Chronic disease and risk factor prevalence using an Australian based cohort study

Gill TK[1], Grant JF[1], Appleton S[2], Pickering S[2], Shi Z[1], Taylor AW[1] and the North West Adelaide Health Study Team

1 Population Research and Outcome Studies Unit, SA Health and the University of Adelaide, Adelaide, South Australia, Australia
2 Health Observatory, The Queen Elizabeth Hospital, Woodville, South Australia, Australia

INTRODUCTION

Determining the prevalence of chronic disease and risk factors in the population plays an important part in providing evidence for health promotion campaigns, programs and interventions. The ongoing monitoring of these factors provides important epidemiological and targeting information. Longitudinal cohort studies are an important means of identifying associations that may exist between chronic disease, risk and socio-demographic factors, so that they can be addressed, in order to improve the health of the population.

METHODS

All households within the north west region of Adelaide, with a telephone connected and the number listed in the Electronic White Pages were eligible for selection in the North West Adelaide Health Study. The original sample (n=4060) was randomly selected and recruited by computer assisted telephone interview in 2000-2003 (Stage 1) to participate in a clinic assessment. Within each household, the person who had their birthday last and was aged 18 years or older, was selected for interview and invited to attend the study clinic. The response rate for Stage 1 was 49.4%.

The second stage of data collection for this cohort was undertaken between 2004 and 2006. Of the original living cohort, 3564 (90.1%) participants provided some Stage 2 information, and 3206 (81.0%) attended the clinic for their second visit, with diabetes status at follow-up obtained for 78.3% (n=3180) of the original participants. Information related to asthma, cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), diabetes, blood pressure (BP), cholesterol, body mass index (BMI), physical activity (PA) and smoking were collected using clinic measurements and self-completed questionnaires.

At Stage 2, all of the above factors were measured again using clinic measurements and self report. In addition, information relating to arthritis and osteoporosis prevalence were obtained using computer assisted telephone interviewing and the presence of renal disease was determined from urinalysis.

Data were initially weighted by age, sex, area of residence and probability of selection in the household to ensure that the sample was representative of the north west population of Adelaide.

RESULTS

The prevalence of asthma, COPD and diabetes increased between Stage 1 and Stage 2 (Table 1). The prevalence of obesity (defined as a BMI of greater than or equal to 30 kg/m^2) increased as did the proportion with high cholesterol, and those who were sedentary. For asthma, the annual incidence was 24.6 cases per 1000; for COPD, 6.1; and for diabetes, 6.8 cases per 1000.

For BMI, the annual incidence of obesity among those who were not obese in Stage 1 was 18.6 incident cases per 1000, cholesterol 45.4 and for physical activity the annual incidence of decreasing physical activity from active to sedentary between Stage 1 and Stage 2 was 41.5 cases per 1000.

In terms of socioeconomic factors, education, income, marital status and work status, were all signficantly associated with each of the chronic diseases. Generally those of lower education and income levels and those widowed or retired or undertaking home duties were the most likely to have a chronic condition.

Lower levels of education and income again were associated with the presence of risk factors.

Table 1. Prevalence of chronic diseases and risk factors in Australian adults

	Stage 1	Stage 2
Chronic disease prevalence (%)		
Asthma	12.5	16.2
CVD	6.2	5.7
COPD	3.9	4.8
Diabetes	6.6	7.2
Arthritis	-	21.4
Osteoporosis	-	3.8
Renal disease	-	5.5
Risk factor prevalence (%)		
High BP	26.8	25.8
BMI ≥ 30 kg/m^2	27.0	29.3
Cholesterol ≥ 5.5 mmol/L	36.1	40.6
Sedentary (no PA)	28.1	28.9
Smoking	24.4	20.1

CONCLUSIONS

Many of these chronic conditions result in long term costs, both to the individual and the health system. The presence of risk factors increases the likelihood that chronic conditions will occur. Interventions and policies should be targeted at identified population groups, such as low socioeconomic groups and the older population. Where possible this may prevent, manage and/or reduce, both chronic conditions and risk factors within the population, to ensure that long term social and economic costs are decreased and/or avoided.