RESEARCH REPORT

# Do perceptions of neighbourhood environment influence health? Baseline findings from a British survey of aging

**Ann Bowling, Julie Barber, Richard Morris, Shah Ebrahim**

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See end of article for authors' affiliations

Correspondence to: Professor A Bowling, Department of Primary Care and Population Sciences, University College London, Hampstead Campus, Rowland Hill Street, London NW3 2PF, UK; a.bowling@pcps.ucl.ac.uk

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**Objectives:** To investigate the relation between perceived neighbourhood environment, social contact and support, and self efficacy, on the health of older people.
**Design:** British cross sectional population survey of people aged 65 and over.
**Participants:** 999 people aged 65 plus living at home in Britain.
**Results:** Regression modelling showed that high self efficacy had a strong independent association with better self rated health status and physical functioning. Indicators of perceived neighbourhood environment that showed strong associations with both good health and functioning were: perceptions of good quality facilities in the area (social/leisure, facilities for people aged 65+, rubbish collection, health services, transport, closeness to shops, somewhere nice to walk), and high levels of neighbourliness (knows/trusts people). Perceptions of problems in the area (noise, crime, air quality, rubbish/litter, traffic, graffiti) were also predictive of poorer health. Measures of social contact and support did not show any independent associations with health or functioning.
**Conclusions:** The unique value of this paper is in the simultaneous analysis of associations between perceived neighbourhood, social contact and support, self efficacy, and health. The consistent strength of older people's perceptions of the quality of facilities in their neighbourhoods shows that responsive reinforcement of local infrastructures might have wider health benefits. Also of interest was the strength of self efficacy as a predictor of self rated health and physical functioning. The results have implications for both neighbourhood level interventions and self management programmes in chronic illness.

This paper presents a multidimensional approach to the analysis of self rated health and physical functioning, examining the predictive power of perceived neighbourhood environment, perceived social contact and support, and self efficacy, as well as sociodemographic and socioeconomic influences. People aged 65 and over are the focus of interest, with their increased likelihood of experiencing declining health and functioning.

There is a rich, interdisciplinary literature on the health effects of social contacts and support, which are believed to act as buffers to the deleterious health effects of stress and socioeconomic disadvantage.[1] There is also increasing interest in the health effects of neighbourhood social capital.[2] Neighbourhood social capital, by increasing social resources and opportunities, is, in theory, one key to enhancing social networks, and the amount of support and information available to people (for example, in relation to health). Alongside this, cognitive mechanisms, such as feeling in control of one's life, may also be important in enabling people to mobilise resources, and to cope effectively at times of change (for example, when facing the challenges of older age, including illness). These psychological resources have been comparatively unexplored in relation to population health.

## SOCIAL CAPITAL, SOCIAL NETWORKS, AND SUPPORT

It has long been recognised that wellbeing is influenced by society as a whole[3]; thus external, societal contexts and internal, personal forces must be studied to understand determinants of health. The term social capital has been variously used to describe the social resources available to people through participation in civic and community networks, essential social infrastructures and organisations, the connections and cohesiveness of networks among individuals, and the norms of reciprocity, cooperation, and trust that these create.[4–7] Four broad, overlapping, theoretical strands have emerged from these definitions: collective efficacy, social trust/reciprocity, social and voluntary organisation participation, and social integration for mutual benefit.[8]

But strong, consistent evidence for causal associations between social capital and health is still lacking. Moreover, the unclear distinctions between the constituents of social capital, and its products, or outcomes, and their mutual dependency create difficulties in ascribing cause and effect. Most analyses of the health effects of features of the neighbourhood have used objective indicators of the latter at area level, and individuals' perceptions of their neighbourhood have been relatively neglected. The issue about whether social capital is a characteristic of, and benefit for, individuals, or an attribute of communities, and thereby a collective benefit is unresolved. This leads to questions about the correct unit of study—aggregated community level, objective data, or individual level perceptual data. Indeed, some definitions of social capital overlap with concepts of individuals' social networks. In theory, however, social capital, with its emphasis on social structure, is conceptually distinct from attributes of individuals.[8] But one problem with area level analyses is that it is difficult to provide information on potential pathways between the features of an area and an outcome of interest (for example, health). This is where more detailed neighbourhood level data are also needed, even supplemented with data from individuals about their neighbourhoods. However, while social network theory has been extensively applied to older populations, there is little research that focuses on the effects of neighbourhood social capital, or people's perceptions of it, on the health of older people.

Theories of social networks and support conceptualise the structure and nature of social relationships, and interactive

processes, at the level of the individual.[9] Traditional social network theory holds that social capital is a distinct concept, and refers to the community's facilitation of resource flow. This distinction is compatible with Putnam's[5] concept of social capital as the essential social infrastructure. Despite inconsistencies (probably because of the diverse range of measures used), fairly strong evidence seems to exist between high levels of social contact and support and reduction of mortality risk, improved mental and physical health status, physical performance, and wellbeing.[10–21] Social relationships and activity in themselves seem to confer health benefits through psychosocial pathways, potentially buffering effects of adverse life events. Lack of these resources can thereby decrease the individual's resources for dealing with social stress.[13] There are also long established associations between social participation and/or support and feelings of self esteem (the feeling that one is a person of value, which is a component of mental health, and can affect coping strategies.[22–24]

## SELF EFFICACY

Self efficacy refers to one's competency in producing an intended goal, and in maintaining some control over life.[25] The extent to which people perceive that they, rather than others, determine what happens in their lives leads to a greater sense of internal control, and influences intentions, motivations, actions, coping behaviour when stressed. In theory, this ultimately affects their wellbeing,[26–32] mental health, and quality of life of people in their adaptation to the challenges of aging, including disability.[25 27 33 34] As such, it is an important variable to include in research on older people.

## AIM

The aim of the analyses presented here was to investigate the relation between perceived neighbourhood environment, social contact and support, and self efficacy, on the health of older people.

The level of analysis was the individual. This enabled exploration of the effects of subjective context, mirroring traditional social network analysis. Investigation of people's perceptions of problems (for example, crime) in their neighbourhoods, the adequacy of local facilities (for example, transport), neighbourliness and safety, including political participation, are also compatible with a concept of social infrastructure in which people are enabled to build, and reinforce, mutually beneficial relationships with others.[5]

The hypotheses underlying the analyses presented were that we expect worse perceptions of neighbourhood environment, lower levels of social contact and support, and low levels of self efficacy to be associated with poorer self rated health and physical functioning.

## METHODS

### The survey

The data were derived from a national interview survey of quality of life in older age in Britain. The survey sample was derived from four quarterly Office for National Statistics (ONS) omnibus surveys in Britain during 2000/1. Omnibus surveys aim to generate random, representative population samples by use of a small user postcode sampling frame, with geographical and socioeconomic stratification. All respondents aged 65 and over, who were interviewed for the omnibus survey were asked if they would be willing to be re-interviewed by ONS interviewers for our module on quality of life. Those who consented were re-interviewed two months later. Of the sample of 1299 eligible respondents sifted by ONS from the omnibus survey, the overall response rate was 77%, with 19% refusing to participate, and 4% were not contactable during the interview period. The sample of responders consisted of 999 people across 316 postcode sectors in Britain; the numbers of people per included postcode sector were between one and eight people (mean 2.5).

The sociodemographic characteristics of the sample were similar to those from mid-year population estimates for Great Britain (estimated from the last census), although there was a slight under-representation of women. Full methodological details have been published elsewhere.[35]

### Dependent variables

Two indicators of health were used as the dependent variables—self rated health status and physical functioning. It is important to examine both health status and functioning in samples of older people as the two are not necessarily strongly correlated. Health status is an overall evaluation of health, whereas physical functioning relates to level of physical ability to perform everyday tasks. The SF-36 item on health perceptions was used to measure overall health status. This is a five point Likert rating scale of self rated health from ''excellent'' to ''poor'', with the highest score representing worse health.[36] Physical functioning was measured with Townsend's activities of daily living (ADL) scale that measures level of difficulty with 15 daily activities, including instrumental activities,[37] covering mobility, flexibility for dressing, tying shoelaces, getting in/out of chair, managing money, getting on a bus, washing self, cutting toenails, going up/down steps/stairs, doing heavy housework, shopping and carrying heavy bags, preparing/cooking hot meal, reaching, bending (item scores of 0–3). For analysis, the summed scores were grouped to describe functional status in five groups from ''no difficulties'' to ''very severe difficulties'' (scores: 0, 1–4, 5–9, 10–18, 19–45). The categories were based on distributions and validity correlations. The use of ordinal level, grouped ADL is supported by the literature[37]; the cut off points used were sensitive to theoretically relevant indicators of health and wellbeing.

### Independent variables

The independent variables included individual level indicators of perceived neighbourhood environment, social contact and support, and self efficacy. Perceived neighbourhood environment was measured using a carefully developed indicator used in national household surveys in Britain,[38] based on theories of social capital.[5] Respondents were asked a series of questions about their perceptions of their local areas (defined as ''within about a 15 or 20 minute walk or drive from your home''). These yielded ratings that were summed to produce scores for analysis based on: perceived quality of facilities in the local area (seven item ratings on a 0–5 point scale from ''very good'' to ''very poor'' for leisure/social facilities, facilities for people aged 65+, rubbish collection, local health services, transport, closeness to shops, somewhere nice to go for a walk; score range 0–35 with higher scores representing worse area ratings). They were also asked to rate neighbourhood problems (six item ratings on a 0–5 point scale from ''very big problems'' to ''no problems'', for speed/volume of traffic, noise, crime, air quality, litter/rubbish, graffiti; score range 0–30, with higher scores representing fewer problems); neighbourliness (ratings on two 0–4 point scales of numbers of people knows and trusts in the neighbourhood; score range 0–8, with higher scores representing low neighbourliness); perceived safety when walking alone during day and after dark (ratings on two 0–4 point scales; score range 0–8, with higher scores representing less safety); and political engagement (single item: voted or not in last election). For each summed variable, the scores were grouped to form the categories used in the analyses, detailed in table 1 (with their raw score groupings). All

**Table 1** Characteristics of the sample: sociodemographic, socioeconomic, health status, perceived neighbourhood environment, social contact and support, and self efficacy variables

| | | Number (%) |
|---|---|---|
| **Sociodemographic and socioeconomic characteristics** | | |
| Age (n = 999) | 65–69 | 341 (34) |
| | 70–74 | 283 (28) |
| | 75–79 | 207 (21) |
| | 80+ | 168 (17) |
| Sex (n = 999) | female | 480 (48) |
| | male | 519 (52) |
| Access to car (n = 999) | yes | 665 (67) |
| | no | 334 (33) |
| Highest educational qualification (n = 999) | degree/higher degree/higher qualification < degree | 127 (12) |
| | A level/highers/ONC/BTEC | 58 (6) |
| | O level/GCSE/CSE/other qualification | 177 (18) |
| | no formal qualifications | 637 (64) |
| Social class (NS-SEC) (n = 968) | employers, managers/higher professionals | 453 (47) |
| | intermediate work/small employers/own account | 198 (20) |
| | lower supervisory/craft/routine work | 317 (33) |
| **Health status** | | |
| Self rated health status (n = 991) | excellent | 103 (10) |
| | very good | 288 (29) |
| | good | 336 (34) |
| | fair | 206 (21) |
| | poor | 58 (6) |
| Physical functioning (ADL) (n = 984) | no difficulty (0) | 317 (32) |
| | mild difficulty (1–4) | 324 (33) |
| | moderate difficulty (5–9) | 133 (13) |
| | fairly severe difficulty (10–18) | 125 (13) |
| | very severe difficulties (19–45) | 85 (9) |
| **Perceived neighbourhood environment** | | |
| Area ratings of facilities (rubbish collection, health, transport, shops, somewhere nice to walk) (n = 994) | very good | 134 (13) |
| | good | 344 (35) |
| | fair | 388 (39) |
| | Poor/very poor | 128 (13) |
| Problems in area (noise, crime, air, litter, graffiti) (n = 994) | | |
| | very big problems | 46 (5) |
| | big problems | 117 (12) |
| | some problems | 207 (21) |
| | few problems | 587 (59) |
| | no problems | 36 (3) |
| Neighbourliness of area (knows/trusts people) (n = 986) | bad | 555 (56) |
| | good | 431 (44) |
| Safety am/pm (n = 927) | very safe | 435 (47) |
| | unsafe | 350 (38) |
| | very unsafe | 142 (15) |
| Political engagement (n = 994) | yes | 808 (81) |
| | no | 186 (19) |
| **Social contact and support** | | |
| Score of no. face to face contacts (n = 991) | 1 (high) | 186 (19) |
| | 2 | 399 (40) |
| | 3 (low) | 406 (41) |
| Number of areas of life can ask for help with (n = 983) | 0–3 areas | 92 (9) |
| | 4 areas | 187 (19) |
| | 5 areas | 704 (72) |
| **Self efficacy (feeling in control of life)** | | |
| Self efficacy score (n = 980) | 1 (high, most positive) | 253 (26) |
| | 2 | 349 (36) |
| | 3 | 227 (23) |
| | 4 (low, most negative) | 151 (15) |

summed scores were theoretically meaningful and the regrouped variables retained convergent validity.

The social contacts and support measures used were based directly on traditional social network theory.[6 9] Social contact was conceptualised and measured in terms of the frequency of face to face contacts with network members in the past month. Responses to two summary measures of face to face contact with relatives and with friends on 1–8 point scales (1, seen every day to 8, not at all in the past 12 months) were summed (range 2–16) and then recoded to high, medium, and low, with higher scores representing the lower frequencies (reflecting the direction of coding). Social support was measured with a validated indicator of number of areas of life one can ask for help with, based on five specific questions (needing a lift urgently, ill in bed and needing help, needing help with chores/errands/odd jobs, need to borrow money, need comfort and support in a serious personal crisis). Areas were summed and each score represents the number of these five areas the respondent could ask for help with (0–5).[38 39]

The variable perceived self efficacy was based on the literature suggesting that maintaining a sense of control over life had an enabling and protective function.[25–32] The measure used was derived from a popularly used scale of perceived self efficacy.[40] The five questions were: How much control do you

**Table 2** Ordered logistic regression analyses of self rated health: full and reduced models showing odds of perceived neighbourhood environment, social contact and support, self efficacy, sociodemographic, and socioeconomic on self rated health

| | Full model* | | Reduced model† | |
|---|---|---|---|---|
| | Odds ratio (95% CI) | p Value‡ | Odds ratio (95% CI) | p Value‡ |
| **Perceived neighbourhood environment** | | | | |
| Area ratings of facilities: | | | | |
| 0–12 very good (reference) | 1 | <0.001 | 1 | <0.001 |
| 13–17 good | 1.27 (0.87, 1.88) | | 1.31 (0.90, 1.92) | |
| 18–24 fair | 2.01 (1.37, 2.96) | | 2.14 (1.47, 3.12) | |
| 25–35 poor/very poor | 1.89 (1.16, 3.08) | | 1.98 (1.24, 3.16) | |
| Problems in area | | | | |
| 0–18 very big (reference) | 1 | 0.073 | 1 | 0.014 |
| 19–23 big | 0.77 (0.39, 1.52) | | 0.82 (0.43, 1.58) | |
| 24–27 some | 0.81 (0.43, 1.55) | | 0.80 (0.43, 1.48) | |
| 28–29 few | 0.66 (0.36, 1.23) | | 0.64 (0.35, 1.15) | |
| 30 no problems | 0.32 (0.13, 0.77) | | 0.28 (0.12, 0.65) | |
| Neighbourliness of area | | | | |
| 4–8 bad (reference) | 1 | 0.067 | 1 | 0.007 |
| 2–3 good | 0.79 (0.62, 1.02) | | 0.72 (0.57, 0.92) | |
| Safety walking alone am/pm | | | | |
| 0–2 very safe (reference) | 1 | 0.811 | – | |
| 3–4 unsafe | 0.95 (0.72, 1.25) | | | |
| 5–8 very unsafe | 1.07 (0.74, 1.55) | | | |
| Political engagement | | | | |
| yes (reference) | 1 | 0.237 | – | |
| no | 1.22 (0.88, 1.69) | | | |
| **Social contact and support** | | | | |
| Face to face social contact score in past month | | | | |
| 2–5 high (reference) | 1 | 0.960 | – | |
| 6–8 medium | 0.97 (0.69, 1.36) | | | |
| 9–16 low | 0.95 (0.67, 1.35) | | | |
| Number of areas can ask for help/support with | | | | |
| 0–3 areas (reference) | 1 | 0.198 | – | |
| 4 areas | 0.77 (0.47, 1.28) | | | |
| 5 areas | 0.67 (0.42, 1.06) | | | |
| **Self efficacy (feeling in control of life)** | | | | |
| Self efficacy score | | | | |
| 5–10 high, most positive (reference) | 1 | 0.003 | 1 | <0.001 |
| 11–12 | 1.07 (0.78, 1.47) | | 1.08 (0.79, 1.47) | |
| 13–14 | 1.64 (1.14, 2.36) | | 1.67 (1.18, 2.37) | |
| 15–23 low, most negative | 1.90 (1.24, 2.90) | | 2.15 (1.44, 3.22) | |
| **Sociodemographic and socioeconomic characteristics** | | | | |
| Age (years) | | | | |
| 65–69 (reference) | 1 | 0.008 | 1 | 0.090 |
| 70–74 | 1.36 (0.99, 1.85) | | 1.31 (0.97, 1.77) | |
| 75–79 | 0.80 (0.57, 1.13) | | 0.86 (0.62, 1.20) | |
| 80+ | 0.74 (0.49,1.12) | | 0.98 (0.67, 1.42) | |
| Sex | | | | |
| female (reference) | 1 | <0.001 | 1 | 0.007 |
| male | 1.58 (1.21, 2.07) | | 1.42 (1.10, 1.83) | |
| Access to car | | | | |
| yes (reference) | 1 | 0.004 | 1 | 0.004 |
| no | 1.56 (1.15, 2.11) | | 1.53 (1.15, 2.03) | |
| Highest education qualification | | | | |
| degree/higher degree/qualification (reference) | 1 | 0.990 | 1 | 0.998 |
| A level/highers/ONC/BTEC | 0.95 (0.53, 1.70) | | 0.95 (0.54, 1.68) | |
| O level/GCSE/CSE/other qualification | 1.01 (0.65, 1.56) | | 0.98 (0.64, 1.50) | |
| no formal qualifications | 1.03 (0.68, 1.58) | | 0.98 (0.65. 1.47) | |
| Social class (NS-SEC) | | | | |
| employers, managers, higher professionals (reference) | 1 | 0.404 | 1 | 0.152 |
| intermediate, small employers, own account workers | 1.04 (0.73, 1.50) | | 1.12 (0.80, 1.58) | |
| lower supervisory, craft, semi-routine, routine occupations | 1.25 (0.89, 1.74) | | 1.36 (0.99, 1.87) | |

*n = 875 because of missing values for some factors. †n = 938. Reduced model achieved through backward elimination. Age, sex, socioeconomic, and demographic variables forced to remain in the model. –not retained in model. ‡p Values are for Wald tests testing the significance of the predictor in the model.

feel you have over the important things in your life? (with a 1–3 point Likert response statement, A lot of control, Some control, Little/no control); If something can go wrong for me it will; Things never work out the way I want them to; When I make plans I am certain to make them work; Failure just makes me try harder (each with 1–5 point Likert scales from Strongly disagree to Strongly agree). The scores were summed (after some reverse coding), with a range of 5–23, with higher scores representing lower self efficacy, and recoded into four categories indicating high to low self efficacy.

Analyses were adjusted for a range of sociodemographic and socioeconomic variables: age, sex, access to car/van in the household, highest educational qualification attained, National Statistics socioeconomic classification (NS-SEC) (ONS 2001 coding scheme,[41 42] which takes account of employment relations and conditions).

## Statistical analysis

An analytical weight was applied to allow for the unequal probability of people in households containing few adults having a better chance of sample selection than those in

households with many. Ordered logistic regression was used to examine the independent association between the ordinal health outcome measures (self rated health item and activities of daily living scale) and perceived neighbourhood, social support, and self efficacy measures adjusted for sociodemographic and economic factors.[43] The proportional odds assumption, required for these models was checked by comparing their likelihood with that from a multinomial logistic regression model. Checks for all reported models suggested that ordered logistic regression was appropriate. Concerns about using an ordinal rather than continuous measure for the dependent variable physical functioning (ADL) were also investigated. Regression analyses based on a shifted log transformation for the raw ADL scores were similar to those from the ordinal regression reported here, suggesting that the results based on the regrouped ADL scale are robust.

Full models that included all neighbourhood, social support, self efficacy, sociodemographic, and economic variables were fitted for each health outcome. A backward elimination procedure (with a removal criteria of p value $>0.05$) was then applied. Socioeconomic and demographic variables were forced to remain in the model throughout the process. The full and reduced models are presented.

Correlations between measures of perceived neighbourhood environment, social contact and support, and self efficacy were minimal, (maximum Spearman rank correlation coefficient 0.2); showing that multicollinearity was not a concern in fitting these models.

As sampling was by postcode sector there is a possibility of non-independence of participants clustered within these sectors (for example, whereby individuals living in the same postcode give more similar responses than those living in different postcodes). We did not have complete data on postcode in our dataset; these were available only for 79% of respondents who consented to its release. Thus we were unable to allow for clustering in our main analyses. Using the limited sample with postcode data available, we carried out a sensitivity analysis repeating the models described above but allowing for clustering by postcode sector (using robustified standard errors).[44] Results with and without allowance for clustering were not substantially different. The results presented in this paper relate to the full sample.

## RESULTS

### Sample characteristics

Table 1 shows the sociodemographic and socioeconomic characteristics of respondents. About a third (34%) were aged under 70, and the sample was approximately evenly split between men and women. About two thirds (67%) had access to a car or van in their household; under half (47% were classified as employers, managers or higher professionals, although almost two thirds (64%) had no qualifications at all).

The two dependent variables analysed were self rated health status, and level of physical difficulty with activities of daily living. Most respondents rated their health positively, with almost three quarters (73%) rating it either as excellent, very good, or good. However, just over two thirds (68%) had some degree of difficulty with activities of daily living.

In relation to the independent variables of interest, almost half of respondents (48%) scored their neighbourhoods positively in terms of facilities, 62% reported no or very few problems in their areas, 44% felt their areas were neighbourly, but just over half, 53%, felt their neighbourhoods were unsafe to walk alone in during the day or night. A large majority (81%) said they had voted in the previous election (indicating political engagement).

Just 19% of respondents had a high frequency of social contact score with relatives or friends, and a further 40% had medium levels. Most (91%) reported having social support—having someone they could ask for help/comfort with four or five of the five listed tasks and events, and had moderately high levels of self efficacy (62% were in the highest categories of 1 and 2).

### Ordered logistic regression analyses

The regression modelling showed that high self efficacy, perception of good quality facilities in the area, and high levels of neighbourliness were associated with good self rated health and functioning. Perceptions of problems in the area were also predictive of poorer health. Social contact and support did not show any independent associations with health or functioning. These results are described next.

#### Self rated health

Table 2 shows the full and reduced regression models. The full model, including all the perceived neighbourhood, social contact and support, and self efficacy variables, shows some strong associations with self rated health. Among the neighbourhood environment measures, the odds ratios show a strong effect of ratings of the quality of facilities in the neighbourhood, with the odds of worse health in the lowest rated categories nearly twice that in the highest rated (very good) category. Also in the full model, there were suggestions of an increased odds of worse self rated health for neighbourhoods with more perceived problems and for areas not perceived as neighbourly. The self efficacy score was significant in the full model, showing worse efficacy scores related to poorer self rated health. The odds of worse health in the lowest self efficacy category was nearly twice that in the highest category. There was no indication from this model that measures of social support and contact had an independent effect on self rated health.

A backward elimination process (while forcing the sociodemographic and economic variables to remain) reduced the full model to one that included only the strongest independent associations with self rated health (see reduced model in table 2). The personal social contact and support variables did not attain significance, although self efficacy did, and was a strong predictor of self rated health, with the adjusted odds of worse health more than doubling for those in the lowest compared with highest self efficacy groups. Other important predictors of self rated health included the perceived neighbourhood environment variables: area ratings of facilities, perceived neighbourliness, and perceived problems in the area. The adjusted odds ratios show that perceptions of better facilities, good neighbourliness, and fewer problems in the area were associated with better self rated health. Men and those with no access to a car have a higher odds of worse self rated health, while age, social class, and education were less influential.

#### Physical functioning

The full model for physical functioning (as measured with the Townsend ADL scale) is displayed in table 3. The odds ratios show an increased odds of worse functioning with poor ratings of the quality of facilities in the neighbourhood and lower self efficacy scores.

The reduced model resulting from a backward elimination process is also shown in table 3. This removed all social contact and support measures, political engagement, perceived safety and problems in the area. Ratings of area facilities, and self efficacy, remained in the model and showed strong associations with physical functioning. Poorer functioning was related to lower ratings for facilities and worse self efficacy scores; the adjusted odds of worse

**Table 3** Ordered logistic regression analyses of physical functioning: full and reduced models showing odds of perceived neighbourhood environment, social contact and support, self efficacy, sociodemographic, and socioeconomic on physical functioning

| | Full model* | | Reduced model† | |
|---|---|---|---|---|
| | Odds ratio (95% CI) | p Value‡ | Odds ratio (95% CI) | p Value‡ |
| **Perceived neighbourhood environment** | | | | |
| Area ratings of facilities | | | | |
| 0–12 very good (reference) | 1 | 0.031 | 1 | 0.002 |
| 13–17 good | 1.20 (0.81, 1.79) | | 1.25 (0.85, 1.85) | |
| 18–24 fair | 1.68 (1.14, 2.49) | | 1.91 (1.31, 2.80) | |
| 25–35 poor/very poor | 1.28 (0.78, 2.12) | | 1.55 (0.96, 2.49) | |
| Problems in area | | | | |
| 0–18 very big (reference) | 1 | 0.233 | – | |
| 19–23 big | 0.99 (0.49, 1.99) | | | |
| 24–27 some | 0.66 (0.34, 1.28) | | | |
| 28–29 few | 0.79 (0.42, 1.47) | | | |
| 30 no problems | 0.49 (0.20, 1.19) | | | |
| Neighbourliness of area | | | | |
| 4–8 bad (reference) | 1 | 0.150 | 1 | 0.054 |
| 2–3 good | 0.83 (0.64, 1.07) | | 0.79 (0.62,1.00) | |
| Safety walking alone am/pm | | | | |
| 0–2 very safe (reference) | 1 | 0.243 | – | |
| 3–4 unsafe | 0.82 (0.62, 1.09) | | | |
| 5–8 very unsafe | 1.10 (0.76, 1.58) | | | |
| Political engagement | | | | |
| yes (reference) | 1 | 0.922 | – | |
| no | 0.98 (0.70, 1.37) | | | |
| **Social contact and support** | | | | |
| Face to face social contacts in past month | | | | |
| high (reference) | 1 | 0.466 | – | |
| medium | 0.89 (0.63, 1.28) | | | |
| low | 1.07 (0.74, 1.53) | | | |
| Number of areas can ask for help/support with | | | | |
| 0–3 areas (reference) | 1 | 0.581 | – | |
| 4 areas | 0.94 (0.57, 1.56) | | | |
| 5 areas | 0.83 (0.52, 1.32) | | | |
| **Self efficacy (feeling in control over life)** | | | | |
| Self efficacy score | | | | |
| 5–10 high, most positive (reference) | 1 | <0.001 | 1 | <0.003 |
| 11–12 | 1.10 (0.80, 1.53) | | 1.13 (0.83, 1.55) | |
| 13–14 | 1.53 (1.06, 2.21) | | 1.47 (1.03, 2.09) | |
| 15–23 low, most negative | 2.20 (1.44, 3.37) | | 2.26 (1.52, 3.35) | |
| **Sociodemographic and socioeconomic characteristics** | | | | |
| Age (years) | | | | |
| 65–69 (reference) | 1 | <0.001 | 1 | <0.001 |
| 70–74 | 1.42 (1.03, 1.96) | | 1.45 (1.07, 1.97) | |
| 75–79 | 1.45 (1.02, 2.07) | | 1.61 (1.15, 2.25) | |
| 80+ | 4.73 (3.12, 7.16) | | 5.10 (3.48, 7.48) | |
| Sex | | | | |
| female (reference) | 1 | <0.001 | 1 | <0.001 |
| male | 0.55 (0.42, 0.72) | | 0.51 (0.40, 0.66) | |
| Access to car | | | | |
| yes (reference) | 1 | 0.038 | 1 | 0.016 |
| no | 1.38 (1.02, 1.86) | | 1.41 (1.07, 1.88) | |
| Highest education qualification | | | | |
| degree/higher degree/qualification (reference) | 1 | 0.607 | 1 | 0.752 |
| A level/highers/ONC/BTEC | 0.65 (0.34, 1.24) | | 0.72 (0.39, 1.33) | |
| O level/GCSE/CSE/other qualification | 0.93 (0.59, 1.47) | | 0.97 (0.63, 1.50) | |
| no formal qualifications | 0.93 (0.60, 1.44) | | 0.93 (0.62, 1.41) | |
| Social class (NS-SEC) | | | | |
| employers, managers, higher professionals (reference) | 1 | 0.138 | 1 | 0.087 |
| intermediate, small employers, own account workers | 1.46 (1.00, 2.11) | | 1.37 (0.97, 1.95) | |
| lower supervisory, craft, semi-routine, routine occupations | 1.20 (0.86, 1.68) | | 1.38 (1.00, 1.89) | |

*n = 871 because of missing values for some factors. †n = 934. Reduced model achieved through backward elimination. Age, sex, socioeconomic, and demographic variables forced to remain in the model. –not retained in model. ‡p Values are for Wald tests testing the significance of the predictor in the model.

functioning was between 1.5 and almost 2 times more for those in areas with the lowest ratings for facilities compared with the highest rated groups. Odds ratios showed increasing odds of poorer functioning with lower self efficacy scores—up to twice that in the highest self efficacy group. The association for neighbourliness was less strong, but suggested an increased odds of worse functioning for those in less neighbourly areas. The odds of having poorer functioning were also significantly increased for those who were older, for women, and those without access to a car.

## DISCUSSION

The aim of the analyses presented here was to investigate the relation between perceived neighbourhood environment, social contact and support, and self efficacy on the health of older people. The uniqueness of this study was the broader, multidimensional approach to the analysis of predictors of self rated health and functioning in an older population, and in the focus on perceived neighbourhood environment. The regression modelling showed that high self efficacy, perception of good quality facilities in the area, and neighbourliness

## What this study adds

The uniqueness of this study lies in the simultaneous analyses of associations between perceived neighbourhood, social contact and support, self efficacy, and health. The regression modelling showed that high self efficacy, perceptions of good quality facilities in the area and high levels of neighbourliness were independently associated with good self rated health and physical functioning. Perceptions of problems in the area were also predictive of poorer health. The policy implications of these results relate to the potential health impact of reinforcing local services and infrastructures, and to enhancing the self efficacy components of self management programmes for chronic illness. Longitudinal research is required to confirm these findings.

were associated with good self rated health and functioning. Perceived problems in the area were also predictive of poorer self rated health. Unexpectedly, measures of social contact and support did not show any independent associations with self rated health or functioning. A limitation of the findings presented is their cross sectional nature, which means that temporal directions of associations cannot be defined. Future follow up of this survey population, will enable a more comprehensive understanding of the associations reported. It is acknowledged that neighbourhood influences, along with the concept of social capital in itself, need to be understood in a wider social and political context,[45] although broader concepts of social capital, and even the concept itself, have been heavily criticised.[46–48]

The individual level results presented here are consistent with the results from ecological studies that show associations between neighbourhood social capital and population health,[7 48–59] although there is inconsistency between indicators used,[60] and it is possible that socioeconomic status may be a more powerful predictor of health outcomes than area level influences.[61] But research on social capital is evolving, and it is still uncertain what aspects of the environment have the greatest direct or indirect effects on health. The mechanisms linking social capital to health are also unclear. Global area analyses may not capture features of local environments and therefore do not permit detailed analyses of pathways. One previous study reported that associations between area level deprivation and health were mediated by perceived problems and lack of facilities within the neighbourhood.[62] But few studies have included perceptions of the neighbourhood, and few have attempted to be contextual in terms of the characteristics of smaller sized neighbourhoods where people actually live.[63] The results reported here support the potential importance of including perceptions of the neighbourhood in multilevel analyses of area and health, especially as there can be inverse correlations between levels of neighbourhood satisfaction and the social deprivation of the area.[64]

The consistent strength of the indicator of perceived quality of facilities in the area in the study reported here is noteworthy. Local policy makers might aim to increase the healthiness of their populations by reinforcing local services and infrastructures, in a publicly responsive manner. Attempting to change people's perceptions of their neighbourhoods is likely to be inadequate alone. But organising local political and neighbourhood groups in ways that could lead to positive changes in that neighbourhood, encouraging cooperation between policy makers and local citizens, and thus the ways in which people perceive their areas, may be beneficial to health.

Also of great interest here was the overall strength of self efficacy, or a sense of control over one's life, as a predictor of health and functioning. This is consistent with the literature reporting that greater perceived self efficacy influences coping, motivations and actions (for example, health behaviour) and ultimately health and wellbeing.[25–34] Older people in poor health and with poor functioning had lower self efficacy, as well as poorer perceptions of their neighborhood environment. The interactions between these variables need investigating in future research. Although it has been argued that there are genetic influences on disposition (for example, traits such as self efficacy) that may limit self development,[65] some psychologists believe that people can work to change their psychological outlook.[66] Self management programmes for people with chronic illnesses show that interventions that improve skills, including self efficacy, lead to a reduction in symptoms of chronic illness and use of health services.[33 34] In summary, the analyses presented here caution against unidimensional approaches to explaining health variations, and contribute to the understanding of potential social determinants of health in an aging population.

## What is known on this topic?

While there is an increasing body of area level research on social capital and population health, few studies have focused on older population groups. And few studies have investigated associations between perceived neighbourhood environment and health.

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## CONTRIBUTORS

AB conceived the idea for the study, and, with SE and JB, designed the framework for the analyses. JB undertook the statistical modelling and interpretation of the statistical findings; AB, JB, RM, and SE contributed to discussions about the core ideas, the interpretation of the data, and the writing of this paper. AB is the guarantor.

### Authors' affiliations

**A Bowling, J Barber, R Morris,** Department of Primary Care and Population Sciences, University College London, London, UK
**J Barber,** Medical Statistics Unit, R&D Directorate, University College Hospitals NHS Trust, London, UK
**S Ebrahim,** Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, London, UK

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