# Frequency of patients' consulting in general practice and workload generated by frequent attenders: comparisons between practices

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*SUMMARY*

***Background.*** *Patients who attend frequently may present a problem for general practitioners (GPs) in several ways. The frequency of patients' consulting, comparisons between practices, and the effect of frequent consulting on the clinical workload have not been quantified previously.*

***Aims.*** *To examine the distribution of the number of consultations per patient in four general practices. To estimate the clinical workload generated by frequent attenders. To model the data to demonstrate the contribution of age, sex, and practice on the likelihood of attending frequently.*

***Method.*** *Analysis and modelling of a validated data set of date records of consultations collected routinely over a 41-month period from four practices in and around Leeds, representing 44 146 patients and 470 712 consultations.*

***Results.*** *A minority of patients consulted with extreme frequency. All practices had similar distributions but varied with respect to the numbers of frequent attenders, and the frequencies of their consulting. The most frequent 1% of attenders accounted for 6% of all consultations, and the most frequent 3% for 15% of all consultations. Females and older people were more likely to be frequent attenders.*

***Conclusion.*** *Frequent attenders have an important effect on GPs' clinical workload. Between one in six and one in seven consultations are with the top 3% of attenders. Further research is needed to explain the behaviour underpinning frequent attendance in order to identify appropriate management strategies; such strategies could have an important effect on clinical workload.*

*Keywords: consultation frequency; workload; frequent attenders.*

## Introduction

ALTHOUGH it has long been established that a minority of patients consult their general practitioner (GP) very frequently, most research on frequent attenders has come from small cross-sectional studies in single practices situated in different geographical and cultural settings over time periods of 12 months or less.[1–7] Neither the distribution of frequent attenders within practice populations, especially with regard to those who consult with extreme frequency, nor the potentially disproportionate effect that frequent attenders may have on the clinical workload have been quantified properly for a United Kingdom (UK) population.

It has been reported from Canada[7] that 4.5% of patients accounted for 21% of consultations. A secondary analysis of data from the Fourth National Morbidity Study from UK general practice[8] found that 1.3% of general practice patients accounted for almost 40% of home visits in 1991–92,[9] although such high users of home visits are not likely to be frequent attenders at the surgery.[10] If appropriate strategies for managing frequent attenders in general practice are to be developed,[1] the nature and scale of their consulting needs to be determined in terms of their frequency of consulting and of the proportion of clinical workload that they consume.

This paper has three aims: first, to establish and examine statistically the distribution of the number of consultations per individual in four general practices, and to compare these distributions; secondly, to calculate the proportion of the clinical workload generated by the minority of the patients who attend frequently; and, thirdly, to model the data in order to demonstrate the contribution of practice, age, and sex on the likelihood of an individual being a frequent attender.

## Method

A data set containing a date record of all consultations made by every patient on the lists of four practices (representing 592 028 consultations by 61 055 patients) between 1 October 1991 and 28 February 1995 was analysed; the collection and validation of these data have been reported previously.[11] The 41-month period represents the longest period during which all the data were deemed to be valid.[11]

The four practices are all situated in or around Leeds. Practice A is a four-partner suburban practice, practice B a four-partner urban practice, practice C is a six-partner practice in a small market town, and practice D is a ten-partner practice working from two suburban sites. The age and sex breakdown of each of the practices is similar to that in the fourth national morbidity study[8] and the *General Household Survey*.[12]

With the exception of practice A, for which the data set included a small number of consultations with the practice nurses and community midwives (which could not be identified and separated for technical reasons), the data related only to all face-to-face doctor contacts, whether home visits or surgery attendances, and included planned clinics (e.g. chronic disease management, child health surveillance, and health promotion), if with a doctor. The practices were very similar in terms of the services that they offered, the organization of their services, and the way in which they recorded consultations. Practice D operated a personal list system, whereas doctors in the other practices saw

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more of each other's patients.

The number of consultations in the 41-month period was calculated for every individual in each of the four practices. In order to make the findings comparable between the four practices, only those patients registered throughout the 41 months were studied. This represented 44 146 (72.3%) of the patients. Of the others, 11 632 (19.0%) were present at the beginning but left the practices or died during the 41 months of study, 5006 (8.2%) joined the practices during the 41 months, and 271 (0.4%) both joined and left the practices during the 41 months.

Patients were ranked into percentiles according to the number of their consultations, and the proportion of the clinical workload that each percentile generated was calculated. For these calculations, patients registered at any time during the 41-month period were studied, as they all potentially contributed to the workload.

After these analyses, the data were modelled using multiple logistic regression. A definition of frequent attendance was taken to be the most frequent 3% of attenders, which allowed comparison with previous data. The model was used to demonstrate the contribution of the variables of age group (0–19, 20–39, 40–59, 60–79, or 80+ years), sex (male or female), and practice (A, B, C, or D) on the likelihood of an individual being a frequent attender. We investigated whether age had a different effect in men than in women by including an interaction term in the model. All of the variables were entered together into the model, and the analyses were carried out using SPSS for Windows, version 6.1.[13]

## Results

### *Frequency*

There was wide variation between the number of consultations per patient within each practice, with few patients in each practice consulting very frequently (see Table 1). There is a large tail to each distribution, representing the minority of patients who attend very frequently; a few patients in each practice consulted more than 80 times, with one individual attending more than 250 times (on average once every five days). The distributions are similar in all four practices, although the number of very frequent attenders and the frequency of their consulting varies between the practices. The mean number of consultations in the 41-month period, for patients registered throughout this period, varied from 14.3 in practice A to 9.0 in practice D, with the interquartile ranges varying similarly from 4.0 to 20.0 in practice A to 2.0 to 13.0 in practice D (Table 2).

### *Workload*

The distribution of the clinical workload by each percentile of attenders is shown in Figure 1. The practices are remarkably similar. The key findings are that the top 1% of attenders account for 6% of the workload, the top 3% for 15%, the top 20% for 55%, and the top 50% for almost 90%. Thus, the 50% of the population who consult least frequently account for only 10% of the workload.

### *Modelling the variables*

The composition by practice and age group and sex of the patients who fall into the most frequent 1%, 3%, and 5% of attenders is shown in Table 3 from the combined data for all the practices. Females make up nearly three-quarters of these groups, and older patients are over-represented.

Age, sex, and practice each made a contribution to the multiple logistic regression model. The influence of practice was significant ($P < 0.0001$). The odds ratios of the likelihood of being a frequent attender (compared with practice A) were 0.70 (95% CI 0.59–0.82) for practice B, 0.42 (95% CI 0.36–0.49) for practice C, and 0.25 (95% CI 0.22–0.29) for practice D. The odds ratio for women compared with men was 1.46 (95% CI 0.99–2.15) ($P = 0.0595$). Age group was significant ($P < 0.0001$), with the odds ratios being 0.72 for 20–39 year olds (compared with 0–19 year olds) (95% CI 0.47–1.11), 1.85 (95% CI 1.29–2.64) for 40–59 year olds, 4.32 (95% CI 3.08–6.07) for 60–79 year olds, and 7.66 (95% CI 4.95–11.86) for those aged 80 years and over.

The interaction between age and sex significantly improved the fit of the model ($P < 0.0001$); the results presented above

**Table 1.** The numbers of consultations per patient.

| Number of consultations | Number of patients (%) | | | |
|---|---|---|---|---|
| | Practice A | Practice B | Practice C | Practice D |
| 0–9 | 3180 (47.3) | 2970 (50.0) | 5996 (58.1) | 13551 (64.0) |
| 10–19 | 1811 (26.9) | 1657 (27.9) | 2708 (26.2) | 5115 (24.2) |
| 20–29 | 931 (13.9) | 773 (13.0) | 993 (9.6) | 1667 (7.9) |
| 30–39 | 413 (6.1) | 313 (5.3) | 387 (3.7) | 527 (2.5) |
| 40–49 | 191 (2.8) | 132 (2.2) | 143 (1.4) | 192 (0.9) |
| 50–49 | 86 (1.3) | 60 (1.0) | 52 (0.5) | 62 (0.3) |
| 60–69 | 38 (0.6) | 21 (0.4) | 33 (0.3) | 24 (0.1) |
| 70–79 | 33 (0.5) | 8 (0.1) | 8 (0.1) | 13 (0.1) |
| 80–89 | 14 (0.2) | 0 (0.0) | 6 (0.1) | 6 (0.0) |
| 90–99 | 8 (0.1) | 4 (0.1) | 1 (0.0) | 0 (0.0) |
| 100–109 | 5 (0.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 110–119 | 5 (0.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 120–129 | 4 (0.1) | 0 (0.0) | 0 (0.0) | 2 (0.0) |
| 130–139 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 140–149 | 0 (0.0) | 0 (0.0) | 1 (0.0) | 0 (0.0) |
| 150–159 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 160–169 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| 170–179 | 1 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| ≥ 180 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1[a] (0.0) |
| Total | 6720 (100.0) | 5938 (100.0) | 10328 (100.0) | 21160 (100.0) |

[a]Actual figure is 266 consultations.

**Table 2.** Numbers of patients, their consultations, and features of the distributions.

| | Practice A | Practice B | Practice C | Practice D | Combined |
|---|---|---|---|---|---|
| Total number of patients | 6720 | 5938 | 10 328 | 21 160 | 44 146 |
| Total number of their consultations | 95 853 | 74 522 | 109 609 | 190 728 | 470 712 |
| Number of consultations | | | | | |
| Range | 0–177 | 0–99 | 0–148 | 0–266 | 0–266 |
| Mean (95% CI] | 14.3 | 12.6 | 10.6 | 9.0 | 10.7 |
| | 13.9–14.6 | 12.2–12.9 | 10.4–10.8 | 8.9–9.1 | 10.6–10.8 |
| Median | 10.0 | 9.0 | 8.0 | 6.0 | 8.0 |
| Interquartile range | 4.0–20.0 | 3.0–18.0 | 3.0–15.0 | 2.0–13.0 | 3.0–15.0 |
| 90th percentile | 32.0 | 28.0 | 24.0 | 21.0 | 25.0 |
| 97th percentile | 49.0 | 42.0 | 37.0 | 32.0 | 38.0 |
| 99th percentile | 70.8 | 54.0 | 49.0 | 43.0 | 51.0 |

**Table 3.** Descriptions by age and sex of the most frequently attending 1%, 3%, and 5% of patients by practice.

| | Practice A | Practice B | Practice C | Practice D | Combined |
|---|---|---|---|---|---|
| All patients registered throughout 41 months | | | | | |
| Number of patients (practice % of combined total) | 6720 (15.2) | 5938 (13.4) | 10328 (23.4) | 21160 (47.9) | 44146 (100.0) |
| Median age (years) | 43.0 | 38.4 | 42.2 | 39.9 | 40.8 |
| Percentage male | 48.3 | 49.4 | 48.1 | 47.4 | 48.0 |
| Percentage female | 51.7 | 50.6 | 51.9 | 52.6 | 52.0 |
| 5% most frequent attenders from combined data | | | | | |
| Number of patients (practice % of combined total) | 684 (29.2) | 454 (19.4) | 534 (22.8) | 669 (28.6) | 2341 (100.0) |
| Median age (years) | 59.4 | 52.8 | 58.0 | 54.3 | 56.4 |
| Percentage male | 26.8 | 31.3 | 27.2 | 29.0 | 28.4 |
| Percentage female | 73.2 | 68.7 | 72.8 | 71.0 | 71.6 |
| 3% most frequent attenders from combined data | | | | | |
| Number of patients (practice % of combined total) | 444 (32.4) | 269 (19.6) | 293 (21.4) | 363 (26.5) | 1369 (100.0) |
| Median age (years) | 58.7 | 52.9 | 60.4 | 55.1 | 56.6 |
| Percentage male | 25.5 | 30.9 | 28.0 | 27.0 | 27.5 |
| Percentage female | 74.5 | 69.1 | 72.0 | 73.0 | 72.5 |
| 1% most frequent attenders from combined data | | | | | |
| Number of patients (practice % of combined total) | 187 (40.6) | 80 (17.4) | 94 (20.4) | 100 (21.7) | 461 (100.0) |
| Median age (years) | 59.3 | 51.6 | 64.4 | 56.6 | 58.4 |
| Percentage male | 24.6 | 25.0 | 38.3 | 33.0 | 29.3 |
| Percentage female | 75.4 | 75.0 | 61.7 | 67.0 | 70.7 |

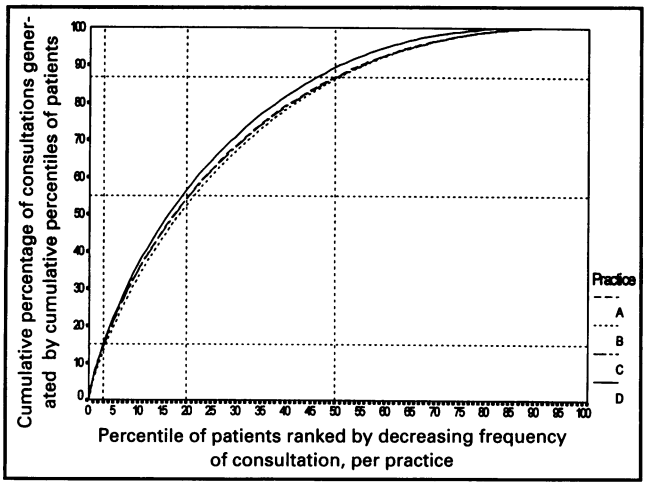


**Figure 1.** Workload: percentage of consultations accounted for by each percentile of patients ranked by frequency of consulting.

allow for the effect of this interaction. Women aged 20–39 years (odds ratio 4.28, 95% CI 2.56–7.16) and 40–59 years (odds ratio 1.93, 95% CI 1.22–3.04) were more likely to be frequent attenders than men in the same age groups.

We repeated the regression model using a 1% definition as the cut off. The same trends were apparent, but the odds ratios of being a frequent attender at this level were greater for women and with increasing age.

## Discussion

The data clearly show that the numbers of individuals consulting frequently and the extreme frequency of their consulting are substantial. A proportion exhibit an extraordinary frequency of consulting. We wonder what are the clinical reasons for such frequent consulting; if the reasons are not clinical, why do they consult so often? Can such frequency be justified? We know that some of the frequent attenders will have unrecognized psychiatric illness,[14] and GPs need to use strategies to detect this.[15] For those without psychiatric illness, the reasons underpinning attendance need to be identified and addressed.

Between one in six and one in seven consultations are with frequent attenders, because in all four practices the 3% of patients who consult most frequently account for 15% of consultations. These figures are similar to a Canadian study.[7] At a time of increasing debate about the allocation of health service resources[16] and increasing constraints upon budgets, we have quantified a significant and important effect that a minority of patients have on clinical workload.

Despite some inherent differences between these practices (no

two practices are ever identical), the distributions of the number of consultations and the workload between them are remarkably similar. This suggests that these findings may be generalizable to other practices. We have shown how the 'phenomenon' of frequent attendance crosses boundaries between these four practices, doctors, and patients, but cannot know how other practices differ from the distribution we have described. However, the practices described here may not be typical for two reasons. They were collecting computerized consultation data in 1990, at a time when fewer than one third of practices were doing so,[17] and they were willing to share their data. It is unlikely, however, that either of these factors has an influence on consultation frequency.

There are some limitations to the data, which necessitate interpretation with caution. The data set included only patients registered throughout the duration of the study. 'Transient' patients (those who left or joined the practices) do appear to consult more frequently and, hence, our figures for frequency of consulting are, if anything, an underestimate of the true picture. The data from practice A included a few non-doctor consultations, which may partly explain the higher rate of consulting and of frequent attendance in that practice. Practice D ran a strict personal list system, which may lead to greater doctor control over patients' attending or non-attending, and may partly explain their lower rates of consulting and of frequent attendance.

The logistic regression model highlights the practice-specific differences in determining the chance of their patients being in the most frequent 3% of attenders overall, irrespective of age and sex differences. These differences need some explanation. Frequent attenders were more likely in the practices with a higher mean number of consultations per patient. In these practices, the whole distribution is shifted to the right, with a higher rate of consulting at all levels. Reasons for differences in the distributions may include factors related to the doctors (such as their individual style, recall rate, and rates of referral and prescribing); factors related to the patients registered with the practices (such as socio-economic factors, morbidity variations, deprivation, ethnicity, and patients' demands and expectations); and institutional factors (such as ease of getting an appointment, doctor availability, and length of appointments). Although all practices will have frequent attenders, the numbers of frequent attenders varies between practices; further work is needed to ascertain why this is so. Although some reasons may be obvious (e.g. patient demand, GPs' recall rates), the answer is likely to be complex.

It has long been established that females of all ages, from the mid-teens onwards, consult more than males.[12] It comes as no surprise to find that more females and older people are frequent attenders. Other factors, not directly addressed in this paper, have been shown to correlate with the frequency of consulting, such as socio-economic status and ethnicity.[18]

The choice of the 3% definition equates, from these data, with 38 or more consultations in the 41 months. This is almost equivalent to one consultation per month and is important for several reasons. First, it is a similar definition to that used in several other studies and allows comparison with these studies. Secondly, it is a definition that would be recognized by most primary care professionals as realistic and appropriate. Thirdly, we have demonstrated that the most frequent 3% of patients have an important effect on workload, and that this 3% are similar, in terms of their age and sex, to the 1% and 5% groups, and therefore no less valid a group to select than any other.

We have highlighted the extreme frequency with which some patients in general practice consult and have shown the disproportionate effect they have on clinical workload. The time and resource implications of frequent attenders are important and need to be addressed. If frequent attenders are to receive appropriate medical, personal, and social care, then their consulting behaviour over time needs to be better understood. The overall appropriateness of such frequent consulting needs to be addressed. Management strategies, whether aimed at patient, doctor, or both, need to be developed accordingly.

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