

Income and diabetes: Prevalence is higher among the poor

Baldock K¹, Chittleborough C¹, Taylor A², Phillips P³ and the North West Adelaide Health Study Team

¹ Diabetes Clearing House, Population Research and Outcome Studies Unit, Department of Health, Adelaide, South Australia

² Population Research and Outcome Studies Unit, Department of Health, Adelaide, South Australia

³ Endocrinology, The Queen Elizabeth Hospital and Health Service, Woodville, South Australia

INTRODUCTION

The North West Adelaide Health Study, a representative cohort study, is designed to enable examination of disease by stage of progression. This analysis uses a social determinants of health approach to describe undiagnosed and diagnosed diabetes in terms of income gap and gradient.

METHODS

The North West Adelaide Health Study (NWAHS) used a representative population sample of adults living in the north western region of Adelaide to examine the prevalence of chronic conditions, including diabetes. Data were obtained from a random, representative sample of people aged 18 years and over living in the north west region of Adelaide (n=4060), who were recruited via telephone interviews. All households within this region 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 for biomedical measurements to be taken. Of those interviewed, 69% participated in the clinic visit. Data was obtained from self-reported questionnaires and biomedical measurements.

Those with undiagnosed diabetes were defined as those with a fasting plasma glucose of at least 7.0mmol/L and who did not self-report having diabetes, and those with diagnosed diabetes were those who self-reported being told by a doctor that they had diabetes. Income gap was analysed by categorising gross annual household income into \$20,000 or less, and over \$20,000. Income gradient was analysed by categorising gross annual household income into \$20,000 or less, \$20,001 to \$40,000, \$40,001 to \$60,000, and over \$60,000.

RESULTS

The prevalence of diagnosed diabetes was 5.6% (95% CI 4.9 – 6.3), and the prevalence of undiagnosed diabetes was 1.0% (95% CI 0.7 – 1.4).

Examination of the prevalence of diagnosed and undiagnosed diabetes by income gap revealed that the prevalence of diagnosed diabetes was statistically significantly lower for those with an income above \$20,000 pa when compared to those with an income of up to \$20,000, however there was no statistically significant difference in the prevalence of undiagnosed diabetes between the two groups. Figure 1 shows the relationship between income gap and diabetes.

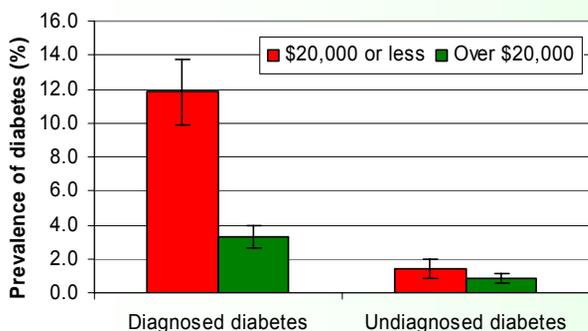


Figure 1. Prevalence of diabetes by income gap (unadjusted).

Figure 2 shows the relationship between income gradient and prevalence of diagnosed and undiagnosed diabetes.

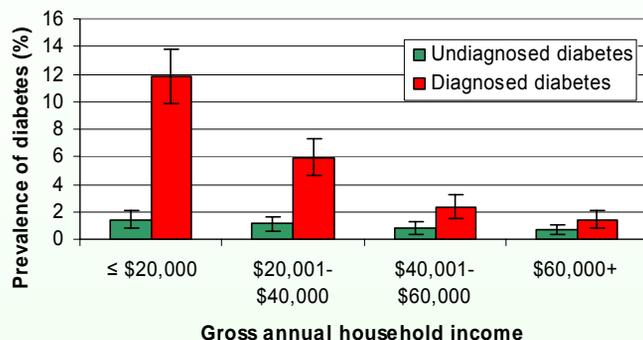


Figure 2. Prevalence of diabetes by income gradient.

To examine the prevalence of diagnosed and undiagnosed diabetes by income gradient, logistic regression was used. The prevalence of diagnosed diabetes was statistically significantly lower for each level of household income above \$20,000. When age was included in the model, this effect remained significant except for the \$20,001 to \$40,000 income group (Table 1).

The prevalence of undiagnosed diabetes was statistically significantly lower among those with an income of greater than \$60,000 compared to those with an income of \$20,000 or less but was not significantly different for the other income groups. No statistically significant differences remained after including age in the model.

Table 1 shows the odds ratios for the association between income and diabetes, adjusted for age.

Table 1. Odds ratios (OR) for the association between income and diabetes, adjusted for age.

	OR	(95% CI)	p-value	
Diagnosed Diabetes	≤ \$20,000	1.00		
	\$20,001-\$40,000	0.85	(0.60 - 1.21)	0.4
	\$40,001-\$60,000	0.46	(0.27 - 0.77)	<0.001
	\$60,000+	0.31	(0.17 - 0.57)	<0.001
Undiagnosed Diabetes	≤ \$20,000	1.00		
	\$20,001-\$40,000	1.17	(0.50 - 2.71)	0.7
	\$40,001-\$60,000	0.99	(0.36 - 2.79)	0.9
	\$60,000+	0.86	(0.31 - 2.65)	0.9

CONCLUSIONS

This analysis demonstrates an inverse income gradient effect in the prevalence of diagnosed diabetes, such that the prevalence of diagnosed diabetes is higher among those with lower income, which exists even when controlling for the effects of age. Prevention and management strategies for diabetes must include a focus on income inequalities.