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Effect of unexpected demolition announcement on health of residents

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Abstract

Objective—To examine the impact of an unexpected announcement of the demolition of a housing estate on the health of the area's residents.

Design—Study of general practitioner consultation rates of the estate's residents after the announcement compared with those of other areas and with those of the previous year.

Setting—General practices in Runcorn, Cheshire.

Patients—17 000 patients on lists of the two group practices serving the estate and surrounding area.

Main outcome measure—Relative weekly consultation rates with general practitioners.

Results—The mean adjusted odds ratio for consultation was 1.12 (SD 0.12) when demolition was expected and 0.877 (0.05) when it was not ($t=5.94$, $p<0.001$). The difference remained after the adjustment for the fall in the estate's population was removed ($t=3.7$, $p<0.01$).

Conclusion—Announcement of the estate's demolition adversely affected residents' health.

Introduction

On 21 February 1989 the decision to demolish the Southgate housing estate, Runcorn, a total of 1300 dwellings, was announced. The surprise decision dismissed alternative plans for the estate's refurbishment that had been prepared by a local housing association in consultation with the residents. The development corporation sent letters to the estate's 2000 residents informing them of the decision. During the next eight weeks there was vigorous resident activity and protest, culminating in an apparently successful meeting with the under secretary of state (on 14 April 1989). However, within four weeks the original decision to demolish was reconfirmed. Anecdotal experience of distressed residents was apparent to the local public health physician (JR), who was participating in medical rehousing, and we conducted this study to quantify the effect on residents' health.

Subjects and methods

We studied the records of general practitioner consultations for the first six months of 1989 and, for comparison, 1988, to determine changes in consultation patterns. We manually checked the old appointment sheets of the two practices that served the estate and the

immediately surrounding area. Each consultation was classified according to the patient's home address (Southgate or non-Southgate) to give weekly numbers of consultations. The weekly numbers of consultations by Southgate residents (n) were then expressed as a ratio of consultations by non-Southgate residents (N). The ratio (n/N) controlled for spurious fluctuations in the absolute numbers of patients seen in any given week. For example, seasonal variations in consultations would cause fluctuations in the absolute number of Southgate and other patients seen, but leave the ratio largely unaffected. Similarly, if one or two of the practices' nine doctors happened to be away this might reduce the absolute numbers of patients seen but not the ratio. (No general practitioner specialised in patients from the Southgate estate.) Hence, the ratio provided an unbiased estimate of the relative rate of Southgate residents' consultations with general practitioners over the period studied—that is, it provided a good measure of estate specific variation.

The ratio would not account for some estate specific, seasonal variation. For example, interactions between the time of year and the consultation rate might occur due to the relative affluence of residents (poorer residents being less able to heat their homes in winter). Similarly, if an estate had an unusually large (or small) number of children or elderly people, and if these groups were differentially affected by variations in rates of illness, this could introduce estate specific variation. This was controlled for by comparing consultations not only with those of other estates in the same week but also with the rate in the same week in the previous year. This gave the formula $(n_1/N_1)/(n_2/N_2)$, the odds ratio of Southgate consultations to non-Southgate consultations, 1989 to 1988.

Finally, we corrected for changes in the size of the baseline population. The number of occupied units on the estate in any given week (U_1) was derived from records kept by the officers of the housing association. (The housing association was responsible for the day to day management of the estate.) This allowed the calculation of an adjustment factor (U_{base}/U_1), where U_{base} was the baseline number of units occupied during the past year. Delays in patients registering changes in address were accounted for by offsetting the value of U_1 by three weeks. This correction factor was calculated on the basis of information from the practice administrators. This led to a final formula $((n_1/N_1)/(n_2/N_2)) \times (U_{base}/U_1)$.

We calculated the ratios for each week of the

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study period and correlated them with dates of the demolition announcement, the apparent reprieve, and reconfirmation of the original decision, which were verified from filed documents and from microfiches of local newspapers. Each week was coded as either demolition expected (1) or demolition not expected (0). A simple *t* test was then applied to test the hypothesis that the level of any difference found arose by chance.

Results

Before the demolition was announced the odds ratio was consistently less than 1.0, but it rose shortly after the announcement (figure). The ratio fell in week 15, the week of the apparently successful resident meeting with the under secretary of state. By week 18, when it started to become clear that the original decision to demolish was going to be confirmed, the odds ratio began to climb again.

The mean (SD) odds ratio was 1.12 (0.12), when demolition was expected and 0.877 (0.05) when it was not expected. Analysis of the difference after excluding the two weeks in which the events fell midweek (8 and 19) showed the result was highly significant ($t=5.94$, $p<0.001$). Significance was maintained even if the adjustment for changes in the size of the Southgate population was removed ($t=3.70$, $p<0.01$). This is particularly notable because the Southgate population fell by nearly 30% over the period as no new residents were housed in the estate after January 1989.

A breakdown of the results into the odds ratio of the two separate practices showed the same pattern as for both practices together (table).

Weekly adjusted odds ratio of general practitioner consultations for Southgate residents to non-Southgate residents during period when demolition of estate was announced

Adjusted odds ratios for general practitioner consultations for Southgate residents to non-Southgate residents, 1989 to 1988, according to general practice appointments records

Practice	Odds ratio		<i>t</i> Value	<i>p</i> Value
	No demolition	Demolition		
1	0.967	1.186	3.42	0.002
2	0.819	1.096	3.60	0.002

Discussion

The results showed an estate specific variation when demolition of the estate was expected. After overall level of illness, absence of doctors, seasonal, and other spurious fluctuations were controlled for, the number of consultations by Southgate residents significantly increased by about 20%, or 30 patients a week. (The mean numbers of consultations were 160 a week for Southgate residents and 850 a week for non-Southgate residents.) The results are comparable with those that have shown raised rates of medical consultations among workers threatened with redundancy.¹ Our study is unusual in that the timing and occurrence of

the events or stressors can be accurately and externally verified.

REASONS FOR VARIATION IN CONSULTATION RATES

However, the effect can be interpreted in several ways. Firstly, residents could have gone to see their doctors simply to talk to someone about what was happening on the estate. Secondly, the events on the estate could have led to an increased reporting of illness, though no change in actual levels, perhaps as residents sought to ensure that medical needs were taken into account in rehousing. Thirdly, the events could have increased psychosomatic symptoms or illness. Fourthly, the events could have increased the occurrence of physical illness, perhaps as a result of stress.

Informal discussions with the general practitioners suggested no evidence that Southgate residents were consulting just to talk about the estate. In addition, residents had ready access to other more appropriate sources of information and support, such as the housing association and the residents' association, both of which had offices on the estate.

We attempted to discriminate between the last three interpretations by examining the medical records of a subsample of patients who consulted during the critical periods. However, a considerable proportion of the medical records were missing because many residents had left the area by the time the study was conducted. A parallel examination of psychiatric outpatient consultations was similarly undermined by absent records.

We therefore cannot determine which of the interpretations was most accurate. However, it is likely that aspects of all these last three were true. For some people the extra stress made an existing complaint less tolerable; for some it led to psychosomatic complaints; and for others it led to physical complaints and illness, perhaps through compromising the efficiency of the immune system.^{2,3} Our results are consistent with the hypothesis that stress increases the probability of illness.

VALUE OF GENERAL PRACTICE RECORDS

Our study indicates the potential sensitivity of our primary health care systems to the impact of negative community phenomena. Clearly, few general practitioners have the time to perform the long hand search of records we used, but the computerised databases now being installed widely in general practice could make these investigations much easier and represent an enormously powerful new epidemiological resource for studying public health.

Finally, we hope that this case study will remind planners and politicians of the human consequences of their decisions. Awareness about housing and health has increased in recent times and much further research is needed,⁴ but this research must recognise the importance of the planning and communication process as well as its product.⁵⁻⁷

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