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Patient evaluations of accessibility and co-ordination in general practice in Europe

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Abstract

Objective To determine whether patient evaluations of the accessibility to general practice and co-ordination with other care providers were associated with characteristics of general practice organizations.

Background In 1998 patients across Europe perceived that small general practices have better accessibility than large practices. Since then a number of changes in primary care have had impact on accessibility and co-ordination of care.

Design, setting and participants The study was based on data from the European Practice Assessment study, an observational study in 284 general practices in 10 countries in 2004.

Main outcome measures Patient evaluations of general practice were measured with the 23-item Europep instrument, from which seven items on accessibility and co-ordination were selected in a principal factor analysis. Six practice characteristics were examined: percentage of female general practitioners, mean age of physicians, mean number of physician hours worked per week, number of general practitioners, number of care providers, urbanization level. Mixed regression models were applied, in which patients were clustered within practices, and practices within countries.

Results Practices with a higher numbers of care providers received less positive patient evaluations ($b = -0.112$, $P = 0.004$). The other practice characteristics were not related to patient evaluations. Only a small proportion of the total variation in patient evaluations of accessibility and co-ordination (1.8%) was explained by characteristics of the general practice organizations.

Conclusions General practices have become larger in most developed countries in recent years, but patients seemed to prefer general practice organizations with fewer health professionals.

Background

Patients hold high expectations of health care, including good accessibility of general practice and optimal co-ordination between primary care and hospital care.[1] A number of developments in developed countries in recent years may have made it more difficult to meet these expectations. These developments include changes in the work force, such as increase of part-time working physicians and changes in the patient population, particularly increasing numbers of elderly patients with multiple chronic diseases. As a response to these changes, various approaches have been used to improve accessibility and co-ordination. These include telephone consultations with physicians, walk-in centres and telephone advice services[2] as well as the involvement of nurses in clinical work, the implementation of structured chronic care and better networking with medical consultants.[3] This paper focuses on practice characteristics associated with patient evaluation of the accessibility and co-ordination of medical care.

The assumption in this paper is that patients can be asked about the organization and process of health care in much the same way they would rate services at a shop or hotel.[4] Although specific patient perceptions may not adequately reflect objective characteristics of health-care delivery, many associations the two have been reported. For instance, familiarity with a GP was associated with higher levels of satisfaction with care.[5] Various factors have found to be associated with patient evaluations of care, including characteristics of patients and providers, but the underlying theoretical mechanism remains unclear.[6] Patients' normative standards or expectations may play a role in the evaluation, but it is possible that they change over time. For assessing and improving quality of care, provider characteristics related to patient evaluations may be most relevant. A study in general practice in nine European countries, using data from 1998,[7] showed that patient evaluations of accessibility were more positive in practices with fewer general practitioners. In some countries, positive evaluations were also associated with lower number of care providers in the practice and with physicians working fewer hours per week. A large study from England showed similar findings regarding accessibility of general practice.[8] These findings raise concerns given the trend to larger practices and more physicians working part-time in many countries. We expected that, several years later, patients might have become more used to the larger general practice organizations so that these associations would no longer exist. On the other hand, the increasing numbers of part-time working physicians in a number of countries might have had negative impact on accessibility and co-ordination of medical care. Our study aimed to test these expectations.

Objectives

We used data from an international study in 2004 to determine whether patient evaluations of accessibility and co-ordination were associated with characteristics of general practice organizations.

Methods

Design and study population

The study was a cross-sectional observational study in large international sample of patients. The study was based on data from the European Practice Assessment (EPA) study, an observational study in 10 countries in 2004:[9,10] Austria, Belgium, England, France, Germany, Israel, The Netherlands, Slovenia, Switzerland and Wales. The aim was to include stratified convenience samples of 30 primary care practices in each country with equal numbers of single-handed, dual and group practices, and an equal distribution between practice in rural and urban areas. Practices were recruited from the networks of the research groups involved. The EPA study included a written survey in convenience samples of 30 patients per practice, recruited from adult patients consecutively visiting the practice. Practice characteristics used in this paper were derived from a written survey in general practitioners (GPs) in the practices.

Measures

Patient evaluations of general practice were measured with the organizational part of the 23-item Europep instrument, an internationally standardized and validated questionnaire.[7] The Europep questionnaire uses a five point answering scale, ranging from 'poor' to 'excellent' with only the two extreme categories labelled. We focused on the organizational section of the questionnaire because here we expected associations with characteristics of the practice organization. An explorative factor analysis of the data in the EPA project (Principal Component Analysis, using all 23 items, selecting factors with eigen value >1) was used to identify broad factors underlying the specific items in the Europep questionnaire. It identified a consistent factor with seven items referring to accessibility and co-ordination ($\alpha = 0.871$). The items covered the following domains: preparation for hospital care, helpfulness of practice staff, getting a suitable appointment, getting through to the practice on the phone, being able to speak to the GP on the telephone, waiting time in waiting room, and providing quick services for urgent health problems.

Based on previous research,[7] six practice characteristics were selected: percentage of female general practitioners, mean age of physicians (in years), mean number of physician hours worked per week, number of general practitioners (categories: 1, 2, 3–4, ≥5), number of care providers (including general practitioners) (categories: 2–4, 5–10, ≥10), urbanization level (village = 1, town/city = 2).

Data analysis

Mixed regression models were applied, in which patients were clustered within practices, and practices within countries (practice and country were included in all regression models). Firstly, we analysed each of the seven items of patient evaluations separately, for each of the 10 countries, controlled for patient age and gender. Secondly, we analysed the aggregated measure of patient evaluations of accessibility and co-ordination. A first regression model included dummy variables for countries (fixed factors) to identify the percentage of variation of patient evaluations associated with differences between countries. A second model included country and all practice characteristics. A third model added patient age and sex in order to control for case mix differences across practices. Analyses were carried out with SPSS 12 (SPSS Inc., Chicago, IL, USA). *P*-values of 0.05 were considered significant.

Results

Tables 1 and 2 provide descriptive information on the samples of practices and patients. The percentage of female GPs varied considerably between countries, while the mean age of physicians was quite homogeneous. We found large differences in the number of GPs and number of care providers. The mean age of patients was about 50 years and 62% comprised of women. Overall, patients had positive evaluations of general practice care.

Table 3 shows that patient evaluations of specific items of accessibility and co-ordination varied across general practices with different characteristics. Practices with a higher percentage of female GPs received less positive evaluations of a number of items in Wales, England, Israel, and Switzerland. Practices with a higher average age of physicians received more positive evaluations of most items in Wales, and one item in The Netherlands (getting through on the phone). On the other hand, practices with older doctors received less positive evaluations of preparation for hospital care in Belgium. Practices in towns and cities received less positive evaluations of a number of items in Israel, and one item in The Netherlands, compared to practices in villages. But practices in towns and cities received more positive evaluations of preparation for hospital care in The Netherlands, Germany and Slovenia.

The findings regarding number of GP working hours per week were mixed. In Switzerland and France, one item was evaluated more positively by patients. But practices with higher numbers of physician working hours per week received

Table 1 Practice and patient characteristics (n = 284 practices and n = 9248 patients from 10 countries)

	Overall mean (lowest–highest means per country)
Practice characteristics	
Percentage of female GPs	35.2% (15.0–64.0)
Mean age of physicians (in years)	46.6 (43.5–49.1)
Mean number of GP hours worked per week (hours)	43.0 (30.6–53.7)
Number of general practitioners (categories: 1, 2, 3–4, ≥5)	2.0 (1.1–3.2)
Number of care providers (categories: 2–4, 5–10, ≥10)	1.8 (1.1–2.9)
Urbanization level (village = 1, town/city = 2)	1.6 (1.4–2.0)
Patient characteristics	
Patient evaluations of practice management (aggregated mean value, 1 = poor, 5 = excellent)	4.2 (3.9–4.6)
Percentage women	61.5% (56.0–67.0)
Mean age (in years)	49.8 (45.8–55.6)

Table 2 Practice characteristics

	Single-handed practice(%)	Duo practice (%)	Group practice (%)	Mean number of GPs	Percentage of female GPs (%)	Percentage practices situated in urban area (%)
Netherlands (25)	44	28	28	2.1	29	52
Belgium (21)	29	57	14	1.8	35	43
France (22)	23	14	64	2.6	32	82
Switzerland (22)	32	23	46	2.4	27	73
Austria (31)	94	3	3	1.1	15	42
England (18)	6	33	61	2.6	33	94
Germany (46)	46	44	11	1.6	24	52
Wales (8)	13	–	88	3.2	33	75
Slovenia (30)	30	33	37	2.2	64	47
Israel (28)	21	7	71	2.6	63	82

less positive patient evaluations of a number of items in Israel. In practices with high physician working hours in Wales, patients had less positive evaluations of preparation for hospital care. Practices with more GPs received less positive patient evaluations of a number of items in The Netherlands, Israel, Belgium and France. Patient evaluations regarding a number of items were also less positive in practices with more care providers in the Netherlands, Israel, Belgium, England and Slovenia.

A substantial percentage of the variation in patient evaluations of accessibility and co-ordination (11.9%) was associated with differences between the country-specific practice samples (Table 4). After taking patient age and gender into account, practice characteristics explained 1.8% of the total variation in patient evaluations. Practices with higher numbers of care providers received less positive patient evaluations ($b = -0.112$, $P = 0.004$). We noted that the total number of physicians in the practice was correlated with the number of care providers in the practice ($r = 0.62$). The other practice characteristics were not related to patient evaluations, although the negative effect of higher percentage of female GPs in a practice was almost significant ($P = 0.07$).

Table 3 Practice characteristics and patient evaluations of accessibility and co-ordination (n = 9248)

	Percentage of female GPs	Mean age of physicians	Mean of GP hours worked per week	Number of GPs	Number of care providers	Urbanization level
Getting an appointment to suit you	−2.495 (WA) −0.461 (IS)	0.092 (WA)		−0.206 (NE) −0.257(IS)	−0.332 (NE) −0.376 (IS)	−0.543 (IS)
Getting through the practice on the phone	−0.411 (SW) −2.072 (WA)	0.042 (NE)	0.011 (SW)	−0.138 (BE) −0.273 (IS)	−0.299 (BE) −0.566 (EN) −0.409 (IS)	−0.351 (NE) −0.560 (IS)
Being able to speak to the GP on the phone	−2.784 (WA) −0.602 (IS)	0.075 (WA)	−0.024 (IS)	−0.203 (FR) −0.339 (IS)	−0.259 (NE) −0.309 (BE) −0.513 (IS)	−0.589 (IS)
Waiting time in the waiting room	−0.843 (EN) −2.223 (WA)	0.062 (WA)	−0.024 (IS)	−0.335 (IS)	−0.200 (NE) −0.386 (EN) −0.510 (IS)	−0.592 (IS)
Helpfulness of practice staff		0.033 (WA)		−0.146 (NE) −0.156(IS)	−0.218 (NE) −0.242 (IS)	
Providing quick services for urgent needs	−1.450 (WA)	0.047 (WA)	0.013 (FR) −0.019 (IS)	−0.279 (IS)	−0.177 (NE) −0.439 (IS)	−0.679 (IS)
Preparing you for hospital care		−0.011(BE)	−0.032 (WA)	−0.153(IS)	−0.217(SL)	0.226 (NE) 0.158 (GE) 0.222 (SL)

B-coefficients (with country) of the effect of the practice characteristics on items of patient evaluation, controlled for patient age and sex.
AU, Austria; BE, Belgium; EN, England; FR, France; GE, Germany; IS, Israel; NE, The Netherlands; SL, Slovenia; SW, Switzerland; WA = Wales.

Table 4 Multivariate model of patient evaluations of accessibility and co-ordination (n = 9248)

	B-coefficient	Standard error	*P*-value
Country			0.000
Practice characteristics			
Percentage of female GPs	−0.098	0.055	0.074
Mean age of GPs	0.000	0.003	0.848
GP hours worked per week	−0.001	0.001	0.343
Number of GPs	−0.031	0.027	0.272
Number of care providers	−0.112	0.038	0.004
Urban area	−0.033	0.037	0.373
Patient characteristics			
Women	0.029	0.013	0.023
Age	0.008	0.000	0.000
R^2	11.9% (model 1: countries only)		
	15.3% (model 2: countries and patient characteristics)		
	17.1% (model 3: countries, patient and practice characteristics)		

AU, Austria; BE, Belgium; EN, England; FR, France; GE, Germany; IS, Israel; NE, The Netherlands; SL, Slovenia; SW, Switzerland; WA, Wales.

Discussion

We found associations between practice characteristics and patient evaluations of specific aspects of accessibility and co-ordination across 10 countries. In a number of countries most positive patient evaluations were found in rural practices with a one or two male GPs and few if any other health professionals. The multivariate analysis across the countries showed that the number of care providers was the most important predictor: patient evaluations were less positive in practices with more care providers, although the proportion of variation explained by this was very small.

Previous research showed that the number of physicians in the practice, rather than the total number of care providers, was associated with patient evaluations of accessibility.[7] Our finding, based on data from 2004, may reflect developments in recent years, such as the introduction of more nurses and other non-physicians. Patients may be used to more physicians in a practice, and adapted their expectations, but they may not yet used to the involvement of more nurses and other health professionals. However, further research should clarify this. For instance, a very large study of patient evaluations in Denmark (a country not included in this paper), using the Europep questionnaire, did not identify this association.[11]

As opposed to other research,[7,11] we found that practices with more female physicians tended to have less positive patient evaluations of accessibility and co-ordination in some countries. As we controlled for physician working hours per week, this finding was not explained by female physicians working fewer hours per week. Previous research did not identify associations between physician working hours and patient satisfaction with care.[7,12] Therefore, a potential explanation for our findings might be that female physicians preferred to work in specific types of practices, which provide poorer accessibility and co-ordination (a selection effect). Another explanation might be that patients have specific expectations of female physicians, regardless of how many hours they actually work.

Obviously, the study had strengths and weaknesses. Weak aspects of the study were the absence of representativeness of the practice samples and absence of information on response rates in the patient surveys. While a study protocol provided instruction on the sampling procedure, there was no control of the integrity of the sampling procedure. The descriptive data in this study are not representative for countries. The study focused on correlations between measures, which is probably less affected by these limitations in the samples. Several unmeasured factors could influence the correlations, however, such as clinical demand in the practice (related to patient age and deprivation) and patients' expectations of accessibility and co-ordination. A strong aspect was the availability of large numbers of data on practices and patients from 10 countries. We used internationally validated measures for both patient evaluations of general practice care and practice characteristics. Also, the inclusion of 10 different health-care systems and cultures increased the generalizability of the findings.

This study compared different practices with different samples of patients across Europe. Future research on patient perceptions of practice characteristics should try to reduce potential confounding by differences between patient samples. In particular, the role of (possibly changing) patients' expectations of accessibility and co-ordination should be explored. Further research should consider more explicitly patient experiences and evaluations regarding nurses and other non-physicians in primary care. Studies should particularly focus on patients with chronic diseases, because these are most likely to see many different clinicians. Separate attention should be paid to the provision of services for urgent needs, given the emergence of new models for after-hours care.[13] Additional research is also needed to understand patient evaluations of the accessibility and co-ordination in practices with more female physicians. Primary care practices have become larger in most countries in recent years, but patients in practices with fewer care providers remained most positive about the accessibility and co-ordination. The findings sit uncomfortably with certain health policy initiatives.

Our finding that patients seemed to prefer smaller general practices is not new, and perhaps evident in the UK, but policy makers have paid little attention to it. The uptake of research findings by health policy makers is slow[14] and our finding may simply prove to be no exception. The low proportion of explained variation in patient evaluations may suggest that the variation reflects differences between patients, and measurement error, rather than differences between practitioners and practices. Patient priorities regarding accessibility and

co-ordination have showed to vary with patient characteristics, such as age, gender, education and health status.[15] Such characteristics could be used by health policy makers for prioritizing accessibility and co-ordination versus other aspects of general practice. On the other hand, a study showed that patient preferences did not predict variation in patient satisfaction with care.[16] Another method to implement our research finding in health policy would obviously be to increase the public's role in planning and organization of primary care, either by more participation or by introducing more market mechanisms.

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