Osteoporosis: Underestimated and over represented
Prevalence of osteoporosis in the North West Adelaide Cohort Study

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INTRODUCTION

The North West Adelaide Health Study is a representative population cohort of adults living in the north western region of Adelaide, the capital of South Australia. The study is designed to examine the prevalence and incidence of chronic conditions.

METHODS

Stage 1

In this baseline stage of the North West Adelaide Health Study, all households within the north west region of Adelaide with a telephone connected and the telephone number listed in the Electronic White Pages were eligible for random selection. 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. Of those interviewed (n=5850), 69% participated in the clinic visit (n=4060). Data were obtained from self-reported questionnaires and biomedical measurements.

Stage 2

Of the 4060 participants in Stage 1, 100 had died, leaving 3960 to be contacted, of which n=3502 provided responses to the Computer Assisted Telephone Interview (CATI), n=3260 provided responses to the self completed questionnaire. Overall 81% (n=3206) attended the Stage 2 clinic.

The assessment of musculoskeletal conditions was added to the study in Stage 2, one of these conditions being osteoporosis.

Osteoporosis

The self reported prevalence of osteoporosis was determined using the CATI survey. Respondents were asked if they had ever been told by a doctor that they osteoporosis. Participants aged 50 years and over who attended the clinic assessment were offered the opportunity to have Dual Energy X-ray Absorptiometry (DEXA) scan in order to assess bone density. Approximately 80% undertook the scan.

RESULTS

Overall, the self reported prevalence of osteoporosis using the CATI survey was 3.8% (95% CI 3.2-4.5), with 8.8% (95% CI 7.5-10.4) of respondents aged 50 years and over self reporting that they had osteoporosis.

The World Health Organization (WHO) classification of osteopenia and osteoporosis based on DEXA measurements was used to determine the clinical prevalence of osteoporosis among those aged 50 years and over (Table 1).

Table 1. Definition of osteoporosis (WHO)

|	T-score
Normal	≥ -1
Osteopenia	< -1 and > -2.5
Osteoporosis	≤ -2.5

Among participants aged 50 years and over who had a DEXA scan, 3.6% (95% CI 2.6-4.9) were classified as osteoporotic according to the above definition and 15.0% (95% CI 13.0-173) were classified as osteopenic, with a further 1.5% (95% CI 1.0-2.5) having a T-score of -1.0.

Of the respondents identified as having osteoporosis, using a DEXA scan, 23.3% (95% CI 12.5-39.3) stated that they had been told by a doctor that they have osteoporosis.

Overall, using the self-reported prevalence, females were statistically significantly more likely to report having osteoporosis than males (6.5% compared to 1.0%; Chi square test p < 0.05).

The prevalence of osteoporosis also varied by socioeconomic status, as measured by income and education level (Figure 1)

The self-reported prevalence of osteoporosis was statistically significantly higher among those respondents who had gross annual household income of less than $20,000 or between $20,0001 and $40,000, and statistically significantly lower among those who earned over $40,000 (Chi square test p < 0.05; Figure 1). The self-reported prevalence of osteoporosis was also statistically significantly higher among those respondents with a secondary school level of education and statistically significantly lower among those with a degree or higher (Chi square test p < 0.05; Figure 1).
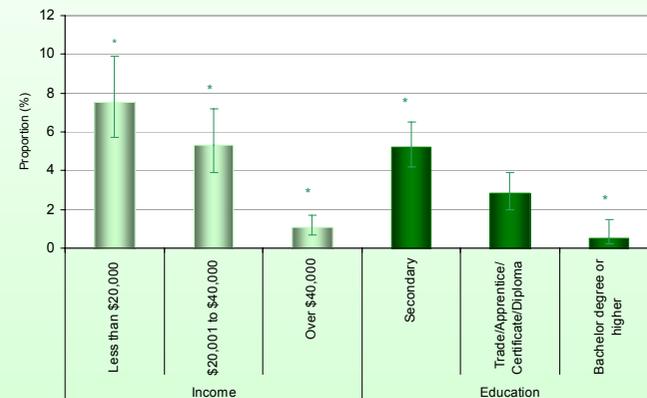
Figure 1. Prevalence of osteoporosis, by income and education level

CONCLUSIONS

The majority of participants with low bone density had not been previously identified by their doctor and this has implications for the targeting of programs and information to both physicians and those with osteoporosis. The over representation of osteoporosis among those with lower education levels and incomes has implications for access to DEXA scans and medications.

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