

Housing tenure and car access: further exploration of the nature of their relations with health in a UK setting

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Table 1 Odds and η^2 for the relation between health measures and (a) tenure and (b) car access, controlling for age, sex and marital status (model 1), and socioeconomic control (either social class or adjusted household income) (model 2)

	llsi		Symptoms (n)		General health		Depression	
	odds	sig	η^2	sig	odds	sig	η^2	sig
<i>(a) Tenure</i>								
<i>Social class</i>								
Model 1	1.88	0.0000	0.026	0.000	2.65	0.0000	0.030	0.000
Model 2	1.75	0.0000	0.017	0.000	2.28	0.0000	0.023	0.000
Number	1908		1960		2010		1900	
<i>Income</i>								
Model 1	Int		0.020	0.000	2.67	0.0000	Int	
Model 2	Int		0.004	0.008	1.76	0.0000	0.010	0.000
Number	1751		1790		1827		1729	
<i>(b) Car access</i>								
<i>Social class</i>								
Model 1	Int		0.012	0.000	2.29	0.0000	Int	
Model 2	Int		0.007	0.000	2.01	0.0000	0.007	0.000
Number	1970		2023		2076		1960	
<i>Income</i>								
Model 1	Int		0.009	0.000	2.27	0.0000	0.012	0.000
Model 2	Int		0.001	0.134	1.59	0.0004	0.001	0.103
Number	1806		1847		1887		1782	

llsi = limiting longstanding illness; Int = significant interaction with tenure or car access.

Housing tenure and car access predict longevity and health in many European countries. It is usually assumed that they do so only because they are markers of other material determinants of health. However, in a previous paper we showed that both variables were still significantly associated with several health outcomes after controls for age, sex, and income.¹ Here we replicate and extend that analysis in another sample, examining whether observed relations between tenure or car access and health remain after controlling for alternative measures of material assets (social class and income), and, following suggestions that socioeconomic gradients in health may differ between men and women,² whether there are interactions with gender.

Methods

A postal questionnaire, with three follow ups, achieved a response rate of 50% (42% male, 58% female), from a random sample of 6500 adults from the electoral roll in eight local authority areas in the west of Scotland in 1997. We examined four domains of self assessed health: chronic, recent and mental health problems, and health in general, measured respectively by the presence/absence of limiting longstanding illness, the number of 20 common symptoms experienced during the past month, the depression subscale of the Hospital Anxiety and Depression Scale³ and perceived health over the past year as either excellent/good or fair/poor. Social class was based on own occupation, using registrar general's classification, income was household income

adjusted for family composition.⁴ We excluded subjects (245) who reported they were economically inactive because of permanent sickness or disability (to reduce the possibility of reverse causation), and those with missing values on any of the independent, control, or dependent variables. As tenure, car access and health are associated with age, sex, and marital status, all models control for these variables. Dichotomous health variables were analysed using logistic regression, numerical ones using the GLM procedure in SPSS.

Results

Adding social class attenuated but did not eliminate the significant association between tenure and any of the health measures (see table 1). The same picture was observed for the income model, except for limiting longstanding illness, where there was a significant interaction with marital status ($p=0.036$; there was no tenure difference for married respondents, but single renters had poorer health than single owners).

Car access showed a more complex pattern; it was not a significant predictor of chronic illness for women even before controlling for social class or income, whereas for men having access to a car was associated with lower probability of limiting longstanding illness after controlling for social class but not after controlling for income. Associations with the other health variables were still significant after controlling for social class, but only general health was significantly related to car access after controlling for income.

Discussion

These findings suggest that we need to take a more differentiated view of the relation between four material asset indicators (tenure, car access, social class and income). They may not be interchangeable as measures of financial status. Tenure was still a significant predictor of measures in four health domains after controlling for social class and income, suggesting that it is not solely associated with health because it is a marker for these other, underlying, material assets. Car access was still a predictor of health after controlling for social class, except for limiting longstanding illness among women; but controlling for income eliminated the significant association with health for most measures. The significant gender interaction for car access (also observable on analysis of longstanding illness and number of longstanding illnesses; data not shown) suggests that access to private transport might have different implications for men and women.

As is common in most health surveys, our response rate was higher among women, older persons, and higher social classes. Having excluded the permanently sick and those with missing values on any relevant variables, the proportion of women was 57%, of owner occupiers 68%, and car owners 67%, compared respectively with 53%, 62%, and 64% reported in the Scottish Household Survey in 1999. We thus need to exercise caution in generalising prevalence rates of sociodemographic or health variables to the underlying population or to other populations. However, we are not convinced that these sample biases cast into doubt the basic conclusions reported above.

We will be exploring these issues further by investigating the practical and emotional

significance of tenure and car access in our respondents' everyday lives.

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Conflicts of interest: none.

- 1 Macintyre S, Ellaway A, Der G, *et al.* Are housing tenure and car access simply markers of income or self esteem?: A Scottish Study. *J Epidemiol Community Health* 1998;52:657-64.
- 2 Macintyre S, Hunt K. Socioeconomic position, gender and health: how do they interact? *J Health Psychol* 1997;2:315-34.
- 3 Zigmond A, Snaith R. The Hospital Anxiety and Depression Scale. *Acta Psychiat Scand* 1983;67:361-70.
- 4 Goodman A, Webb S. *For richer for poorer. The changing distribution of income in the UK 1961-91.* London: Institute of Fiscal Studies, 1994.