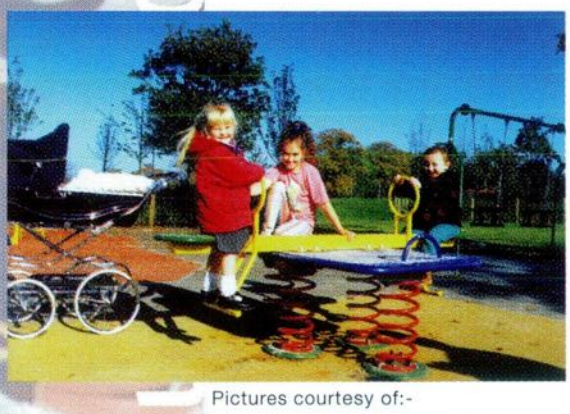
Fuel Poverty and Health in Paisley

ENERGY ACTION SCOTLAND

A comparative study of housing conditions, affordable warmth and health status in west central Scotland

Energy Action Scotland, May 1999



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Preamble

Housing & Health

The relationship between housing and health has long been recognised. Indeed such a relationship was the motive for the 1881 Public Health (Scotland) Act. A comprehensive collection of over 300 studies examining links between poor housing, poor health status, poor educational progress and a higher incidence of crime has recently been reviewed (Ambrose et al 1996). However, despite this growing body of research, the establishment of clear and unambiguous causal links remains elusive.

Excess Winter Deaths

A recent study investigating the thirty to forty thousand excess winter deaths attempted to correlate such with deprivation markers (Wilkinson et al 1999). The outcome demonstrated that the number of excess winter deaths is highest in people over 75 and that the lack of central heating is the strongest independent predictor of winter death. It also maintained that the number of excess winter deaths is significantly greater in the north of the country than in the south and was broadly consistent with geographical temperature gradients. Paradoxically, the number of deaths was higher in larger cities than elsewhere, giving rise to the hypothesis that cold alone is not the only significant factor. Although the correlations were significant, they remained surprisingly weak.

Exposure to Cold

A study by Goodwin (1999) has recently confirmed that systolic and diastolic blood pressure in the elderly is significantly higher in winter than during the summer months and that this appears to be due to circadian and seasonal changes in physical activity and exposure to cold. Several other studies have demonstrated that the onslaught of particularly cold temperatures will be followed by increased hospital admissions for ischaemic heart disease, cerebrovascular disease, respiratory disease and influenza. It has been mooted by some researchers that this is mainly due to the elderly venturing out without appropriate clothing levels.

A study entitled *Cold, Cold Housing and Respiratory Infections* (Collins 1999) has shown that over the period 1964-1984 excess winter mortality declined noticeably while central heating in British households rose from 13% to 66%. Although influenza and major respiratory infections decreased, there was actually an increase in more minor upper respiratory tract infections during the same period. It concluded by suggesting that respiratory health may be related more closely to indoor heating regimes whereas outdoor cold may be more significant in cardiovascular morbidity.

Background Noise

These studies have been carried out mainly by clinicians acting in concert with statisticians and public health professionals and, although uncovering epidemiological trends, may not be sensitive enough to filter out the background "noise" when such data is correlated with housing characteristics and occupants' disposable income. One study took as a main indicator of thermal performance the presence, or otherwise, of central heating. This is too crude a measure as: (i) the definition of what constitutes central heating can vary; (ii) it implies the central heating is fully utilised; (iii) the heat loss parameter of the dwelling will produce wide variations in internal air and surface temperatures for the same energy input; (iv) the ventilation characteristics could be crucial in determining a dwelling's thermo-hygro conditions (i.e. humidity, presence of mould and air borne antigens/allergens such as those generated by house dust mites etc).

Inter-disciplinary teams

The longitudinal studies (research over a longer timespan on a specific client group) which have been undertaken and reported, do appear to be uncovering some significant effects of remedial interventions (Green 1997). It may be that a more inter-disciplinary and interventionist case-based approach will prove more productive in reducing the number and complexity of confounding variables. This could eventually result in a more accurate assessment of risk factors. Although expensive and difficult to organise, and requiring a range of expertise from unassociated professions, such an approach can produce hard data - which is case specific (such as temperature and humidity readings, antigen levels, monitored fuel consumption, prescription profiling etc). In conjunction with computer simulations, this could produce results in which a higher degree of confidence could be vested than in most of the studies to date.

Generating the Sample

This study has, to the extent that time and finance would allow, used a similar approach. The scope and window of opportunity required the volunteer sample to be generated at the point of medical consultation (local GP's surgery), and thus no control over house type, heating regime and internal thermo-hygro conditions was possible. The outcomes of the data collected are thus only representative of the cross-section of the population who attend - frequently or otherwise - the surgeries at Glasgow Road and Ferguslie Park. That said, although the respondents were patently self-selecting (patients were at liberty to ignore the questionnaire), the overall cohort sample was randomly identified and, as the average Scot presents on average 3.08 times per annum at their respective GP's surgery, the sample may not be necessarily unrepresentative of the local area.

References

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Goodwin J., 1999, *Seasonal Cold, Blood Pressure and Physical Activity* in Young and Elderly Subjects, School of Postgraduate Medicine and Health Sciences, University of Exeter

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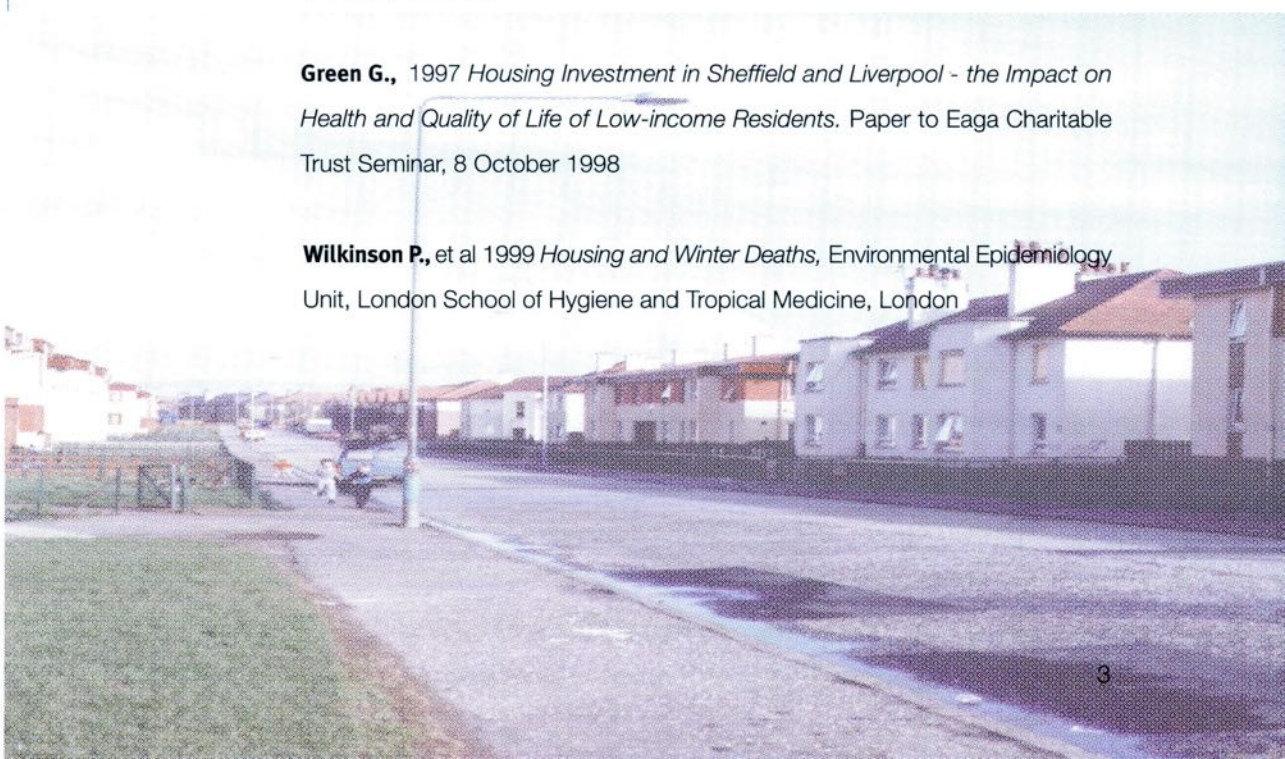


Introduction

Aim of study

The primary aim of the study was to examine whether there is an identifiable link between poor housing, fuel poverty and health status and to provide estimates, if possible, of the likely scale of additional costs to the NHS. The study based itself around two GP's surgeries (Ferguslie Park and Glasgow Road) which were considered to have significant differences in their clientele: Ferguslie Park being a public sector housing scheme (targeted by Government for strategic regeneration due to it having a high incidence of multiple deprivation indicators) and Glasgow Road, having a more mixed and varied constituency. The research was conducted in two stages. Stage 1 involved a voluntary health questionnaire, distributed to patients by the medical receptionists at both surgeries and all of the 440 respondents completed these while awaiting medical consultation (January to March 1998 - Glasgow Road 259, Ferguslie Park 185). The questionnaires were specifically delivered to the surgeries following spells of colder weather. Respondents were asked to provide their name and address if they wished to take part in a more detailed study which would also assess the energy performance of their dwelling (Stage 2). Of the 183 households agreeing to participate in the second stage, 135 were selected on the basis of reporting symptoms known to be associated with living in damp or cold conditions. From this sample - mainly due to logistical constraints and client availability - 72 energy audits and more detailed questionnaires were undertaken during the period March to July 1998.

Who participated?

Although such a strategy is both an efficient and cost-effective method of generating a large sample, care must be taken when interpreting the data and results, as the cohort in the study may not be an entirely representative sub-set of the respective local constituencies. For instance, the final 199 individuals (72 households) are a hand-picked subset of a self-selecting sample of volunteers who were identified in a GP's surgery (presumably already suffering from at least one medical complaint). Such a patient-centric approach has undoubtedly influenced the findings i.e. the average number of visits made by the initial 444 respondents was 6.12 (self reported) per year which compares with a figure of 3.08 for the population of Scotland as a whole. Both the initial respondents and subsequent sub-set, which were studied in more detail, appear to suffer from a poorer level of general health than the population of Scotland as a whole. The study, however, may have uncovered, to some extent, the role housing conditions have played in generating such ill-health.

House Types

A further confounder is that although Ferguslie Park had achieved considerable notoriety in the '70s and '80s as a "sink estate", it has been the target of much recent investment and boasts a high proportion of new-build, energy-efficient dwellings. In contrast, the Glasgow Road patients inhabit a wider selection of house types, some dating from the 19th century.

Confounding variables

The study also uncovered relatively modest income differentials between the two surgery-based groups. Although most of the data sets were eventually correlated, such an exercise was not expected to yield statistically significant relationships due to the relatively small sample size and the multiplicity of confounding variables. That said, the study has produced a variety of results and conclusions which are significant and will be of some concern to those involved with financing and managing Scotland's frontline health services.

Executive Summary

Phase I Questionnaire (444 respondents)

Health status

- On average the respondents visited their GP 6.12 times per annum (this compares with an all-Scotland average of 3.08).
- 27% of those attending the Ferguslie Park surgery and 19% of those attending Glasgow Road reported that they had visited their GP more than 10 times during the previous year.

Income levels

- 69% reported a weekly income of less than £150 (42%<£100 compared with a Scottish average of £305.61).
- 80% of those respondents attending the Ferguslie Park surgery had an income of less than £150 per week which compared with 58% for the Glasgow Road respondents.

Reported dampness

- 40% of respondents who reported problems with condensation damp, mould and draughts in their homes went to their doctor more than 10 times a year.

Heating and health

- 72% of those who had central heating (and used it) had either not visited their doctor or had been less than 3 times during the previous year.

- 27% of those without central heating had been to their doctor 10 or more times in the previous year. This compares to a figure of 9% for those with central heating.

Associated NHS costs

- Average cost of a 10 minute GP visit is £17.18 (average prescription cost in Argyll and Clyde is £11.57. Total number of prescriptions dispensed in Scotland in 1997/98 was 57.19 million. Total number of GP consultations in 1997/98 was 15.7million. Thus the ratio of prescriptions dispensed to GP consultations is 3.64).

Discussion

Comparing the cohorts

The majority of the sample who volunteered to participate (self selecting but randomly identified) have low incomes and suffer poor health. Although the respondents attending the Ferguslie Park surgery have lower average incomes, the Glasgow Road group - which was initially identified with the expectation of providing an affluent norm reference - are themselves relatively impoverished with over 90% likely to have incomes below the Scottish average.

Additional NHS costs

As the respondents have, on average, twice the number of GP consultations as the Scottish population as a whole (6.12 versus 3.08), the additional annual cost is likely to be over £180 per capita (when prescription charges are added at the average all-Scotland ratio of 3.64 per GP consultation). Those respondents who lived in homes without central heating visited their GP on average 6.71 times which compares with a figure of 5.95 for those with central heating.

However, when comparing those respondents who reported problems with dampness with those who did not report such problems, those with dampness made an additional 2.56 visits per annum, which is 4.44 more than the Scottish average (7.52 visits compared with 3.08). This can be equated to an additional sum of over £263 per person per annum.

Executive Summary

Phase II Questionnaire and Energy Audit

(95 households containing 199 persons/ 72 dwellings had energy audits - 61 female respondents and 34 males - average age 43.9, with 56% of households containing children).

Health status

- 60% of the sample reported that a member of their household had visited their GP on 10 or more occasions over the previous 12 months.
- 37% of households included someone who had been admitted to hospital in the previous 12 months.
- 26% of households included someone with asthma and 39% reported family members with a long-term illness.

Income levels

- 64% of respondents reported having a weekly income of £150 or less.
- Only 28% of the sample reported that they were employed.

Tenure

- 77% of the dwellings were in the public sector - 22% in private ownership.

Heating levels

- 61% of the dwellings had gas central heating, with 19% having electric storage radiators.
- 43% of the sample claimed that they were not able to use their heating as much as they would have liked.

Energy rating

- The average NHER score of the 72 dwellings surveyed was 5.1, which is significantly better than the Scottish average of 4.1 (SHCS 1996). However, although 31% of the dwellings surveyed in Ferguslie Park scored over 7, a significant proportion (19%) scored less than 2.

Affordable warmth

- 52% of households would have to spend more than 10% of their net income if they attempted to heat their dwellings to the standard heating regime - 8 hours per day with target temperatures of 21°C in the living room and 18°C in the bedrooms (Ferguslie Park 64% - Glasgow Road 39%).

- 50% of those in the lower income group reported that they were spending more than 10% of their income on fuel. This compares with a Scottish average of 4.5%.

- 32% of respondents reportedly heated less than 50% of their homes.

- Over half the respondents paid for their electricity by methods associated with fuel debt (42% using pre-payment meters, a figure double the Scottish average).

Dampness & health status

- 57% of respondents reported one or more problems associated with dampness - 74% in Ferguslie Park and 40% in the Glagow Road cohort.

- The level of asthma was 1.6 times higher in households that reported dampness, than in households without dampness. For children, 19% were reported as having asthma as were 8% of adults. This compares with national averages of 14% and 4% respectively (National Asthma Campaign).

Asthma

- Respondents living in dwellings which they reported to be cold and draughty rather than damp were significantly less likely to report a member of the household with asthma.

- Children who were absent from school for more than a week in the previous 12 months lived in dwellings which reported twice as many dampness problems as those where children had been off for one week or less.

Health symptoms

- The rank order of the top ten reported symptoms were: cold/ flu (126), aches and pains (84), breathlessness (62), depression (59), stress (55), persistent cough (53), persistent headaches(42), wheezing (40), skin problems (38), high blood pressure (35). There were 34 reported cases of asthma.

Discussion

Affordable warmth

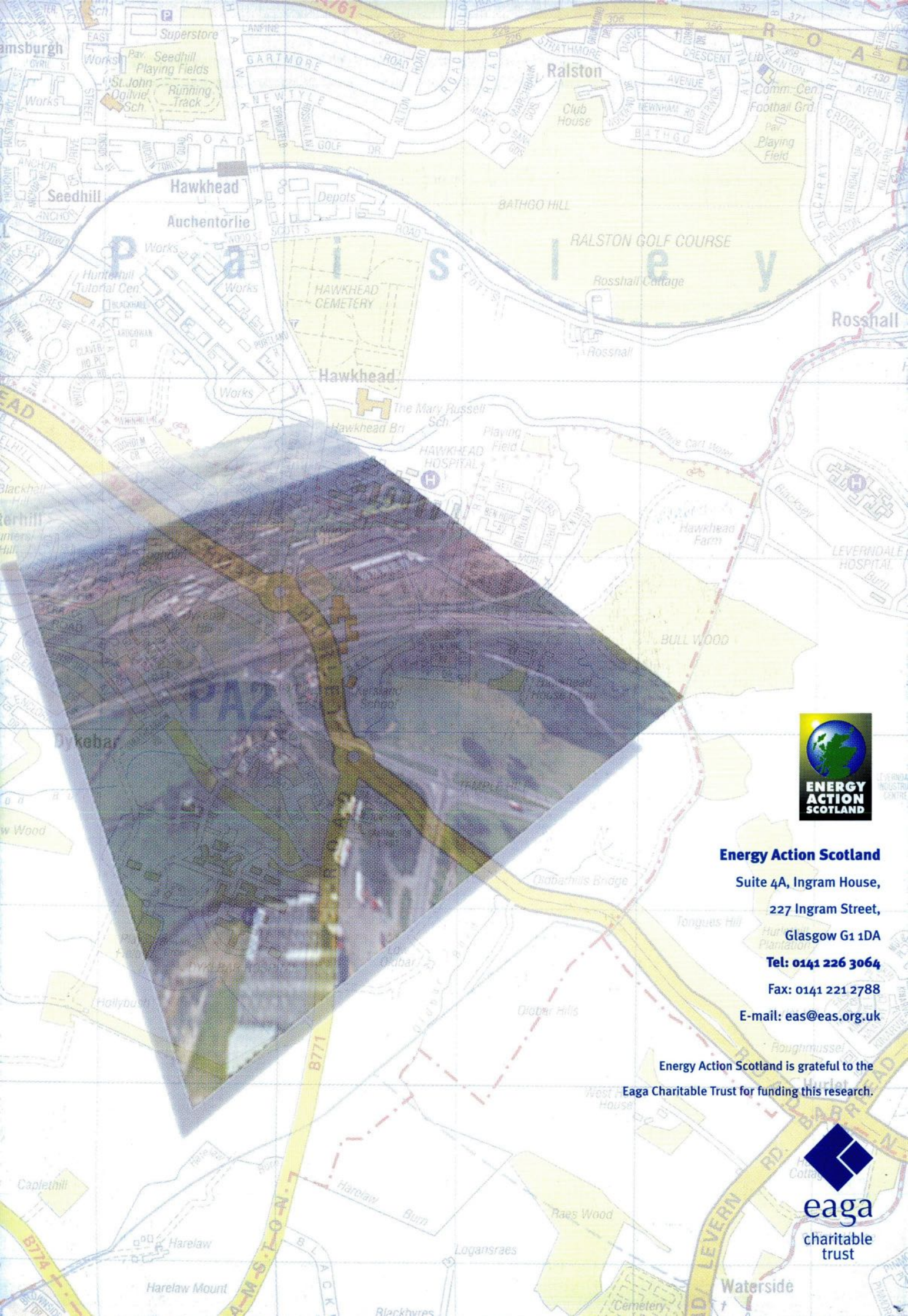
Although the NHER rating was significantly above the Scottish average (primarily as a result of new dwellings being constructed in Ferguslie Park), due to the relatively low level of incomes across both cohorts, 52% of the households do not have affordable warmth i.e. the ability to heat their dwelling to recognised internal target temperatures without spending more than 10% of their net income. This is also reflected in the high percentage (43%) of householders who claimed that they were unable to make full use of their heating.

Dampness & health status

Although with such a relatively small sample size the self-reported medical evidence must be treated with a degree of caution, poor health status in children appears to be convincingly associated with dampness. The rate of asthma is well above the estimated national average (which itself has been rising dramatically during the last two decades). It is of particular interest that cold and draughty dwellings had a much lower incidence of asthmatics. This reinforces the hypothesis and growing evidence, that rising internal water vapour pressures are sustaining larger domestic dust mite concentrations which in turn are generating higher levels of air-borne indoor allergens.

Investing in housing

The study has located a large constituency of households who - due to a combination of economic and social factors - are unable to achieve affordable warmth in their homes. These factors appear to be positively correlated with both the incidence of dampness and the respondents' relatively poor health status. The additional recurring costs - presently being borne by the Health Services or employers - are significant. Investing in housing renewal and improvement may well prove to be a cost-effective strategy for raising the general health and quality of life for Scotland's fuel poor households.



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