Is frequent attendance in primary care disease-specific?

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Background: Sociodemographic characteristics of frequent attenders in general practice are known. It is not known whether frequent attendance is linked to specific diseases.

Objective: To investigate whether frequent consultation in primary care is related to specific morbidities and whether this relationship is influenced by the general practice which the patient attends.

Design: One-year survey of consultation data.

Setting: Nine general practices in North Staffordshire, UK.

Participants: 1000 adults aged 18 years and over who had consulted primary care at least once during the study year were randomly selected from each practice and grouped into frequent (high and very high), medium and low frequency consulters.

Main outcome measures: Type of morbidity coded at each consultation and number of repeat consultations for each morbidity (based on Read Code Chapters).

Results: All morbidity Chapters were associated with frequent consultation. Frequent consultation was also associated with repeated consultation within most morbidities. Stronger associations were seen with mental disorders, blood disorders, circulatory disorders, digestive disorders, endocrine diseases and with causes of injury and poisoning. Some variation between practices in the morbidities associated with frequent consultation were apparent; particularly for skin diseases and unspecified conditions.

Conclusions: Frequent consulters in primary care are not restricted to particular groups of morbidities. There is some aspect of frequent consultation that is a characteristic of individuals regardless of the symptoms with which they consult. Some morbidities are more prominent than others in this group of consulters, and this may help guide practice policies and future research into frequent consulters.

Keywords. consultation, frequent attenders, morbidity.

Introduction

Frequent attenders consume a large proportion of a GP workload; one study reported that the top 3% of attenders (in terms of frequency) utilise 15% of a GP's clinical workload.[1] The investigation of frequent attenders has attracted many research studies.[2–10] Some studies have used a cut-off in the distribution of consultation frequency (for example, the top 3% of patients[1,9]), others have used a specified number of consultations over a given period (e.g. 12 or more consultations over a year[2,6] or more than seven consultations over a year[4,8]). Despite these different classifications, the identification of certain sociodemographic characteristics of frequent attenders has been consistent in that females and the elderly are more likely to be frequent attenders.[1–3,10] Social class[2] employment status[3,10] and ethnicity[2] have also been linked with frequent attendance.

However, it is not clear whether frequent attendance is an aspect of the patient's behaviour in relation to health and health care, independent of the nature or type of problem with which they present, or whether it is a characteristic of particular illnesses or diseases.

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│  Frequency   │ │  Frequency   │ │  Frequency   │ │  Frequency   │
│  Consulters  │ │  Consulters  │ │  Consulters  │ │  Consulters  │
│   n=4848     │ │   n=2162     │ │   n=1486     │ │    n=504     │
│              │ │              │ │              │ │              │
│  up to 50th  │ │ 50th to 80th │ │ 80th to 95th │ │95th percentile│
│  percentile  │ │  percentile  │ │  percentile  │ │   and above  │
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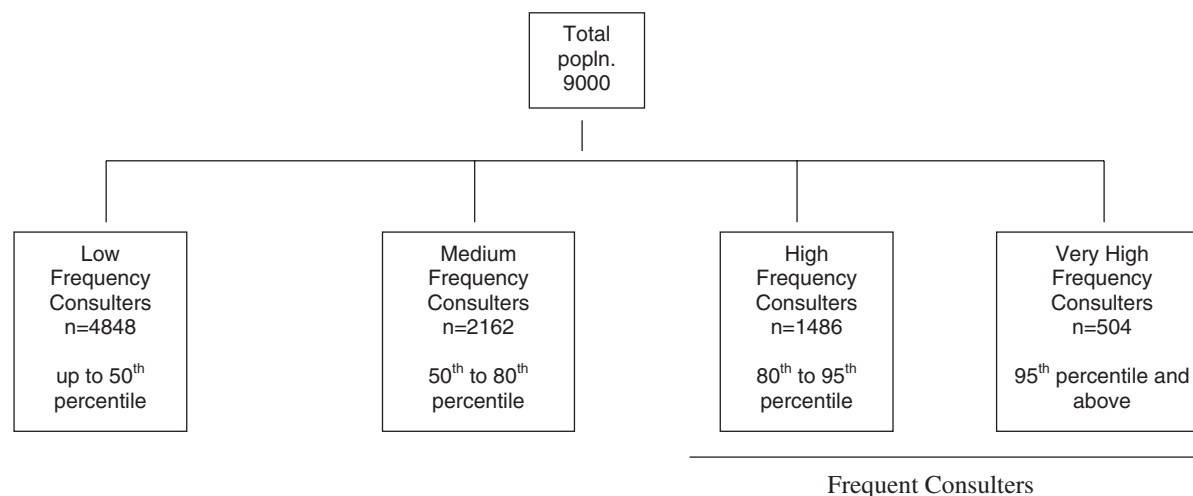
Frequent Consulters

FIGURE 1   *Distribution of sample into 4 consulting frequency groups.*

The latter could relate to the associated demands of a particular morbidity on health care or to the patterns of management which have evolved for these conditions such as repeat visits for blood pressure monitoring. The link between frequent attendance and specific morbidities has received limited attention. Previous research has suggested that circulatory, mental, respiratory, musculoskeletal, digestive and endocrine disorders may all be associated with frequent attendance.[6–8,11,12] These studies used small samples, which may not be generalisable. A systematic review concluded that around a half of frequent consulters have a physical disease and a third have a combination of physical, mental and social problems.[12]

The objectives of this study were to assess whether frequent attendance is related to specific morbidities and to assess practice variation in the relationships found.

Methods

Consultation data from nine general practices in North Staffordshire, UK has been collated to form the Consultations in Primary Care Archive (CiPCA). These practices form part of the North Staffordshire and Cheshire Research Network and, as such, have regular cycles of training, assessment and feedback on the quality of their computerised morbidity coding.[13] Morbidities are entered onto the computer in practices within this Network using the Read Code classification. This classification is commonly used in the UK and is a hierarchy of morbidity, symptom and process codes, split into Chapters, which become more specific further down the Chapter hierarchy.[14] The diagnostic morbidity Chapters include, for example, a mental disorders Chapter, a circulatory system diseases Chapter and a musculoskeletal and connective tissues diseases

Chapter. Current estimates show that 93% of doctor contacts are given a Read Code at practices within the Network.[13] The North Staffordshire local research ethics committee approved the study.

Consultation data for one year (2002) was used for this study. A total of 9,000 patients aged 18 and over who had consulted in primary care at least once during the study year were randomly sampled from the nine practices (1,000 per practice). A consultation was defined as a recorded contact which took place at the surgery, by telephone or by home visit. A contact may have had more than one recorded problem but was still defined as one consultation. Read Codes were analysed at the level of morbidity Chapter.

The sample was split into four ''consulting frequency'' groups, separately for each practice, based on percentiles (Figure 1). Low frequency consulters had at least one recorded consultation during 2002 but no more than the median consulting frequency for the practice with which they were registered. These were therefore characterised as a group who consulted no more than average. High frequency consulters and very high frequency consulters together were defined as the top 20% of the sample from each practice based on frequency of consultation. Very high frequency consulters were defined as the top 5% of the practice sample based on frequency of consultation. There is no generally accepted definition of frequent attendance and the use of percentiles rather than an absolute figure allows for more meaningful comparison between practices because of the possibility of practice variation in consultation rates.[12] The medium frequency consulting group consisted of the remaining consulters.

Statistical analysis
Association of type of morbidity with frequency of attendance. The first analysis examined whether any one consulting frequency group was more likely to

consult about some Read Code morbidity Chapters than others. An approach analogous to the standardised mortality ratio was used. First, a crude ratio (the 'frequency attendance ratio') was derived for each consulting frequency group within each Read Code Chapter. This ratio was defined for each consulting frequency group as the ratio of the percentage of all consulters in the particular Chapter who were from that consulting frequency group to the percentage of all consulters in the total sample who were from that consulting frequency group.

A ratio of one infers that the 'expected' number of patients in the consulting frequency group consulted under that Chapter, a figure less than one infers that fewer patients consulted under that Chapter than expected and anything greater than one would indicate more patients consulted under that Chapter than expected. If each morbidity had a similar relationship with frequency of attendance, the ratios within each consulting frequency group should be similar across all morbidity Chapters.

The crude frequency attendance ratios were adjusted for age and sex differences between consulting frequency groups by the indirect standardisation method, using the age-gender distribution of the whole sample.

Association of repeat consultation with frequent attendance. The next analysis explored the relationship between repeat consultations within a Read Code morbidity Chapter and frequent attendance. The number of repeat consultations in a Chapter was defined for each individual as the total number of consultations which were given a code from that Chapter during the study year. This was calculated only for individuals with at least one coded consultation from that Chapter. The median (and interquartile range) number of repeat consultations made in that Chapter during the year for each of the consulting frequency groups was calculated to assess whether high and very high frequency consulters had more repeat consultations within each morbidity Chapter. Trends in number of repeat consultations across the consulting frequency groups were assessed using the Jonckheere–Terpstra test.[15]

Association of multiple morbidity with frequent attendance. This analysis aimed to explore whether frequent attenders consulted within one morbidity Chapter or across multiple morbidity Chapters. For each consulting frequency group, the median (and interquartile range) number of Chapters for which consultation was sought in the year was calculated.

Practice variation
In order to assess practice variation in consulting for a morbidity within frequent consulters, the percentage of frequent consulters (high and very high frequency consulters combined) who consulted in each morbidity

Chapter was first derived for each practice. The chi-square test was used to assess whether there was an association between practice and consultation for a particular morbidity.

Low and medium consulters may also be more likely to be recorded as having a particular morbidity in some practices than others. The next analysis removed the effect of overall differences in morbidity consultation rates between practices which were not specific to frequent attendance. Logistic regression was used with practice, age, gender and frequent consultation status as the explanatory variables and consultation in each Chapter as separate outcomes. The interaction effect of frequent attendance with practice allows identification of whether the strength of the association between frequent attendance and each morbidity Chapter varies from practice to practice.

Most common morbidities within each consulting group
The final analysis summarises the 10 most common morbidities presented by individuals within each consulting frequency group. This was performed at the third level of the Read Code hierarchy: for example, N05 'Osteoarthritis and allied disorders' is a third level code under Chapter N 'Musculoskeletal and connective tissues disorders'.

To take into account the number of multiple comparisons due to the number of morbidity Chapters, significance level for all tests was set at 1%. Analyses were performed using SPSS for Windows 12.0 and Stata 7.0 for Windows.

Results

The minimum number of consultations defining a high frequency consulter ranged from 8 to 10 by practice. Very high frequency consultation was defined by a minimum of 14 to 17 consultations across the practices. Low frequency consulters had up to 4 (in 8 practices) or 5 (in 1 practice) consultations. Table 1 shows the age and gender profile of the consulting frequency groups. This confirms patterns from previous studies that frequent consulters are older and more likely to be female.

Association of type of morbidity with frequency of attendance
Figure 2 shows the age-gender standardised frequency attendance ratios for all the consulting frequency groups. All morbidity Chapter ratios were above 1 for the high and above 1.5 for the very high consulting frequency groups, indicating that all morbidities were associated with frequent attendance. The variation between frequency attendance ratios for different morbidities was larger within the high and very high consulting frequency groups.

Figure 3a shows the crude frequency attendance ratios (with 95% CIs) for the frequent (high and very high) consulters. This reveals a split in the morbidities, with endocrine, blood, mental, circulatory and digestive diseases, and causes of injury and poisoning, showing the stronger relationships with frequent attendance. However, the blood diseases and causes of injury and poisoning Chapters have low prevalences leading to wider CIs.

Adjustment for age and gender (Figure 3b) reduced the frequency attendance ratio for circulatory disorders and emphasised the stronger relationships of mental and digestive diseases with frequent consultation. Examination of the adjusted frequency attendance ratios for the very high consulting frequency group
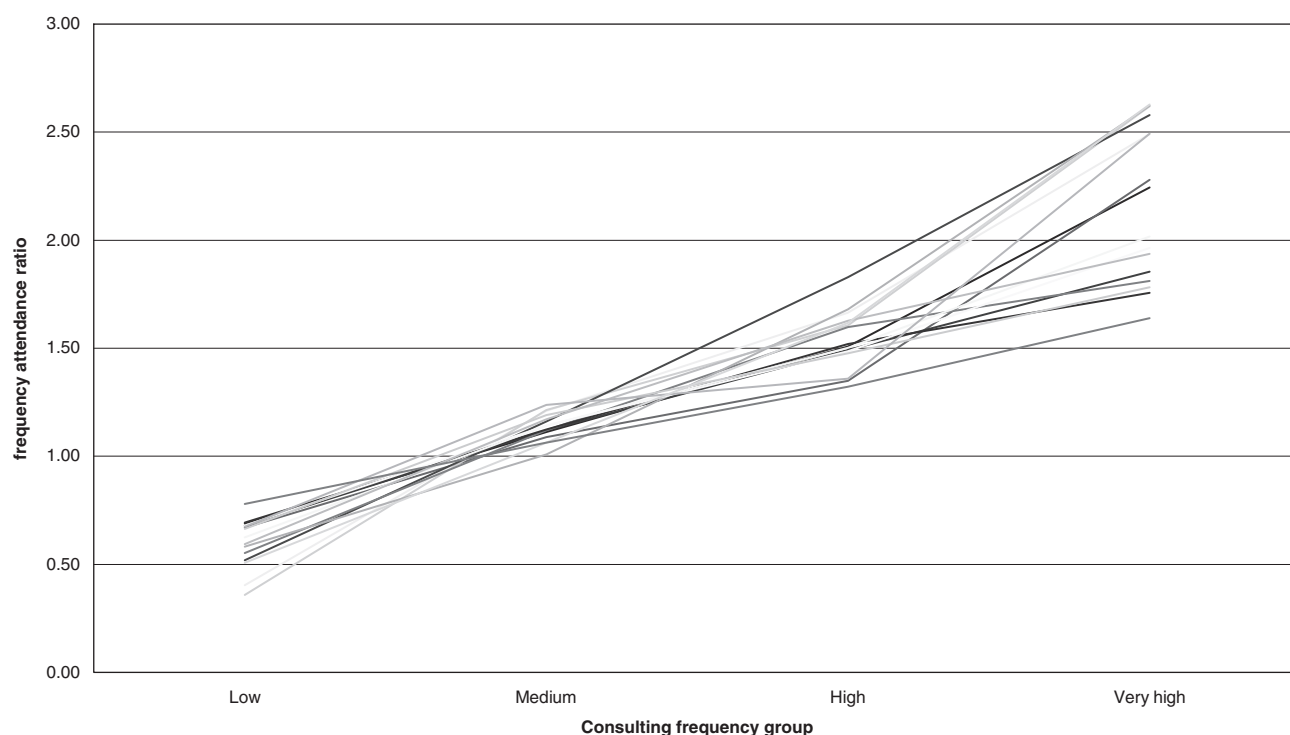
(Figure 3c) identified infectious disorders, neoplasms and injury and poisoning, as well as the previously determined morbidities, as having the stronger relationships with very high frequency consultation. However, neoplasms and injury and poisoning have wide CIs. There appears to be a clearer split between the morbidities for this subgroup of frequent attendance.

Association of repeat consultation with frequent attendance

Table 2 examines the effect of repeat consultation on frequent attendance. Some morbidities showed stronger trends in repeat consultation frequency across the consulting frequency groups, in particular, endocrine, mental and circulatory diseases and the symptoms, signs and ill-defined conditions Chapter. For example, those in the very high consulting frequency group who consulted at least once for a mental problem had a median of four coded mental disorder consultations during the year. By comparison, those consulting for a mental disorder in the medium and high frequency consulting group consulted on average twice for this category of problem during the year and those in the low frequency consulting group consulted only once on average. All but two morbidities show a significant increasing trend in repeat consultation frequency across the consulting frequency groups (all $P < 0.001$). The exceptions are blood diseases ($P = 0.11$) and causes of injury and poisoning ($P = 0.10$).

TABLE 1 *Age and gender of the consulting frequency groups*

| | Consulting frequency group | | | |
	Low	Medium	High	Very high
n	4848	2162	1486	504
Male	2426 (50%)	820 (38%)	509 (34%)	168 (33%)
Female	2422 (50%)	1342 (62%)	977 (66%)	336 (67%)
Age—mean (SD)	46.7 (18.32)	51.4 (18.44)	55.3 (18.56)	55.6 (18.62)
Median	44	52	56	57

Each line represents a Read Code Chapter

FIGURE 2 *Variation across consulting frequency groups of the Read Code Chapter age-gender standardised frequency attendance ratios.*
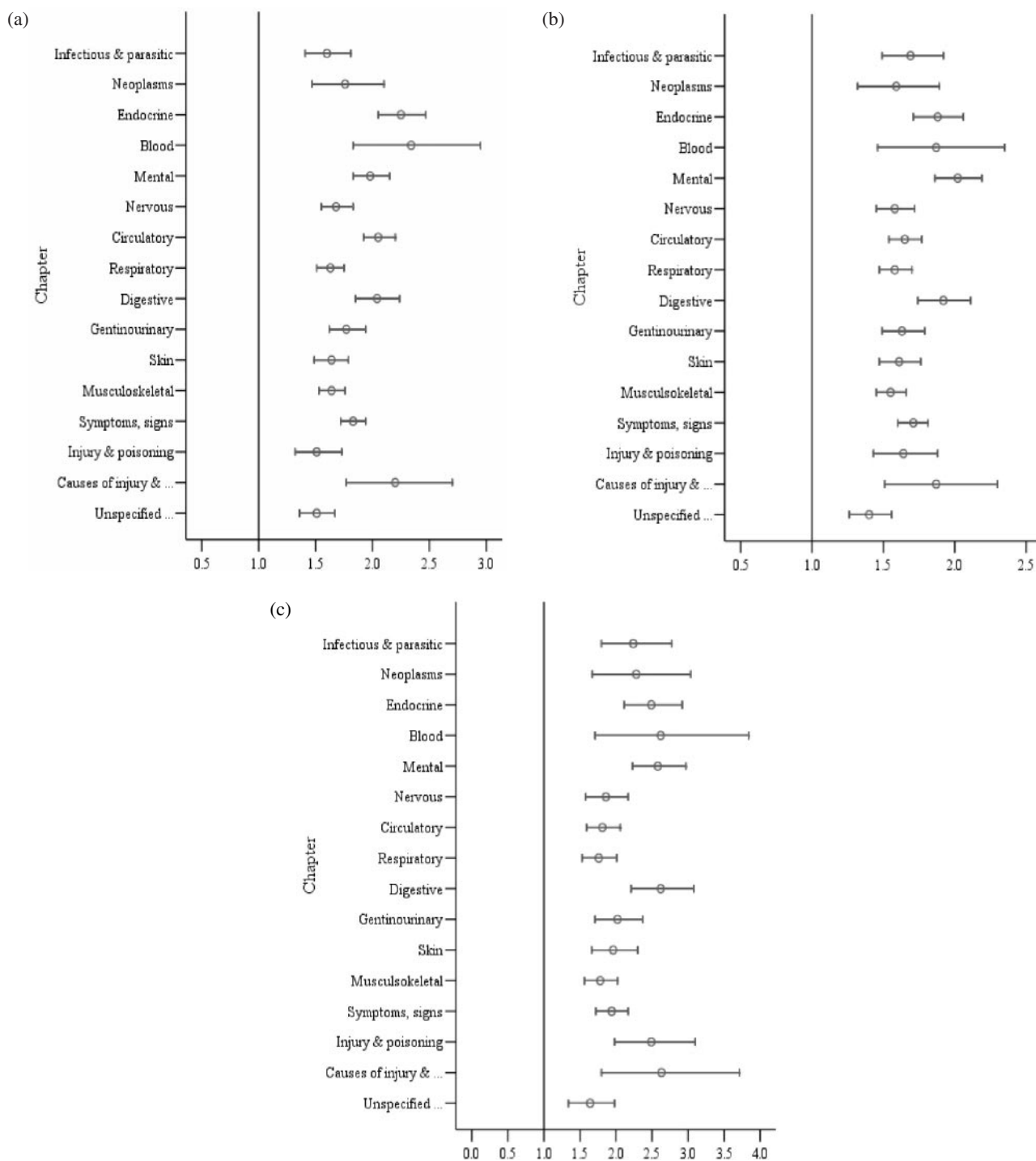
FIGURE 3   *Frequency attendance ratios (with 95% confidence intervals) for the frequent consulting groups. Figure 3a—crude frequency attendance ratios for combined high and very high consulting frequency groups, Figure 3b—age-gender standardised frequency attendance ratios for combined high and very high consulting frequency groups, Figure 3c—age-gender standardised frequency attendance ratios for the very high frequency consulting group.*

Association of multiple morbidity with frequent attendance

Table 2 also shows that as the consultation frequency increased so does the number of chapters for which consultation is sought ($P < 0.001$). However, no one morbidity Chapter appeared more related to multi-morbidity than others within frequent consulters. The median number of other Chapters for which consultation was sought was similar (either three or four) for consulters within each Chapter.

TABLE 2 *Repeat consultations within a Read Code Chapter[a] and multi-morbidity by consulting frequency group*

	Consulting frequency group			
	Low Median (IQR)	Medium Median (IQR)	High Median (IQR)	Very high Median (IQR)
Read Code Chapter				
Infectious diseases	1 (1,1)	1 (1,1)	1 (1,2)	1 (1,2)
Neoplasms	1 (1,1)	1 (1,2)	1 (1,2)	2 (1,3)
Endocrine diseases	1 (1,2)	2 (1,3)	2 (1,4)	3 (1,5)
Blood diseases	1 (1,2)	1 (1,2)	2 (1,3)	1 (1,2)
Mental disorders	1 (1,2)	2 (1,3)	2 (1,4)	4 (1,7)
Nervous system disorders	1 (1,1)	1 (1,2)	1 (1,2)	1 (1,3)
Circulatory system disorders	2 (1,2)	2 (1,4)	3 (2,6)	4 (2,7)
Respiratory system disorders	1 (1,1)	1 (1,2)	1 (1,3)	2 (1,4)
Digestive system disease	1 (1,1)	1 (1,2)	1 (1,2)	1 (1,3)
Genito-urinary system disease	1 (1,2)	1 (1,2)	2 (1,3)	1 (1,3)
Skin/Subcut. tissue disease	1 (1,1)	1 (1,2)	1 (1,2)	2 (1,3)
Musculoskeletal and connective tissue disease	1 (1,2)	1 (1,2)	2 (1,3)	2 (1,4)
Symptoms, signs, ill-defined conditions	1 (1,2)	1 (1,3)	2 (1,3)	3 (1,4)
Injury and poisoning	1 (1,1)	1 (1,2)	1 (1,2)	1 (1,2)
Causes of injury and poisoning	1 (1,1)	1 (1,2)	1 (1,2)	1 (1,1)
Unspecified conditions	1 (1,1)	1 (1,2)	1 (1,2)	1 (1,2)
No. of Chapters consulted within	1 (1,2)	2 (2,3)	3 (2,5)	4 (3,6)

[a] For those with at least 1 consultation in that Chapter.
All $P < 0.001$ (Jonckheere–Terpstra test) except Blood diseases ($P = 0.11$) and causes of injury and poisoning ($P = 0.10$).

Practice variation

Table 3 assesses variation across the practices in the association of frequent consultation with morbidities. High and very high frequency consulters were combined to form one category of frequent consulters for this analysis. The first column shows the overall percentage of frequent attenders who consulted in each Chapter and the range in this percentage across practices. The second column tests whether this percentage varies by practice. That is, whether there is an association between consulting for a particular morbidity and practice, within frequent consulters. The strongest associations were for mental, circulatory, respiratory, digestive, genito-urinary and skin diseases and symptoms and signs, causes of injury and poisoning and unspecified conditions (all $P < 0.01$).

After adjustment for the overall rate of consultation for a morbidity in each practice, practice variation in the association of frequent attendance with a morbidity is apparent for skin diseases ($P = 0.008$), and unspecified conditions ($P = 0.001$). Also, although not statistically significant (at the 1% level), there is possible practice variation for digestive diseases ($P = 0.037$), causes of injury and poisoning ($P = 0.07$) and circulatory diseases ($P = 0.08$).

Most common morbidities

Essential hypertension was the most commonly presented morbidity within each consulting frequency group (Table 4). However, neurotic disorders and diabetes mellitus were more highly ranked in the very high consulting frequency group than in the other frequency groups. Respiratory and chest symptoms increased in rank in the higher consultation groups.

Discussion

If frequent consulting were mostly an individual patient characteristic, then it should be independent of diagnosis or presenting symptom. Morbidity-specific frequent consultation might arise if the morbidity were recurrent, chronic, required monitoring over time or carried an increased risk of comorbidity. We found that high and very high frequency attenders consulted more frequently for all morbidity Chapters. This suggests that some aspect of frequent consultation cannot be explained by morbidity but is a characteristic of certain individuals irrespective of the symptoms or diagnoses with which they consult. However, some Read Code Chapters had a stronger relationship with frequent attendance than others. These included endocrine, blood, mental, circulatory and digestive disorders, and causes of injury and poisoning. Previous studies have differed in the types of physical problems for which a frequent consulter attends primary care but mental health problems have generally been found to be related to frequent attendance.[12]

Most chapters had higher repeat consultation rates among frequent consulters. However, repeat visits for mental, endocrine and circulatory disorders appear to contribute disproportionately to the pattern of frequent

TABLE 3 *Association of Read Code Chapters with frequent consultation by practice*

Read Code Chapter	% of frequent consulters consulting in each Chapter		Interaction of frequent consultation with practice[b]
	Overall (range across practices)	P-value[a]	
Infectious diseases	13 (9–20)	0.019	P = 0.27
Neoplasms	6 (4–9)	0.46	P = 0.81
Endocrine diseases	22 (16–30)	0.017	P = 0.20
Blood diseases	4 (2–6)	0.25	P = 0.65
Mental disorders	30 (19–37)	<0.001	P = 0.82
Nervous system disorders	27 (23–34)	0.11	P = 0.12
Circulatory system disorders	43 (28–53)	<0.001	P = 0.08
Respiratory system disorders	38 (26–46)	0.001	P = 0.18
Digestive system disease	21 (14–33)	<0.001	P = 0.037
Genito-urinary system disease	24 (18–32)	0.002	P = 0.74
Skin/Subcutaneous tissue disease	25 (17–31)	0.006	P = 0.008
Musculoskeletal and connective tissue disease	41 (34–47)	0.07	P = 0.19
Symptoms, signs, ill-defined conditions	52 (39–68)	<0.001	P = 0.33
Injury and poisoning	11 (7–16)	0.031	P = 0.39
Causes of injury and poisoning	5 (1–10)	<0.001	P = 0.07
Unspecified conditions	18 (1–64)	<0.001	P = 0.001

[a] chi-square test across practices.

[b] Significance of interaction term of frequency of consultation and practice in logistic regression with each Chapter as outcome and frequency of consultation (frequent or non frequent), age, gender and practice also included as explanatory variables in model

consultation. These disorders involve a number of conditions which require regular routine follow-up with a health practitioner and, therefore, may not be a true indication of patient-created demand. The endocrine chapter contains diabetes, for example, which is commonly managed by the health care professional requesting the patient to pay regular visits and this is highlighted by its high prevalence within the very high consulting frequency group. This is similarly true for essential hypertension, a code within the circulatory disorders chapter and consulted for by over a quarter of frequent consulters.

It is possible that increased disease severity could account for more repeat visits for a morbidity for some patients than others with the same morbidity. These repeat visits could then be either practice driven (by request for review) or patient driven if the condition is unstable. Practice variations in the frequency with which repeat visits are requested from patients, as well as in coding of illness and disease categories, may also give rise to different patterns of frequent consultation. In our study, the strength of association between morbidity and frequent consultation was, for most Chapters, consistent across practices. However, there were only nine practices in our study so the power to determine interactions between practice and frequent attendance is not high. Frequent consulters were more likely in some practices than others to consult for skin diseases and unspecified conditions. Variation in the latter probably relates to variation in coding habits between practices since the percentage of frequent consulters coded with ''unspecified conditions'' ranged from 1% to 64% by practice. Other practice variation may be due to differences in the nature of the populations covered by the practices, although there was no evidence of practice variation being related to local area deprivation status in this study.

We used a defined time period of 12 months. Many studies of frequent attendance have analysed consultation data over a similar time period.[2,4,5,8,10,16–21] However, an unanswered question is how long frequent attendance persists over time and whether our findings about morbidities related to frequent attendance might change if a longer time period were used for analysis. We have carried out a pilot study for a three year analysis in one practice not used in this study, and this suggested similar findings to those observed over one year in our main study.

Low frequency consulters were defined on the basis of having no more then the median number of consultations for their practice which was four for all but one practice. The mean age-standardised consultation rate has been reported as 3.85[22] and so they can be considered as consulting no more than the national average. The definitions we used for high and very high frequent attendance were arbitrary cut-offs, but we attempted to distinguish clearly between high consulters and those at the extreme end of consultation rates. The use of percentiles also allows easier comparison between general practices with differing consultation rates.

The practices used for the research have been involved in systematic training and audit of the completeness and accuracy of their recording and coding of all patient contacts. Staff at the practices involved are good at coding every contact with the patient. However, multiple reasons for a consultation within a single visit may not be accurately coded. This may bias morbidity if all of these problems are not coded separately, with the consequence that some morbidities may not be identified as having an association with frequent consulters. For example, only the most important problem may be coded, or chronic problems may not be coded at every visit if the GP decides to only code new problems. Practitioner variation in how many problems are recorded, and in the selection of Read Codes, may affect inter-practice comparisons.

Our data suggests that there is both a general propensity to consult more frequently about all morbidities, but that certain morbidities are more prominent than

TABLE 4 *Top 10 most common morbidities by consultation frequency group expressed as percentage of group who consulted at least once for morbidity[a]*

Low n = 4848	%	Medium n = 2162	%	High n = 1486	%	Very high n = 504	%
Essential hypertension	6	Essential hypertension	17	Essential hypertension	27	Essential hypertension	31
Other and unspecified back disorders	5	Other and unspecified back disorders	8	Acute bronchitis and bronchiolitis	13	Respiratory system and chest symptoms	21
Acute bronchitis and bronchiolitis	4	Acute bronchitis and bronchiolitis	8	Other soft tissue disorders	11	Neurotic disorders	18
Disorders of external ear	4	Respiratory system and chest symptoms	7	Respiratory system and chest symptoms	11	Diabetes mellitus	16
Other soft tissue disorders	3	Other/unspecific. joint disorders	7	General symptoms	11	Acute bronchitis and bronchiolitis	16
Respiratory system and chest symptoms	3	Other soft tissue disorders	7	Neurotic disorders	11	General symptoms	15
Other/unspecific joint disorders	3	Disorders of external ear	7	Other and unspecified back disorders	11	Other soft tissue disorders	15
Symptoms affecting skin and other integumentary tissue	3	General symptoms	6	Other abdominal and pelvic symptoms	10	Other abdominal and pelvic symptoms	13
Neurotic disorders	3	Neurotic disorders	6	Symptoms affecting skin and other integumentary tissue	9	Other and unspecified back disorders	12
Non-specific abnormal finding	2	Non-specific abnormal finding	6	Disorders of external ear	9	Disorders of external ear	12

[a] Based on third level of Read Code hierarchy.

others among these frequent consulters. This general propensity may be an extension of the idea of somatisation in which a range of common symptoms are reported more commonly by some people—either because psychological distress is being expressed through physical symptoms or because there is a common underlying physiological mechanism. However, clusters of conditions associated with frequent consultation would be expected in this model, and it seems more likely this propensity is about perceptions or behaviour which results in a higher likelihood of seeking care whatever the underlying condition. It is interesting that a systematic review highlighted depression and psychological stress as the strongest predictors of visits to the doctor in the chronically ill, with disease severity also an important predictor.[23] The links with some specific morbidities suggest that disease characteristics do also explain some frequent consultation. Disease severity (as perceived by either the health professional or patient) might contribute to this, as would chronicity and the need to review patients.

Underlying all this is the question which, despite much research, remains unanswered: 'Is frequent attendance a problem?'. If disease severity, need for review and patients' need for chronic care are responsible factors, then it should not be a problem. It may indeed be that those with lower frequency are under-utilising health care. However, if frequent attendance fails to improve the outcomes of people with similar problems of similar severity to a group who do not consult frequently, then it is legitimate to ask whether there are better ways to manage these patients, particularly if consultation may be a barrier to better health. Educational issues surrounding frequent attendance, self-efficacy, self-management and the expert patient

programme could also have an impact for both patients and health professionals. Patient education regarding when to consult and alternative sources of primary care (for example, NHS Direct or Walk in Centres) may be useful. GPs have different areas of strength and weakness leading to different management techniques. There may be educational issues for GPs in identifying other members of the primary care team who may be able to play a larger role. For example, community psychiatric nurses may be able to review patients on anti-depressants or patients may be able to read their own blood pressure at home.

In conclusion, we have shown associations between all morbidities and frequent attendance to primary care. Some morbidities have a stronger association with frequent attendance and there is an element of practice variation in these relationships. However, there is more to the concept of frequent attendance than morbidity alone.

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Declaration

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Conflicts of interest: none.

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