QUELLE ECHELLE POUR L'ALLOCATION ?

Resource Allocation for Primary Psychiatric Care :
a fine-scale needs-based approach

Graham Moon [1], Paul Iggulden [2], Edmundo Neira-Muñoz [3]
[1] Institute for the Geography of Health, University of Portsmouth, Portsmouth, UKZZZ
[2] National Case-Mix Office, Winchester, UK
[3] Portsmouth & South-East Hampshire Health Authority, Portsmouth, UK

Abstract

As the UK health care system moves progressively towards an organisational and managerial structure centred on primary care, the case for devolving care budgets to general practices (the key primary care providers) becomes compelling. Psychiatric morbidity forms a substantial proportion of day-to-day workload in primary care in the United Kingdom in terms of both presenting problems and advised or prescribed treatments. It is known that psychiatric morbidity reflects regular and established patterns of spatial and social variation. The aim of this research was to evaluate the advisability of using these patterns of variation as a basis for devolving budgets for psychiatric care to general practices in a large health authority in southern England. A number of general models for budgetary devolution exist but few have been evaluated for their sensitivity to particular diseases or health-related conditions. Using geographical information systems approaches, the research developed patient location based deprivation scores for eighty two general practices. Five deprivation bands were identified and practices assigned to a band. Cross-sectional patient surveys were conducted in two marker practices in each band (N=2020). These surveys addressed psychiatric health (using the General Health Questionnaire) and general practitioner identified psychiatric care needs. Analysis compared survey results across deprivation bands using standard tests of significance (Chi square and related measures including trend statistics). Results confirmed the utility of the General Health Questionnaire for gauging psychiatric health needs and indicated that the deprivation bands had significantly different levels of psychiatric health and psychiatric care need. Generally more deprived practices had greater psychiatric morbidity and greater identified care need although some variations from this general conclusion were evident.

Introduction

This paper reports a study undertaken to evaluate the utility of community social deprivation as a basis for the development of an understanding of resource needs for psychiatric care initiated by UK general practitioners. The distinctiveness of the study lies in its use of the general practice list population as the unit of analysis; studies of deprivation more normally focus on standard spatial units such as local government wards. The setting for the study was a large district health authority in Southern England with a population of some 500,000 served by 84 general practices covering a range of geographical circumstances and levels of deprivation.

The structure of paper is straightforward. In the following section some background issues are explored : the importance of psychiatric care in the workload of general practitioners, the impact of that workload and the current position regarding resource allocation for psychiatric care. Attention then shifts to the methods employed in the study. Discussion focuses on the derivation of general practice level deprivation measures and the choice of instruments to measure psychiatric morbidity. The third section outlines and assesses the results of the study.

1. Background

Psychiatric care is an undeniably important element of the workload of general practice in the UK yet evidence concerning baseline prevalence is mixed. Over five million GP consultations per annum concern mental health ; it accounts for over 15% of all consultations (Smith and Jacobson 1988). Wilkin *et.al.*'s study of urban general practice found around 8% of their study population receiving diagnoses citing psycho-social illness. There are significant disjunctures between these figures and assessments using rating scales which seek to identify the background prevalence of mental ill-health in general practice attenders and in general practice populations as a whole. Thus, at any given time in the UK, some 25% of general practice *attenders* will be experiencing mental health problems (Goldberg and Huxley 1992; Goldberg and Gater 1996) and up to a third of people with mental health problems will not seek care or treatment (Commander *et.al.* 1997). It is likely that the true base prevalence of mental health problems in UK general practices ranges from around 20% to more than 40% (Skuse and Williams 1984).

As a result of this workload, many GPs have developed extensive skills in the management and treatment of people with mental health problems, stress and anxiety. Such care carries costs, not only for the practice in terms of the GPs time, but also in relation to drug prescribing and the need to seek the opinions of people more specialised in the diagnosis and treatment of psychiatric morbidity. In the latter case, onward referrals generate their own consequent workload, drug and other treatment costs. The precise implications of these cumulative costs are unclear although 1985 figures, which included the sots of learning difficulties services indicated a figure in excess of £1.5 billion at then current prices (Smith and Jacobson 1988). Taken together, the quantitative extent of psychiatric morbidity in general practice utilisation and the workload implications of that morbidity, would seem to indicate a clear case for planned resource allocation.

Planning to meet primary care psychiatric needs through formal resource allocation procedures is complicated in three ways. First, as implied in the previous paragraph, there is a clear disjuncture between need and supply. There would seem to be considerably more need within the system that is currently being provide for. Were resources to be made available to address this need, the cost of the service would escalate beyond affordable levels. Second, there is a lack of routine, available information on levels of psychiatric morbidity within general practice settings. The studies cited previously draw largely on ad hoc cross sectional studies, validations of psychiatric morbidity rating scales and the aggregate results of governmental surveys generalisable only at national or regional level. The absence of routine data inhibits evidence-based planning. Finally, and most fundamentally, the English NHS resource allocation system has, to date, militated against condition-based resource allocation and, with a key exception of fundholding general practices, to resource allocation below the level of the approximately 100 district health authorities in England.

This final point deserves some elaboration as the resource allocation context in England is about to change in response to the developments introduced through the 1997 White Paper, *The New NHS: modern.dependable* (Secretary of State for Health 1997). The study reported in this paper took place under the resource allocation system which had run in England since the Health Authorities Act 1995 but has greater implications for the system to be introduced in 1999. Under the 1995 system, district health authorities received resources in proportion to a needs-based formula (Carr-Hill *et.al.*1994; Mays 1995). Some of those resources were passed on to GP fundholders to buy defined services, including primary psychiatric care. Fundholders were thus, effectively, in receipt of a cash- limited budget, albeit one which was expected to reflect guidance to health authorities regarding the setting of needs-based fundholder budgets and one which there is some evidence to suggest were set at relatively advantageous levels (Glennerster *et.al.* 1994). Within that budget they had considerable autonomy over, for example, the amount they might spend on psychiatric care. For non-fundholding practices, the allocation of care resources reflected the contract patterns of the district health authority with care providers and the district drugs budget. Individual general

practices had to operate within the envelope set by the health authority for all services including psychiatric care. The objective of the present study, in this context, was to provide guidance to the district health authority concerned on the dynamics of the deployment of its resources; burgeoning psychiatric morbidity needed to be managed through the mechanism of contract-setting. In the post-1999 resource allocation environment, with the creation of primary care groups at sub-health authority level holding budgets, it is likely that resource allocation can be more finely tuned to take account of local factors influencing need.

In the absence of information to either guide or understand resource allocation for primary psychiatric care, an alternative approach is required. The alternative examined in this paper uses deprivation as a surrogate for psychiatric care needs. The evidence to sustain this approach is derived from the quite considerable literature on the relationship between deprivation and psychiatric morbidity. Thus, socially disadvantaged people are more likely to have mental health problems. Kessler and Neighbours (1986) noted more mental health problems among minority ethnic groups, while Kessler et.al. (1987) identified greater mental ill-health among unemployed people. Poor housing was implicated in raised psychiatric morbidity by Gabe and Williams (1987) and Lowry (1990) while Hodiamont et..al. (1988) found markedly higher rates in urban areas. The English Health and Lifestyle Survey (Cox et.al. 1987) provides strong aggregate evidence of higher levels of mental ill-health among divorced and separated women and elderly men living alone ; it confirms the relationship with unemployment and suggests higher rates among people in lower social classes. The routine availability of deprivation indicators and their wide use in the general field of resource allocation adds weight to the case for their use in the understanding of psychiatric care needs.
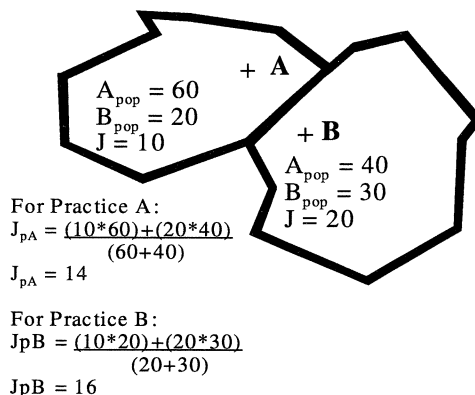
2. Method

In order to evaluate the utility of deprivation as a basis for understanding psychiatric care needs and resource use, a three-fold approach was employed. First, all general practices in the study area were awarded a composite deprivation score and allocated to one of five bandings ranging from high to low deprivation. Second, cross-sectional surveys were undertaken in two selected practices from each band to identify psychiatric care need from patient and general practitioner perspectives. Finally, the results of the two surveys were linked and related to the deprivation banding of the practice concerned using standard cross-tabulation statistics with associated tests of significance.

Since the early 1990s, English general practitioner remuneration has been subject to an adjustment to take account of the number of patients resident in deprived areas. The underlying assumption to this payment is that deprivation generates additional health problems and thence additional workload. Eligibility for the payment is calculated by reference to a threshold deprivation level whereby deprivation is measured by a local government ward's Jarman score and payments are attracted for each patient living in a ward with a Jarman score above the threshold level[1]. This approach has attracted criticism for, *inter alia*, its binomial approach to deprivation, practices only marginally below the threshold miss out on payments (Senior 1991), and its use of the relatively course ward-scale measures of deprivation which can obscure significant pockets of deprivation (Jones and Moon 1987). The present study addressed these problems by calculating a practice level deprivation score based on the place of residence of all individuals on a practice's list and using Jarman scores based on the finer scale level of the census enumeration district (ED). The procedure by which these scores were derived was based on that already operating in the case study district for the allocation of resources to fundholding practices. It is summarised in Figure One : each patient listed as registered with a particular practice was allocated to a census

---

[1] *On Jarman scores see Jarman (1983). Originally designed as a measure of general practice workload this indicator has assumed wide currency in the NHS as a measure of deprivation. Its calculation is based on a modified standard score technique and now uses eight variables drawn from the decennial census of population.*

enumeration district using postcode-ED matching software. The number of patients in an ED was used to weight the ED's Jarman score and the result summed across all EDs with patients from the target practice and averaged in proportion to the total practice list size. Thus, practice A, with 60 patients resident in an ED with a Jarman score of 10 and 40 in a ED with a Jarman score of 20 receives a composite weighted practice score of 14.

Figure 1: Derivation of Practice Jarman Scores

For Practice A:
$$J_{pA} = \frac{(10*60)+(20*40)}{(60+40)}$$
$$J_{pA} = 14$$

For Practice B:
$$JpB = \frac{(10*20)+(20*30)}{(20+30)}$$
$$JpB = 16$$

The deprivation status of the various geographical communities within the study area ranged from markedly deprived inner city locations (J= 52) to affluent suburban settings (J=-25). The practice-based Jarman scores varied within this range reflecting the distribution of practice populations across EDs of differing deprivation status. The full listing of 84 practice specific Jarman scores was then ranked and divided into deprivation bands. The decision to identify five bands reflected the specifications of the health authority serving the area. The actual allocation to bandings was undertaken using discriminant analysis. Two practices were then randomly selected from each band to take part in the study; efforts were made to ensure that the selected practices were central within the deprivation score distribution of their band.

Each of the ten practices participating in the study were asked to facilitate data collection on 200 patients giving a total target response of 2000 cases. The data collection strategy was framed to distinguish patient-based need from GP-based decision making concerning the supply of psychiatric care. There is considerable evidence of the significance of this distinction. Commander *et.al.* (1997) suggest that around 50% of people with mental health problems do not have their problems recognised. Shapiro *et.al.* (1986), working in the USA, argued that the majority of those who do not have their symptoms recognised reappear within a year thus impacting twice upon workload. In Sweden work using the General Health Questionnaire indicated that 30% of general practice patients were probably experiencing psychiatric morbidity with 19% needing treatment ; GP identified psychiatric morbidity was lower at 12% (Hansson *et.al.* 1994). Similar conclusions were drawn in Spain where Vazquez-Barquero *et.al.* (1997) found GP attenders had a background morbidity prevalence of 33% but GPs classified 14% as cases.

Two instruments were used in the study. Patient-defined need was identified using the General Health Questionnaire (Goldberg and Williams 1988). The 12-item version of this well-validated instrument was used. Patients were asked to complete the instrument while waiting for treatment by their GP and place the completed form in a sealed box. At the same time, the GP completed a short locally-designed instrument for each patient with whom a consultation took place. This instrument enabled the identification of patients whom the GP considered to be suffering from a psychiatric problem and, for those cases, the forms of treatment which the patient was thought to need. Treatment needs were categorised as drug therapy, counselling within primary care or other settings, referral to the community mental health team (NHS psychologists, psychiatrists, community psychiatric nurses or occupational therapists), or referral for psycho-social management

(social work care, self-help groups, voluntary organisations). Both completed questionnaires were coded[2] and cross-linked using SPSS-Windows V7 to produce a consolidated record of both patient and GP perspectives for each respondent. This linkage process reduced the overall numbers of responses available for analysis to 1,657 linked cases.

3. Results and Discussion

Initial analysis focussed on the characteristics of the total sample available for analysis. This was found to be typical of the population consulting a GP in so far as there were nearly twice as many women (62%) as men (35%) (ONS 1994). With an average age of 49 the sample also had, as expected, the greatest numbers of patients in the extremes of the age distribution.

A shortfall in respondents resulting from the process of linking the two data collection instruments was concentrated in two bandings : the most deprived (Band 1) and Band 4. Notwithstanding this facet of the response distribution, an adequate sample size remained in each band for further analysis (Figure 2).

Figure 2 : Reponses by deprivation band
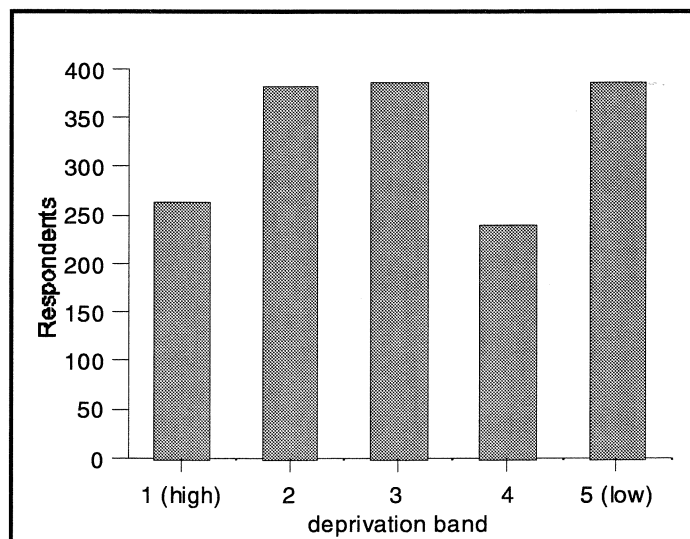
The complete data set for the study area offered three distinct analytical possibilities : examinations of the relationships between GHQ and deprivation, GP-identified needs and deprivation, and GHQ and GP-identified needs. The last of these possibilities does not impinge centrally on the concerns of this paper but functions as a form of cross-validation of the two data collection instruments. A clear gradient in the expected direction was found across GHQ scores for each of the categories of GP-identified need. This confirmed that the documented relationship between GHQ scores and GP-identified psychiatric care needs was replicated in the study area and that the discrepancy between the two measures was of the expected magnitude.

Figure 3 summarises the results of the study with regard to the relationship between GHQ scores and deprivation. GHQ scores were categorised into three bands: patients with GHQ scores of zero (those unlikely to be experiencing psychiatric morbidity), patients with scores between one and five (potentially experiencing mild psychiatric morbidity), and patients with scores of six or more (likely cases). The percentages of patients returning scores in the latter group are closely in line with the expected numbers of people with psychitric problems as identified in the literature reported earlier

---

[2] *The GHQ results were coded using 'GHQ coding'. This is the recommended approach set out in Goldberg and Williams (1988).*

in the paper. A standard chi-square test on the raw table suggested a substantial statistically significant relationship between deprivation and the GHQ banding. Inspection of Figure 3 confirms, to an extent, that this relationship is one in which more deprived practices return higher GHQ scores and thus apparently have higher psychiatric morbidity. Thus, when comparing practices in the highest deprivation band with those in the lowest deprivation band, the higher deprivation practices return fewer people with no problems of psychiatric morbidity and more people who are probable cases. This clear picture is repeated if the focus is extended to consider patients whose score indicate any evidence of psychiatric morbidity (GHQ scores of one or more). In this case some 73% of the study population in high deprivation practices appear to have some mental ill-health compared to 61% in the low deprivation practices.

Figure 3 : GHQ Scores and Deprivation

GHQ Banding	Deprivation Banding				
	1 High	2	3	4	5 Low
0	26.9	33.0	32.6	31.3	38.4
1-5	48.5	40.6	45.9	38.3	43.1
6-12	24.6	26.4	21.5	30.	18.4

All cells are column percents
Chi-square: 22.07, p=0.005

Closer inspection of Figure 3 casts some doubt on the robustness of the relationship between GHQ scores and deprivation. An examination of the trend across deprivation bands for each of the GHQ categories reveals relationships which are far from linear. Though, overall, deprivation band one is clearly different in the expected way from deprivation band five, the relationship is confused in the central range of deprivation bands. Three points can be made. First, band four stands as rather anomalous to the expected trend in that it has substantially more patients who are probable cases of psychiatric morbidity. Second, following through the analysis in the latter part of the last paragraph, there is relatively little difference between bands two, three and four in terms of the percentage of their populations with scores indicating the simple presence or absence of psychiatric morbidity. Finally, what trend does exist is relatively shallow. The sum effect of these findings is, notwithstanding apparent statistical significance, to reduce confidence in the extent to which the deprivation bands employed in this study function as effective analogues of psychiatric morbidity in general practice populations[3].

Similar findings were evident when attention shifted to the relationship between deprivation bands and GP identified needs regarding psychiatric services (Figure 4). In every banding drug therapy was the treatment of choice with counselling being the second most popular option in all but band four. Across the study as a whole, roughly one quarter of patients were identified as having some form of mental health problem. The numbers for whom GPs felt a specific intervention or treatment could be recommended was substantially lower. Both case identification and all four categories of potential intervention or treatment indicated a clear distinction between practices in the most deprived banding and those in the least deprived banding. Chi-square testing on raw data for case identification and intervention/treatment confirmed relationships with deprivation. The trend across the deprivation bands was however again far from linear and rather shallow. Again too band four stood out with an unusually high number of patients identified by the GPs as in need of psychiatric care.

---

[3] In order to investigate the impact of the GHQ banding on the results of the study, a separate study was undertaken using GHQ scores on a continuous scale and examining the relationship with deprivation banding within an analysis of variance framework. The results (F: 2.69, p=0.030) confirmed that differences between the deprivation bandings but again there was a lack of distinctiveness between bands two, three and four; the reduced significance in comparison to the categorical analysis emphasises the need for caution.

Figure 4 : GP identified needs and deprivation

Need	Deprivation Banding				
	1 High	2	3	4	5 Low
Possible Case	36.0	21.5	19.4	33.3	18.2
Drug Therapy	19.7	8.4	12.2	13.3	10.6
Counselling	9.1	4.2	4.1	2.1	3.6
Community Team	6.8	3.1	2.1	3.8	2.9
Psycho-social	4.9	0.3	2.8	2.1	1.0

All columns significant Chi-square for trend, $p > 0.05$
All cells are percents.

In overall terms, the results of this study suggest that, on the simple criterion of significance testing, there is a relationship between deprivation and, on the one hand, background psychiatric morbidity as measured by the GHQ, and, on the other hand, GP identified psychiatric morbidity. This picture with regard to the GHQ scores and GP identified mental ill-health is in line with previous work and the variation with deprivation is broadly as expected. There are, however, some significant caveats which obfuscate but do not entirely obscure this relationship. These caveats include the lack of clear trend between bands two and three, the relatively weak overall trend and the anomalous status of band four. This last issue merits some attention. The lower number of respondents in band four is unlikely to have brought about its unusual performance. Rather, there are two factors to consider, both of which have more general implications for the study as a whole. First, there is the issue of the banding. It was a strategic requirement at the start of the study to have five bands. The bandings were set using standard statistical procedures but other bandings could, of course have been devised and inevitably produced different results ; it may be too that five bands represents an unrealistic assessment of the extent of variation in deprivation between practices. Second is the matter of practices selected to represent the bands. Those selected for band four were located in very specific geographic settings. Although their deprivation scores placed them securely in the centre of the range required for band four, a relatively affluent banding, their catchments contained substantial communities, which, though scoring low on the deprivation indicator, were characterised by conditions known to correlate with mental health problems: new private housing estates and high numbers of families in the armed services.

Conclusion

There is a case for seeing deprivation as a surrogate for psychiatric morbidity and it follows that there is a case for understanding primary care use of resources for psychiatric care in terms of the deprivation status of a general practice. A resource monitoring process which employed the presently-defined five deprivation bands would be a tenable proposition as would a resource allocation system based on deprivation banding. Some caution should however be exercised in view of the caveats concerning the study which have been expressed above. The greatest confidence can be attached to the conclusions concerning the lowest and highest deprivation bandings ; it is particularly clear that the former has low need as revealed by both the GHQ and the perceptions of GPs. Any resource monitoring or allocation mechanism using the present five-fold banding should focus on the practices with deprivation levels placing them in these two «extreme» bands.

📖 Références

1 Carr-Hill, R. et.al. (1994) A Formula for Distributing NHS Resources Based on Small-area Use of Hospital Beds, York: University of York.

2 Commander, M. et.al. (1997) Access to mental health care in an inner city health district: pathways into and within specialist psychiatric services, British Journal of Psychiatry, 170, 312-6.

3 Cox, B. et.al. (1987) The Health and Lifestyle Survey, Cambridge: Health Promotion Research Trust.

4 Gabe, J. and Williams, P. (1987) Women, housing and mental health, International Journal of Health Services Research, 17, 667-79.

5 Glennerster, H. et.al. (1994) Implementing GP Fundholding, Buckingham: Open University Press.

6 Goldberg, D. and Huxley, P. (1992) Common Mental Health Disorders: a bio-social model, London: Routledge.

7 Goldberg, D. and Gater, R. (1996) Implications of the World Health Organisation study of mental illness in general health care for training primary care staff, British Journal of General Practice, 46, 483-5.

8 Goldberg, D. and Williams, P. (1988) User's Guide to the General Health Questionnaire, London: NFER-Nelson.

9 Hansson, L. et.al. (1994) Screening for psychiatric illness in primary care: a cross-sectional study in a Swedish health district, Social Psychiatry and Psychiatric Epidemiology, 29, 83-7.

10 Hodiamont, P. et.al. (1988) Epidemiological aspects of psychiatric disorder in a Dutch health area, Psychological Medicine (cited in Goldberg and Williams op.cit.).

11 Jarman, B. (1983) Identification of underprivileged areas, British Medical Journal, 286, 1587-92.

12 Jones, K. and Moon, G. (1987) Health, Disease and Society: a critical medical geography, London: RKP.

13 Kessler, R. and Neighbours, H. (1986) A new perspective on the relationships among races, social class and psychological distress, Journal of Health and Social Behaviour, 17, 107-15.

14 Kessler, R. et.al. (1987) Unemployment and health in a community sample,Journal of Health and Social Behaviour, 28, 51-8.

15 Lowry, S. (1990) Housing and health: families and flats, British Medical Journal, 300, 245-7.

16 Mays, N. (1995) Geographical resource allocation in the English National Health Service 1971-1994, International Journal of Epidemiology, 24, S96-102.

17 ONS (1994) General Household Survey, London: ONS.

18 Secretary of State for Health (1997) The New NHS: modern. dependable, London: The Stationery Office.

19 Senior, M. (1991) Deprivation payments to GPs: not what the doctor ordered, Environment and Planning C, 19, 79-94.

20 Shapiro, S. et.al. (1986) Need and demand in for mental health services in an urban community, in Barrett, J. And Rose, R. (Eds.) Mental Disorders in the Community, New York: Guildford Press.

21 Skuse, D. and Williams, P. (1984) Screening for psychological disorders in general practice, Psychological Medicine, 14, 365-78. " \f D

22 Smith, A. and Jacobson, B. (1988) The Nation's Health, London: Kings Fund.

23 Vazquez-Barquero, J. et.al. (1997) Mental health in primary care: an epidemiological study of morbidity and use of health resources, British Journal of Psychiatry, 170, 529-35.

24 Wilkin, D. *et.al.* (1987) *Anatomy of Urban General Practice*, London: Tavistock.