Geographic Variation in the Prevalence of Common Mental Disorders in Britain: A Multilevel Investigation

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It is still not known whether the places that people live affect their mental health. The principal aim of this 1991 study was to quantify simultaneously variance in the prevalence of the most common mental disorders, anxiety and depression, in Britain at the individual, household, and electoral ward levels. Data from a cross-sectional, nationally representative survey of 8,979 adults aged 16–74 years living in private households nested within 642 electoral wards in England, Wales, and Scotland were analyzed by using multilevel logistic and linear regression. Common mental disorders were assessed by using the General Health Questionnaire. Less than 1% of the total variance in General Health Questionnaire scores occurred at the ward level. This variance was further reduced and was no longer statistically significant after adjustment for characteristics of persons. By contrast, the proportion of total variance at the household level (14.4%, 95% confidence interval: 11.4, 17.5 in the null model) \((p < 0.001)\) was statistically significant and remained so after adjustment for individual- and household-level exposures. While these findings suggest that future interventions should target persons and households rather than places, further research is first required to establish whether other (particularly smaller) areas lead to similar results.

anxiety; cross-sectional studies; depression; geography; mental disorders; prevalence; questionnaires; residence characteristics

Abbreviations: BHPS, British Household Panel Survey; GHQ, General Health Questionnaire.

As evidence for causal associations of individual-level socioeconomic deprivation with morbidity and mortality has become irrefutable (1–4), so attention has turned to the effects of context (5–9). Despite an imperative to build “healthy communities” (10, 11) and renewed political interest in area-based interventions (12), it is still not known at what spatial levels health inequalities occur (13). Research has been restricted by the dearth of information about the “contextual” characteristics of places. However, a number of plausible theoretical mechanisms have been proposed to explain putative associations between health and “place.” Promising models incorporate socioeconomic (e.g., opportunities for education and employment), material (the physical, or built environment), and social (including “social capital” and crime) factors. These factors are likely to be linked. For instance, the built environment (e.g., poor lighting, overhead walkways, derelict properties) may influence social interactions, crime, and other antisocial behavior.

Evidence for geographic variation in mental health outcomes remains limited, particularly in Britain. Two studies concluded that there was no statistically significant regional variation in rates of the most common mental disorders, anxiety and depression, after adjusting for the characteristics of individual respondents (14–16). A more recent study reported similar findings across electoral wards after controlling for individual- and household-level risk factors (9). Despite these negative findings, evidence exists that persons living in urban areas experience worse mental health
than those living in rural or suburban areas (17–19), although the explanation for this finding remains poorly understood (6, 20). There is also evidence of associations between (worse) mental health and specific characteristics of the physical, or built, environment, particularly in urban and suburban areas (21–23). Some of these inconsistencies may be methodological in origin. Previous studies have usually used data collected for other primary purposes, clustered within large-scale administrative boundaries such as regions of the United Kingdom (15, 16, 24), and most have conflated household and individual levels (3, 9, 25).

We sought to address these limitations by analyzing data on persons nested within United Kingdom electoral wards (containing 2,400 addresses on average) and by extending the notion of “place” to include the household. Our twin aims were 1) to estimate variance in the prevalence of the most common mental disorders in Britain at the individual, household, and electoral ward levels and 2) to test the hypothesis that the variance that occurs at household and ward levels will remain statistically significant after controlling for the characteristics of individual respondents.

MATERIALS AND METHODS

Data were gathered as part of the first wave of the British Household Panel Survey (BHPS), which began in the autumn of 1991 (25, 26). The BHPS is an annual survey of all persons aged 16 years or older in a representative sample of private households in England, Wales, and Scotland. Households were selected for the BHPS by using a two-stage, implicitly stratified clustered probability design, with postcode sectors as the primary sampling units (26). Individual BHPS participants who completed the General Health Questionnaire (GHQ; see below) were included in this analysis. The BHPS investigators agreed on a method for matching respondents to their electoral ward of residence without disclosing information that might permit individual persons to be identified.

Assessment of common mental disorders

Community surveys consistently have shown that the most common form of psychiatric morbidity comprises comorbid symptoms of anxiety and depression (14, 18), best represented by dimensional models. The term “common mental disorders” was therefore coined to describe this phenomenon and has largely superceded less epidemiologically correct (and more pejorative) terms such as “minor psychiatric morbidity” and “neuroses,” particularly in the United Kingdom (3, 24). Common mental disorders were assessed by using the 12-item GHQ, which has been widely validated against standardized clinical interviews (27). The GHQ was designed as a case-finding measure for use in community settings, where its sensitivity and specificity are about 80 percent (27). We followed previous studies in treating the common mental disorders as a single dimension (28, 29). Each GHQ item has four response categories. For example, responses to the question, “Have you recently been feeling unhappy and depressed?” are coded “not at all,” “no more than usual,” “rather more than usual,” and “much more than usual.” The GHQ is scored in two ways; each item is scored by using either the “GHQ method” (27) as present or absent (1 point for either of the latter two responses, 0 otherwise) or the Likert method (responses are coded in order as 0, 1, 2, or 3) (27). A person scoring above the case threshold for the common mental disorders, 3 or more (out of 12) by the GHQ method, was classified as a case (3, 25, 27, 30). Likert scores (range, 0–36) more closely approximated a normal distribution and were used when GHQ score was treated as a continuous outcome.

Individual-level risk factors

To estimate the variance occurring at higher spatial levels as precisely as possible, known individual-level risk factors for the common mental disorders were specified in later models. In keeping with previous findings (25), age, sex, marital status, ethnicity, education, employment status, financial strain, and number of current physical health problems were all included as potential individual-level confounders of associations between area-level exposures and prevalence of the common mental disorders.

Household-level risk factors

We specifically investigated variance in the prevalence of common mental disorders across households; for this reason, we attempted to distinguish between effects that might be operating at a household level as opposed to an individual level. In the absence of evidence about the mechanisms by which social and economic risk factors lead to worse health outcomes, it is difficult to know whether to characterize certain exposures as operating at the individual or the household level. Some exposures, such as overcrowding, household type, housing tenure, and structural housing problems, can be assigned to the household level only. It is less clear whether other risk factors are most appropriately assigned to the individual or household level. However, it is common practice to aggregate income data at the household level (24, 25, 31). Another example is occupational social class; stronger associations with rates of common mental disorders have been found between the social class of the head of the household than with individual social class, particularly among women (3, 25).

Household characteristics included structural housing problems, household income, access to a car, tenure (home ownership), social class (of the head of the household), overcrowding (more than two household members per bedroom), and household type (based on household composition). Structural housing problems were defined as any major problem or two or more minor problems from a list comprising dampness, condensation, leaking roof, and/or rotting wood (25). The BHPS data set includes net income data, which have been validated against official United Kingdom income distribution figures (31). Low income was defined as a household income less than half the median income for the sample.
Spatial scale

Within this data set were three potential “area” levels above households: postcode sector (the primary sampling unit for the BHPS), electoral ward, and region. Postcode sectors in Britain contain on average 2,700 addresses and are approximately the same size as electoral wards (2,400 addresses on average). Our models specified persons nested within households, within wards. Sensitivity analyses were undertaken by substituting each of the other two geographic levels for wards.

Statistical analysis

All models were developed within a multilevel framework using MLwiN software (32–34). Multilevel models are particularly suited to analyzing hierarchic data, such as those collected for the BHPS, in which individual persons are nested within households, within postcode sectors (equivalent to electoral wards), within regions. These models account for the autocorrelation of data at each level. Unlike single-level linear models, multilevel models enable the variance that occurs at each level to be estimated (34). Multilevel methods are used to explore the relative size of the variance at each level, the amount of residual variance explained by introducing explanatory variables, and interactions between exposures at different levels. Given the variable number of respondents per ward (range, 1–60), sensitivity analyses were undertaken excluding 1 wards with only one respondent and 2) wards with five or fewer respondents.

GHQ scores were analyzed 1) as a dichotomous outcome (cases vs. noncases) by using multilevel logistic regression and 2) as a continuous measure by using hierarchic linear regression (34). In both instances, the first stage comprised estimation of a null, random-effects model for persons nested within households, nested within wards. This stage provided an estimate of the variance in GHQ score (or prevalence of common mental disorders) at the individual, household, and ward levels before individual and household characteristics were taken into account. In the second and third stages, individual- and household-level exposures, respectively, were added to the model and changes in variances noted. In stages two and three, estimated coefficients for the associations between explanatory variables and the prevalence of common mental disorders were allowed to vary randomly across places to determine whether there were different gradients for different types of people across the spatial levels (35).

Cases versus noncases of the common mental disorders. Multilevel analyses were undertaken by using a logit-link function and assumed nonconstant, between-individual variance based on a Bernoulli distribution (36). Higher-level variances in the prevalence of common mental disorders between households and between wards were assumed to follow a normal distribution on a logit scale. However, the properties of binomial distributions (including the Bernoulli distribution) differ from those of continuous, normally distributed outcomes (such as GHQ score). In particular, the variance associated with the intercept term is neither constant across groups nor independent of the mean value within groups. Therefore, it is not possible to ascertain the true variance of the intercept term at higher levels or (hence) to directly quantify total variance associated with models of this nature.

We addressed these difficulties by means of a logit model based on the notion of a continuous latent variable, in which a threshold defines the binary outcome (refer to Snijders and Bosker (34), page 223). We therefore assumed an underlying standard logistic distribution for the binary outcome (case or noncase) at the individual level (level 1). Level 1 variance on this latent variable was always standardized to the standard logistic variance of $\pi^2/3 = 3.29$. When unexplained random variance at level 2 was indicated as $r_{2}^2$, the proportion of the total unexplained variance occurring at this level was estimated (from the two-level null random intercept model) as $r_{2}^2/(r_{2}^2 + 3.29)$. Numerically, this proportion is equal to the intraclass correlation coefficient ($\rho$) or the correlation between values for two randomly selected persons (at level 1) within randomly selected households (level 2) (34). In each of the logistic models, the constant term is the logit (log of the odds) of a person in the base (reference) category being a common mental disorders case. The prevalence of common mental disorders ($p$) in this group was therefore estimated from the constant term in the null model, which is equal to $\ln(p/1 + p)$.

To quantify the proportion of variance explained by known risk factors for common mental disorders, we modeled the predicted value of the (assumed) underlying continuous latent variable by using an equation with both fixed (intercept plus regression coefficient(s) for explanatory variable(s)) and random parts (34). The proportion of variance explained at, for example, level 1 was estimated as the proportion of total variance attributable to the fixed part of a model that included individual-level explanatory variables, divided by the total variance in the underlying latent variable. The total variance (in models 2 and 3) is equal to the sum of the variances of the fixed part of the model and the (unexplained) variances at each of the higher levels. Variance terms were derived from the MLwiN output.

GHQ as a continuous outcome. The null model was used to estimate the total unexplained variance in GHQ scores in the study sample, which is equal to the sum of the unexplained variances at the individual, household, and ward levels. The proportion of variance explained by including individual exposures (model 2) and individual-plus-household-level exposures (model 3) was defined as the proportional reduction in the sum of the three (unexplained) variance parameters (9).

RESULTS

After we excluded “deadwood” addresses, we found that 73.6 percent of the households ($n = 5,511$) participated in the first wave of the BHPS (25). This response resulted in a sample of 9,522 persons aged 16–74 years, of whom 94.3 percent ($n = 8,979$) completed the GHQ. Comparison with the 1 percent Sample of Anonymised Records from the 1991 United Kingdom census revealed few statistically significant differences (37). The total number of electoral wards repre-
sent was 642, with a mean of 14 and a median of 11 respondents per ward (range, 1–60).

Prevalence of the common mental disorders

In the null (logistic) model, a constant value of –1.115 corresponded to a prevalence of common mental disorders of 24.7 percent among all persons, across all households and wards. As table 1 shows, the variance associated with the household level was statistically significant ($\chi^2 = 20.37$, $p < 0.001$). However, the estimated variance at ward level (0.8 percent) was not ($\chi^2 = 1.55$, $p = 0.21$). No differences were found when we substituted postcode sectors or regions for wards or when we excluded wards with just one or with five or fewer respondents. It was estimated that 8.0 percent of the total variance in the prevalence of the common mental disorders occurred at the household level (table 1). These variance estimates were reduced slightly, to 6.5 percent ($\chi^2 = 10.406$, $p = 0.001$) and 0.05 percent ($\chi^2 = 0.012$, $p = 0.91$) at the household and ward levels, respectively, when individual-level risk factors for the common mental disorders were introduced into the model. Including household-level risk factors had little further effect. We estimated that the individual-level risk factors included in this study explained 19.8 percent of the variance in the prevalence of common mental disorders, and household-level exposures explained only a further 0.2 percent.

Regression coefficients for individual-level risk factors for the common mental disorders did not vary across wards to a statistically significant degree. For example, the between-ward variances for the unemployed group (variance, 0.00; standard error, 0.16) and those households in which income was low (variance, 0.00; standard error, 0.16) both failed to reach statistical significance. Similarly, we found no evidence of statistically significant variation across wards for the employed group or the non-low-income households.

GHQ score as a continuous outcome

In the null model, 84.7 percent of the total (unexplained) variance in GHQ scores occurred at the individual level compared with 14.4 percent and 0.9 percent at the household and ward levels, respectively. In contrast to variance in the logistic model, variance at the ward level was statistically significant ($p < 0.05$) in the null model. The total variance in GHQ scores was reduced by 15.4 percent when individual-level characteristics were included and by a further 0.5 percent when household-level exposures were included in the model. When these explanatory variables were included in the model, the proportion of unexplained variance at the ward level ceased to reach statistical significance (table 1).

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**TABLE 1. Variance and percentage of total unexplained variance at the individual, household, and electoral ward levels in the prevalence of common mental disorders and in General Health Questionnaire score as a continuous measure in the null model and after including household and individual-level exposures,** Britain, 1991

<table>
<thead>
<tr>
<th></th>
<th>Prevalence of CMD† (GHQ† score ≥3)</th>
<th>GHQ score as a continuous measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variance (SE†)</td>
<td>% of unexplained variance in the prevalence of CMD</td>
</tr>
<tr>
<td><strong>Model 1 (null)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>3.29 (0.065)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Household</td>
<td>0.29 (0.022)</td>
<td>0.8</td>
</tr>
<tr>
<td>Ward</td>
<td>0.03 (0.022)</td>
<td>0.21</td>
</tr>
<tr>
<td>Total variance</td>
<td>3.61</td>
<td></td>
</tr>
<tr>
<td><strong>Model 2†</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>3.29 (0.070)</td>
<td>0.001</td>
</tr>
<tr>
<td>Household</td>
<td>0.23 (0.022)</td>
<td>0.05</td>
</tr>
<tr>
<td>Ward</td>
<td>0.002 (0.022)</td>
<td>0.13</td>
</tr>
<tr>
<td>Total variance</td>
<td>3.52</td>
<td></td>
</tr>
<tr>
<td><strong>Model 3§</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>3.29 (0.074)</td>
<td>0.004</td>
</tr>
<tr>
<td>Household</td>
<td>0.21 (0.022)</td>
<td>0.00</td>
</tr>
<tr>
<td>Ward</td>
<td>0.00 (0.022)</td>
<td>0.11</td>
</tr>
<tr>
<td>Total variance</td>
<td>3.50</td>
<td></td>
</tr>
</tbody>
</table>

* Models include individual and household income as well as social class for both the individual and the head of the household. Statistical significance was assessed by using the $\chi^2$ form of the Wald statistic (36).
† CMD, common mental disorders; GHQ, General Health Questionnaire; SE, standard error; CI, confidence interval.
‡ Model 1 + individual exposures.
§ Model 1 + individual exposures + household exposures.
TABLE 2. Unadjusted odds ratios for associations between prevalence of the common mental disorders and household-level exposures and after adjustment for age, gender, individual social class, individual income, employment status, marital status, education, number of physical health problems, and financial strain,* Britain, 1991

<table>
<thead>
<tr>
<th>Household-level exposure</th>
<th>Unadjusted odds ratio</th>
<th>95% CI†</th>
<th>p value</th>
<th>Adjusted odds ratio</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural housing problems</td>
<td>1.45</td>
<td>1.30, 1.61</td>
<td>&lt;0.001</td>
<td>1.20</td>
<td>1.07, 1.34</td>
<td>0.002</td>
</tr>
<tr>
<td>Low income</td>
<td>1.46</td>
<td>1.23, 1.73</td>
<td>&lt;0.001</td>
<td>1.33</td>
<td>1.08, 1.63</td>
<td>0.007</td>
</tr>
<tr>
<td>No access to a car</td>
<td>1.18</td>
<td>1.02, 1.36</td>
<td>0.02</td>
<td>1.00</td>
<td>0.85, 1.17</td>
<td>0.99</td>
</tr>
<tr>
<td>Rented accommodation</td>
<td>1.28</td>
<td>1.13, 1.45</td>
<td>&lt;0.001</td>
<td>1.02</td>
<td>0.89, 1.18</td>
<td>0.74</td>
</tr>
<tr>
<td>Social class IV or V</td>
<td>1.04</td>
<td>0.90, 1.19</td>
<td>0.61</td>
<td>0.95</td>
<td>0.80, 1.13</td>
<td>0.56</td>
</tr>
<tr>
<td>Overcrowding</td>
<td>1.03</td>
<td>0.78, 1.37</td>
<td>0.82</td>
<td>1.16</td>
<td>0.85, 1.58</td>
<td>0.35</td>
</tr>
<tr>
<td>Single-person household</td>
<td>1.19</td>
<td>0.98, 1.44</td>
<td>0.09</td>
<td>0.93</td>
<td>0.72, 1.20</td>
<td>0.59</td>
</tr>
<tr>
<td>Couple with dependent children</td>
<td>1.17</td>
<td>1.04, 1.31</td>
<td>0.01</td>
<td>1.00</td>
<td>0.87, 1.15</td>
<td>0.95</td>
</tr>
<tr>
<td>Lone parent with dependent children</td>
<td>1.71</td>
<td>1.34, 2.18</td>
<td>&lt;0.001</td>
<td>0.99</td>
<td>0.71, 1.37</td>
<td>0.94</td>
</tr>
<tr>
<td>Lone parent with nondependent children</td>
<td>1.30</td>
<td>1.00, 1.70</td>
<td>0.05</td>
<td>1.09</td>
<td>0.80, 1.49</td>
<td>0.59</td>
</tr>
</tbody>
</table>

* Statistical significance was assessed by using the χ² form of the Wald statistic (36).
† CI, confidence interval.

The proportion of unexplained variance in GHQ scores at the household level remained statistically significant in all three models.

When the GHQ was analyzed as a continuous score, there appeared to be statistically significant between-ward variation for the unemployed (variance, 8.33; standard error, 1.66; p < 0.001), those whose income was low (variance, 3.56; standard error, 1.06; p < 0.001), those who were financially strained (variance, 5.95; standard error, 1.01; p < 0.001), and those who had physical health problems (variance, 0.34; standard error, 0.09; p < 0.001). However, this ward-level variation no longer reached statistical significance after adjustment for random household- and individual-level variance.

Associations with household level variables

The findings in table 1 show statistically significant between-household variance in both prevalence of the common mental disorders and GHQ scores. Table 1 also indicates that this variance was reduced only slightly when individual- and household-level risk factors for common mental disorders were included in the model.

Table 2 shows the associations between household-level factors and the prevalence of common mental disorders, before and after adjustment for individual-level exposures. Low household income and structural housing problems were associated with the prevalence of common mental disorders to a statistically significant degree after we adjusted for characteristics of persons (table 2).

DISCUSSION

This study is among the first to simultaneously estimate variance in the prevalence of the common mental disorders at the individual, household, and area levels. Our null models indicated that more than 80 percent of the variance in the common mental disorders (whether as a dichotomous or a continuous outcome) occurred at the individual level. In keeping with previous findings (9, 12, 15, 16), the size of ward-level variance was modest. Less than 1 percent of the variance in the common mental disorders occurred at the ward level after adjustment for the clustered nature of the sample. While statistically significant for (continuous) GHQ score in the null model, this finding failed to reach statistical significance after we adjusted for the characteristics of individual respondents.

Unlike many previous studies, we considered household a separate level intermediate between individual and area. Because this method more accurately reflects the structure of the data set, our estimates of standard errors for variance at the area level were less prone to bias than those arising from studies in which individual- and household-level exposures were conflated (9). We found evidence of statistically significant variance in the prevalence of common mental disorders between households after controlling for the characteristics of individual household members. We estimated that approximately 8 percent of the variance in the prevalence of common mental disorders, and 14 percent of the variance in (continuous) GHQ score, occurred at this level in our null models. These estimates were little altered by adjusting for the characteristics of individual household members. These findings are consistent with evidence of spousal similarity in depressive symptoms (38), which has yet to be explained. Interestingly, our results suggest that this finding may extend to other household members.

Most of the variance in our study outcomes remained unexplained, even after we included many known individual- and household-level risk factors for the common mental disorders. At most, these explanatory variables explained 20 percent of the variance in the prevalence of the common mental disorders. Most of the explained variance was also accounted for by individual-level risk factors. Two household-level risk factors, low income and structural housing problems, were associated with the prevalence of common mental disorders to a statistically significant degree.
after adjustment for individual characteristics. Nevertheless, the household-level risk factors included in our analyses explained no more than 0.5 percent of the total variance in the prevalence of common mental disorders.

Use of multilevel modeling also enabled us to test for significant variance in associations with known risk factors for the common mental disorders across wards. No statistically significant between-ward variance was detected in regression coefficients when GHQ score was analyzed as a continuous outcome or when GHQ score was dichotomized. Perhaps the most salient feature of any study of this nature is the size of the area over which environmental factors are proposed to act. "Neighborhoods" remain difficult to define (42). It may be argued that wards are too large and heterogeneous to permit detection of contextual effects. This view is consistent with evidence of statistically significant associations between rates of common mental disorders and specific features of the built environment assessed across small areas, after adjustment for characteristics of individual residents (21–23). This study was limited by our reliance on wards, the smallest spatial level for which BHPS data are available. However, although residents may not equate wards with "neighborhoods," they are more than arbitrary administrative boundaries. Wards are used for electoral purposes in Britain, with voters in each ward electing local government representatives. Wards are also aggregated into the constituencies from which members of Parliament are elected. It is possible that the variance observed at the household level in the present study was due in part to exposures operating at a spatial level intermediate between ward and household. This view is supported by the failure of household- and individual-level exposures to substantially reduce the household-level variance.

It was difficult to decide on the correct level at which exposures such as income and social class should be specified. There is little to guide this decision from a theoretical perspective, and empirical evidence remains limited. Our own work suggests that the social class of the household head may be a stronger predictor of psychiatric morbidity than individual social class, especially among women (3). We therefore chose to specify these exposures at both the individual and households levels, although our findings were largely unchanged when we included these exposures at either level alone.

The principal aim of this study was to quantify the relative variances in the prevalence of common mental disorders occurring at the area (ward), household, and individual levels rather than to test hypotheses about associations with specific features of local areas. For this reason, wards were not clustered on the basis of features such as urban/rural character, housing density, or scores on deprivation indices (most of which, in any event, reflect the aggregated characteristics of local residents rather than features of place per se). This method may have contributed to our failure to find statistically significant ward-level variance in the prevalence of common mental disorders. Our tests estimated whether, overall, wards differed from one another regarding the prevalence of common mental disorders (irrespective of the direction of effect), after we adjusted for individual and household composition. However, grouping together wards with similar characteristics may have enhanced the effect of area. We hope to address this possibility in a forthcoming study.

Conclusions

We found little variation in the prevalence of common mental disorders across electoral wards in Britain. At ward level, there was small, but statistically significant variance in GHQ score as a continuous variable before we adjusted for

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individual characteristics. Our findings do not contradict the view that place “matters” (43) in the sense that deprived persons are clustered in deprived places (13). However, they confirm that the variance in the prevalence of the common mental disorders within wards (between individual persons and households) is far greater than the variance between wards. Nevertheless, the absence of statistically significant “area effects” does not mean that area-based initiatives are unlikely to prove effective (12, 44). While most commentators concur that government policies should be targeted at alleviating poverty among persons, there may be many advantages to focusing these interventions in particular places (12). Certainly, deprived persons tend to be clustered in deprived places, whether or not place itself contributes to this phenomenon, and area-based initiatives may be an effective means of reaching some of the most deprived individuals. An important argument against area-based initiatives is that the majority of socioeconomically deprived persons do not live in “deprived” areas (44). Area-based initiatives may therefore complement, but cannot replace, policies directed at individual persons. Finally, the present study is among the first to consider household as a distinct level intermediate between individual and area. Our findings suggest that targeting households (as well as individual persons) may be important for reducing the prevalence of common mental disorders.

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