

ORIGINAL ARTICLE

Factors related to consultation time: Experience in Slovenia

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Abstract

Objective. Consultation time has a serious impact on physicians' work and patient satisfaction. No systematic study of consultation time in general practice in Slovenia has yet been carried out. The aim of the present study was to measure consultation time, to identify the factors influencing it, and to study the influence of the workload of general practitioners on consultation time. **Design.** A total of 42 general practitioners participated in this cross-sectional study. Each physician collected data from 300 consecutive consultations and measured the length of the visit. **Setting.** Forty-two randomly selected general practices in Slovenia. **Subjects.** Patients of 42 general practices. **Main outcome measures.** Average consultation time in general practice in Slovenia; factors influencing consultation time in Slovenia. **Results.** Data from 12 501 visits to the surgery were collected. A quarter of all visits (25.5%) were administrative. The mean consultation time was 6.9 minutes (median 6.0 minutes, 5%–95% interval: 1.0–16.0 minutes). Longer consultation time was predicted by: patient-related factors (female gender, higher age, higher level of education, higher number of health problems, change of physician within the last year), physician-related factors (higher age), physicians' workload (absence of high workload), and the type of visit (consultation and/or clinical examination). **Conclusion.** Consultation time in general practice is short, and depends on the characteristics of the patient and the physician, the physician's workload, and the type of visit. A reduction of high workload in general practice should be one of the priorities of the healthcare system.

Key Words: Consultation time, family practice, general practice organization, general practitioner, patient, workload

General practitioners' work is becoming increasingly complex; patients are becoming older and the incidence of multimorbidity is increasing. All these trends in general practice increase the workload of general practitioners (GPs) [1]. One of the potential consequences of an increased workload is a shortening of consultation time, which has an impact on general practitioners' work and on patients' satisfaction [2–4]. Longer consultations are linked to better care; physicians who have longer consultations prescribe fewer drugs, identify more patients with chronic diseases, deal more frequently with psychosocial problems, and promote healthier lifestyle [5,6].

Consultation time is dependent on many factors: the physicians themselves, the patients, reasons for the visit, the relationship between the physician and the patient, organizational factors, the geographical region, and the healthcare system [7–9].

Consultation time is dependent on many well-known factors, but most studies have been done in developed healthcare systems and little is known about these factors in countries that have undergone a change in healthcare systems.

- Consultation time in Slovenian general practice is very short.
- High workload, particularly with administrative tasks, reduces consultation time.
- Continuity of care reduces consultation time.

After Slovenia's independence in 1991 the healthcare system was changed: as in other Central and Eastern European countries, it has been transformed from a state-run system to a decentralized model [10]. Higher responsibility was given to family

physicians. All patients must choose their own “personal” family physician. Family physicians have responsibility to provide primary care for the patients on their list, including emergency care 24 hours a day [10]. The family physicians’ “gate-keeping” role puts them at the forefront of the cost containment and quality assurance efforts of the healthcare system [11].

Unfortunately, there are few other data about how the consequences of the health reform have influenced the GP’s work. A previous study found that the referral rate has increased from 8% to 17% [12], but consultation time has not been investigated.

The purpose of this study was to investigate the length of consultation time in general practice in Slovenia, and to discover which factors influence consultation time and whether the higher workload of general practitioners contributes to shorter consultations.

Material and methods

A total of 50 general practitioners were randomly selected from the national register of the Slovenian Society of General Practitioners; 42 physicians (from 42 different general practices) agreed to participate (response rate 84%). Each of them collected data on 300 consecutive consultations, including home visits, which fulfilled the criteria for a representative national study. Data were obtained for 12 596 consultations, both in the surgery and at patients’ homes. There were 12 501 (99.2%) visits to the surgery and 95 (0.8%) home visits. Because of the important differences in the place and time required for home visits we excluded these from our analysis. Because the administrative visits (e.g. writing a prescription) do not include clinical examination time, they were excluded from two further analyses: consultation times for different health problems and consultation time dependent on the number of health problems. These two analyses were carried on 9319 visits which included a clinical examination.

A questionnaire was developed in collaboration with the NIVEL institute to fulfil the purpose of the study [13].

Data on patient characteristics were obtained from the paper medical record. The length of consultation was measured by the practice nurses using a stopwatch. The consultation time was considered from the moment the patient entered the GP’s room to the moment when he or she left. The time that the doctors used for writing in the medical record was also included in the measurement. Consultation time was rounded to the nearest half-minute.

Data were also collected on the physicians themselves: their professional competences, organization of work, and their workload. Workload was defined as the number of patients on the physician’s list, weighted to take into consideration the age of the patients. The sum of the scores of all the patients on the physician’s list yielded the number of standardized quotients. The National Health insurance company developed this criterion for workload [14] and it seems to be the most objective measurement of the workload of general practitioners in Slovenia [1].

Table I shows the number of scores according to the patients’ age. Physicians who belonged to the upper quartile according to the number of standardized quotients were defined as physicians with a high workload.

The research was approved by the National Ethical Committee.

The data were analysed using SPSS, version 14 (descriptive statistics, t-test, chi-squared test, linear regression). We used $p < 0.05$ as the threshold of statistical significance.

Results

Patients, physicians, organization of work, and workload

There were 12 501 patients, 5650 (45.2%) males and 6851 (54.8%) females, aged between 0 and 97 years, the mean being 51.7 years (SD 18.9 years). Consultations with females made up a larger proportion than those with males ($t = 2.062$, $p = 0.039$). The group of patients aged between 41 and 50 years were the most frequent visitors. Of the study population, 41% had only a basic level of education (primary school or less); 4.6% of the patients had changed their GP within the past year.

The sample of GPs consisted of 42 physicians, 13 men and 29 women, aged from 33 to 63 years old, with a mean of 44.1 years (SD 7.7 years). Eight physicians were private contractors working in solo practices, and 34 were employed in health centres and working in group practices. An appointment system was in place in 19 offices (45.2%), while 23

Table I. Number of scores according to patient’s age.

Age (years)	Number of scores
0–1	3.00
1–6	1.90
7–18	0.88
19–49	0.84
50–64	1.40
65–74	2.20
75 and above	3.00

offices had a partial appointment system or none at all. An appointment system was in place in six out of eight private contractors and in 13 out of 34 physicians employed in health centres ($\chi^2=736.0$, $p < 0.001$).

The workload of the physicians as defined by the standardized (by age) scores was from 1094.8 to 4202.4, with a mean of 2387.5 (SD 633.4). Of the total sample, 11 physicians had 2660 or more standardized scores and belonged to the upper quartile according to number of standardized scores.

Consultation time

The mean consultation time was 6.9 minutes (median 6 minutes, 5%–95% interval: 1.0–16.0 minutes).

Administrative visits (writing a prescription or other administrative reasons for the visit), which represented 25.5% of all visits, lasted on average 3.7 minutes (median 2.5 minutes, 5%–95% interval: 1.0–11.0 minutes), while those visits which also included a consultation and/or clinical examination had a mean of 7.8 minutes (median 7.0 minutes, 5%–95% interval: 2.5–16.0 minutes).

The consultation time varied according to the purpose of the visit; administrative visits were shorter (Table II). Consultation times for various health problems according to the ICPC classification also differed (Table III).

The mean number of health problems at a single attendance was 1.6 (from 1 to 8, median 1, 5%–95% interval: 1–3). The mean consultation time for visits with a single health problem was 6.9 minutes (median 6.0 minutes), and the increase of about two minutes for each additional health problem (Table IV).

Linear regression of factors influencing consultation time in general practice

Patients' characteristics, organization of work, and the type of visit (i.e. with or without clinical

examination) all influence the consultation time (Table V). Other variables included in the analysis are: the GP's gender, the use of an appointment system, and the distance to the nearest hospital (an influence in more rural areas).

In the multivariate analysis, longer consultation time was dependent on the characteristics of the:

- patients: female gender, higher age, higher level of education, change of GP within the last year, higher number of health problems;
- physicians and organization of work: higher age, absence of high workload;
- type of visit: all visits with consultation and/or clinical examination.

Discussion

Statement of principal findings

Consultation time in general practice in Slovenia is very short; it is shorter than the mean consultation time in six European countries by almost 30% [9]. Home visits represent a small proportion of the physician's work; on the other hand, there is a high proportion of administrative visits. Consultation time is dependent on individual patients and their illnesses, the type of visit, the physician's characteristics, and the physician's workload.

Strengths and weaknesses of the study

The study included a large sample of randomly selected patients in general practice and enabled us to generalize the results to a national level. The workload was defined in a more complex manner than in some previous studies, since we took into account the number of patients on the list and their age, which leads to a more realistic estimation of workload.

The main weakness of our study is that we did not measure the number of contacts, e.g. in the last year,

Table II. Consultation times with regard to the purpose of visits.

Type of visit	Number (percentage) of visits ¹	Mean consultation time (median) in minutes	5%–95% intervals in minutes
Acute disease – first	3424 (27.4)	8.2 (7.0)	3.0–17.0
Acute disease – repeat	2480 (19.8)	6.4 (5.5)	2.0–14.0
Chronic disease – first	664 (5.3)	9.9 (9.0)	0.5–42.5
Chronic disease – repeat	3130 (24.2)	8.5 (7.5)	2.5–17.5
Preventive medical examination	300 (2.4)	13.3 (10.5)	3.0–29.5
Preoperative examination	95 (0.8)	10.7 (10.0)	3.0–20.5
Drug or medical equipment prescription	1970 (15.8)	3.5 (2.5)	1.0–10.0
Other administrative reason	1290 (10.3)	4.1 (3.0)	1.0–12.0
Consultation for relatives	290 (2.3)	6.7 (5.0)	1.0–16.5

¹The total exceeds 100%, because some patients visited the general practitioner for more than one reason at a time.

Table III. Consultation times for different health problems.

Health problem	Number (percentage)	Mean consultation time (median) in minutes	5%-95% intervals in minutes
General conditions/symptoms	765 (8.2)	8.7 (7.5)	2.5-20.5
Blood and haemopoetic disorders	155 (1.7)	8.3 (7.0)	2.0-18.5
Gastrointestinal disorders	1028 (11.0)	8.9 (8.0)	2.5-20.0
Eye disorders	306 (3.3)	9.0 (8.0)	2.0-21.0
Ear/mastoid disorders	303 (3.3)	8.4 (7.0)	3.0-17.0
Cardiovascular diseases	2321 (24.9)	9.9 (8.5)	3.5-20.5
Musculoskeletal disorders	1871 (20.1)	7.6 (7.0)	2.0-15.0
Neurological disorders	402 (4.3)	9.4 (8.0)	3.0-20.5
Psychiatric disorders	648 (7.0)	10.4 (9.0)	3.0-24.5
Respiratory tract diseases	1807 (19.4)	7.9 (7.0)	3.0-15.5
Skin and subcutaneous tissue disorders	1326 (14.2)	7.0 (5.5)	2.5-16.5
Endocrine disorders	977 (10.5)	10.0 (9.0)	3.0-21.0
Urinary tract diseases	459 (4.9)	8.5 (7.0)	3.0-16.5
Pregnancy-related health problems	61 (0.7)	7.5 (6.5)	1.5-19.5
Diseases of female reproductive organs	160 (1.7)	9.0 (7.5)	2.5-22.0
Diseases of male reproductive organs	192 (2.1)	9.0 (8.0)	3.0-17.5

which might be also an important predictor of consultation time.

With the factors studied we were able to explain less than a quarter of total variability in consultation time. Similar results have been found in other studies [7,9]. Potential other factors that could explain the rest of variability could be: psychosocial characteristics of physicians and patients living and working in a rural area could be different from those in an urban area; different appointment intervals and different intervals between two visits [15]; personal characteristics and working style of the physicians [16]; and a lack of general practitioners in some regions of Slovenia is more serious than in others.

Strengths and weaknesses in relation to other studies

The average consultation time in Slovenia is among the shortest in Europe, taking into account results from two other relevant studies: one conducted in six European countries [9] and one from Estonia [17]. The reasons for shorter consultations in Slovenia could be a higher workload for Slovenian general practitioners, which might be a consequence of the changes in the healthcare system, particularly an

Table IV. Consultation time in relation to number of health problems.

Number of health problems	Mean consultation time (median) in minutes	5%-95% intervals in minutes
1	6.9 (6.0)	2.0-14.5
2	8.7 (8.0)	3.0-18.0
3	10.6 (9.5)	4.0-21.0
4	12.5 (11.0)	4.0-25.5
5 or more	15.5 (13.5)	5.0-31.5

increase in administration for general practices, and an inadequate number of physicians, especially general practitioners [1]. There were no data concerning consultation time in general practice before the healthcare reforms to confirm this hypothesis.

GPs have to pay most of their home visits out of regular office hours, without extra payment, which could be the reason for very small proportion of home visits compared with other countries in Europe [18].

Consultation time varied according to the purpose of the visit [9]. Preventive visits took more time because the visit had a defined structure, including promotion of a healthier lifestyle, which took more time than all types of curative visits.

Consultation time depended on the particular type of health problem, but the differences were relatively small. Mental health problems need less biomedical but more psychosocial talk between the doctor and the patient [9, 19] and last only about two minutes more than consultations for somatic disorders. It seems that GPs in Slovenia are more biomedically than psychosocially oriented.

When more than one health problem was managed at a single visit, the consultation time was prolonged [9,20]. Each additional health problem prolonged the consultation time by about two minutes, which is comparable to 2.5 minutes in another study [20].

Longer consultation time correlated with the patient's gender (women tend to have longer consultations) and higher age of the patients [7,9,17,21]. However, only a small proportion of variability can be explained by the patient's age [7], which means that other factors, such as the number of health problems [9,20], the characteristics of the

Table V. Linear regression of consultation time (model: $F=217.801$, 11 degrees of freedom, $p < 0.001$).¹

	B	S.E.	beta	t	p
Constant	-0.791			-1.719	0.086 (NS)
Patient characteristics					
Female gender	0.185	0.091	0.018	2.035	0.042
Higher level of education	0.322	0.040	0.072	9.058	< 0.001
Change of physician within the last year	0.436	0.216	0.017	2.018	0.044
Higher number of health problems	1.576	0.055	0.260	28.750	< 0.001
Higher age	0.021	0.003	0.077	8.199	< 0.001
Characteristics of physicians and organization					
Higher age	0.018	0.008	0.027	2.395	0.017
High workload	-0.971	0.134	-0.083	-7.271	< 0.001
Type of visit					
Consultation including clinical examination	3.387	0.104	0.283	32.440	< 0.001

¹The model explains 17.4% of the total variability in consultation time.

health problems, and the “physician’s speed” are more important [7] predictors of consultation time.

Consultation time in higher educated patients was longer than in less educated patients. It seems that in Slovenia less educated people are at higher risk of not getting the necessary attention during their consultation, which might be the reason for a higher frequency of contacts than in more educated people [22].

Consultation time for patients who had changed their GP within the past year was longer. This finding was not surprising and reflects the beneficial effect of continuity on the efficiency of work [23]; more time is required for unknown patients. It is also possible that patients who are not satisfied with the duration of consultations (feeling they are too short) are more likely to change their doctor.

A higher workload makes shorter consultations more likely. Studies from the UK and the Netherlands found that a higher number of patients on the doctor’s list predicted shorter consultations [24,25].

Implications of the study

One of the factors shortening consultation time which can be changed was high workload. Measures that reduce unnecessary administrative visits should particularly be considered. Administrative work currently takes up on average 21% of the working time of GPs [26].

Unanswered questions and future research

Although quality of work has not been addressed in the study, the workload of GPs may have reached the level where it influences consultation time and perhaps also the quality of work. A lower quality of work may in turn increase consultation rates and further increase consultation times.

A follow-up study taking into account long-term effects of high workload on GPs’ quality of work and on patient satisfaction is required in order to verify the hypothesis.

Conclusion

Consultation time in Slovenia is much shorter on average than in Europe. Numerous factors were found to influence the consultation time in general practice. One of the factors shortening consultation time which can be changed was high workload, particularly on administrative tasks.

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