

Postponing a General Practitioner Visit: Describing Social Differences in Thirty-One European Countries

Jens Detollenaere, Amelie Van Pottelberge, Lise Hanssens, Lieven Pauwels, Tessa van Loenen, and Sara Willems

Objective. To describe social differences in postponing a general practitioner visit in 31 European countries and to explore whether primary care strength is associated with postponement rates.

Data Sources. Between October 2011 and December 2013, the multicountry QUALICOPC study collected data on 61,931 patients and 7,183 general practitioners throughout Europe.

Study Design. Access to primary care was measured by asking the patients whether they postponed a general practitioner visit in the past year. Social differences were described according to patients' self-rated household income, education, ethnicity, and gender.

Data Collection/Extraction Methods. Data were analyzed using multivariable and multilevel binomial logistic regression analyses.

Principal Findings. According to the variance–decomposition in the multilevel analysis, most of the variance can be explained by patient characteristics. Postponement of general practitioner care is higher for patients with a low self-rated household income, a low education level, and a migration background. In addition, although the point estimates are consistent with a substantial effect, no statistically significant association between primary care strength and postponement in the 31 countries is determined.

Conclusions. Despite the universal and egalitarian goals of health care systems, access to general practitioner care in Europe is still determined by patients' socioeconomic status (self-rated household income and education) and migration background.

Key Words. Europe, postponement, primary health care, equity, access

Health inequities seem to be constant or even to increase for some diseases and/or social groups despite marked improvements in the health of the general population (Hart 1971; Whitehead and Dahlgren 2006; Mackenbach et al. 2008; Strand et al. 2010). Different mechanisms between social groups

lie at the base of these persisting disparities in health: (1) different levels of power and resources to live a healthy life, (2) different levels of exposure to health hazards, (3) same level of exposure leads to differential impacts, (4) life-course effects considering the cumulative outcome of all of the pathways mentioned above, and (5) different social and economic effects of being sick (Dahlgren and Whitehead 2006).

Strong primary care (PC) systems have the potential to improve the performance of health care systems, boost population health, and last but not least, lower socioeconomic inequality (Macinko, Starfield, and Shi 2003; Starfield 2006, 2009; Kringos et al. 2013a, b). According to Kringos et al. (2013a), the key features of a strong PC system can be clustered in three levels: the structure, process, and outcome level of the system. Indicators on the structure level are governance, economic conditions, and workforce development. The process level includes four indicators: access, continuity, comprehensiveness, and coordination. At the outcome level, indicators consist of quality, efficiency, and equity. Countries with a relatively overall strong PC system are Denmark, Finland, Lithuania, Slovenia, Portugal, Spain, the United Kingdom, the Netherlands, Estonia, and Belgium. The PC system of these countries has broad policy and regulations that focus on PC, combined with a good financial coverage, and qualitative PC workforce conditions (Kringos et al. 2013a). According to the European Primary Care Monitor, wealthier countries are associated with a weak PC structure and lower PC accessibility. Also, countries ruled by a left-wing governments have stronger PC structure, accessibility, and coordination of PC (Kringos et al. 2013c). A more detailed overview of every country's score on the specific indicators can be consulted in the Appendix of this article.

Equity in access to health care is an important objective for many health care systems (Goddard and Smith 2001; Adamson et al. 2003). The main focus of equitable access to care is that the likelihood of access is affected by a patient's need for medical care and not by his or her social status, age, gender,

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income, or ethnic background (Aday and Andersen 1984). However, some social groups are still more likely to encounter barriers in accessing PC compared to others. The literature indicates that lower socioeconomic groups (Himmelstein and Woolhandler 1995; Reilly, Schiff, and Conway 1998; Murray 2000), women (Xu and Borders 2003; Diamant et al. 2004), and ethnic minorities (Dias, Severo, and Barros 2008; Kontopantelis, Roland, and Reeves 2010; Dias et al. 2011) may encounter several barriers to health care, such as financial, cultural, or geographical barriers, that can decrease their access to care and therefore perpetuate or increase existing social disparities in health. Postponing health care can lead to more serious health problems that could be prevented at an earlier stage; however, by postponing health care, health problems require hospitalization and/or specialist care (Verlinde et al. 2013).

The existence of barriers in access to health care can be demonstrated by relatively high rates of care postponement for different social groups (Aday and Andersen 1984; Burstrom 2002; Whitehead and Hanretty 2004). This finding has been observed in several countries. For example, Vilhjalmsson (2005) showed that economically troubled people in Iceland are more likely to postpone or cancel a general practitioner (GP) visit than others, although they needed care. In Belgium, 19 percent of low-educated households in a Health Interview Survey (Demarest 2013) indicated that they had delayed GP care in comparison with 9 percent of households with high educational attainment (Drieskens et al. 2010). When looking more internationally, the studies supported by the Commonwealth Fund revealed that low-income Americans are more likely than their low-income counterparts in other countries to indicate that they postponed care in the last year (Schoen et al. 2013, 2014; Davis and Ballreich 2014). Compared to the United States, the United Kingdom, Germany, France, Sweden, Norway, and Switzerland report significantly better accessibility to health care. Concerning gender, 4.5 percent more women than men reported unmet needs for a medical examination in Romania (Eurostat 2011). Postponement of seeking care may have severe health consequences, such as a decline in health status, increased rates of complications, or longer hospital stays (Epstein, Stern, and Weissman 1990; Adler et al. 1993; Himmelstein and Woolhandler 1995). These implications matter especially for people with a lower socioeconomic status, whose average health is generally poorer than for other social classes (Droomers and Westert 2004; Mackenbach et al. 2008).

Besides the fact that prior research, as described above, did not yet address the link between strength of PC and postponement of care, these

aforementioned studies comprise some limitations. First, these previous studies frequently focused on one country (Burstrom 2002; Vilhjalmsson 2005; Verlinde et al. 2013) or a selection of European countries (Devaux and de Looper 2012; Schoen et al. 2013, 2014; Davis and Ballreich 2014), and they often focused on only relatively wealthy countries (van Doorslaer, Koolman, and Puffer 2002; van Doorslaer, Masseria, and Koolman 2006). International comparative European research on the postponement of seeking PC is lacking. Nevertheless, this type of research could help identify opportunities to reduce inequities (Mackenbach et al. 2008). It could also give insight into the existence of social gradients in postponement of PC in countries for which there is no (recent) knowledge concerning this topic. In addition, the available literature often focuses on specific patient groups, such as age cohorts (e.g., Flores et al. 1999; Crespo-Cebada and Urbanos-Garrido 2012) or patients with particular pathologies (e.g., Bebbington et al. 2000; Rahimi et al. 2007), and not on a representative sample of the population, which imposes a major limitation in generalizing these findings.

In this study, we contribute to the literature—and address the aforementioned limitations of previous research—in two important ways. The first aim of this study is to provide an overview of the frequency of and the social gradient in the postponement of GP care in Europe. More concretely, we investigate social differences in the postponement of GP care according to patients' self-rated household income level, education, ethnicity, and gender in 31 European countries. Secondly, we study whether the strength of the PC systems influences postponement of GP care.

DATA AND METHODS

Data Collection

Within the framework of the Quality and Costs of Primary Care in Europe (QUALICOC) project, a cross-sectional multicountry study, surveys were held in 31 European countries (the EU-27 [except for France], FYR Macedonia, Iceland, Norway, Switzerland, and Turkey). Random sampling was used to select GPs in countries having national registers of GPs. When countries only provided regional registers, random samples were drawn from regions that represent the national setting. If only lists of facilities (and not individual GPs) in the country existed, a random selection of these lists was made. In each country, an average of 220 GP practices was selected. In Turkey, Spain, and Belgium, larger samples were conducted to allow comparisons between

regions. The British sample was collected in England and not in the other parts of the United Kingdom. Lastly, the QUALICOPC database does not provide information for France. The data collection for this country could not be successfully completed within the time frame of the project.

Between October 2011 and December 2013, fieldworkers visited the selected GP practices and invited patients (aged 18 years or older) who had just had a face-to-face consultation with the GP to fill in the questionnaire until responses from 10 patients were collected. The survey among the patients consisted of two questionnaires: one about the patient's experiences and one about the patient's values. The first nine patients who were willing to participate completed the questionnaire about their experiences during the consultation and the PC system in general. The tenth patient completed the questionnaire that probed the patient about his or her PC values. In addition, one GP per practice also completed a questionnaire. Finally, each trained fieldworker filled in a short questionnaire about the practice facility. A unique practice identification number linked the GP response to the responses of their 10 patients and the fieldworker survey, allowing multilevel analysis of the data. In total, 7,183 GPs and 61,931 patients participated in the study, and the average response rate was 74.1 percent (range: 54.5–87.6 percent).

Ethical approval was acquired in accordance with the legal requirements in each country.

Outcome Measures

Access to PC was measured by asking the patients whether they postponed a GP visit in the past year (yes/no).

Four patient characteristics were used to identify social groups: self-rated household income, education, ethnicity, and gender. Concerning self-rated income, patients could answer the following question "Compared to the average in your country, would you say your household income is . . ." by choosing one of these three categories: "below average," "around average," or "above average." Based on thorough discussion with the other QUALICOPC partners, the answer "below average" was recoded as "low self-rated income," "around average" as "middle self-rated income," and "above average" as "high self-rated income." The question that probed the education of the participant was based on the categories as proposed by ISCED (International Standard Classification of Education). These categories are the following: "preprimary education," "primary education," "lower secondary education," "(upper) secondary education," "postsecondary nontertiary education," "first stage of

tertiary education,” and “second stage of tertiary education.” The QUALICOPC consortium decided to recode these into the three categories: “low” (no education, (pre)primary or lower secondary education), “middle” (upper secondary education), and “high” (postsecondary or higher education) groups. Following the framework of Rumbaut (2006), ethnicity was determined by the birthplace of the respondent and his or her mother; when both were born in the country of residence or when only the mother was born in the country of residence, the patient was considered “native.” When both the patient and mother were born elsewhere, the patient was considered to be a “first-generation migrant.” When the patient was born in the country of residence and the mother was born in a foreign one, the patient was considered to be a “second-generation migrant.” Finally, gender was categorized in “men” and “women,” following the answer of the participant. All analyses were controlled for age differences. Age was added to the model as a continuous variable.

Statistical Analyses

Social differences were evaluated in multivariable models using binomial logistic regression analyses. First, a separate model for each country was calculated. The standard errors of all logistic regression models were adjusted using the standard Huber–White correction to account for the heteroscedasticity introduced by the clustering of patients in GP practices. Initially, the variables were checked for multicollinearity test using variance inflation factors. Although there were no hard and fast rules about what value of the variance inflation factor should cause concern, Myers (1990) and O’Brien (2007) suggested that a value of 10 is the cutoff point from which collinearity appears. For each variable, we report the odds ratios and their 95 percent confidence interval (CI). These tests were conducted in *SPSS* (IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp). As a pretest, we conducted a multivariable logistic regression of postponement on the individual patient characteristics in interaction with country dummies pooling all European observations. For each patient characteristic, we could then perform a Wald test for the equality of the 31 interactions between this characteristic and the country dummies. Equality of the country-individual predictor-interactions was rejected at the 10 percent significance level for high (versus low) income and at the 5 percent significance level for all other individual characteristics.

Second, given the hierarchical structure of the data, a logistic multilevel regression model was fitted to the data for all 31 European countries together. The null model was used to evaluate the importance of each level (i.e., patient

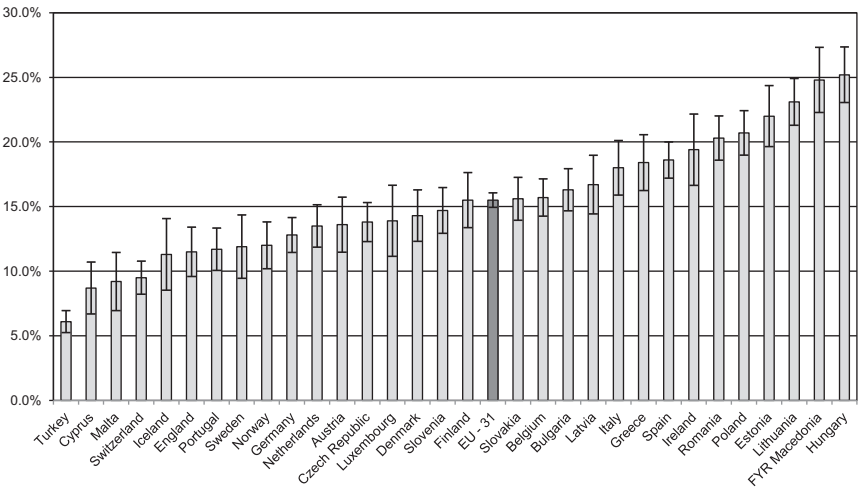
level, GP practice level, and country level) independently in explaining the prevalence of postponement of care. In Model 1, the influence of individual patient characteristics (i.e., self-rated household income, education, ethnicity, and gender; controlled for age) on the prevalence of postponement was examined. Subsequently, indicators of the strength of the PC system were gradually added. PC strength was, as mentioned in the Introduction, operationalized by the European Primary Care Monitor of Kringos (2012). The structure variable (added from Model 2 on) was added as a continuous variable, following the operationalization of Kringos et al. (2013b), because the different structure indicators (governance, economic conditions, and workforce development) were positively associated with each other. Also following the operationalization of (Kringos et al. 2013b), the process indicators (access, continuity, coordination, and comprehensiveness) were added separately because they were not associated with each other, in Models 3, Model 4, Model 5, and Model 6, respectively. All multilevel analyses were conducted in MLwiN (University of Bristol, United Kingdom, version 2.31), first-order PQL was used as the non-linear estimation procedure. The level of statistical significance was set at $p \leq .05$.

RESULTS

On average, 15.6 percent of the European respondents postponed at least one visit to a GP in the last year (Figure 1). Countries that are located in the upper quartile concerning the postponement rates are as follows: Hungary (25.2 percent), FYR Macedonia (24.8 percent), Lithuania (23.1 percent), Estonia (22.0 percent), Poland (20.7 percent), Romania (20.3 percent), and Ireland (19.4 percent). Countries situated in the lower quartile are as follows: Portugal (11.7 percent), England (11.5 percent), Iceland (11.3 percent), Switzerland (9.5 percent), Malta (9.2 percent), Cyprus (8.7 percent), and Turkey (6.1 percent).

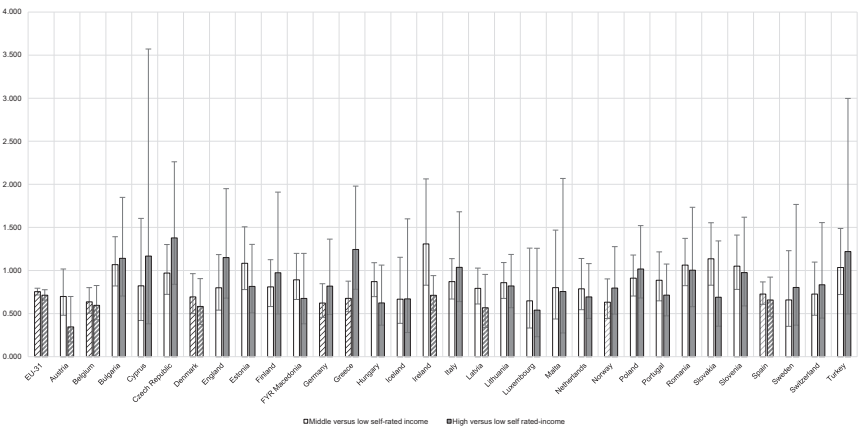
The results for the multivariable logistic regressions of postponement on the predictors at the individual level by country are summarized in Figure 2 (income as a predictor of postponement), Figure 3 (education as predictor), Figure 4 (ethnicity as predictor), and Figure 5 (gender as predictor). The related coefficients can be found in Table S2. Figure 2 shows that in Europe, the chance to postpone care is higher for lower income groups compared to middle- (OR: 0.755, CI: 0.717–0.794) and high-income groups (OR: 0.713, CI: 0.655–0.777). Furthermore, we observe a significant difference between middle- and low-income groups in Belgium, Denmark, Germany, Greece,

Figure 1: National Distributions of Patients That Postponed a GP Visit in the Last Year (Valid percent) and Their Binomial Confidence Intervals



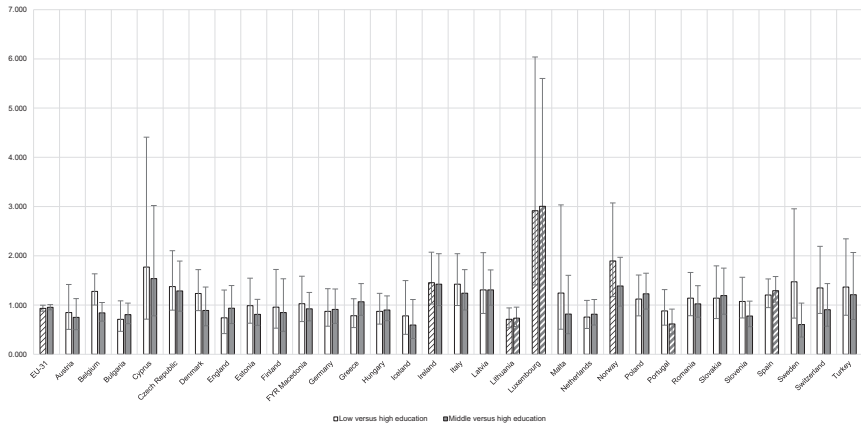
Note. Missings range from 0.0 percent (Turkey) to 6.6 percent (Iceland).

Figure 2: Binomial Logistic Regression of Postponement on Self-Rated Household Income (Odds Ratios and 95 % CI Given)



Note. All regression analyses controlled for patient's age, educational attainment, ethnic background, and gender. 95% CIs are based on the Huber–White corrected standard errors. All significant results are marked with stripes. Reference category: low self-rated income.

Figure 3: Binomial Logistic Regression of Postponement on Educational Attainment (Odds Ratios and 95% CI Given)



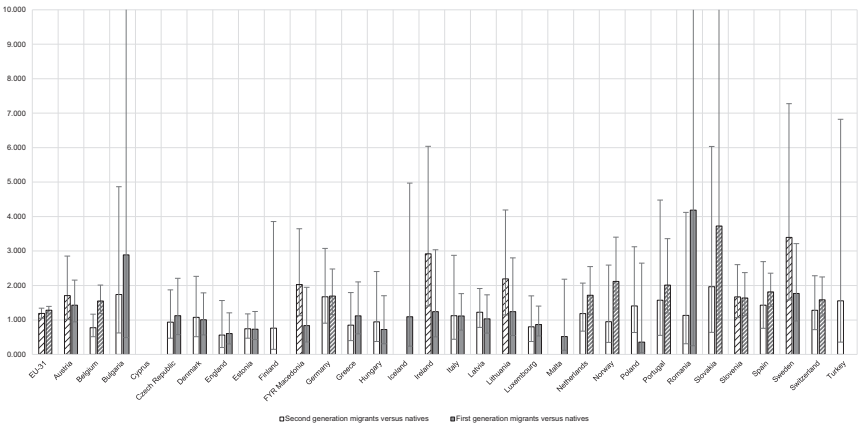
Note. All regression analyses controlled for patient's age, self-rated household income, ethnic background, and gender. 95% CIs are based on the Huber–White corrected standard errors. All significant results are marked with stripes. Reference category: high education.

Norway, and Spain. In all of these countries, patients with a middle income are less likely to postpone care compared to their counterparts with a low income. At last, the logistic regression models per country show that high-income groups postpone care less frequently than low-income groups in Austria, Belgium, Ireland, Latvia, and Spain.

The independent impact of education on postponement of care can be consulted in Figure 3. The results of these multivariable logistic regression models are, however, mixed. In the European model, low-educated patients tend to postpone care less frequently compared to high-educated patients (OR: 0.934, CI: 0.875–0.997). This trend can also be observed in Lithuania. The opposite trend is found in Ireland, Luxembourg, and Norway, where high-educated patients postpone care less frequently compared to their low-educated counterparts. Furthermore, compared to high-educated patients, middle-educated patients postpone more care in Luxembourg and Spain. While in Lithuania and Portugal, middle-educated patient groups postpone less compared to higher educated patient groups.

Subsequently, Figure 4 presents the results of the association between ethnicity and postponement of care. In the overall European regression model, both second- (OR: 1.187, CI: 1.052–1.340) and first-generation

Figure 4: Binomial Logistic Regression of Postponement on Ethnic Background (Odds Ratios and 95% CI Given)



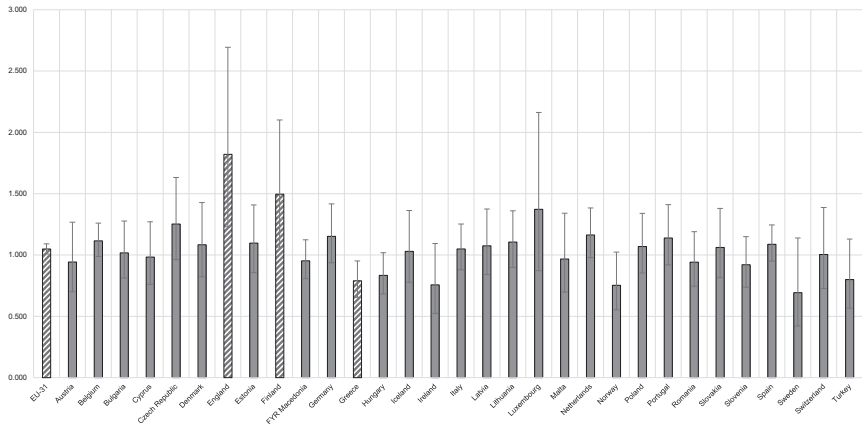
Note. All regression analyses controlled for patient’s age, self-rated household income, educational attainment, and gender. 95% CIs are based on the Huber–White corrected standard errors. All significant results are marked with stripes. Reference category: natives.

migrants (OR: 1.281, CI: 1.175–1.396) are more likely to postpone care compared to the native population. The same trend between second-generation migrants and natives can be observed in the subsamples for Austria, FYR Macedonia, Ireland, Lithuania, Slovenia, and Sweden. First-generation migrants are more likely to postpone GP care compared to the native population in Belgium, Germany, Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, and Switzerland.

Furthermore, women are more likely to postpone GP care in the pooled European data (OR: 1.049, CI: 1.009–1.091), where the effect size is not substantial, and in the subsample for England, and Finland (Figure 5). The opposite is found in Greece, where men are more likely to postpone GP care compared to women.

The discussion in the former paragraphs of the individual predictors of postponement by the European countries is based on 217 coefficients (seven for each of the 31 countries). As a consequence, one might argue that some kind of adjustment for multiple comparisons is warranted. The Bonferroni-corrected significance level (for our a priori significance level of 0.05) in our case is 0.005, that is $(1 - [1 - 0.05]^{217})/217$. When applying this correction, as can be deduced from Table S2, significant differences in postponement are only found between middle- and low (high and low)-income groups in

Figure 5: Binomial Logistic Regression of Postponement on Gender (Odds Ratios and 95% CI Given)



Note. All regression analyses controlled for patient's age, self-rated household income, educational attainment, and ethnic background. 95% CIs are based on the Huber–White corrected standard errors. All significant results are marked with stripes. Reference category: men.

Belgium, Germany, Greece, and Spain (Austria and Belgium), between patients of different education levels in Luxembourg, between second (first)-generation migrants and natives in Ireland and Sweden (Belgium, Norway, and Spain) and between women and men in England.

Table 1 presents the results of our multilevel analyses. The null model reveals that the variances at the country and GP practice levels were, respectively, 0.123 (0.034) and 0.414 (0.024). The residual variance at the patient level was estimated to be 3.290 ($=\pi^2/3$) using the latent variable method (Snijders and Bosker 1999) because in logistic multilevel analysis, the individual-level residual variance is expressed on a different scale (probability) than the higher level residual variances (logistic scale; Merlo et al. 2006). When this estimation was used to calculate the intraclass correlation (ICC) of each level, the authors found that 3.20 percent of the variance of postponement of a GP visit can be situated at the country level and 10.80 percent at the GP practice level. Model 1 mainly confirms the findings of the aforementioned single-level regression models. Patients with a middle and high self-rated income are less likely to postpone GP care, compared to their counterparts with a lower income. Also, the native population, compared to first- and second-generation migrants, is less likely to postpone care.

Table 1: Multilevel Regression of Individual Patient Characteristics and Primary Care Characteristics on Financially Driven Postponement of Care (Log Odds and Their Standard Error)

	Null model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Self-rated household income (reference: low income)</i>							
Middle income		-0.203 (0.030)***	-0.203 (0.030)***	-0.203 (0.030)***	-0.202 (0.030)***	-0.202 (0.030)***	-0.203 (0.030)***
High income		-0.207 (0.049)***	-0.207 (0.049)***	-0.207 (0.049)***	-0.206 (0.049)***	-0.206 (0.049)***	-0.207 (0.049)***
<i>Education (reference: high education)</i>							
Low education		-0.001 (0.039)	-0.001 (0.039)	-0.001 (0.039)	-0.001 (0.039)	-0.001 (0.039)	-0.001 (0.039)
Middle education		-0.057 (0.033)	-0.056 (0.033)	-0.056 (0.033)	-0.056 (0.033)	-0.056 (0.033)	-0.056 (0.033)
<i>Ethnicity (reference: natives)</i>							
First-generation migrants		0.191 (0.054)***	0.191 (0.054)***	0.192 (0.054)***	0.192 (0.054)***	0.192 (0.054)***	0.193 (0.054)***
Second-generation migrants		0.197 (0.068)***	0.198 (0.068)***	0.197 (0.068)***	0.198 (0.068)***	0.198 (0.068)***	0.198 (0.068)***
<i>Gender (reference: men)</i>							
Women		0.036 (0.027)	0.036 (0.027)	0.035 (0.027)	0.035 (0.027)	0.035 (0.027)	0.035 (0.027)
<i>Structure</i>			0.168 (0.437)	-0.084 (0.484)	-0.012 (0.495)	0.003 (0.522)	0.188 (0.517)
<i>Process</i>				0.636 (0.566)	0.542 (0.587)	0.543 (0.589)	0.264 (0.593)
Access					1.320 (1.190)	1.294 (1.219)	1.903 (1.213)
Continuity						-0.026 (0.322)	0.109 (0.317)
Coordination							-0.701 (0.425)
Comprehensiveness							-5.001 (2.915)
<i>Intercept</i>		-1.705 (0.066)***	-0.991 (0.084)***	-2.222 (1.223)	-5.278 (2.950)	-5.208 (3.030)	-5.001 (2.915)
<i>Variance</i>		0.123 (0.034)***	0.120 (0.033)***	0.115 (0.032)***	0.115 (0.032)***	0.115 (0.032)***	0.105 (0.029)***
<i>country</i>							
<i>Variance</i>		0.414 (0.024)***	0.414 (0.025)***	0.418 (0.025)***	0.420 (0.025)***	0.420 (0.025)***	0.418 (0.025)***
<i>GP</i>							

All significant values are indicated in bold.
* $p < .05$, ** $p < .01$, *** $p \leq .001$.

Education and gender have no significant influence on the prevalence of postponement of care in Europe. Additionally, as shown by the results for Model 2 to 6, we observe no significant association between the different strength indicators and postponement of care.

DISCUSSION

A strong PC system, as described by Kringos (2012), has the potential to contribute to a country's health system performance and population health (Macinko, Starfield, and Shi 2003; Starfield 2006, 2009; Kringos et al. 2013b). It is also expected to be an effective response to the effects of the current economic crisis on health and health care (WHO 2009). Thus, equity of access to PC is an important aim for many health care systems (Goddard and Smith 2001; Adamson et al. 2003; Judge and Britain 2005). However, some social groups are still more at risk of postponing a needed PC visit in several European countries (Goddard and Smith 2001; Anderson et al. 2003; Baert and de Norre 2009; Devaux and de Looper 2012). Unfortunately, it is difficult to compare postponement rates across Europe because most studies are limited to one or a few (relatively wealthy) European countries (Schoen et al. 2013, 2014; Davis and Ballreich 2014). Furthermore, studies targeting social differences in access to care generally focus on income and education, but characteristics such as gender and ethnicity are often left out of the multivariable analysis. Nevertheless, the literature stresses the importance of these characteristics in research of equity in access to care (Schulman et al. 1995; Goddard and Smith 2001; Jatrana and Crampton 2012).

The postponement rates in Hungary, FYR Macedonia, Lithuania, Estonia, Poland, Romania, and Ireland are the highest compared to other countries. Almost no postponement is reported in Portugal, England, Iceland, Switzerland, Malta, Cyprus, and Turkey. The high postponement rates are not surprising because these health care systems depend more on private funding (e.g., out-of-pocket payments and private social insurances; Eurostat 2008). Previous studies found a relationship between the share of public health spending in total health expenditure and lower inequity in doctor consultations (Or, Jusot, and Yilmaz 2008). Conversely, private funding is often regressive and has negative impacts on the use of needed care, in particular, for vulnerable people (Hanratty, Zhang, and Whitehead 2007; Huber et al. 2008).

To the best of our knowledge, our study is the first to study the association between postponement of GP care and PC strength, as captured by the strength indicators of Kringos (2012). These analyses reveal, however, that most of the differences in postponement rates can rather be explained by individual patient characteristics, instead of country or GP practice features. This finding, however, must be viewed in the context of the large standard errors of the coefficients for the PC strength measures. Because these are country-level measures, the number of observations based on which they are identified is only the number of countries, that is, 31, as compared to 7,183 and 61,931 observations for the GP and individual patient effects, respectively. It is thereby not surprising that although the point estimates and confidence intervals are consistent with a substantial effect, it is impossible to determine a systematic association between the PC strength indicators and postponement of care.

The next question is whether there are social differences in the postponement of care. Significant effects on postponement are found for every patient characteristic that was considered. Most of the social differences are according to self-rated household income. This finding complements earlier international studies that acknowledge the importance of income in experiencing barriers to access health care (Schoen et al. 2013, 2014; Davis and Ballreich 2014). Notwithstanding the mixed results concerning education, in most countries low-educated patients tend to postpone care more frequently compared to their higher educated counterparts. The literature states that the education of patients has a more limited effect on the utilization of specialist and preventive care (Dunlop, Coyte, and McIsaac 2000; Vilhjalmsson et al. 2001).

In other words, despite the fact that most of these countries have health care systems with the same goals of reducing financial costs for the patient, access to care is still dependent on patients' socioeconomic position, where patients with a higher social status perceive better access (Mossialos and Thomson 2003; Vilhjalmsson 2005; van Doorslaer, Masseria, and Koolman 2006; Devaux and de Looper 2012). Even with insurance coverage, deductibles and co-payments are the patient's responsibility and lower socioeconomic groups often defer seeking medical attention even when they have insurance coverage, fearing the inability to pay (Friedman 1994). In addition, it is possible that low socioeconomic groups are hindered by barriers that are not directly linked to the cost of the consultation (Verlinde et al. 2013), such as travel, child care, or opportunity costs, including time lost from work (Ahmed et al. 2001; Hanratty, Zhang, and Whitehead 2007), but there is relatively little

evidence on the extent to which these factors deter poorer groups from seeking care. More research in this area is necessary to determine which mechanisms are at work and how they can be buffered. However, it is clear that a universal approach in the organization of health care systems is not enough. Furthermore, the current analyses indicate that socioeconomically disadvantaged patients not only have to cope with financial barriers but also have to encounter significant organizational/structural and possible geographical barriers in obtaining care (Friedman 1994; Ahmed et al. 2001; Whitehead and Hanretty 2004; Willems 2005; Verlinde et al. 2013).

Many studies focusing on the health-seeking behavior of ethnic minorities suggest that psychological and cultural characteristics (Weinick, Zuvekas, and Cohen 2000; Anderson et al. 2003) or socioeconomic status (Dunlop, Coyte, and McIsaac 2000; Zuvekas and Taliaferro 2003; Uiters et al. 2009) explain the differences in use of care more than health system-related characteristics. Additionally, the way patients view PC influences their propensity to seek care. van Loenen et al. (2015) argue that patients who experience better access, continuity, and communication with the GP show a higher propensity to seek care. Our results show that ethnic minorities (first- and second-generation migrants) postpone GP care more frequently compared to the native population, even after controlling for household income, education, gender, and age. This finding is in line with previous research that explains this difference as a result of a lack of knowledge regarding where to seek care and transportation problems (Szczepura 2005; Scheppers et al. 2006; Cots et al. 2007). These barriers to care are determined by the organization of the PC system (Vilhjalmsson 2005; Jatrana and Crampton 2009; Devaux and de Looper 2012). Therefore, our results indicate, on the one hand, the importance of paying attention to health system characteristics in explaining differences in PC use and, on the other hand, strong PC systems possibly contribute positively to equity in access for (potentially) vulnerable groups (Uiters et al. 2009).

Lastly, regarding gender, women are more likely to postpone care in Europe, England, and Finland. Only in Greece, men tend to postpone more frequently. Previous studies show that women are more likely to seek and use health care for a number of reasons, including higher rates of chronic illness, longer life spans, and reproductive health needs (Verbrugge 1985; Green and Pope 1999; Parslow et al. 2004). Furthermore, women are more likely to postpone PC because they have fewer resources than men to pay out-of-pocket costs and other costs related to receiving medical care (Nelson et al. 1999; Diamant et al. 2004; Jatrana and Crampton 2012). The present study suggests that the mechanisms behind gender and (non)use of PC are not as straightforward

as indicated. Future studies, possibly including interaction effects, may allow an adequate understanding of how men and women differ in barriers to health care because gender interacts with other predictors of health care use and postponement (Jatrana and Crampton 2012).

Previous international research on access to GP care uses utilization rates to indicate whether access to GP care is more or less equitable in Europe, especially in comparison with specialist care (Couffinhal et al. 2000; van Doorslaer, Koolman, and Jones 2004; van Doorslaer, Masseria, and Koolman 2006; Hanratty, Zhang, and Whitehead 2007). The results in the present study show, however, that many European countries report high postponement rates. More important, several social groups are frequently more at risk of postponing a GP visit compared to others. Therefore, special efforts are needed to remove barriers to GP care to ensure affordable and equitable accessible GP services.

We end by acknowledging five research limitations inherent to our research focus and our available data. First, respondents were recruited from the waiting room of the GP. These patients had already overcome some boundaries by going to their GP at the moment that others may have not. Consequently, our results concerning postponement are probably underreported, with the actual postponement rates being higher. Information about cross-country variation in PC enrollment would be interesting to present in this respect. However, this information is not available in our data. Second, our data do not provide information on the duration of the postponement or other dimensions of access of health care. As a consequence, we cannot translate our research results into divergences in actual access let alone divergences in health outcomes due to postponement. Third, it is possible that self-rated household income does not affect the likelihood to delay care per se but rather that the ability to make ends meet may affect the likelihood to delay care. In this respect, a study on postponement of care in Iceland found no significant influence of income after controlling for economic difficulties (Vilhjalmsson 2005). Fourth, the present study focuses on GP care, which is only one aspect of PC; future research should not discount dental care, home care, and other types of PC (Schoen and Doty 2004). Finally, readers should keep in mind that the pooled model for Europe could oversimplify the reality by ignoring interactions between patient and country characteristics. However, notwithstanding these limitations, the current study presents the largest and most comparable analysis of between-

country and social (within-country) differences in the postponement of seeking GP care in Europe to date.

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REFERENCES

- Adamson, J., Y. Ben-Shlomo, N. Chaturvedi, and J. Donovan. 2003. "Ethnicity, Socio-Economic Position and Gender—Do They Affect Reported Health-Care Seeking Behaviour?" *Social Science and Medicine* 57 (5): 895–904.
- Aday, L. A., and R. M. Andersen. 1984. "The National Profile of Access to Medical Care: Where Do We Stand?" *American Journal of Public Health* 74 (12): 1331–9.
- Adler, N. E., W. T. Boyce, M. A. Chesney, S. Folkman, and S. L. Syme. 1993. "Socioeconomic Inequalities in Health. No Easy Solution." *JAMA* 269 (24): 3140–5.
- Ahmed, S. M., J. P. Lemkau, N. Nealeigh, and B. Mann. 2001. "Barriers to Healthcare Access in a Non-Elderly Urban Poor American Population." *Health and Social Care in the Community* 9 (6): 445–53.
- Anderson, L. M., S. C. Scrimshaw, M. T. Fullilove, J. E. Fielding, J. Normand, and Task Force on Community Preventive Services. 2003. "Culturally Competent Healthcare Systems. A Systematic Review." *American Journal of Preventive Medicine* 24 (3 Suppl): 68–79.
- Baert, K., and B. de Norre. 2009. "Perception of Health and Access to Health Care in the EU-25 in 2007." *Statistics in focus*. Eurostat.

- Bebbington, P. E., H. Meltzer, T. S. Brugha, M. Farrell, R. Jenkins, C. Ceresa, and G. Lewis. 2000. "Unequal Access and Unmet Need: Neurotic Disorders and the use of Primary Care Services." *Psychological Medicine* 30 (6): 1359–67.
- Burström, B. 2002. "Increasing Inequalities in Health Care Utilisation Across Income Groups in Sweden During the 1990s?" *Health Policy* 62 (2): 117–29.
- Cots, F., X. Castells, O. Garcia, M. Riu, A. Felipe, and O. Vall. 2007. "Impact of Immigration on the Cost of Emergency Visits in Barcelona (Spain)." *BMC Health Services Research* 7: 9.
- Couffinhal, A., P. Dourgnon, C. Masseria, S. Tubeuf, and E. van Doorslaer. 2000. *Income-Related Inequality in the Use of Medical Care. Towards High Performing Health Systems*. Paris: OECD.
- Crespo-Cebada, E., and R. M. Urbanos-Garrido. 2012. "Equity and Equality in the Use of GP Services for Elderly People: The Spanish Case." *Health Policy* 104 (2): 193–9.
- Dahlgren, G., and M. Whitehead. 2006. *European Strategies for Tackling Social Inequities in Health: Levelling up Part 2*. Copenhagen: World Health Organization.
- Davis, K., and J. Ballreich. 2014. "Equitable Access to Care—How the United States Ranks Internationally." *New England Journal of Medicine* 371 (17): 1567–70.
- Demarest, S. 2013. "Financiële toegankelijkheid van gezondheidszorgen." In *Gezondheidsenquête 2013. Rapport 3: Gebruik van gezondheids- en welzijnsdiensten*, edited by S. Drieskens and L. Gisle. Brussels: WIV-ISP.
- Devaux, M., and M. de Looper. 2012. *Income-Related Inequalities in Health Service Utilisation in 19 OECD Countries 2008–2009*. Paris: OECD.
- Diamant, A. L., R. D. Hays, L. S. Morales, W. Ford, D. Calmes, S. Asch, N. Duan, E. Fielder, S. Kim, J. Fielding, G. Sumner, M. F. Shapiro, D. Hayes-Bautista, and L. Gelberg. 2004. "Delays and Unmet Need for Health Care among Adult Primary Care Patients in a Restructured Urban Public Health System." *American Journal of Public Health* 94 (5): 783–9.
- Dias, S. F., M. Severo, and H. Barros. 2008. "Determinants of Health Care Utilization by Immigrants in Portugal." *BMC Health Services Research* 8: 207.
- Dias, S., A. Gama, M. Cortes, and B. de Sousa. 2011. "Healthcare-Seeking Patterns among Immigrants in Portugal." *Health and Social Care in the Community* 19 (5): 514–21.
- van Doorslaer, E., X. Koolman, and A. M. Jones. 2004. "Explaining Income-Related Inequalities in Doctor Utilisation in Europe." *Health Economics* 13: 629–47.
- van Doorslaer, E., X. Koolman, and F. Puffer. 2002. "Equity in the Use of Physician Visits in OECD Countries: Has Equal Treatment for Equal Need Been Achieved?" In *Measuring up: Improving Health System Performance in OECD Countries*, edited by Peter Smith, pp. 225–48. Paris: OECD.
- van Doorslaer, E., C. Masseria, and X. Koolman. 2006. "Inequalities in Access to Medical Care by Income in Developed Countries." *Canadian Medical Association Journal* 174: 177–83.
- Drieskens, S., J. van der Heyden, E. Hesse, L. Gisle, S. Demarest, and J. Tafforeau. 2010. *Gezondheidsenquête België 2008 Rapport V— Sociaal-Economische Ongelijkheden in Gezondheid*. Brussels: HIS-WIV.

- Droomers, M., and G. P. Westert. 2004. "Do Lower Socioeconomic Groups Use More Health Services, Because They Suffer from More Illnesses?" *The European Journal of Public Health* 14 (3): 311–3.
- Dunlop, S., P. C. Coyte, and W. McIsaac. 2000. "Socio-Economic Status and the Utilisation of Physicians' Services: Results from the Canadian National Population Health Survey." *Social Science and Medicine* 51 (1): 123–33.
- Epstein, A. M., R. S. Stern, and J. S. Weissman. 1990. "Do the Poor Cost More? A Multihospital Study of Patients' Socioeconomic Status and Use of Hospital Resources." *New England Journal of Medicine* 322 (16): 1122–8.
- Eurostat. 2008. "Health Care Expenditure by Financial Agent" [accessed on February 17, 2008]. Available at http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
- Eurostat. 2011. "Survey on Income and Living Conditions" [accessed on October 14, 2011]. Available at <http://ec.europa.eu/eurostat>
- Flores, G., H. Bauchner, A. R. Feinstein, and U. S. Nguyen. 1999. "The Impact of Ethnicity, Family Income, and Parental Education on Children's Health and Use of Health Services." *American Journal of Public Health* 89 (7): 1066–71.
- Friedman, E. 1994. "Money Isn't Everything. Nonfinancial Barriers to Access." *JAMA* 271 (19): 1535–8.
- Goddard, M., and P. Smith. 2001. "Equity of Access to Health Care Services: Theory and Evidence from the UK." *Social Science and Medicine* 53 (9): 1149–62.
- Green, C. A., and C. R. Pope. 1999. "Gender, Psychosocial Factors and the Use of Medical Services: A Longitudinal Analysis." *Social Science and Medicine* 48 (10): 1363–72.
- Hanratty, B., T. Zhang, and M. Whitehead. 2007. "How Close Have Universal Health Systems Come to Achieving Equity in Use of Curative Services? A Systematic Review." *International Journal of Health Services* 37 (1): 89–109.
- Hart, J. T. 1971. "The Inverse Care law." *Lancet* 1 (7696): 405–12.
- Himmelstein, D. U., and S. Woolhandler. 1995. "Care Denied: US Residents Who Are Unable to Obtain Needed Medical Services." *American Journal of Public Health* 85 (3): 341–4.
- Huber, M., A. Stanicole, J. Bremner, and K. Wahlbeck. 2008. *Quality in and Equality of Access to Health Care Services*. Luxembourg: European Commission.
- Jatrana, S., and P. Crampton. 2009. "Primary Health Care in New Zealand: Who Has Access?" *Health Policy* 93 (1): 1–10.
- . 2012. "Gender Differences in Financial Barriers to Primary Health Care in New Zealand." *Journal of Primary Health Care* 4 (2): 113–22.
- Judge, K., and G. Britain. 2005. "Health Inequalities: A Challenge for Europe." COI for the UK Presidency of the EU.
- Kontopantelis, E., M. Roland, and D. Reeves. 2010. "Patient Experience of Access to Primary Care: Identification of Predictors in a National Patient Survey." *BMC Family Practice* 11: 61.
- Kringos, D. S. 2012. *The Strength of Primary Care in Europe*. Utrecht: Utrecht University.
- Kringos, D., W. Boerma, Y. Bourgueil, T. Cartier, T. Dedeu, T. Hasvold, A. Hutchinson, M. Lember, M. Oleszczyk, D. R. Pavlic, I. Svab, P. Tedeschi, S. Wilm, A.

- Wilson, A. Windak, J. van der Zee, and P. Groenewegen. 2013a. "The Strength of Primary Care in Europe: An International Comparative Study." *British Journal of General Practice* 63 (616): 742–50.
- Kringos, D. S., W. Boerma, J. van der Zee, and P. Groenewegen. 2013b. "Europe's Strong Primary Care Systems are Linked to Better Population Health but Also to Higher Health Spending." *Health Affairs (Millwood)* 32 (4): 686–94.
- Kringos, D. S., W. G. Boerma, J. van der Zee, and P. P. Groenewegen. 2013c. "Political, Cultural and Economic Foundations of Primary Care in Europe." *Social Science and Medicine* 99: 9–17.
- van Loenen, T., M. J. van den Berg, M. J. Faber, and G. P. Westert. 2015. "Propensity to Seek Healthcare in Different Healthcare Systems: Analysis of Patient Data in 34 Countries." *BMC Health Services Research* 15 (1): 465.
- Macinko, J., B. Starfield, and L. Shi. 2003. "The Contribution of Primary Care Systems to Health Outcomes within Organization for Economic Cooperation and Development (OECD) Countries, 1970–1998." *Health Services Research* 38 (3): 831–65.
- Mackenbach, J. P., I. Stirbu, A. J. Roskam, M. M. Schaap, G. Menvielle, M. Leinsalu, A. E. Kunst, and European Union Working Group on Socioeconomic Inequalities in Health. 2008. "Socioeconomic Inequalities in Health in 22 European Countries." *New England Journal of Medicine* 358 (23): 2468–81.
- Merlo, J., B. Chaix, H. Ohlsson, A. Beckman, K. Johnell, P. Hjerpe, L. Rastam, and K. Larsen. 2006. "A Brief Conceptual Tutorial of Multilevel Analysis in Social Epidemiology: Using Measures of Clustering in Multilevel Logistic Regression to Investigate Contextual Phenomena." *Journal of Epidemiology and Community Health* 60 (4): 290–7.
- Mossialos, E., and S. Thomson. 2003. "Access to Health Care in the European Union: The Impact of User Charges and Voluntary Health Insurance." In *Access to Healthcare*, edited by M. Gulliford and M. S. Morgan, pp. 143–173. London: Routledge.
- Murray, M. 2000. "Patient Care: Access." *BMJ* 320 (7249): 1594–6.
- Myers, R. 1990. *Classical and Modern Regression with Applications*. Boston: Duxbury.
- Nelson, D. E., B. L. Thompson, S. D. Bland, and R. Robinson. 1999. "Trends in Perceived Cost as a Barrier to Medical Care, 1991–1996." *American Journal of Public Health* 89 (9): 1410–3.
- O'Brien, R. 2007. "A Caution Regarding Rules of Thumb for Variance Inflation Factors." *Quality & Quantity* 41 (5): 673–90.
- Or, Z., F. Jusot, and E. Yilmaz. 2008. *The Impact of Health Care Systems on Socioeconomic Inequalities in Doctor Use*. Paris: IRDES.
- Parslow, R., A. Jorm, H. Christensen, P. Jacomb, and B. Rodgers. 2004. "Gender Differences in Factors Affecting use of Health Services: An Analysis of a Community Study of Middle-Aged and Older Australians." *Social Science and Medicine* 59 (10): 2121–9.
- Rahimi, A. R., J. A. Spertus, K. J. Reid, S. M. Bernheim, and H. M. Krumholz. 2007. "Financial Barriers to Health Care and Outcomes after Acute Myocardial Infarction." *JAMA* 297 (10): 1063–72.

- Reilly, B. M., G. Schiff, and T. Conway. 1998. "Primary Care for the Medically Under-served: Challenges and Opportunities." *Disease-a-month* 44 (7): 320–46.
- Rumbaut, R. G. 2006. "On the Past and Future of American Immigration and Ethnic History: A Sociologist's Reflections on a Silver Jubilee." *Journal of American Ethnic History* 25: 160–7.
- Scheppers, E., E. van Dongen, J. Dekker, J. Geertzen, and J. Dekker. 2006. "Potential Barriers to the Use of Health Services among Ethnic Minorities: A Review." *Family Practice* 23 (3): 325–48.
- Schoen, C., and M. M. Doty. 2004. "Inequities in Access to Medical Care in Five Countries: Findings from the 2001 Commonwealth Fund International Health Policy Survey." *Health Policy* 67 (3): 309–22.
- Schoen, C., R. Osborn, D. Squires, and M. M. Doty. 2013. "Access, Affordability, and Insurance Complexity Are Often Worse in the United States Compared to Ten Other Countries." *Health Affairs (Millwood)* 32 (12): 2205–15.
- Schoen, C., S. L. Hayes, D. C. Radely, and S. R. Collins. 2014. "Access to Primary and Preventive Health Care across States Prior to the Coverage Expansions of the Affordable Care Act." *Issue Brief (Commonwealth Fund)* 17: 1–14.
- Schulman, K. A., L. E. Rubenstein, F. D. Chesley, and J. M. Eisenberg. 1995. "The Roles of Race and Socioeconomic Factors in Health Services Research." *Health Services Research* 30 (1 Pt 2): 179–95.
- Snijders, T. A. B., and R. J. Bosker. 1999. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. London: Sage Publications.
- Starfield, B. 2006. "State of the Art in Research on Equity in Health." *Journal of Health Politics, Policy and Law* 31 (1): 11–32.
- . 2009. "Toward International Primary Care Reform." *CMAJ* 180 (11): 1091–2.
- Strand, B. H., E. K. Groholt, O. A. Steingrimsdottir, T. Blakely, S. Graff-Iversen, and O. Naess. 2010. "Educational Inequalities in Mortality over Four Decades in Norway: Prospective Study of Middle Aged Men and Women Followed for Cause Specific Mortality, 1960–2000." *BMJ* 340: c654.
- Szczepura, A. 2005. "Access to Health Care for Ethnic Minority Populations." *Postgraduate Medical Journal* 81 (953): 141–7.
- Uiters, E., W. Deville, M. Foets, P. Spreeuwenberg, and P. P. Groenewegen. 2009. "Differences between Immigrant and Non-Immigrant Groups in the Use of Primary Medical Care; a Systematic Review." *BMC Health Services Research* 9: 76.
- Verbrugge, L. M. 1985. "Gender and Health: An Update on Hypotheses and Evidence." *Journal of Health and Social Behavior* 26 (3): 156–82.
- Verlinde, E., A. Poppe, A. DeSmet, K. Hermans, J. De Maeseneer, C. Van Audenhove, and S. Willems. 2013. "Social Differences in Postponing a General Practitioner Visit in Flanders, Belgium: Which Low-Income Patients Are Most at Risk?" *Health and Social Care in the Community* 21 (4): 364–72.
- Vilhjalmsson, R. 2005. "Failure to Seek Needed Medical Care: Results from a National Health Survey of Icelanders." *Social Science and Medicine* 61 (6): 1320–30.
- Vilhjalmsson, R., O. Olafsson, J. A. Sigurdsson, and T. Herbertsson. 2001. *Access to Health Services in Iceland*. Reykjavik: Directorate of Health.

- Weinick, R. M., S. H. Zuvekas, and J. W. Cohen. 2000. "Racial and Ethnic Differences in Access to and Use of Health Care Services, 1977 to 1996." *Medical Care Research and Review: MCRR* 57 (Suppl 1): 36–54.
- Whitehead, M., and G. Dahlgren. 2006. *Levelling up (Part 1): A Discussion Paper on Concepts and Principles for Tackling Social Inequities in Health*. Copenhagen: WHO Regional Office for Europe.
- Whitehead, M., and B. Hanretty. 2004. "Health Care for Rich and Poor Alike." In *Accessing Health Care Responding to Diversity*, edited by J. Healy and M. McKee, pp. 28–30. Oxford, UK: University Press.
- WHO. 2009. *Financial Crisis and Global Health: Report on a High Level Consultation*. Geneva: WHO.
- Willems, S. 2005. "The Socio-Economic Gradient in Health: A Never-Ending Story? A Descriptive and Explorative Study in Belgium." *Department of Family Medicine and Primary Health Care*. Ghent: Ghent University.
- Xu, K. T., and T. F. Borders. 2003. "Gender, Health, and Physician Visits among Adults in the United States." *American Journal of Public Health* 93 (7): 1076–9.
- Zuvekas, S. H., and G. S. Taliaferro. 2003. "Pathways to Access: Health Insurance, the Health Care Delivery System, and Racial/Ethnic Disparities, 1996–1999." *Health Affairs (Millwood)* 22 (2): 139–53.

SUPPORTING INFORMATION

Additional supporting information may be found online in the supporting information tab for this article:

Appendix SA1: Author Matrix.

Appendix SA2:

Table S1: Summary of Structure and Process Strength Dimensions of Primary Care in Europe.

Table S2: Results of the Logistic Regression of Postponement of Care (Odds Ratios and 95 Percent Confidence Intervals Given).