The importance of list size and consultation length as factors in general practice

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SUMMARY. It is commonly believed that longer consultations are essential to better care and that this can only be achieved by lowering list sizes. The results of a survey of general practitioner trainers show that, on average, the time given to each patient was longer when general practitioners had lower list sizes, but that for a substantial minority of doctors list size played no part. Although the evidence is inconclusive, patients registered with lower list size general practitioners consulted more and received prompter attention. Doctors with smaller lists worked shorter hours and felt less overworked. However most of the correlates were weak owing to great individual differences of practice style between general practitioners. If a case for lower list sizes is to carry force, stronger evidence is needed that patients will receive more of their general practitioners' attention.

Introduction

THE number of patients that a doctor should be expected to look after while maintaining a reasonable quality of care has been debated for some time. It is frequently maintained by doctors and patients that adequate time devoted to each patient is vital to good practice. Indeed the length of consultations as such is often taken as an indicator of quality in its own right. It is claimed that a large list prevents doctors from giving sufficient time to each patient.

This project is one of a number of studies on the causes and consequences of variations in the list size of general practitioners.[1] The present paper is based on a large survey of all the trainers in four health regions which was conceived as a pilot survey, since random sampling was not considered appropriate at this stage. In this study the relationship between list size and consultation length and their effect on a number of measurable aspects of running a practice was examined.

Method

Survey methods

All trainers in each of the four regions were included in the study population. The survey was conducted in two stages. The first-stage questionnaire was designed to obtain the doctors' views of what they regarded as desirable standards. Six weeks later a second set of questions was mailed to obtain details of performance: one questionnaire was addressed to the doctor; one to the receptionist. The second-stage questionnaires, although dealing with the same topics, had more detailed questions than the first. Receptionists were questioned about delays in getting appointments and procedures for dealing with requests for consultations and home visits. They were asked for recorded details of consultations, consulting hours and home visits over one week, if available.

Definitions and measurements

List size was measured in three ways: (1) the average list per partner, (2) the personal list of the responding doctor, which in a free-flow system was the number of patients the respondents felt were their responsibility, and (3) the family practitioner committee (FPC) list. The personal list was used as closest to the purpose of the study. It was in fact slightly lower than the average list. The FPC list did not bear any relation to either.

The length of consultations was measured in two ways: (1) the number of consulting hours divided by the number of consultations and (2) the booking intervals for appointments. Both these measures were based on information supplied by receptionists.

Annual consultation rates were derived by dividing the number of consultations in one week by the personal list size and multiplying by 52. Since respondents were asked to exclude weeks in which the doctor was on leave (6.8 weeks on average) this probably resulted in an overestimate because it assumes that consultations remain the same when the responding doctor is on leave, and it ignores the effect of public holidays.

Statistical analyses

Pearson correlation coefficients were applied to continuous numeric variables, and rank correlation (Spearman and Kendall) to scaled and ordered variables. Differences and linear trends between groups of means were assessed by analysis of variance. Differences between variables shown as categories were tested by applying chi-square and, where appropriate, for linear trend.[2]

Results

Response

Of the 516 trainers initially identified 455 (88%) responded to the first-stage questionnaire. The second set of questions was mailed to those 455 who replied to the first stage and 316 (69%) responded. The characteristics of respondents and non-respondents did not differ in any ascertainable respect.

List size and consultation length

The mean length of consultations was 7.95 minutes and, because short breaks between consultations were included, was somewhat higher than the mean booking interval of 7.13 minutes. The two were correlated ($r=0.47$) and the rest of the findings were the same whichever measure was used, but the booking interval is shown in the tables. Nearly all the respondents (307 out of 316) operated a full or partial appointments system. Booking intervals ranged from 4 to 15 minutes, but the most common was 5 minutes, reported by 43%; the next most typical was 7 or 8 minutes, that is 15 minutes divided between two patients as reported by 33%; 23% of respondents reported 10-minute booking intervals.

As might be expected, list size and consultation length were negatively correlated. The correlation coefficients of booking interval and mean length of consultations with list size, although significant, were low: -0.21 and -0.22 respectively. The reason is that for many doctors, both the booking interval and the mean time spent on consultations were unrelated to the number of patients on their list. For instance 36% of general practitioners

Table 1. Relationship between list size and booking interval for appointments for the 307 respondents with an appointment system (number of respondents shown with percentage in parentheses).

Booking interval (minutes)	List size				
	1000–2099	2100–2499	2500–2999	3000 +	All
4–6	26 (36)	19 (29)	54 (51)	33 (53)	132 (43)
7–9	21 (29)	31 (47)	31 (29)	20 (32)	103 (34)
10 +	26 (36)	16 (24)	21 (20)	9 (15)	72 (23)
Total	73(100)	66(100)	106(100)	62(100)	307(100)

$\chi^2 = 19.08$, 6 df, $P < 0.01$.

with low list sizes had 5-minute booking intervals and 15% with high list sizes had 10-minute intervals. Those with lists of 2100 to 2500 patients included almost as many with 10-minute as with 5-minute booking intervals (Table 1).

Workload and working hours

List size was positively correlated with workload, in particular with the number of consultations ($r = 0.36$), but less than might be expected, because consultation rates followed a negative trend ($r = -0.31$) (Table 2). A comparison of general practitioners at both extremes of the distribution, for example, shows that general practitioners with over 3000 patients saw on average 33 more patients a week and four more per surgery than doctors with 1000 to 2100 patients, but their consultation rates were lower (2.3 per patient per annum compared with 3.0). Home visits also varied with list size, but to a lesser extent (Table 2).

The relationship between booking intervals and workload showed that general practitioners with longer booking intervals saw fewer patients; those with 10-minute intervals saw 21 fewer

patients a week than those with 5-minute intervals, but consultation rates were the same irrespective of booking intervals (Table 2). Thus although doctors operating a 10-minute booking interval saw fewer patients, their surgeries lasted longer and their weekly consulting hours were also longer.

The time spent on consultations averaged 16 hours per week; home visits including travel 9 hours. The total time spent on all practice activities as reported by general practitioners amounted to 45 hours a week (Table 2). This excluded on-call and outside commitments but included time spent with trainees. There was a trend towards shorter consulting hours, home visit hours and total hours with decreasing list size, but the correlations were weak ($r = 0.19$, 0.14 and 0.24 respectively), partly owing to higher consultation rates for doctors with smaller lists and partly to longer average consultations with decreasing list size. The combined effect of list size, consultation rates and booking intervals explained about 30% of the variation in consulting hours. (Multiple correlation coefficient $R = 0.55$, $R^2 = 0.30$. Using multiple regression barely increased any of the other coefficients.)

This group of trainers was perhaps atypical in that very few of them used deputizing services or locums to cover their on-call duties. Excluding seven who never undertook out-of-hours duties, respondents spent an average of 27 hours a week on call. Hours decreased rather than increased slightly with list size, the reason being that general practitioners with larger lists worked in larger group practices, which permitted fewer and shorter duty spells. When on duty, however, the number of home visits increased with list size. (Information on the size of partnership or group practice can be obtained from the author.)

Accessibility

A number of questions addressed to receptionists were concerned with the difficulties patients might experience in getting medical care and advice.

Table 2. Workload and working hours: relationship to doctor's list size and appointment booking interval.

Variables	List size						Booking interval (minutes)				
	1000–2099 (n = 74)	2100–2499 (n = 68)	2500–2999 (n = 110)	3000 + (n = 64)	All (n = 316)	Analysis of variance	4–6 (N = 132)	7–9 (N = 103)	10 + (N = 72)	All (N = 307)	Analysis of variance
No. of consultations (Mon–Fri excl. clinics)	109	126	133	142	127	$P < 0.001$	133	128	112	127	$P < 0.001$
Consultation rate (annual no. of consultations per list)	3.02	2.86	2.65	2.29	2.70	$P < 0.001$	2.70	2.70	2.65	2.70	NS
No. of patients per surgery (excl. clinics)	13.5	15.6	16.0	17.3	15.6	$P < 0.001$	16.6	15.5	13.5	15.6	$P < 0.001$
No. of surgeries (Mon–Fri)	8.4	8.4	8.5	8.4	8.4	NS	8.5	8.8	8.7	8.4	NS
Duration of surgeries (hours)	1.53	1.52	1.61	1.64	1.58	$P < 0.05$	1.53	1.55	1.69	1.57	$P < 0.01$
Consulting hours (Mon–Fri)	15.1	16.0	16.3	17.0	16.1	$P < 0.01$	14.9	16.5	17.2	16.0	$P < 0.001$
No. of home visits (Mon–Fri)	17	18	23	22	20	$P < 0.05$	22	20	17	20	NS
Home visit hours (Mon–Fri incl. travel)	8.0	8.4	10.2	9.7	9.2	$P < 0.01$	9.8	8.8	8.4	9.2	NS
Total practice activity hours (excl. on-call)	41.7	43.2	47.0	47.5	45.0	$P < 0.001$	44.2	44.2	47.2	45.0	$P < 0.05$
Weekly on-call hours	29.0	27.0	26.6	25.6	27.0	$P < 0.05$	27.5	24.8	28.4	27.0	NS
No. of home visits per duty spell	1.4	1.8	2.6	2.3	2.1	$P < 0.001$					

n = number of respondents. N = number of respondents with appointment system. NS = not significant.

Table 3. Accessibility to doctors: relationship to list size and booking interval (percentage of respondents shown).

Variables	List size						Booking interval (minutes)				
	1000–2099 (n=74)	2100–2499 (n=68)	2500–2999 (n=110)	3000+ (n=64)	All (n=316)	Chi-square test	4–6 (N=132)	7–9 (N=103)	10+ (N=72)	All (N=307)	Chi-square test
Evening surgeries held											
Up to 18.30 hrs	30	28	24	28	27}	NS	23	23	41	27}	$P<0.001$
Up to 19.30 hrs	5	7	8	14	8}		4	10	14	8}	
Flexibility of appointments system											
Unbooked patients always fitted in	49	27	35	36	37	NS	36	35	43	37	NS
Patient decides urgency of consultation	53	65	67	65	63	NS	58	66	69	63	NS
Patient decides need for home visit	47	44	54	56	51	NS	44	54	56	51	$P<0.05$
Two or more days delay for getting non-urgent appointment with own doctor	13	18	26	32	22	$P<0.001$	22	22	22	22	NS

n = number of respondents. N = number of respondents with appointment system. NS = not significant.

Most practices restricted Saturday surgeries to urgent cases. Thirty-five per cent of respondents held surgeries after 18.00 hours, only 8% booked patients up to 19.30 hours. Doctors with 10-minute booking intervals were much more likely to hold evening surgeries (55%) than those with 5-minute intervals (27%). List size on the other hand was not a factor here (Table 3).

Receptionists were asked when patients could expect to get an appointment if they phoned on the Monday of the survey week. A distinction was drawn between urgent and non-urgent consultations and between seeing their own doctor or any doctor in the practice. The percentage of those whose patients had to wait two days or more to get a non-urgent appointment with their own doctor increased with list size. There was no association between booking interval and delay in obtaining appointments.

Receptionists were asked if a patient who tried to see the doctor without an appointment would be fitted in. Thirty-seven per cent said that patients would always be fitted in even if it was not considered to be urgent. There was a trend towards greater flexibility in fitting patients in with decreasing list sizes and longer booking intervals, although this was not statistically significant.

Receptionists were also asked whether the patient's own assessment of the urgency of a consultation or the need for a home visit was accepted without further questioning, or if receptionists normally took the decision after asking a few questions, or whether they referred the request to the doctor. When consultations were requested, 63% of the receptionists accepted the patient's own assessment without further question. When home visits were requested the proportion was 51%. Although most comparisons by list size and booking interval did not achieve statistical significance, longer booking intervals seemed to be associated with a greater willingness to accept the patient's word as to the urgency of a consultation. It may be puzzling that respondents with larger list sizes seemed to be more flexible here than those with smaller ones but this is associated with the larger size of partnership mentioned above.

Perceptions of work

There was an overwhelming conviction by the majority of trainers that list sizes should be lower and that they would like to spend more time on consultations. When asked what they regarded as their ideal list size, without detriment to earnings, 93% specified a list lower than their present one. When further questioned on how they would spend the extra time after achieving their ideal list, 77% said that they would spend more time on consultations. On the other hand only a small minority felt that the outcome of a substantial proportion of their consultations was affected by shortage of time. There was a great variety of opinion as to the effect of longer consultations on outcome, but it was not associated with the doctor's list size. Perhaps, defensively, those with 5-minute booking intervals were less likely to make this admission, but the numbers were too small to be significant (Table 4).

Job satisfaction was high among trainers. Most of them said that they enjoyed their work and 42% did not feel overworked (Table 4). About half felt that few consultations were trivial or inappropriate. These proportions were even higher among those with lower list sizes and longer booking intervals.

Discussion

The debate about what constitutes a reasonable number of patients that would enable doctors to maintain or improve the standard of medical care has been running since the inception of the NHS. Three questions arise: first, do smaller list sizes mean longer consultations? Secondly do smaller lists and longer consultations benefit patients? Thirdly, do they benefit doctors?

This study of trainers in four health regions shows that consultations and booking intervals were on average longer for doctors with smaller lists, but with the following qualification: a small list did not necessarily mean that patients were given more time. Allowing more time for consultations was found to be compatible with medium and even larger list sizes.

A satisfactory answer to the second question is difficult to substantiate. An analysis of a number of activities, in particular screening, preventive services and care of elderly and chronic patients showed a wide range and variety of procedures and arrangements, but they were by and large unaffected by list size and consultation length (data available from the author). Taking accessibility as the example given in this paper, the evidence

Table 4. Doctors' perceptions of work: relationship to list size and booking interval (percentage of respondents shown).

Variables	List size						Booking interval (minutes)				
	1000–2099 (n = 74)	2100–2499 (n = 68)	2500–2999 (n = 110)	3000+ (n = 64)	All (n = 316)	Chi-square test	4–6 (N = 132)	7–9 (N = 103)	10+ (N = 72)	All (N = 307)	Chi-square test
Would spend more time on consultations if list were lower	66	76	81	81	77	P<0.01	86	75	61	77	P<0.001
Outcome of half or more of consultations would be better if more time were available	16	25	16	19	18	NS	14	20	22	18	NS
Few consultations regarded as trivial	64	60	50	45	54	P<0.01	44	60	64	54	P<0.001
No feeling of overwork	61	47	34	30	42	P<0.001	42	36	51	42	NS

n = number of respondents. N = number of respondents with appointment system. NS = not significant.

of benefit to patients is mixed. The fact that consultation rates get substantially higher as lists decrease means that a higher proportion of patients consult and/or that patients consult more often. Furthermore, shorter delays in getting appointments do remove a major cause for discouraging patients from seeking a consultation. But list size itself does not appear to lead to greater flexibility in operating appointments systems. There is some indication here that longer booking intervals, in particular 10-minute ones, engender this sort of flexibility. Surveys of patients such as that by Fitton and Acheson have demonstrated that time pressure on doctors affects patients, who feel that consultations are rushed and are afraid of 'wasting the doctor's time'.[3] Morrell found that patients booked at longer intervals were more likely to feel 'very free' to discuss their problems and to be satisfied with the information given.[4] Patients' satisfaction is an accepted way of measuring outcome in general practice.[5] In this sense longer consultations can be said to benefit patients.

In answer to the third question, it is understandable that the majority of doctors would have opted for a shorter list without detriment to earnings although some regarded their present list as 'ideal' and there were a few who would have liked more patients. It is also not surprising that the intention of spending more time on consultations when achieving their ideal list came first among a number of other options. Smaller list sizes were in fact associated with shorter working hours, with not feeling overworked, and with regarding fewer consultations as trivial.

It must be stressed here that this was a survey of trainers and therefore atypical. Many of them were members of the Royal College of General Practitioners. Many professed a belief in the importance of preventive medicine, in effective limitations on repeat prescribing, in the rejection of the use of deputizing services, and in the importance of social and emotional factors in illness.

If a case for a reduction of list sizes is to carry force, more evidence is needed that this will in fact lead to higher standards. From the results of this survey, which confirm research done in Manchester[6] and Nottingham,[7] smaller lists do not inevitably lead to longer consultations or to better services.

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