Young people and their GP: a register-based study of 1717 Norwegian GPs

Øystein Hetlevik*, Kjell Haug and Sturla Gjesdal

Department of Public Health and Primary Health Care, University of Bergen, Kalfarveien 31, N-5018 Bergen, Norway.

*Correspondence to Øystein Hetlevik, Department of Public Health and Primary Health Care, University of Bergen, Kalfarveien 31, N-5018 Bergen, Norway; E-mail: oystein.hetlevik@isf.uib.no

Received 17 January 2009; Revised 25 September 2009; Accepted 29 September 2009.

Background. Internationally, there has been a call to improve the youth-friendliness of health services. In surveys, 60–90% of young people report having contact with a GP at least once a year. Regular contact with the GP can be assumed to be an indicator of a youth-friendly health service. The aim of the current study was to identify associations between a high consultation rate with young people (15–24 years) on the one hand and GP characteristics, patient list characteristics and practice profiling factors on the other.

Methods. A cross-sectional national register-based study from 2002–04 in Norwegian general practice. Data on 1717 GPs, their practice populations and a sample of 316 773 consultations with young people were used to estimate differences between GPs, using one-way analysis of variance and logistic regression.

Results. The mean annual consultation rate with young people was 1.4 (95% confidence interval 1.4–1.5) and 2.2 (2.1–2.2) for the age groups 15–19 and 20–24, respectively. List characteristics indicating free capacity—a shorter patient list, a growing patient list and a high access for persons not on the patient list—were associated with a high youth consultation rate. Young age of the GP, low educational level among the list population and a high rate of interdisciplinary activity by the GP were also associated with a high youth consultation rate.

Conclusions. GPs seem to assign especially low priority to young people when workload is high or free capacity low. Increased awareness of these mechanisms and greater interdisciplinary cooperation could increase the youth-friendliness of general practice.

Keywords. Family practice, health services accessibility, physician’s practice patterns, statistics and numerical data, primary health care, young adult.

Introduction

The ability of health services to deal with the health problems of young people has been increasingly addressed over the last decade. Factors that hinder or facilitate contact with health services have been identified, and there has been a call for improvement of the youth-friendliness of services.1–3 On the basis of literature examining the youth-friendliness of health services, one can assume that the needs of young people for medical services are not sufficiently fulfilled.1,4,5

The World Health Organization defines the age group from 15 to 24 years as youth, referred to in this paper as ‘youth’ or ‘young people’.6 During adolescence, young people establish contact with health services independently of their parents; GPs’ contacts with young people are therefore of special interest.

The major burdens of disease among young people are injuries, issues relating to reproductive health and psychological problems, including psychiatric disorders and substance abuse.1,3 These health problems and lifestyle factors are possible predictors of ill health in adult life and are partly preventable or may be treated. A health service with the ability to identify and deal with these problems can reduce the disease burden in adulthood.3 The accessibility to services for young people and the interpersonal skills of health professionals might therefore be of major importance.7

Surveys have suggested that 60–90% of young people have contact with a GP at least once a year.1,8 However, health problems among young people are frequently not presented to health services. One reason may be low expectations of the health service’s ability to deal with a particular problem.9–11
Factors such as fixed appointments, waiting times, unsuitable opening hours and service fees are probable barriers to young people’s contacts with their GP. \(^1\) \(^1\) \(^2\) \(^1\) Such obstacles to accessing health services may affect young people more than other groups. \(^1\) \(^3\)

We assume that a high rate of consultations with young people is an indicator of a better service. GPs’ encounters with young people in consultations are a foundation for building the confidence necessary for dealing with difficult health issues, and high consultation rates with young people increase the possibility to develop such relationships. Organizing a practice to enable doctors to spend time with young people when necessary may strengthen this confidence \(^1\) \(^4\) and facilitate better services over time. In addition, active engagement in interdisciplinary work is important in youth medicine. \(^1\) \(^5\) – \(^7\) The ability of GPs to recognize psychological problems has been questioned, \(^1\) \(^8\) \(^9\) \(^1\) and giving priority to such problems may be seen as a further indicator of youth-friendliness. Characteristics of the GPs themselves and their patient lists will probably also influence consultation rates with young people. Overall, increased knowledge of these factors might contribute to the improvement of the youth-friendliness of primary health care.

Aim of the study
The aim of this study was to identify associations between a high consultation rate with young people on the one hand and GP characteristics, patient list characteristics and practice profiling factors on the other.

Material and Methods

Material
We conducted a cross-sectional register-based study based on data on Norwegian GPs and their practices. The Norwegian GP system is financed mainly by fees for services. \(^2\) \(^0\) GPs generate a bill to the Norwegian Labour and Welfare Organisation (NAV) for each consultation and for all interdisciplinary contacts and meetings with other health and social service professionals attending one of their patients. The information on the bills includes a main diagnosis based on the International Classification of Primary Care (ICPC), \(^2\) \(^1\) \(^1\) \(^1\) the age and sex of the patient, the duration of the consultation and the procedures carried out. In the study period, the NAV used a sample of bills from one to five practice months per year for each GP for monitoring purposes. These bills were anonymously included in the GP database, described below. All GPs who were approved specialists in family medicine, who had practised during the whole study period and had a representative sample of consultations within the monitoring database were included. GPs who were not approved specialists were excluded, as the Norwegian national billing system covers only a part of their consultations.

In total, 1717 GPs were included, with a total practice population of 2.3 million people, 12% in the age group 15–24 years. The included GPs were represented in the study with a total of 4 203 257 consultations, 316 773 (7.5%) of which were with patients aged 15–24 years, based on an average of eight practice months. Of the 1717 included GPs, the mean age was 50 years, the mean list size was 1353 and 25% of the GPs were female. This compares with the figures for all Norwegian GPs with a mean age of 47.5 years, an average of 1200 patients on their list and 30% female GPs. \(^2\) \(^2\) The differences result from the fact that only approved specialists who had completed the 5-year training programme were included in the study.

Sources of data
Data were obtained from a national GP research database, including information on age and gender of the GP, list length, change in list length, age and gender of the patients on the list, plus a sample of consultations from each GP, described above. We combined these data with information on educational level in the patient list population from the National Education Database.

Variables
The outcome of interest was a high youth consultation rate defined as an average of \(\geq 2\) consultations per person aged 15–24 years on the list per year.

The first explanatory variables used in our statistical model were GP age and gender. We then included the following list characteristics: mean patient list size for 2002–04, increase in list size between 2002 and 2004, proportion of consultations with patients not on the GP’s list, proportion of the practice population aged \(\geq 70\) years and the proportion of patients on the list with basic education only (7–9 years of schooling).

For the purpose of this study, we defined three ‘GP profiles’ based on data from consultations with young people, covering important issues in youth medicine:

- ‘Time spending’: \(\geq 30\%\) of consultations with young people lasting \(\geq 20\) minutes.
- ‘Cooperative’: an annual rate \(\geq 0.1\) per young patient of interdisciplinary contacts or meetings with other services attending one of the GP’s young patients.
- ‘Psychologically orientated’: \(\geq 15\%\) of consultations with young people coded with a psychological diagnosis from the P chapter of ICPC.
Statistical analyses
Differences between rates of consultations with young people and other factors characterizing the GPs and their practices were analysed using one-way analysis of variance. Associations between youth consultation rates and GP characteristics, patient list characteristics and the three youth practice profile measures were identified by binary logistic regression, where the effect of each explanatory variable was estimated adjusting for all other variables in the model. The SPSS 15.0 software package was used.

Results
The distribution of diagnoses used in consultations with young people is shown in Table 1 by patient age and gender. This distribution of diagnoses was similar when comparing GPs with youth consultation rates ≥2 to the other GPs, not presented in table. On female GPs' lists, 63% of the list population aged 15–24 years were female compared to 44% on male GPs’ lists.

The mean annual consultation rates were 1.4 [95% confidence interval (CI) 1.4–1.5] and 2.2 (95% CI 2.1–2.2) for the age groups 15–19 and 20–24, respectively. Table 2 presents the consultation rates for young people for male and female GPs by patient age and gender. Male GPs had slightly higher consultation rates for male patients aged 15–24 years and for female patients in both age groups. Male GPs also showed a slightly higher proportion of consultations with psychological diagnoses.

Table 3 presents the associations between high youth consultation rates and the explanatory variables. There was no association between youth consultation rates and GP gender. However, GP age <45 years predicted high consultation rates.

The following list factors were positively associated with high youth consultation rates: a shorter patient list, an increasing patient list and a high consultation frequency with patients not on the patient lists. A high proportion of patients with low educational level was also associated with a high youth consultation rate.

High youth consultation rates were positively associated with a cooperative youth profile. There were no associations between high consultation rates and the GP youth profiles time spending and psychologically oriented, when adjusted for other practice factors.

Discussion
Previous studies have shown that young people show a reluctance to seek health services, tend to have the shortest consultations and have a tendency not to present their ‘real’ illness. These studies indicate that it is easy to assign low priority to young people in health services.

In this study, we chose a high rate of consultations with young people, a possible marker for
youth-friendliness in the practice. Alternatively, measures of subjective or objective health improvement or patient satisfaction might have been chosen. However, such variables are not available in register-based studies. Moreover, measurement of health improvements and patient satisfaction is difficult and often hampered by selection and reporting biases. Consultation rates are a valid measure of ‘output’ and the proportion of the GP’s resources assigned to this patient group.

Earlier studies on total practice populations have shown higher consultation rates by male GPs and by GPs in higher age groups.24 Our study showed a different pattern in the young practice population. High youth consultation rates were independent of GP gender and positively associated with lower GP age. Differences in GP practice styles related to the age of the GP25 have been identified previously and may explain the association between lower GP age and youth consultation rates.

It is known that women attend health services more frequently than men and prefer female doctors.12,26,27 The present study showed these gender differences to be present also among young people. Although young women prefer to be on a female GP’s list, GP gender showed no association with total youth consultation rates. However, young women with a male GP had slightly higher consultation rates than those with a female GP (statistically significant). This has not been described previously and indicates that the actual use of GP services is less dependent on patient and GP gender than is the case for list composition.

Good accessibility, assessed mainly by surveys among patients, has been found to be especially important for young people.12,26,27 Our outcome measure, the youth consultation rate, can be seen as a ‘result’ of accessibility. GPs with increasing list size and who often see patients outside their list can be assumed to have free capacity. These factors, together with a short patient list, seem to increase accessibility measured by consultation rates. These findings are not in line with previous Norwegian studies showing that GPs’ consultation rates are generally not influenced by list size or the desire to increase the list size.24,31 These studies also found that a high proportion of elderly patients on the list increased the total consultation rate in the practice.31 In our study, an inverse association was found between a high proportion of elderly patients on the list and the youth consultation rate. This, together with the positive association between youth consultation rates and indicators of free GP capacity, indicates that the GP’s workload influences the contact with young people more strongly than it does within the practice population as a whole.

### Table 3

<table>
<thead>
<tr>
<th>GP factors</th>
<th>n</th>
<th>Crude OR</th>
<th>95% CI</th>
<th>P-value</th>
<th>OR</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>433</td>
<td>Ref.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1284</td>
<td>0.8</td>
<td>0.6–1.0</td>
<td>0.051</td>
<td>1.0</td>
<td>0.7–1.3</td>
<td>0.77</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥55</td>
<td>427</td>
<td>Ref.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45–54</td>
<td>957</td>
<td>1.2</td>
<td>0.9–1.6</td>
<td>0.26</td>
<td>1.0</td>
<td>0.8–1.5</td>
<td>0.72</td>
</tr>
<tr>
<td>&lt;45</td>
<td>333</td>
<td>2.4</td>
<td>1.7–3.3</td>
<td>&lt;0.001</td>
<td>1.7</td>
<td>1.2–2.6</td>
<td>0.005</td>
</tr>
<tr>
<td>List factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>List size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥1500</td>
<td>510</td>
<td>Ref.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000–1499</td>
<td>946</td>
<td>1.4</td>
<td>1.1–1.9</td>
<td>0.017</td>
<td>1.3</td>
<td>1.0–1.8</td>
<td>0.11</td>
</tr>
<tr>
<td>&lt;1000</td>
<td>261</td>
<td>3.5</td>
<td>2.5–5.0</td>
<td>&lt;0.001</td>
<td>2.8</td>
<td>1.9–4.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Increasing list sizeb</td>
<td></td>
<td>695</td>
<td>2.1</td>
<td>1.6–2.6</td>
<td>&lt;0.001</td>
<td>1.7</td>
<td>1.3–2.2</td>
</tr>
<tr>
<td>High proportion of consultations with patients not in listc</td>
<td></td>
<td>364</td>
<td>2.0</td>
<td>1.6–2.6</td>
<td>&lt;0.001</td>
<td>1.6</td>
<td>1.2–2.1</td>
</tr>
<tr>
<td>Low education among those 20–24 yearsd</td>
<td></td>
<td>503</td>
<td>1.8</td>
<td>1.4–2.3</td>
<td>&lt;0.001</td>
<td>1.6</td>
<td>1.2–2.1</td>
</tr>
<tr>
<td>High proportion in list population &gt;70 yeare</td>
<td></td>
<td>899</td>
<td>0.5</td>
<td>0.4–0.7</td>
<td>&lt;0.001</td>
<td>0.7</td>
<td>0.5–0.9</td>
</tr>
<tr>
<td>Practice factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time-spending GPF</td>
<td></td>
<td>508</td>
<td>1.2</td>
<td>1.0–1.6</td>
<td>0.12</td>
<td>1.0</td>
<td>0.8–1.3</td>
</tr>
<tr>
<td>Cooperative GPG</td>
<td></td>
<td>472</td>
<td>2.0</td>
<td>1.6–2.6</td>
<td>&lt;0.001</td>
<td>1.7</td>
<td>1.3–2.2</td>
</tr>
<tr>
<td>Psychologically oriented GPh</td>
<td></td>
<td>338</td>
<td>1.5</td>
<td>1.1–1.9</td>
<td>0.008</td>
<td>1.1</td>
<td>0.8–1.5</td>
</tr>
</tbody>
</table>

Results of logistic regression. Model 1 univariate and Model 2 adjustment for all other variables N = 1717 Norwegian GPs.

aAnnual rate ≥2 per person 16–24 years.
bList growth ≥20 during 2002–04.
c≥4% of consultations with persons not on the list.
d≥35% in the age group 20–24 with only basic education.
e≥10% of list population ≥70 years.
f≥30% of consultations lasting >20 minutes.
gRate of interdisciplinary activities >0.1 per person per year.
h≥15% of consultations with a psychological diagnosis (P chapter in ICPC).
However, differences in consultation rates may also reflect list populations with different health service needs, independent of GP profiles and list factors. Low socio-economic status increases the risk of health problems, and this has also been shown among young people. The present study found an association between high youth consultation rates and lower educational level among young people, which has not been described previously. This might also indicate that the GPs in this study were responsive towards the health needs of the young population.

A youth-friendly health service has to be both accessible and acceptable, viewed from the young person’s perspective. The GP profiles were chosen to describe factors that might increase such acceptance. There was a positive association between the cooperative GP profile and high youth consultation rates. There was no inverse association between consultation rates and a time-spending or a psychologically oriented GP, indicating that GPs with high consultation rates did not reduce their focus on psychological problems or the time spent with young people. This is in line with previous studies, showing the ability of GPs to engage with psychosocial problems even when the workload is high and even though such consultations are perceived to raise the workload.

Strengths and limitations of the study
Strength of this study is the inclusion of all Norwegian specialist GPs, eliminating selection bias towards GPs especially interested in research or youth medicine. Further, the analyses were based on a large number of consultations, selected at random, yielding results with high statistical significance. The use of register data also eliminates reporting bias on data about GP factors and the population.

The diagnoses were based on the ICPC, shown to be a valid tool at the chapter level. Overall, the diagnosis used by the GP probably indicates the main focus of the consultation.

The fact that data on consultations are based on billing reporting as a basis for fees paid by the NAV is a significant shortcoming. There may be variation in the use of codes. Bills are monitored by the NAV and the use of activity codes is reported back to GPs together with comparisons with the average use among GPs. Because of the regular feedback from NAV to the GPs, we assume that there is a concurrent understanding among the majority of GPs about the use of these codes.

Another limitation is that high consultation rates could reflect different prevalences of illness within the list populations and to interpret this measure as an indicator of youth-friendliness could be questioned. As far as illness reflects socio-economic conditions, this is taken into account by including educational level in the logistic regression.

Statistical associations found in cross-sectional studies should be interpreted with caution regarding causality.

Conclusions
The study shows a tendency among GPs to assign especially low priority to young people when workload is high or free capacity low. Awareness of this mechanism is important to make general practice more youth-friendly and increase accessibility for young people.

However, the study indicates that GPs are responsive towards differences in needs in the young practice population and that GPs’ engagement in interdisciplinary work seems important in facilitating young people’s use of their GP.

Acknowledgements
The data used in this study were provided by Statistics Norway and the Norwegian Social Science Data Service with permission of the Data Inspectorate.

Declaration
Funding: Norwegian College of General Practice
Ethical approval: none
Conflicts of interest: none

References


33 Zantinge EM, Verhaak PF, de Bakker DH et al. The workload of general practitioners does not affect their awareness of patients’ psychological problems. *Patient Educ Couns* 2007; **67**:93–9.

