

Methods

Introduction

In 2006, the NSW Department of Health, in conjunction with the 8 area health services, completed the fifth year of the New South Wales Population Health Survey, an ongoing survey of the health of people of New South Wales using computer assisted telephone interviewing (CATI). The main aims of the survey are to provide detailed information on the health of the people of New South Wales, and to support the planning, implementation, and evaluation of health services and programs in New South Wales.

Prior to the introduction of the continuous survey in 2002, the Centre for Epidemiology and Research conducted adult health surveys in 1997 and 1998, an older people's health survey in 1999, and a child health survey in 2001. The reporting plan for the continuous survey includes an annual report on adult health for the whole state and annual reports on adult health for selected indicators by area health service.

This section describes the methods used for the 2006 Report on Adult Health from the New South Wales Population Health Survey, which reports the health of residents aged 16 years and over.

New South Wales Population Health Survey

Survey instrument

The survey instrument for the New South Wales Population Health Survey was developed by the Health Survey Program in consultation with key stakeholders, area health services, other government departments, and a range of experts.

The survey instrument included: questions used in previous surveys, new questions developed specifically for 2006, and questions developed specifically for some of the area health services. All questions not previously used were submitted to the Ethics Committee of the NSW Department of Health for approval prior to use. New questions were also field tested prior to inclusion in the survey. The survey instrument was translated into 5 languages: Arabic, Chinese, Greek, Italian and Vietnamese.

Survey sample

In 2006, the target population for the New South Wales Population Health Survey was all residents living in households with private telephones. The target sample comprised approximately 1,500 people in each of the 8 area health services (total sample of 12,000).

The sampling frame was developed as follows. Records from the Australia on Disk electronic white pages (phone book) were geo-coded using MapInfo mapping software.[1,2] The geo-coded telephone numbers were assigned to statistical local areas and area health services. The proportion of numbers for each telephone prefix by area health service was calculated. All prefixes were expanded with suffixes ranging from 0000 to 9999. The resulting list was then matched back to the electronic phone book. All numbers that matched numbers in the electronic phone book were flagged and the number was assigned to the relevant geo-coded area health service. Unlisted numbers were assigned to the area health service containing the greatest proportion of numbers with that prefix. Numbers were then filtered to eliminate contiguous unused blocks of greater than 10 numbers. The remaining numbers were then checked against the business numbers in the electronic phone book to eliminate business numbers. Finally, numbers were randomly sorted.

Households were contacted using random digit dialling. One person from the household was randomly selected for inclusion in the survey.

Interviews

In 2006, interviews were carried out continuously between February and December. Selected households that had addresses in the electronic phone book were sent a letter describing the aims and methods of the survey 2 weeks prior to initial attempts at telephone contact. An 1800 freecall contact number was provided for potential respondents to verify the authenticity of the survey and to ask any questions regarding the survey. Trained interviewers at the Health Survey Program CATI facility carried out interviews. Up to 7 calls were made to establish initial contact with a household, and 5 calls were made in order to contact a selected respondent.

Call outcomes and response rates

In total, 10,345 interviews were conducted, with at least 1,200 interviews in each area health service and 7,962 with adults aged 16 years or over. The overall response rate was 59.3 per cent (completed interviews divided by completed interviews and refusals).

Data analysis

For analysis, the survey sample was weighted to adjust for differences in the probabilities of selection among subjects. These differences were due to the varying number of people living in each household, the number of residential telephone connections for the household, and the varying sampling fraction in each health area.

Post-stratification weights were used to reduce the effect of differing non-response rates among males and females and different age groups on the survey estimates. These weights were adjusted for differences between the age and sex structure of the survey sample and the Australian Bureau of Statistics 2005 mid-year population estimates (excluding residents of institutions) for each area health service. Further information on the weighting process is provided elsewhere.[3]

Call and interview data were manipulated and analysed using SAS version 8.02.[4] The SURVEYMEANS procedure in SAS was used to analyse the data and calculate point estimates and 95 per cent confidence intervals for the estimates. The SURVEYMEANS procedure calculates standard errors adjusted for the design effect factor or DEFF (the variance for a non-random sample divided by the variance for a simple random sample). It uses the Taylor expansion method to estimate sampling errors of estimators based on the stratified random sample.[4]

The 95 per cent confidence interval provides a range of values that should contain the actual value 95 per cent of the time. In general, a wider confidence interval reflects less certainty in the estimate for that indicator. The width of the confidence interval relates to the differing sample size for each indicator. Wide confidence bands mean that although there may be a large difference between the estimates, because of the small sample size in some indicators the difference is not significantly different.[4] For a pairwisd comparison of subgroup estimates, the p-value for a two-tailed test was calculated using the normal distribution probability function PROBNOORM in SAS, assuming approximate normal distribution of each individual subgroup estimates with the estimated standard errors, and approximate normal distribution for the estimated difference.

The K10 measure of psychological distress

In 2005, the K10 scale was included in the New South Wales Population Health Survey as a measure of psychological distress.[5,6] The K10 is a 10-item questionnaire intended to yield a global measure of psychological distress. It includes questions about the level of anxiety and depressive symptoms in the most recent 4-week period. For each question, there is a 5-level response scale based on the amount of time (from none of the time through to all the time) during a 4-week period that the person experienced the particular problem.

When scoring responses to the questionnaire, between one and 5 points were assigned to each symptom with a value of one indicating that the person experiences the problem none of the time and 5 indicating all of the time. It follows that the total K10 score for each person ranges from 10 points (that is, all responses are none of the time) through to 50 (all responses are all of the time).[7]

The K10 scores calculated for the New South Wales Population Health Survey are a combination of actual and imputed scores. Where a respondent answered all 10 questions, the K10 score was simply the sum of the individual scores for each question. Where the respondent answered 9 questions, the score for the missing question was imputed as the mean score of the 9 answered questions.

Indices of geographic remoteness and socioeconomic disadvantage: ARIA and SEIFA

The Accessibility-Remoteness Index of Australia Plus (ARIA+) is the standard Australian Bureau of Statistics (ABS) endorsed measure of remoteness.[8] It is derived using the road distances from populated localities to the nearest service centres across Australia. For each locality, the accessibility to services is expressed as a continuous measure from 0 (high accessibility) to 15 (high remoteness) and grouped into 5 categories: major cities, inner regional, outer regional, remote, and very remote.

The Socio-Economic Indexes for Areas (SEIFA) describe the socioeconomic aspects of geographical areas in Australia, using a number of underlying variables such as family and household characteristics, personal educational qualifications, and occupation.[9] The SEIFA index used to provide breakdowns of the New South Wales Population Health Survey data in 2006 is the Index of Relative Socio-Economic Disadvantage. This index is calculated on attributes such as low income and educational attainment, high unemployment, and people working in unskilled occupations. The SEIFA index values are grouped into 5 quintiles, with quintile one being the least disadvantaged and quintile 5 being the most disadvantaged.

Both the ARIA+ and SEIFA indexes were assigned to the results of the New South Wales Population Health Survey in 2006 based on respondents' postcode of residence. Rates for each SEIFA quintile were calculated for several health indicators included in this report to enable socioeconomic comparisons.

Definition of urban and rural

In this report, the term urban means the respondent lived in one of the 4 area health services designated as metropolitan: Northern Sydney & Central Coast, South Eastern Sydney and Illawarra, Sydney South West, and Sydney West. The term rural means the respondent lived in one of the 4 area health services designated as rural: Greater Southern, Greater Western, Hunter & New England, and North Coast.

References

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