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## RESEARCH REPORT

# Association of quality of life in old age in Britain with socioeconomic position: baseline data from a randomised controlled trial

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**Study objective:** To identify socioeconomic differentials in quality of life among older people and their explanatory factors.

**Design:** Baseline data from a cluster randomised controlled trial of the assessment and management of older people in primary care. Outcome measures were being in the worst quintile of scores for, respectively, the Philadelphia geriatric morale scale and four dimensions of functioning from the sickness impact profile (home management, mobility, self care, and social interaction).

**Setting:** 23 general practices in Britain.

**Participants:** People aged 75 years and over on GP registers at the time of recruitment, excluding those in nursing homes or terminally ill. Of 9547 people eligible, 90% provided full information on quality of life and 6298 also did a brief assessment.

**Results:** The excess risk of poor quality of life for independent people renting rather than owning their home ranged from 27% for morale (95% CI 9% to 48%) to 62% for self care (95% CI 35% to 94%). Self reported health problems plus smoking and alcohol consumption accounted for half or more of the excess, depending on the outcome. Having a low socioeconomic position in middle age as well as in old age exacerbated the risks of poor outcomes. Among people living with someone other than spouse the excess risk from renting ranged from 24% (95%CI –10% to 70%) for poor home management to 93% (95%CI 30% to 180%) for poor morale.

**Conclusions:** Older people retain the legacy of past socioeconomic position and are subject to current socioeconomic influences.

See end of article for authors' affiliations

Correspondence to:  
Dr E Breeze, Centre for Ageing and Public Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK; elizabeth.breeze@lshtm.ac.uk

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The Acheson Inquiry into Inequalities in Health first recommended specific action to reduce health inequalities in old age<sup>1</sup> but noted that there were fewer data about morbidity differentials than for younger people. The report led the government to set a national priority for health and social services to “achieve and sustain maximum independence in their lives”<sup>2</sup> as reflected in Standard 8 of the National Service Framework for Older People.<sup>3</sup> Another UK government priority is reduction of health inequalities.<sup>4</sup> We investigated quality of life differentials by socioeconomic position among people aged 75 years and older, specifically considering various forms of functioning and morale. Although there is evidence that lack of education,<sup>5–10</sup> low income,<sup>11</sup> or manual occupational<sup>12–14</sup> are associated with greater mortality or prevalence of physical limitations among older people, housing tenure has rarely been considered<sup>15–17</sup> and no study in Britain has looked at possible explanatory factors.

## METHODS

The data came from the Medical Research Council (MRC) Trial of the Assessment and Management of Older People in the Community. The general practice was the unit of randomisation; the trial's design and methods are fully described elsewhere.<sup>18</sup> It took place in 106 practices recruited through the MRC General Practice Research Framework and selected to be representative of the joint tertiles of Jarman scores (an area deprivation indicator) and standard mortality ratios in British practices. The trial compared models of multidimensional assessment and management of older

people in the context of the 1990 contract of service that required GPs to offer an annual health check to people aged 75 years and over. People eligible for the health check, excluding those in nursing homes or terminally ill, were invited to participate. There were two methods of assessment, “universal” and “targeted”, and two methods of clinical management—multidisciplinary geriatric team and usual primary care. All trial participants received a brief assessment. In the “universal” arm all participants were also invited to a more detailed health and social assessment by a study nurse while in the “targeted” arm only participants with a pre-determined number and range of problems identified at the brief assessment progressed to the more detailed assessment. The main outcomes of the trial are mortality, hospital and institutional admissions (collected in all practices), and quality of life (in a random sample of 23 practices). Ethics committee approval was obtained for each practice.

## Quality of life component

Trained interviewers, independent of the practice, administered quality of life (QoL) interviews in privacy in the patient's homes at baseline before the brief assessment, and then 18 and 36 months later. The core questionnaire included four dimensions from the sickness impact profile (SIP) (home management, mobility, self care, social interaction),<sup>19</sup> and the Philadelphia geriatric morale scale,<sup>20</sup> a 17 item measure of morale developed for use with older people.

**Abbreviations:** SIP, sickness impact profile; QoL, quality of life scores

<b>Dependency</b>	<b>Housing tenure</b>		Residential home
	Owner occupied	Rented	
Alone or with spouse/partner	<i>Independent owner occupied</i> ↔ <i>Independent rented</i>		<i>Supported</i>
With someone other than spouse/partner	<i>Dependent owner occupied</i> ↔ <i>Dependent rented</i>		<i>Supported</i>
Sheltered	<i>Supported</i>	<i>Supported</i>	

**Figure 1** Definitions of five categories of tenure dependency. Category titles in italics.

Information was also collected on current residence, previous housing tenure, main occupation in working life (and that of male spouse), use of health and social services in the previous month, and whether regular help was received from informal carers. We coded social class manually using the 1991 classification of occupations<sup>21</sup>; ever married women were assigned their husband's social class where possible. This paper uses data from the baseline quality of life interviews, and the brief and detailed assessments.

### Analyses: objectives and methods

The objectives of the analysis were:

1. To investigate differentials in QoL by socioeconomic factors among people aged 75 years and over not in long term health care;
2. To identify personal factors that contribute to differentials in QoL, in particular morbidity, health behaviours, social support, and help received.

For the socioeconomic measure, housing tenure at time of interview was combined with a measure of dependency as some changes in housing tenure result from changes in health and hence could dilute the differences in QoL by housing tenure. Two examples are moves to live with children involving a change from a renting to an owner occupying household, possibly because they are in ill health, and moves into sheltered accommodation entailing tenure change from owner occupation to renting. The classification used, called housing tenure dependency, is set out in figure 1 with arrows indicating the main comparisons of interest.

The hypotheses behind these objectives were: that poor functioning would be more common among people in disadvantaged socioeconomic positions; that this would partly result from prior illness that increased risk of physical limitations and made social contact more difficult; and that health problems might dampen morale among the socioeconomically disadvantaged compared with the advantaged but that receipt of help might partially offset this.

QoL scores were assigned if at least half the component items of a scale were answered. Unlike in the standard SIP assessment, limitations were included whether or not participants attributed them to their health. Each SIP limitation was assigned the recommended weight for a British population<sup>22</sup> and the weighted sum expressed as a percentage of the total that a person experiencing all component problems would have, the range being 0%–100%. Morale scores were a simple addition of the number of answers (0–17) unfavourable to morale. Higher scores indicated worse QoL.

Using multivariate Poisson regression without a time element, risk ratios for being in the worst quintile were

estimated according to socioeconomic position. The quintiles were created from within sample distributions of scores. These dichotomies identified groups with distinctly poorer quality of life than their peers. The semi-robust confidence intervals took into account the clustering within, and stratification of, practices (Stata statistical software release 7.0, College Station, TX). All models were adjusted for gender, age, and marital status.

Seeking to explain differentials by tenure dependency, a sequence of models was run, first taking personal factors, then external factors that might have direct or indirect effects on the outcome and be associated with, or possibly consequences of, socioeconomic position. Firstly, seven health problems (sight, hearing, urinary incontinence, swollen lower legs, shortness of breath, everyday memory problems, and multiple medicine taking) were added to the basic model as the most proximate explanatory variables. These were followed by health behaviours, assumed to be chronologically prior to health problems. While smoking and alcohol consumption were added to models for all outcomes, self reported activity was only added to models for social interaction and morale because it was too close in concept to the physical functioning SIP measures. Social support was added third in case it offset or exacerbated some adverse consequences of health problems or risky health behaviours. Informal and formal help received were inappropriate for the SIP dimensions because they might follow from, rather than lead to, poor functioning. However, help received and poor physical functioning could be confounders for the association between socioeconomic factors and morale. The models were run for men and women combined because preliminary analyses showed that the basic results were similar.

As a separate exercise three measures of socioeconomic status were combined to see how adverse risks accumulate but explanatory models were not undertaken because cells were too small.

## RESULTS

### Response

Altogether 9547 people on the age-sex registers of the 23 practices were eligible to participate in the trial of which 8707 were interviewed at baseline and 8565 (90%) could be classified on housing tenure dependency. Response to the quality of life interview varied little by gender and age (not shown). Altogether 6298 of 8565 (73.5%) completed a brief assessment. Response was lowest (63%) among women aged 85 years and over. Whereas 16%–19% of responders to the brief assessment were in the worst quintile of quality of life according to dimension, 26%–30% of non-responders had these poor outcomes.

**Table 1** Characteristics of sample, by tenure dependency. People with quality of life interviews and a brief assessment

	Independent* owner occupier	Renter	Dependent† Owner occupier	Renter	Supported‡	All
Gender % male	45.1	39	25.5	32.6	25.8	39.2
Age in years: median, interquartile range	79.2 76.7–83.0	80.1 76.9–83.3	82.2 78.5–86.0	79.5 76.7–84.6	82.4 78.7–86.2	80.1 77.0–83.9
Marital status§ %						
Married	55.1 (51.3)	42.1 (41.5)	2.4 (3.8)	4.6 (4.6)	22.7 (30.6)	42.6
Formerly married	40.7 (43.9)	52.9 (53.4)	83.3 (80.0)	87.8 (88.5)	69.5 (61.8)	51.7
Single	4.2 (4.7)	5.0 (5.1)	14.4 (16.2)	7.6 (6.9)	7.8 (7.6)	5.7
<b>Health problems§</b>						
% Difficulty hearing	5.1 (5.3)	8.3 (8.7)	9.1 (7.2)	10.7 (9.7)	10.6 (9.2)	7.0
% Difficulty seeing	6.2 (7.1)	8.5 (9.0)	10.2 (8.4)	6.2 (5.8)	16.5 (13.5)	8.5
% Urinary incontinence	4.3 (4.5)	6.3 (6.3)	7.6 (5.7)	6.3 (5.5)	11.1 (9.5)	6.0
% Lower legs swollen	6.2 (6.5)	9.6 (9.7)	9.3 (7.7)	10.7 (12.7)	14.0 (11.7)	8.4
% Severe shortness breath	9.4 (9.7)	13.8 (14.0)	13.5 (11.3)	13.6 (14.1)	18.4 (17.1)	12.0
% 3+ medicines	38.8 (39.2)	42.3 (42.5)	42.4 (38.8)	47.6 (46.6)	54.1 (53.2)	42.2
% Everyday memory problems	6.9 (7.1)	8.7 (8.8)	13.2 (10.9)	7.6 (7.7)	11.8 (10.0)	8.5
<b>Health behaviours§</b>						
% Smoke	7.2 (6.8)	11.9 (11.8)	8.6 (10.6)	14.5 (16.1)	10.1 (12.0)	8.9
% Do not drink	24.4 (25.8)	38.4 (38.2)	33.3 (29.5)	47.7 (45.3)	36.9 (34.8)	30.3
% Not very/not at all active	17.2 (18.1)	23.6 (24.0)	29.0 (23.1)	30.5 (33.0)	34.7 (30.7)	22.3
<b>Social contact§</b>						
% Rare contact	4.0 (4.0)	4.1 (4.0)	8.0 (7.8)	10.1 (10.1)	4.1 (4.2)	4.4
<b>Help§</b>						
% No informal help	73.5 (72.3)	66.4 (66.1)	44.1 (48.6)	44.1 (48.6)	64.9 (67.4)	68.0
% No use of treatment services	46.5 (45.3)	44.3 (44.2)	40.1 (42.7)	46.3 (46.8)	32.6 (35.4)	43.5
% No use of other services	68.5 (65.1)	72.5 (71.4)	71.5 (74.5)	74.1 (75.4)	51.4 (53.1)	67.2
<b>Number (% of total)</b>	3475 (55.2)	1272 (20.2)	467 (7.4)	132 (2.1)	952 (15.1)	6298 (100.0)

\*Lived alone or with spouse/partner; †lived with someone other than spouse/partner; ‡lived in sheltered housing or in residential home; §figures in parentheses standardised by gender and age.

### Sample characteristics

The median age was 80 years and nearly 40% of the participants were male. Over half were in the independent owner occupied category and 20% were in the independent rented one. Percentages in dependent groups were small and one in six participants lived in supported housing.

Among independents, owner occupiers were more likely to be male, married, and were younger than renters (table 1). Allowing for gender and age differences by tenure, renters were less likely to have most of the self reported health problems or health behaviours expected to be a disadvantage for quality of life. However, similar percentages of owner occupiers and renters had rare contact with friends and families outside the household and the former were less likely to receive regular informal help looking after themselves or their home. Among dependents, there was less differentiation by housing tenure in prevalence of health problems, self reported physical activity, and receipt of either informal or formal help.

### Quality of life scores

Quality of life scores were generally low (that is, good) (table 2), especially for self care (basic difficulties, for example, in balance, standing, washing). Median scores were higher for women than men (not significantly so for social interaction) and increased with age but only marginally for morale.

### Socioeconomic differentials and mediating factors

After adjusting for demographic factors the risk ratios for poor quality of life comparing people in rented and owned tenure were of the order of 1.3–1.6 for independents and 1.2–1.9 for dependents (table 3). Among independents the differentials were slightly greater for the physical SIP dimensions than for social interaction and morale but the converse was found among dependents. Dependent people in owner occupied homes had no worse chance of poor social interaction, and lower chance of poor morale, than their independent counterparts (not shown).

Adding other health factors to the models reduced the excess risk by 30% or more among the independent group. The proportional reduction between models two and three after adding in health behaviours was similar to that between models one and two. Self reported activity had a small impact on social interaction and morale. Social contact and help received had no further impact on the risk ratios. The differentials for mobility and self care among the independent groups, and for social interaction and morale among the dependent groups, were still apparent in the final model.

The potential explanatory factors included in the models were generally predictive of the outcomes. Although no one factor had a substantial effect on the risk ratios comparing renters and owner occupiers, being short of breath, having a self reported hearing problem, and being a non-drinker were consistently the factors with the greatest single effects in explaining the tenure differentials. Swollen legs in the morning played a part for physical SIP.

Models similar to those in table 3 were run using information from the detailed assessment in the “universal” arm (not shown); this was available for 2622 people so tenure comparisons were confined to the independent groups. Measured vision and hearing replaced self reported problems and reported diagnosed cardiovascular, cancer and respiratory diseases were added to the models. Cumulated pack years of smoking\* were used instead of current smoking, and a different measure of social support, (availability of close confidante). Of the health symptoms, binocular vision of less than 6/12 accounted for some of the differentials for mobility and self care, while self reported respiratory symptoms (shortness of breath or increased phlegm) consistently reduced tenure differentials. Unlike the simple smoking measure, pack years accounted for some of the excess risk for all five outcomes. The new social support measure did not contribute to differentials even for morale.

\*One pack year was defined as smoking the equivalent of 20 cigarettes a day for one year.

**Table 2** Medians and interquartile ranges for quality of life scores by gender and age. People with quality of life interviews and a brief assessment

Age (y)	Number*	Home management†	Mobility‡	Self care†	Social interaction†	Morale
<b>Men</b>						
<77.5	853	12.5 (0.0–26.5)	12.8 (6.3–24.3)	2.8 (0.0–8.0)	7.2 (2.1–13.7)	3 (2–6)
77.5, <80.0	511	15.7 (5.3–31.8)	17.2 (7.2–25.0)	3.2 (0.0–10.7)	7.8 (2.5–14.9)	3 (2–6)
80.0, <82.5	435	20.7 (7.2–38.6)	17.2 (7.2–30.8)	3.5 (0.0–13.0)	10.0 (4.6–17.6)	4 (2–7)
82.5, <85.0	332	21.0 (7.8–42.6)	19.2 (10.9–31.0)	5.3 (0.0–14.0)	11.1 (4.6–19.9)	4 (2–7)
85.0, <87.5	229	29.6 (10.8–54.7)	21.5 (10.9–32.3)	7.4 (2.2–20.5)	12.1 (7.2–18.3)	4 (2–7)
87.5, or greater	176	42.8 (20.1–70.1)	31.2 (17.3–41.2)	12.1 (3.2–28.5)	14.8 (8.2–24.5)	4.5 (3–7)
<b>Women</b>						
<77.5	1095	19.3 (8.5–31.8)	15.0 (7.8–25.9)	5.7 (0.0–14.2)	8.2 (2.5–15.7)	5 (2–8)
77.5, <80.0	712	23.7 (10.8–41.7)	18.7 (7.8–28.7)	6.9 (0.0–15.7)	10.0 (4.6–16.7)	5 (2–8)
80.0, <82.5	692	26.9 (15.3–43.0)	19.8 (8.8–32.2)	8.9 (3.2–18.2)	12.1 (6.2–7.5)	5 (3–8)
82.5, <85.0	562	31.8 (19.3–55.1)	25.9 (14.2–38.7)	13.6 (3.5–26.4)	14.6 (7.5–21.1)	6 (3–9)
85.0, <87.5	397	37.7 (21.0–65.5)	31.5 (18.7–41.0)	14.2 (6.6–29.3)	15.7 (10.0–22.1)	6 (3–8)
87.5, or greater	449	53.4 (31.8–76.3)	38.2 (25.0–47.5)	18.5 (8.9–33.1)	18.3 (10.8–24.9)	6 (3–9)
Lower threshold for those included in the worst quintile		54.8	38.7	23.6	22.0	9

\*Base number—those with a morale score. The numbers with scores on SIP dimensions tended to be a little higher. †Weighted sum of problems (which may or may not be attributed to health) as percentage of maximum score possible.

**Table 3** Risk ratios (95% confidence intervals) for being in the worst quintiles of quality of life score comparing renting with owner occupation: effect of successively adding in potential explanatory factors. People with quality of life interviews and a brief assessment

Model	Home management (n = 5896)	Mobility (n = 5896)	Self care (n = 5897)	Social interaction (n = 5897)	Morale (n = 5886)
<b>Independents</b>					
1 Basic model*	1.40 (1.1 to 1.8)	1.50 (1.2 to 1.9)	1.62 (1.3 to 1.9)	1.34 (1.1 to 1.6)	1.27 (1.1 to 1.5)
2 Add health problems†	1.27 (1.0 to 1.6)	1.35 (1.1 to 1.7)	1.43 (1.2 to 1.7)	1.24 (1.0 to 1.5)	1.14 (1.0 to 1.3)
3 Add health behaviour‡	1.19 (1.0 to 1.5)	1.26 (1.0 to 1.6)	1.34 (1.1 to 1.6)	1.17 (1.0 to 1.4)	1.09 (0.9 to 1.2)
4 Add self perceived activity				1.13 (0.9 to 1.4)	1.06 (0.9 to 1.2)
5 Add social contacts	1.18 (0.9 to 1.5)	1.26 (1.0 to 1.6)	1.33 (1.1 to 1.6)	1.13 (0.9 to 1.3)	1.06 (0.9 to 1.2)
6 Add poor physical SIP¶					1.04 (0.9 to 1.2)
7 Add help received**					1.05 (0.9 to 1.2)
<b>Dependents</b>					
1 Basic model*	1.24 (0.9 to 1.7)	1.39 (1.1 to 1.8)	1.30 (0.9 to 1.9)	1.74 (1.1 to 2.8)	1.93 (1.3 to 2.8)
2 Add health problems†	1.27 (0.9 to 1.7)	1.38 (1.1 to 1.8)	1.33 (0.9 to 1.9)	1.70 (1.1 to 2.6)	1.96 (1.4 to 2.8)
3 Add health behaviour‡	1.20 (0.9 to 1.6)	1.29 (1.0 to 1.6)	1.26 (0.9 to 1.8)	1.59 (1.1 to 2.4)	1.86 (1.3 to 2.7)
4 Add self perceived activity				1.53 (1.0 to 2.2)	1.79 (1.3 to 2.5)
5 Add social contacts	1.20 (0.9 to 1.6)	1.30 (1.0 to 1.6)	1.26 (0.9 to 1.8)	1.54 (1.1 to 2.2)	1.81 (1.3 to 2.6)
6 Add poor physical SIP¶					1.74 (1.2 to 2.5)
7 Add help received**					1.75 (1.2 to 2.5)

\*Adjusted for gender, age, marital status; †seven self reported health problems: difficulties with vision or hearing, urinary incontinence, swollen legs, respiratory problems, memory problems, number of medications taken; ‡lifestyle including smoking and alcohol consumption but excluding perception of physical activity; §frequency of contact with family or friends outside the household; ¶had a poor score on at least one of home management, mobility or self care; \*\*informal regular help at home and use of formal clinical and social services.

**Table 4** Cumulative effects of social class, housing tenure during most of adult life, and housing tenure in old age among people independent in old age. Risk ratios (95%CI) for poor quality of life

QoL	Housing tenure		Social class	
	In old age	Most of adult life	Non-manual	Manual
Home management	Owner occupier	Owner occupier	1.00*	1.60 (1.3 to 2.0)
		Rent	1.06 (1.0 to 1.2)	1.69 (1.4 to 2.1)
	Rent	Owner occupier	1.51 (1.2 to 1.9)	1.83 (1.4 to 2.3)
Mobility	Owner occupier	Rent	1.59 (1.2 to 2.1)	<b>1.93</b> (1.5 to 2.5)
		Owner occupier	1.00	1.39 (1.2 to 1.6)
	Rent	Rent	1.11 (1.0 to 1.2)	1.55 (1.4 to 1.7)
Self care	Owner occupier	Owner occupier	1.24 (1.0 to 1.5)	1.71 (1.4 to 2.2)
		Rent	1.38 (1.2 to 1.6)	<b>1.91</b> (1.6 to 2.4)
	Rent	Owner occupier	1.60 (1.3 to 1.9)	<b>1.92</b> (1.6 to 2.3)
Social interaction	Owner occupier	Owner occupier	1.00	1.20 (1.1 to 1.4)
		Rent	1.62 (1.4 to 1.9)	1.94 (1.6 to 2.3)
	Rent	Owner occupier	1.55 (1.2 to 2.0)	1.86 (1.4 to 2.5)
Morale	Owner occupier	Rent	1.48 (1.2 to 1.9)	<b>2.00</b> (1.6 to 2.6)
		Owner occupier	1.00	1.36 (1.1 to 1.6)
	Rent	Rent	1.12 (1.0 to 1.2)	1.53 (1.3 to 1.8)
		Owner occupier	1.43 (1.3 to 1.6)	1.56 (1.3 to 1.8)
		Rent	1.60 (1.4 to 1.8)	<b>1.75</b> (1.6 to 2.0)
		Number in cell	2229	1315
			274	474
			94	130
			308	1151

\*The reference group was from a non-manual class with a history of owner occupation and in independent owner occupation at the time of interview.

Table 4 shows cumulative effects of three socioeconomic characteristics for the independents. Current housing tenure and social class independently contributed to all five outcomes and past housing tenure was additionally associated with all outcomes except poor home management. People in a manual social class who had been in a rented home both during working age and old age had nearly double the risk of each poor SIP outcome and a 75% increase in risk of poor morale compared with people in a non-manual class who had been owner occupiers at both times (in bold in table 4).

## DISCUSSION

Among those who lived alone or with their spouse, owner occupiers were less likely to have poor quality of life in all five dimensions, whereas for dependent groups the differentials were only strong for social interaction and morale. Dependent people in owner occupation were no more likely to have poor morale than those in rented homes.

Response differential was not a concern for the QoL interviews but respondents to the brief assessment were less likely to have poor QoL than the non-responders; also

response was slightly higher for people in owner occupied homes than for those in rented homes. The tenure differentials for poor quality of life were mostly similar in the subsample of 6298 with a brief assessment compared with the fuller sample of 8565. There is some evidence that tenure differentials were over-estimated for social interaction and morale among dependent groups as the risk ratios in the full sample were smaller (1.57 and 1.58 respectively).

Sixteen per cent of people could not be assigned a current socioeconomic position because they were in sheltered housing (where ownership is rare) or in residential accommodation. As a higher percentage of people in supported accommodation than of others had been in rented accommodation most of their adult life (60% compared with 40%) the owner-renter comparisons probably under-estimate the socioeconomic differentials in old age.

As we used cross sectional data the sequence of events is unknown. We reduced the scope for distortion from reverse causation by categorising people into supported accommodation, independent groups, and dependent groups. Because of reverse causation we anticipated, and found, reduced differentials among the dependent group with respect to physical SIP. However, the substantial tenure differentials for social interaction and morale among the dependent group were surprising and not accounted for by whom they lived with (around 70% of each group lived with sons and daughters), nor by use of proxies. One possibility to explore for the tenure differences in morale and social interaction among dependent people is the nature of moral and emotional support in owner occupied homes compared with rented homes.

The results for combinations of socioeconomic position in table 4 could reflect health selection but more plausibly

## Key points

- In Britain people in rented homes in old age—whether living independently or with relatives—were more likely to have poor health related quality of life than those in owner occupied homes. Among people living independently health problems accounted for a substantial part of the excess risks of poor quality of life among renters. Being a non-drinker and a history of smoking also contributed.
- Tenure differentials in poor morale were particularly strong among people living with relatives.
- Older people retain the legacy of past socioeconomic position and are subject to current socioeconomic influence.

## Policy implications

Improving the welfare of older people, now a recognised government aim, should involve efforts to reduce health inequalities among them.

reflect the cumulative effects of circumstances across the life course.

The health factors used in the models, chosen as likely precursors to limited functioning, were more common among independent people in rented than owned accommodation and partially explained the quality of life disadvantage of the former, respiratory problems playing the largest part. Consistent with this, there was some indication from the subgroup with a detailed assessment that 40 or more accumulated pack years of smoking made a contribution to the differential. Information on nutrition and a more objective measure of physical activity, if available, might have added to the explanation.

A worse quality of life score among some groups might reflect a general negative affect. We lacked measures to check this and it is unclear from the literature what to expect. Some studies report a greater tendency to report problems among socioeconomically disadvantaged people and others the opposite.<sup>23–25</sup> In an earlier study, excluding those who were “nervous most of the time” or “happy little of the time” did not substantially change differences in chances of poor physical functioning by employment grade.<sup>26</sup> However, it would be preferable to have both objective and self report measures of health symptoms to bring out more clearly the role of perceptions in influencing functioning.

The nature of socioeconomic influence is likely to be multi-faceted. Generally, housing tenure represents material aspects of people’s lives but in old age owner occupation does not necessarily mean high income or good housing conditions. In England 30% of owner occupying households containing someone of age 85 years or more are in poor housing.<sup>27</sup> However, ownership carries some status and pride with it.<sup>28</sup> In the generations covered by this study, ownership would have been harder to attain and may carry more prestige and reflect a greater advantage in control of resources and life than in later generations. These older generations established their careers in the days when jobs were highly differentiated and hierarchical in income and status. The work environment was often hazardous. Thus social class would influence health through a combination of the exposures experienced, the income available to afford a healthy lifestyle and treatment, and perhaps psychosocial factors through lack of control over life.

The MRC trial provides the largest national sample of people aged 75 years and over. Two previous British based studies have reported associations with housing tenure and disability in old age.<sup>16 17</sup> Cross sectionally, income levels were inversely associated with greater functional limitation in the USA even after adjusting for education,<sup>29</sup> and a strong factor in mobility impairment in Canada.<sup>30</sup> Several longitudinal studies within old age show that lower socioeconomic position in old age indicated worse prospects for subsequent mobility or disability.<sup>6 31–37</sup>

Few studies have explicitly looked at potential mediators between socioeconomic position and functioning in old age. There are mixed results with two papers concluding that health behaviours do not mediate<sup>11 38</sup> while one<sup>39</sup> concluded that a combination of self rated health, lifestyle, and self esteem accounted for about a third of a social class differential. No studies have been found for morale.

Our results are consistent with current socioeconomic position having an impact on functioning in old age. For the first time in Britain, potential explanatory variables have been modelled, our results showing that health symptoms and health behaviours explain much of the differentials. Although the possibility of biases and reverse causation cannot be conclusively ruled out, it is unlikely that these seriously cast doubt on our findings. The cumulative effects of social class (acquired many years earlier), housing tenure

during most of their working life, and current housing tenure suggest that the older people do not escape the legacy of their past socioeconomic history and are not immune from current socioeconomic influences. The action needed to reduce those differentials may differ in whole or part from action appropriate for younger groups—for example, multiple morbidity may already exist and therefore treatment may be a bigger consideration than at younger ages. Improving the welfare of older people, a recognised government aim, should involve efforts to reduce health inequalities among them.

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## Authors’ affiliations

**E Breeze, P Wilkinson, A E Fletcher**, Centre for Ageing and Public Health, London School of Hygiene and Tropical Medicine, London, UK  
**D A Jones, A M Latif**, University Department of Geriatric Medicine, Llandough Hospital, Penarth, Cardiff, UK  
**C J Bulpitt**, Section of Care of the Elderly, Faculty of Medicine, Imperial College, London, UK

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## REFERENCES

- Acheson D**, Barker D, Chambers J, *et al*. *Independent Inquiry into inequalities in health*. London: The Stationery Office, 1998.
- Department of Health**. *Reducing health inequalities: an action report*. London: Department of Health, 1999.
- Department of Health**. *National Service Framework for Older People*. London: Department of Health, 2002.
- HM Treasury, Department of Health**. *Tackling health inequalities. Summary of 2002 cross-cutting review*. Ref 29854. London: Department of Health, 2002.
- Palmore EB**, Nowlin JB, Wang HS. Predictors of function among the old-old: a 10-year follow-up. *J Gerontol* 1985;**40**:244–50.
- Maddox GL**, Clark DO. Trajectories of functional impairment in later life. *J Health Soc Behav* 1992;**33**:114–25.
- Hubert HB**, Bloch DA, Fries JF. Risk factors for physical disability in an aging cohort: the NHANES I epidemiologic follow up study. *J Rheumatol* 1993;**20**:480–8.
- Amaducci L**, Maggi S, Langlois J, *et al*. Education and the risk of physical disability and mortality among men and women aged 65 to 84: the Italian longitudinal study on aging. *J Gerontol A Biol Sci Med Sci* 1998;**53**:M484–90.
- Parker MG**, Thorslund M, Lundberg O, *et al*. Predictors of physical function among the oldest old: a comparison of three outcome variables in a 24-year follow-up. *J Aging Health* 1996;**8**:444–60.
- Rautio N**, Heikkinen E, Heikkinen R-L. The association of socio-economic factors with physical and mental capacity in elderly men and women. *Archives Gerontology and Geriatrics* 2001;**33**:163–78.
- Cairney J**, Arnold R. Social class, health and aging: socioeconomic determinants of self-reported morbidity among the noninstitutionalized elderly in Canada. *Can J Public Health* 1996;**87**:199–203.
- Olausson PO**. Mortality among the elderly in Sweden by social class. *Soc Sci Med* 1991;**32**:437–40.
- Martelin T**. Mortality by indicators of socioeconomic status among the Finnish elderly. *Soc Sci Med* 1994;**38**:1257–78.
- Martelin T**, Koskinen S, Valkonen T. Sociodemographic mortality differences among the oldest old in Finland. *J Gerontol B Psychol Sci Soc Sci* 1998;**53**:S83–90.
- Evandrou M**, Victor C. Differentiation in later life: social class and housing tenure cleavages. In: Bytheway B, Keil T, Allatt P, *et al*, eds. *Becoming and being old*. London: Sage, 1989:104–20.
- Arber S**, Ginn J. Gender and inequalities in health in later life. *Soc Sci Med* 1993;**36**:33–46.

- 17 Grundy E, Ahlburg D, Ali M, *et al*. Disability in Great Britain: results from the 1996/97 Disability Follow-up to the Family Resources Survey. Research Report 94. Leeds: Corporate Document Services Department of Social Security, 1999.
- 18 Fletcher A, Jones D, Bulpitt C, *et al*. The MRC trial of assessment and management of older people in the community: objectives, design and interventions [ISRCTN23494848]. *BMC Health Serv Res* 2002;**2**:21.
- 19 Bergner M, Bobbitt RA, Carter WB, *et al*. The Sickness Impact Profile: development and final revision of a health status measure. *Med Care* 1981;**XIX**:787–805.
- 20 Lawton MP. The Philadelphia Geriatric Center Morale Scale: a revision. *J Gerontol* 1975;**30**:85–9.
- 21 OPCS. *Standard occupational classification*. Vol 1–3. London: HMSO, 1991.
- 22 MAPI Research Institute. *Quality of Life instrument database*. MAPI Research Institute, 2003 (<http://www.qolid.org>).
- 23 Blaxter M. *Health and lifestyles*. London: Tavistock/Routledge, 1990.
- 24 Elstad JI. How large are the differences—really? Self-reported long-standing illness among working class and middle class men. *Social Health Illness* 1996;**18**:475–98.
- 25 O'Donnell O, Propper C. Equity and the distribution of UK National Health Service resources. *J Health Econ* 1991;**10**:1–19.
- 26 Breeze E, Fletcher AE, Leon DA, *et al*. Do socioeconomic disadvantages persist into old age? Self-reported morbidity in a 29-year follow-up of the Whitehall study. *Am J Public Health* 2001;**91**:277–83.
- 27 Department of Environment Transport and the Regions. *English housing conditions survey 1996*. London: Stationery Office, 1998.
- 28 Macintyre S, Kearns A, Ellaway A. *Housing tenure and car ownership? Why do they predict health and longevity*. Final report of ESRC grant L12851017. Swindon: ESRC, 2000.
- 29 Berkman CS, Gurland BJ. The relationship among income, other socioeconomic indicators, and functional level in older persons. *J Aging Health* 1998;**10**:81–98.
- 30 Forbes WF, Hayward LM, Agwani N. Factors associated with the prevalence of various self-reported impairments among older people residing in the community. *Can J Public Health* 1991;**82**:240–4.
- 31 Kaplan GA. Maintenance of functioning in the elderly. *Ann Epidemiol* 1992;**2**:823–34.
- 32 Rogers RG, Rogers A, Belanger A. Disability-free life among the elderly in the United States. *J Aging Health* 1992;**4**:19–42.
- 33 Beland F, Zunzunegui MV. Predictors of functional status in older people living at home. *Age Ageing* 1999;**28**:153–9.
- 34 Guralnik JM, Simonsick EM. Physical disability in older Americans. *J Gerontol* 1993;**48**(special number):3–10.
- 35 Strawbridge WJ, Cohen RD, Shema SJ, *et al*. Successful aging: predictors and associated activities. *Am J Epidemiol* 1996;**144**:135–41.
- 36 Harris T, Kovar MG, Suzman R, *et al*. Longitudinal study of physical ability in the oldest-old. *Am J Public Health* 1989;**79**:698–702.
- 37 Melzer D, Izmirlan G, Leveille SG, *et al*. Educational differences in the prevalence of mobility disability in old age: the dynamics of incidence, mortality, and recovery. *J Gerontol B Psychol Sci Soc Sci* 2001;**56**:S294–301.
- 38 Damian J, Ruigomez A, Pastor V, *et al*. Determinants of self assessed health among Spanish older people living at home. *J Epidemiol Community Health* 1999;**53**:412–16.
- 39 Cairney J. Socio-economic status and self-rated health among older Canadians. *Can J Aging* 2000;**19**:456–78.

## ECHO

### Potential research participants' views regarding researcher and institutional financial conflicts of interest

S Y H Kim, R W Millard, P Nisbet, C Cox, E D Caine



Please visit the *Journal of Epidemiology and Community Health* website [[www.jech.com](http://www.jech.com)] for a link to the full text of this article.

**Background:** Financial conflict of interest in clinical research is an area of active debate. While data exist on the perspectives and roles of academic institutions, investigators, industry sponsors, and scientific journals, little is known about the perspectives of potential research participants.

**Methods:** The authors surveyed potential research participants over the internet, using the Harris Interactive Chronic Illness Database. A potential research participant was defined by: (1) self report of diagnosis by a health care professional and (2) willingness to participate in clinical trials. Email invitations were sent to 20 205 persons with coronary artery disease, breast cancer, or depression; a total of 6363 persons were screened; of these, 86% or 5478 met inclusion criteria and completed the survey. The outcome measures were respondents' ratings on: importance of knowing conflict of interest information, whether its disclosure ought to be required, and its effect on willingness to participate—across seven widely discussed scenarios of financial conflicts of interest (ranging from commercial funding to equity ownership).

**Results:** Majority responded that knowing conflict of interest information was "extremely" or "very" important; a larger majority felt financial conflicts of interest should be disclosed as part of informed consent (64% to 87%). In all seven scenarios, a majority was still willing to participate but in some scenarios a sizable minority would be wary of participation. Respondents were more wary of individual than institutional conflicts of interest. Illness group and sociodemographic factors had modest effects and did not affect the main trends.

**Conclusions:** The prevailing practice of non-disclosure of financial conflicts of interest in clinical research appears contrary to the values of potential research participants.

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