higher for ex-smokers or light smokers than for non-smokers. This knowledge provides specific targeting information and highlights the importance of continuing anti-smoking and quit smoking campaigns to reduce the prevalence of smoking.
- Intermediate to very high risk alcohol drinkers had a high prevalence of COPD. This provides support for alcohol campaigns to target this population.
- A large proportion of people with COPD have mild COPD. Programs need to be developed to prevent these people developing severe COPD, with is associated with a lower quality of life.
- Further analyses are needed to determine if the Chronic Lung Disease Index is an appropriate screening tool for the general population to identify the mild cases of COPD.
- Additional research is needed to explore progression along the continuum of COPD and the factors associated with people progressing from mild to moderate or severe COPD, and the impact this will have on health services.

## 5 HEALTH RELATED RISK FACTORS

(smoking status, use of alcohol, level of physical activity, body mass index and waist/hip ratio, high blood pressure and high cholesterol)

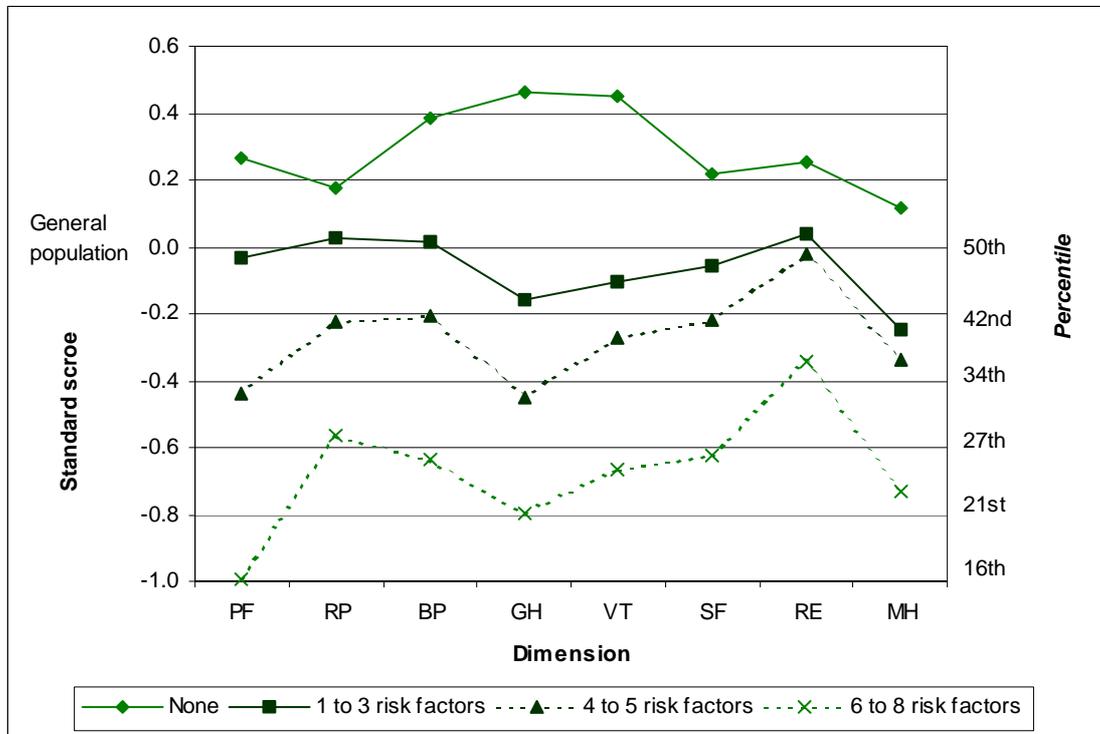
### 5.1 Key Findings

- Overall, 26.6% of the participants were current smokers. The quality of life of current smokers was more impaired than people who do not smoke or who were ex-smokers. Current smoking had a severe effect on general health and mental health, and a moderate effect on vitality, social functioning and role-emotional.
- This study found that 6.6% of people who were classified as intermediate to very high risk alcohol drinkers.
- Overall, the study estimated that 48.5% of adults living in the North Western suburbs of Adelaide had not done a sufficient amount of physical activity in the previous two weeks.
- The prevalence of people who were classified as overweight was 35.2% and the prevalence of obesity was 28.5%. These people were more likely to have used health services than those who were classified as underweight or normal.
- Waist hip ratio is an indication of abdominal obesity and 16.7% of the participants had a high waist hip ratio. They were more likely to have used health services than people who did not have a high waist hip ratio.
- The study estimated that 27.7% of the people living in the North Western suburbs of Adelaide had high blood pressure. The quality of life of people with high blood pressure was more impaired than people who do not have high blood pressure. High blood pressure had a severe effect on physical functioning and general health, and a moderate effect on role-physical, bodily functioning and vitality.
- The prevalence of people with high cholesterol was 36.7%. These people were more likely than people who did not have high cholesterol to be in the older age groups, to be born in Europe, USSR and the

Baltic States, and they were less likely to have household income greater than \$40,000 per annum and to have never married.

- Approximately 40% of participants had four or more of the self-reported and measured risk factors. Impairment of quality of life according to number of risk factors is shown in Figure 5.

**Figure 5: SF-36 standard scores for people with none, one to three, four to five and six or more risk factors compared to the general South Australian population**



## 5.2 Risk factor policy implications and research recommendations

- Continuation of quit smoking campaigns is essential to reduce the prevalence of current smoking. That the prevalence was higher among young people, males, people living in the northern suburbs, those who were unemployed or casually or part time employed, and those who were never married, separated or divorced, provides specific targeting information for such campaigns.
- Smokers scored low on the mental dimensions of quality of life and were also more likely to have seen a psychologist or psychiatrist in the last year. Programs to improve the mental health of smokers may also be important in making quit attempts more successful.
- Young, male, single people were more likely to be intermediate to very high risk alcohol drinkers, providing support for alcohol campaigns that are targeted at this population.
- People who were not doing sufficient physical activity were more likely to be older females with lower education levels living in the Northern suburbs of Adelaide. They were also more likely to be impaired in terms of their quality of life. Encouraging these people to increase their level of physical activity, by making system changes rather than simply trying to change the behaviour of individuals, remains a priority.
- People who were overweight or obese make up over 60% of the North West Adelaide adult population. This has huge implications given that these people are at higher risk of developing chronic conditions such as cardiovascular disease and diabetes, use more health services and have a poorer quality of life than people who are underweight or normal weight. While males were more likely to be overweight, females were more likely to be obese, and obesity affects all ages, making targeting for prevention strategies difficult.
- People with a high waist hip ratio, although a smaller proportion than those who were classified as obese according to their body mass index, were more severely impaired in terms of their quality of life. Waist hip ratio, as a measure of fat distribution or central obesity, may

be a more important indication of risk for cardiovascular disease and diabetes than overall obesity. Waist hip ratio also provided more specific targeting information (related to older age groups, lower education and lower incomes), and it is therefore important to continue to investigate this measure and its correlation with body mass index.

- That almost one-third of adults had high blood pressure, using clinical measures rather than self-reported data, indicates that these people had high blood pressure that was either undiagnosed or not well controlled. High blood pressure is a risk factor for developing cardiovascular disease and diabetes-related complications and the targeting information provided should be used in the planning of programs to increase awareness of this fact.

## **STUDY TEAM**

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# **NORTH WEST ADELAIDE HEALTH STUDY REPORTS**

## **REPORTS**

1. Taylor A, Dal Grande E, Chittleborough C, Ruffin D, Wilson D, Phillips P. The North West Adelaide Health Study – Key findings, policy implications and research recommendations. May 2002. SA Department of Human Services. ISBN
2. Taylor A, Dal Grande E, Chittleborough C, Ruffin D, Wilson D, Phillips P. The North West Adelaide Health Study – Summary of key findings, policy implications and research recommendations. May 2002. SA Department of Human Services. ISBN
3. Wilson D, Appleton S, Taylor A, Dal Grande E, Chittleborough C, Ruffin D. The North West Adelaide Health Study – Risk factors and associated chronic diseases. June 2002. SA Department of Human Services. ISBN
4. Chittleborough C, Cheek J, Grant J, Phillips P, Taylor A. Education and information issues among people with diabetes. May 2002. SA Department of Human Services. ISBN

## INTERNAL REPORTS

- Report 1 North West Adelaide Health Study – General overview of data collected in 2000.
- Report 2 Demographic characteristics of participants in the North West Adelaide Health Study compared with 1996 Census data.
- Report 3 Community responses to the notion of taking part in the North West Adelaide Health Study.
- Report 4 Community responses to the notion of having participated in the North West Adelaide Health Study.
- Report 5 Interviews with subjects unwilling to participate in the North West Adelaide Health Study.
- Report 6 Exit survey of people taking part in the North West Adelaide Health Study.
- Report 7 The North West Adelaide Health Study - Initial Results.
- Report 8 Report to the Commonwealth Department of Health and Aged Care on the process of conducting a biomedical study in SA.

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