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Dyspepsia in England and Scotland

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Abstract

A validated postal questionnaire has been used to establish the prevalence of dyspeptic symptoms in five geographical locations from the south coast of England to the north of Scotland. The six month period prevalence of dyspepsia in the 7428 respondents to the questionnaire is 41% and equal between the sexes, with similar prevalence rates in the centres studied. There is considerable overlap between upper abdominal symptoms and symptoms of heartburn; 56% of patients with dyspepsia experience both groups of symptoms. Symptom frequency falls progressively with age in men and women, but the proportion of people seeking medical advice for dyspepsia rises with age. One quarter of the dyspeptic patients studied have consulted a general practitioner about their symptoms. This study suggests that the prevalence of dyspepsia in the community has changed little over the last 30 years, despite evidence that the frequency of peptic ulcer disease is falling. Symptom prevalence is unrelated to social class, but this factor is associated with consultation behaviour, the consultation rate rising from 17% in social class 1 to 29% in social class 4. The use of investigations – barium meal and endoscopy – is similarly related to social class; the lowest rate for ulcer diagnosis (4·7%) is found in social class 1 and the highest (17·1%) in social class 5.

Dyspepsia is a common symptom in the community and a frequent reason for consultation with general practitioners. A number of studies in general practice show that about 4% of patients attend with upper gastrointestinal tract related symptoms.[1-3] Dyspepsia may be the presenting symptom of peptic ulceration, gastro-oesophageal reflux and gastric malignancy, although frequently no physical cause can be discovered on investigation.[4] Accurate evaluation of early symptoms is important because of the implications for investigation, management and morbidity, although it is often difficult to reach an accurate diagnosis on clinical grounds alone.[5,6]

Peptic ulceration remains a significant medical problem; for example about 30 000 patients are admitted to hospital in the United Kingdom with upper gastrointestinal haemorrhage every year and about 3000 die. The epidemiology of peptic ulceration, the frequencies of gastric and duodenal ulcer and their sex distributions have changed substantially over the last century. There is some evidence that in the last 25 years mortality from peptic ulceration has fallen in many western countries and information from hospital admission rates in the USA and the UK supports this finding.[7] Currently in the United States the self reported period prevalence of peptic ulcer disease appears equal between the sexes although there is a slight excess of men over women for hospitalisation and mortality.[8] In this country a recent trend appears to be the emergence of elderly women, particularly those taking non-steroidal anti-inflammatory drugs as a group at high risk of the complications of perforation and haemorrhage.[9]

Although these changes in peptic ulcer disease have been well documented little corresponding data on the epidemiology of dyspepsia have been published in the past 20 years. Doll, Avery Jones and Buckatztch[10] published a large study, linking occupational factors to dyspepsia and peptic ulcer disease almost 40 years ago and in 1968 Weir and Backett[11] reported their findings from a study of dyspepsia and peptic ulceration in men in the North East of Scotland. No large scale studies of dyspepsia have been published since. A number of other investigations have attempted to seek environmental factors which might influence the frequency of peptic ulcer disease. In particular it has been shown that urban dwellers are more likely to develop peptic ulcer disease than those in rural communities[12] and links between social class and occupation and peptic ulcer disease have also been made.[13]

In a previous study[14] we have used a postal questionnaire to establish the prevalence of dyspeptic symptoms in urban and semirural Hampshire. The present study uses the same methodology to describe the prevalence of these symptoms in four other cities in England and Scotland (Birmingham, Nottingham, Aberdeen and Glasgow) and to examine possible geographical and demographic influences on symptom frequency and consulting behaviour.

Methods

PATIENTS

The sample of patients studied was drawn from the lists of patients registered with general practitioners in Andover and Southampton, Hampshire (S_1, S_2), central and suburban Birmingham (B_1, B_2), Nottingham (N), Glasgow (G), and Aberdeen (A) as shown in Figure 1.

HAMPSHIRE

Four general practitioners working in a health centre in the middle of the City of Southampton and four working in a health centre in a semirural practice based in the market town of Andover contributed patients. Both practices possess age-sex registers and operate personal lists of patients, with approximately 2000 patients registered with each participating doctor.

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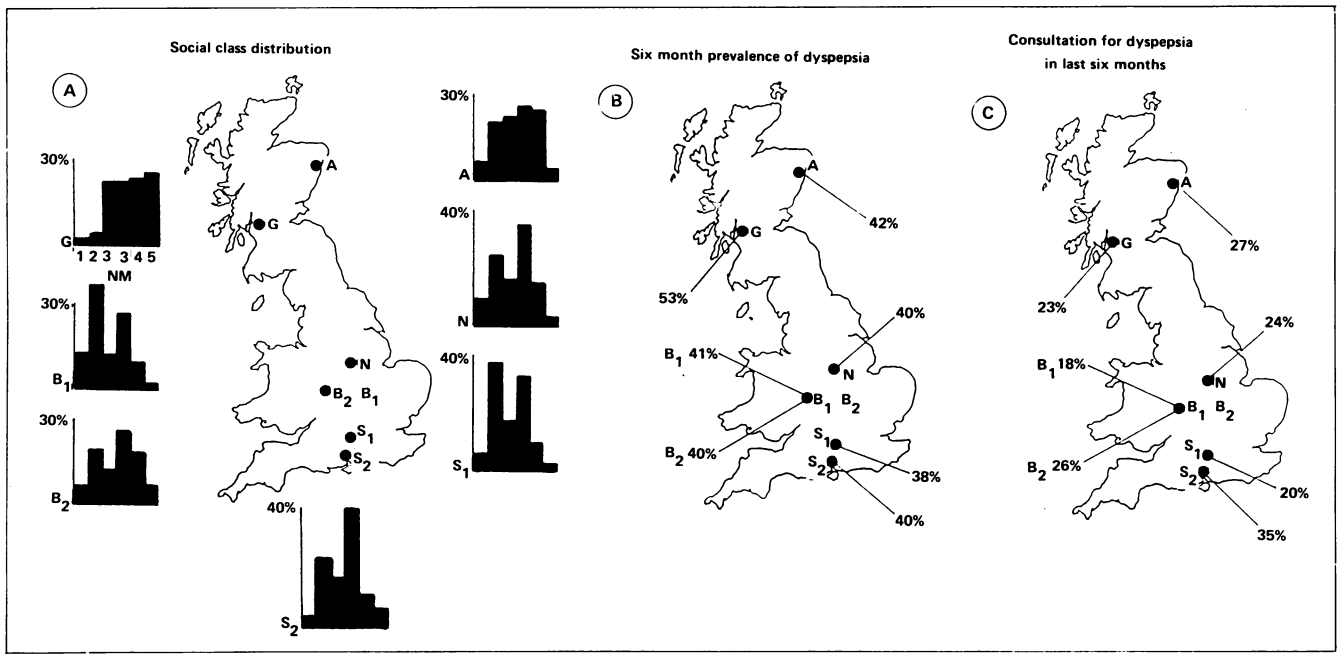

Figure 1(a): Social class distribution of respondents in the study centres. (b) Six month period prevalence of dyspepsia. (c) Consultation rates for dyspepsia in the six month study period.

BIRMINGHAM

Three full and two part timers work from a converted surgery in Bromsgrove with around nine thousand suburban patients (B_1). Three full time general practitioners operate from a purpose built surgery in the centre of Birmingham serving an inner city population of 5000 (B_2). Practice B_1 has a microcomputer based age/sex/disease register and practice B_2 is fully computerised with eight terminals.

NOTTINGHAM

The practice consists of a partnership of seven doctors working from a health centre in a mainly residential suburban area of Nottingham. The total list size is 11 000 patients; a personal list system was not in operation.

ABERDEEN

Patients were selected from two practices with a total of nine partners, working in a health centre in the city of Aberdeen. The total patient population was 15 500; both practices have computerised age-sex registers and do not have personal lists of patients.

GLASGOW

Six doctors and a trainee, working from an urban health centre, share a total list of approximately 9000 patients.

Patients were divided by sex and stratified into 10 year age bands from age 20 years upwards; a one in five sample was obtained within each age band using tables of random numbers; in Glasgow no questionnaires were sent to people over 70 years of age.

A questionnaire, developed in Southampton, where it was validated by subsequent interview and shown to be reliable and repeatable,[14] was sent to the patients selected for study and was accompanied by an explanatory letter signed by each patient's own doctor and a Freepost envelope for return. The questionnaire collected information about occupation and employment status (including partner's); respondents were allocated to conventional socio-economic groups.[15] Respondents were asked whether they had ever had indigestion 'for more than a few days', whether the symptoms were experienced in the upper abdomen or whether they had the characteristics of heartburn, whether they had been present in the preceding six months and whether the respondent had consulted a doctor about them. Information was also obtained about whether respondents had taken or possessed indigestion medicines, had been diagnosed as having a peptic ulcer and ever had a barium meal or an endoscopy.

If no reply to the questionnaire had been received within four weeks a second questionnaire, accompanied by a reminder letter from the general practitioner and another Freepost envelope was dispatched. No further reminders were sent.

Characteristics of non-respondents were ascertained in the Hampshire centres by reviewing a 1:4 sample of case notes.

Representativeness of the samples was examined by comparing demographic data obtained from the survey with those for enumeration districts, corresponding to the catchment areas of the practices studied, obtained from the Office of Population Censuses and Surveys for the English centres and from the General Register Office for Glasgow and Aberdeen.

STATISTICAL ANALYSIS

The data were analysed using a standard SAS

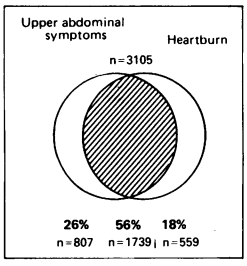

Figure 2: Frequency of upper abdominal symptoms and symptoms of heartburn in patients with dyspepsia.

(Statistical Applications Software) package (SAS Institute Inc, PO Box 8000, Cary, North Carolina 27511, USA).

Results

RESPONSE RATE

A total of 9936 questionnaires were sent out and 7428 evaluable questionnaires were returned, giving an overall response rate of 75%. There was variation in the response rate between centres (51% to 81%), and also between age groups with response rates within the 10 year age bands ranging 65% (20–29 yrs) to 88% (60–69 yrs).

NON-RESPONDERS

Non-responders were found to be low users of medical care (mean annual consultation rate of 1·5 consultations per annum); no patients with peptic ulcer disease were identified in this group, in which only 4% had consulted in the preceding six months because of dyspeptic symptoms. There was a similarly low consultation rate in the preceding six months for other physical or psychological problems.

DEMOGRAPHIC CHARACTERISTICS

There was a slight excess of women in the final sample (women 53%, men 47%). The social class distribution of the respondents within each centre varied markedly, as shown in Figure 1(a). In particular social classes 1 and 2 were over represented in the suburban Birmingham sample, social class 3 – manual was over represented in the Nottingham and Hampshire samples, social class 4 in the Glasgow, Aberdeen and Birmingham city centre groups and social class 5 in central Birmingham, Southampton and Glasgow).

Employment status also varied between centres, with unemployment being lowest in the Andover sample (1·7%) and highest in central Birmingham (17·7%) and Glasgow (17%). There were substantially more retired people in Nottingham (28%) and Southampton (34%) than in the other centres.

REPRESENTATIVENESS OF SAMPLE

Comparison of these demographic data with OPCS and General Register Office enumeration district figures showed that the samples obtained in the centres studied are representative of the populations from which they were drawn.

DYSPEPTIC SYMPTOMS

The prevalence of dyspepsia lasting for more than a few days was similar in each centre (from 19% in Nottingham to 29% in Glasgow, mean= 21%); in each centre upper abdominal pain or discomfort had been experienced in 3096 (54%) of the respondents (ranging from 51% in Aberdeen to 63% in central Birmingham) and symptoms of heartburn had been experienced by a little under half of all patients (ranging from 46% in Andover and Southampton to 51% in Aberdeen and central Birmingham and 57% in Glasgow). Approximately 41% (3105 respondents of the sample had experienced either upper abdominal pain or discomfort or heartburn in the last six months (Fig 1(b)). Over half the positive responders to these questions experienced both of these symptoms, as shown in the Venn diagram (Fig 2).

Of patients experiencing these symptoms in the last six months, the proportion consulting their general practitioner about them varied from 18% in suburban Birmingham to 35% in Southampton (mean=25%). These results are summarised in Figure 1(c).

The prevalence of recently experienced dyspeptic symptoms by age and sex is illustrated in Figure 3, showing a progressive fall in symptom frequency with age, particularly in men, but with the proportion of dyspeptic patients seeking medical advice gradually increasing with age. The six month period prevalence of dyspeptic symptoms was identical in male and female respondents (41%) although there was a slight excess of women over men (27% *v* 23%) in patients who consulted a doctor about the symptoms. The six month period prevalence of dyspeptic symptoms was unrelated to social class but this factor was associated with consultation for dyspepsia; the consultation rate was 17% in social class 1 rising to 29% in social class 4 (Table).

A little over half the sample had taken indigestion remedies at some time (range 47% to 55%) and rather less than half possess them at home (range 35% to 48%). Although 91% of all patients

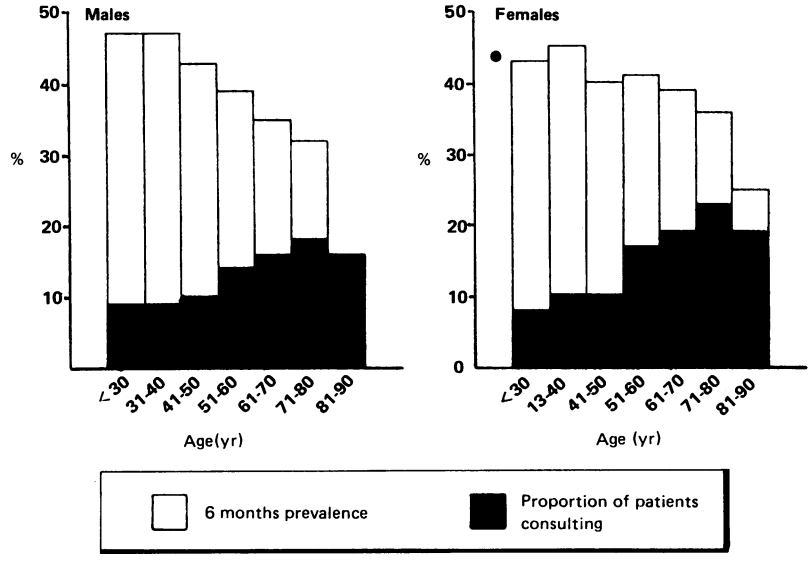

Figure 3: Six month period prevalence of dyspepsia and proportion of dyspeptic patients consulting.

TABLE *Prevalence of dyspepsia consulting rates and peptic ulcer diagnosis*

Social class	*1*	*2*	*3N*	*3M*	*4*	*5*
Six month period prevalence of dyspepsia (%)	33	37	37	38	40	39
% of dyspepsia patients consulting	17	20	20	29	29	28
Patients with diagnosis of peptic ulcer (%)	4·7	6·2	6·8	7·9	11·3	17·1

experiencing significant indigestion lasting for more than a few days had taken indigestion remedies only 40% of patients with less severe symptoms had taken medication for them. Similarly while 67% of those with indigestion lasting for more than a few days had indigestion remedies at home, just over a third of those with less severe symptoms also possessed them. Social class had little influence on whether indigestion medicines were taken but was inversely associated with the possession of these medicines at home.

PEPTIC ULCERATION

A mean of 8·4% of the whole sample said that they had been diagnosed as having a peptic ulcer at some time although this ranged widely from 4·6% in Andover to just over 10% in Aberdeen and central Southampton and 18·5% in Glasgow. Twice as many of those claiming to have this diagnosis were men, the relationship holding across all age groups. There was a clear relation between social class and diagnosis of peptic ulcer with a frequency of 4·7% in social class 1 rising to 17·1% in social class 5 (Table).

INVESTIGATIONS

Barium meal examinations were said to have been performed on 19·7% of the sample, varying from 15·7% in Nottingham to 26·5% in Glasgow; the number of patients investigated was again a function of sex although the male:female preponderance was less marked. An endoscopy had been performed in an average of 6·1% of patients, ranging from 4·4% in suburban Birmingham to 9·1% in central Birmingham. The use of investigations was also strongly related to social class, independent of age, so that almost twice as many patients in social class 5 had had barium meals as those in social class 1 and almost three times as many endoscopies had been performed on patients in social class 5 as in social class 1.

Discussion

This survey has shown that dyspeptic symptoms in the community are common and that their frequency is remarkably similar in the geographically distinct populations studied, although age, sex and social class of patients influence the frequency with which these symptoms are presented to doctors by patients and are subsequently investigated. We have also shown that most dyspepsia is dealt with by patients, without seeking medical advice, and that although the frequency of symptoms tends to fall with age, particularly in men, the proportion of dyspeptic patients seeking advice from general practitioners about their symptoms increases with age. Most of the patients surveyed have taken indigestion remedies and possess them at home and a surprisingly large number of them appear to have been investigated by radiology or endoscopy with a substantial proportion of these believing that they have or have had a peptic ulcer.

The results presented here do not suggest that the prevalence of dyspepsia in the community has changed since the early surveys done in London[10] and in Scotland[11] over 30 years ago, despite evidence that the frequency of peptic ulcer disease is falling.[7] Much of this information, however, has been obtained by studies on hospital admission and ulcer complication rates, rather than incidence or prevalence rates in community or primary care settings. Although there is evidence suggesting that the introduction of potent ulcer healing agents has not changed the natural history of peptic ulcer disease,[16] once again derived from hospital studies, it seems possible that changes in self care and primary care of dyspepsia and peptic ulceration is responsible for this apparent change in frequency. Possible explanations include more widespread and appropriate use of over the counter remedies, changes in diet and a reduction in cigarette smoking.

The finding that community six month prevalence rates of dyspepsia are similar in a variety of geographical locations is of considerable interest in view of the differences in duodenal ulcer perforation rates and standardised mortality rates for peptic ulceration recorded in different parts of the United Kingdom. For example, Barker and colleagues[17] showed a steep gradient in hospital discharge rates for perforated peptic ulcer between the north/west (Trent) and south/east (Wessex) of England and Wales, and marked urban-rural differences in these rates. Yet we have found no difference in the prevalence of dyspeptic symptoms between Nottingham and Hampshire, suggesting perhaps that the natural history of peptic ulcer disease is different in these areas. Similarly, a south-north gradient of rising standardised mortality rates for duodenal ulceration has been documented,[18] although, with the exception of the high prevalence of dyspepsia in Glasgow, this is not reflected in differences in the frequency of dyspeptic symptoms. The finding of higher symptom prevalence coupled with lower consulting rates in younger patients was unexpected. Number of persons consulting and consultation rates for all gastrointestinal problems in general practice are positively related to increasing age;[3] perhaps an awareness of explanatory life style influences on digestion reduces the need for consultation by these younger subjects.

The prevalence of dyspeptic symptoms within demographic groups is otherwise remarkably similar, yet the frequency with which some of these symptoms are referred to general practitioners varies widely. Social class and age appear to be independent determinants of consulting behaviour for dyspepsia although it is possible that older and poorer patients have stated that they have consulted doctors for dyspepsia when in reality this may not have been the main reason for consultation and may reflect the greater use of primary care services by the elderly and disadvantaged. In this study, diagnosis of peptic ulceration appears more frequently among those in lower social classes; deprivation, adversity and stress may be related to the development of peptic ulceration as well as contributing to higher consultation rates.[19,20] Crombie[21] has drawn attention to the influence of social class on consulting behaviour, pointing out that rates of

doctor initiated (as opposed to patient initiated) consultations for new and chronic illness are positively related to lower social class. Our findings suggest that for dyspepsia, patient initiated contact with general practitioners is also a function of social class, with higher consulting rates for dyspepsia in lower social classes. This finding is partly, but not fully, accounted for by our observations confirming a higher peptic ulcer diagnosis rate in these patients.

The pattern of symptoms experienced by the respondents to this survey is also of interest, and is particularly relevant when general practitioners and hospital physicians are faced with undifferentiated dyspeptic complaints. A recent international working party on dyspepsia suggested that such symptoms could be divided into these of gastro-oesophaged origin and 'ulcer type' dyspepsia.[22] This survey shows, however, that there is considerable overlap between reflux symptoms and epigastric pain, with many patients experiencing both of these, making a neat distinction difficult and clinical diagnosis problematical. This is reflected in the frequent dissociation between clinical diagnosis and endoscopic findings in dyspepsia.

Many of the patients surveyed here may, of course, not have acid related disease at all and their symptoms may be part of a dysmotility disorder. These patients would be unlikely to take antacid medication, since this would not benefit irritable bowel syndrome, although some patients with irritable bowel syndrome may have contributed to the total numbers.

In a previous report of the patients studied in Hampshire[14] it was found that the patients' statements about the frequency of peptic ulcer diagnosis, barium meal and endoscopic examinations, were accurate (concordance rates between 91 and 100%) so that reliance can be placed on the figures obtained in this larger survey. The self reported prevalence of peptic ulcer disease, previously found to be very high in Scotland, was once again highest in Glasgow and Aberdeen, although the figure of 10% for Southampton is almost twice that of the other English cities surveyed; interestingly, in Andover and suburban Birmingham where there are open access endoscopy services the frequency of endoscopies was not significantly greater than in any of the other centres.

In summary, this survey has provided a description of prevalence and pattern of dyspeptic symptoms in the community, and some of the ways in which they are managed by patients and doctors. Age, sex and social class all seem to play a part in explaining the variations in prevalence, presentation, consultation and management of dyspepsia, although regional variations in complication and mortality rates of peptic ulcer appear unrelated to symptom prevalence.

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