

The nature of unemployment morbidity.

1. Recognition

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SUMMARY. *The case records of one group practice have been used as the data base for a longitudinal, controlled study of unemployment and health. Previous numerical analyses have shown increases in reported morbidity in families threatened with and experiencing unemployment. The illnesses reported have now been classified by diagnostic category. The illnesses normally most prevalent were presented less frequently when patients' jobs were insecure and lost, contradicting the suggestion that excess morbidity reported by the unemployed results only from lowered symptom tolerance. On reassembling the data according to the number of consultations per episode a genuine unemployment morbidity was indicated. After job loss among the male employees there was a significant increase in the number of episodes for which there were four or more consultations. It is postulated that unemployment leads to chronic ill health.*

Introduction

WE have reported¹⁻⁶ significant increases in overall morbidity among workers and their families facing and then experiencing redundancy. It is possible, however, that the unemployed tolerate symptoms less easily and simply report a larger proportion of a total morbidity that remains unchanged. After all, it is well recognized that most episodes of illness are never reported to doctors.⁷ For example, in one English town in 1976 the only group medical practice was consulted for sore throats 37 times in a week in which the local retail pharmacist sold 370 proprietary sore throat remedies (Begley M, personal communication). The aim of this study was to investigate whether the excess morbidity relating to redundancy¹⁻⁶ is real or apparent.

Method

In March 1980, 411 workers in the meat products factory of C. and T. Harris (Calne) Ltd lost their jobs as the management streamlined production in an effort to regain profitability. However, rationalization was unsuccessful and in July 1982 the remaining 302 workers were also made redundant when the factory closed. Of this residual workforce, 122 had been patients at Calne health centre since July 1976 and were still patients in July 1986. This group, with their immediate relatives, formed the study population. The general practice records of these patients therefore covered a 10-year period comprising four years of secure employment — years 1–4 (1 July 1976 – 30 June 1980); two years of insecure employment — years 5 and 6 (1 July 1980 – 30 June 1982); and four years after redundancy when new jobs were obtained by some⁶ — years 7–10 (1 July 1982 – 30 June

1986). The medical records of an analogous control group, consisting of practice patients and their relatives who were in stable employment in other local factories for the whole study period, were also available. More comprehensive details of the study method are given in an earlier report.¹

The episodes of illness presented by each patient in each of the study years were classified according to the broad diagnostic groupings of the RCGP disease classification.⁸ The number of consultations resulting from each episode of illness was also recorded.

Statistical testing

The chi-square test was used to test for significant differences between the three time periods in the proportions of episodes and consultations in each of the diagnostic categories. The Mann–Whitney U test was used to test for significant differences in consultation to episode ratios and the Wilcoxon signed rank test was used to test for significant differences between the three time periods in the number of episodes which generated four or more consultations.

Results

Details of the number of patients in the Harris and control groups together with their median ages are shown in Table 1. The Harris and control groups have been shown^{1,2,6} to report episodes of illness at very similar rates when both are in secure employment. The types of illness reported by analogous groups are also very similar during this period. There were, however, significant differences in the rates with which some types of illness were reported in subsequent study periods among employees (Table 2) and their relatives (Table 3). The findings for consultations were mostly parallel to those for episodes (Tables 2 and 3).

It is difficult to make sense of the large number of observations in Tables 2 and 3 and it may be fallacious to draw discrete conclusions since small sample sizes could result in spurious significance. However, it is apparent that the incidence of common illnesses (for example, infections and trauma) either remains unchanged or declines significantly. In fact four of the five most frequently occurring types of episode (infectious, upper

Table 1. Numbers of patients in the Harris and control groups and their median ages.

	Harris group		Control group	
	Number of patients	Median age ^a (interquartile range) (years)	Number of patients	Median age ^a (interquartile range) (years)
Male employees	76	41 (37–53)	69	40 (33–49)
Female employees	46	45 (35–50)	15	47 (44–50)
Employees' wives	53	39 (35–50)	52	37 (34–46)
Employees' husbands	18	49 (44–53)	8	50 (47–53)
Employees' children	52	12 (9–14)	51	11 (8–13)

^aAt 1 July 1982.

Table 2. Number of episodes and consultations by diagnostic category for Harris and control employees. Only data where there were significant differences are shown.

Illness type	Mean no. of episodes per 100 patients per year			Mean no. of consultations per 100 patients per year		
	Years 1-4	Years 5 and 6	Years 7-10	Years 1-4	Years 5 and 6	Years 7-10
<i>Harris male employees</i>						
Infectious, parasitic	14.5	6.6**		26.6		10.4***
Mental				8.6		17.1***
Cardiovascular	2.3		11.5***	11.8		57.9***
Lower respiratory	2.3	9.2**		3.0		20.4***
Dermatological				9.9		14.8**
Musculo-skeletal	17.8	28.9**		37.2	71.7***	
Ill-defined				8.6	12.5**	5.6**
Trauma, poisoning	17.4	8.9**		40.1		17.8***
<i>Control male employees</i>						
Infectious, parasitic	17.4	5.1**		28.6		6.9***
Mental				4.7	9.4*	
Ophthalmic				6.9		9.8**
Otological				3.6	9.4**	
Cardiovascular	3.6	6.9*		12.3	31.2***	28.9***
Upper respiratory				19.9	7.2**	15.9**
Lower respiratory				8.0	10.9**	4.0**
Genitourinary				11.9		3.6*
Total	136	95**		243		181*
<i>Harris female employees</i>						
Mental				34.8	19.6***	15.2***
Ophthalmic				2.7	13.0**	
Cardiovascular	3.3	12.0**		15.2		33.2***
Lower respiratory				15.8		38.6***
Genitourinary				43.5		29.9*
Musculo-skeletal				35.3	60.9**	
Ill-defined	1.6	8.7*				
Trauma, poisoning	13.0	3.8**		21.2		5.4***
<i>Control female employees</i>						
Cardiovascular				16.7		60.0***
Lower respiratory				28.3	3.3**	
Digestive				38.3	13.3*	

***P<0.001, **P<0.01, *P<0.05 for years 5 and 6 or 7-10 versus years 1-4.

respiratory, digestive and trauma) accounted for nearly half of all reported morbidity when jobs were secure (45.1% for Harris employees and relatives and 49.1% for controls) but for successively smaller proportions in later periods (36.2% in years 5 and 6 and 33.4% in years 7-10 for Harris patients and 43.3% and 42.6%, respectively, for controls). Episodes of musculo-skeletal illness showed an anomalous distribution among Harris adults — there were significant increases in incidence when jobs were insecure followed by a drop to former rates in the years after redundancy.

It was also apparent that significant increases in the number of episodes were usually in those diagnostic categories having

a high consultation to episode ratio, while significant decreases in the number of episodes were associated with a low consultation to episode ratio (Table 4). The mean consultation per episode ratio for all groups was 1.75 and a threshold of twice this value was adopted to see whether there were significant increases, during years 5 and 6 and years 7-10, in those episodes resulting

Table 3. Number of episodes and consultations by diagnostic category for the relatives of Harris and control employees. Only data where there were significant differences are shown.

Illness type	Mean no. of episodes per 100 patients per year			Mean no. of consultations per 100 patients per year		
	Years 1-4	Years 5 and 6	Years 7-10	Years 1-4	Years 5 and 6	Years 7-10
<i>Wives of Harris employees</i>						
Infectious, parasitic	13.7		5.2*	21.7		7.1***
Mental				17.9	44.3**	38.7***
Ophthalmic				19.3	9.4**	6.6**
Otological				4.2		10.4*
Upper respiratory	32.5	20.8**	16.0**	39.6	22.6***	16.5***
Digestive	8.0		14.6**	12.3		25.5***
Obstetric				16.0		5.2**
Musculo-skeletal				30.2	57.5**	
<i>Wives of control employees</i>						
Endocrine, nutritional, metabolic				22.6	6.7***	
Mental				29.3		14.9**
Cardiovascular	1.9		9.6*	9.1		36.1***
Upper respiratory				42.3	23.1***	24.0***
Digestive				14.4		53.4***
Family planning advice	15.4		7.7**	26.9	10.6***	12.5***
<i>Husbands of Harris employees</i>						
Ophthalmic				27.8	39.9**	13.9**
<i>Husbands of control employees</i>						
Lower respiratory				25.0	68.8**	
<i>Children of Harris employees</i>						
Upper respiratory	66.8		34.1***	96.2		46.6***
Dermatological				17.3	11.5*	
Musculo-skeletal	0.9		5.3*	0.9		5.3*
<i>Children of control employees</i>						
Infectious, parasitic	23.0		15.2*	28.4		18.1**
Otological				3.9		16.2**
Upper respiratory				92.6	75.5***	76.5***
Lower respiratory				17.2	7.8*	22.5*
Digestive				15.2	5.9*	19.2*
Genitourinary	6.9		14.2*	10.3	3.9***	22.1***
Dermatological	6.4	16.7**		8.8	21.6***	

***P<0.001, **P<0.01, *P<0.05 for years 5 and 6 or 7-10 versus years 1-4.

in at least 3.5 (that is, four or more) consultations. There was a significant increase in such 'frequent consultation' episodes for the Harris male employees after they were made redundant (Table 5) but no significant changes were found for the control male employees or any of the other groups.

Discussion

It is easy for discrepancies to arise in a medical record as it describes 'the morbidity that the doctor fancies he sees: it represents the way in which the doctor has organised the unorganised illness which is presented to him'.⁹ But even with reliable records when total morbidity is subdivided by diagnostic

category the sample sizes are often too small for meaningful analysis. The conclusions drawn in this study, however, are based only on the relative frequencies of common disorders and on the consultation to episode ratios irrespective of diagnostic category.

It would not be surprising if families coping with the social and financial instability of unemployment solicited more help with problems, including ill health. If such a change in behaviour were the only cause of an excess morbidity then most of the increase should result from the familiar complaints which we all encounter but usually tolerate. However, the results of this study show that the common types of illness are not reported more often in unemployed families: greater dependency on the doctor would not seem to be the only basis for unemployment morbidity.

Among Harris male employees, where we have previously found the most dramatic changes in overall morbidity,²⁻⁶ it is clear that the spectrum of reported illness is changed by redundancy. There is a significant increase in the number of episodes where the consultation to episode ratio is high. Although the division of illnesses into those resulting in many consultations and those resulting in few is derivative and artificial, the distinction is not new. Other investigators of general practice morbidity^{10,11} have already suggested a two-fold consideration of workload: (1) frequent episodes resulting, each, in few consultations which are usually initiated by patients who seek symptomatic relief for transient (often self-limiting) problems; and (2) relatively few episodes for which the patients consult frequently, often at the doctor's behest, since resolution of the problem may not occur and care may be supervisory and supportive only. The boundaries of these definitions obviously overlap with those of 'acute and 'chronic' respectively even if they are not exactly contiguous. Thus, in an accompanying paper¹² we examine the possibility that in the group most obviously at risk — male employees — there is a significant increase in the number of episodes of chronic illness after redundancy.

Table 4. Consultation to episode ratios for diagnostic categories in which there were significant changes in the number of reported episodes between study periods.

Group	Illness type	Mean consultation to episode ratio ^a		
		Years 1-4	Years 5 and 6	Years 7-10
<i>Significant increases in episodes</i>				
Harris male employees	Cardiovascular	5.13	4.75	5.03
Harris male employees	Lower respiratory	1.30	1.14	3.64
Harris male employees	Musculoskeletal	2.09	2.48	2.11
Control male employees	Cardiovascular	3.42	5.38	4.19
Harris female employees	Cardiovascular	4.61	5.00	2.77
Harris female employees	Ill-defined	3.06	1.38	2.02
Harris wives	Digestive	1.54	2.77	1.75
Control wives	Cardiovascular	4.79	4.60	3.76
Harris children	Musculoskeletal	1.00	1.00	1.00
Control children	Genitourinary	1.49	1.00	1.56
Control children	Dermatological	1.38	1.29	1.25
<i>Significant decreases in episodes</i>				
Harris male employees	Infectious	1.83	1.45	1.58
Harris male employees	Trauma	2.30	2.58	2.00
Control male employees	Infectious	1.64	1.60	1.35
Harris female employees	Trauma	1.63	2.29	1.42
Harris wives	Infectious	1.58	1.22	1.37
Harris wives	Upper respiratory	1.22	1.09	1.03
Control wives	Family planning advice	1.75	1.83	1.62
Harris children	Upper respiratory	1.44	1.28	1.37
Control children	Infectious	1.23	1.00	1.19

^aConsultation to episode ratios where there were significant increases in the number of episodes (median 2.11) were significantly greater than those where there were significant decreases (median 1.45) ($P=0.01$).

Table 5. Number of episodes per 100 employees per year which generated four or more consultations (percentage of total number of episodes reported given in parentheses).

	Mean no. (%) of episodes per 100 employees per year		
	Years 1-4	Years 5 and 6	Years 7-10
Harris male employees	10.2 (9.4)	17.8 (15.5)	21.4 (18.8)*
Control male employees	14.9 (11.0)	11.6 (10.2)	12.3 (12.9)

* $P<0.05$ for years 7-10 versus years 1-4.

References

1. Beale N, Nethercott S. Job-loss and family morbidity: a study of a factory closure. *J R Coll Gen Pract* 1985; **35**: 510-514.
2. Beale N, Nethercott S. Job-loss and health — the influence of age and previous morbidity. *J R Coll Gen Pract* 1986; **36**: 261-264.
3. Beale N, Nethercott S. Job-loss and morbidity in a group nearing retirement age. *J R Coll Gen Pract* 1986; **36**: 265-266.
4. Beale N, Nethercott S. Job-loss and morbidity: the influence of job-tenure and previous work history. *J R Coll Gen Pract* 1986; **36**: 560-563.
5. Beale N, Nethercott S. Job-loss and morbidity in married men with and without young children. *J R Coll Gen Pract* 1986; **36**: 557-559.
6. Beale N, Nethercott S. The health of industrial employees four years after compulsory redundancy. *J R Coll Gen Pract* 1987; **37**: 390-394.
7. Hannay D. *The symptom iceberg. A study of community health*. London: Routledge and Kegan Paul, 1979.
8. Royal College of General Practitioners. *The classification and analysis of general practice data. Occasional paper 26*. (2nd edition). London: RCGP, 1986.
9. Jenkins R, Smeeton N, Marinker M, Shepherd M. A study of the classification of mental ill-health in general practice. *Psychol Med* 1985; **15**: 403-409.
10. Morrell D. Expressions of morbidity in general practice. *Br Med J* 1971; **2**: 454-458.
11. Dixon A. 'There's a lot of it about': clinical strategies in family practice. *J R Coll Gen Pract* 1986; **36**: 468-471.
12. Beale N, Nethercott S. The nature of unemployment morbidity. 2. Description. *J R Coll Gen Pract* 1988; **38**: 200-202.

Acknowledgements

We owe a continuing debt to our families for their support and to the staff of Calne Health Centre and of the Medical Library, Postgraduate Centre at the Royal United Hospital, Bath. This study was supported by a grant from the Scientific Foundation Board of the Royal College of General Practitioners and we are grateful for their support.

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