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ORIGINAL ARTICLE

Access, treatment and outcomes of care: a study of ethnic minorities in Europe

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Abstract
Objectives Recent research has shown that ethnic minorities still have less access to medical care and are less satisfied with the treatment they receive and the outcomes of the health care process. This article assesses how migrants in Europe experience access, treatment and outcomes in the European health care systems.
Methods Data were obtained from the QUALICOPC study (Quality and Costs of Primary Care in Europe). Regression analyses were used to estimate the access, treatment and outcomes of care for ethnic minorities.
Results In several countries, migrants experience that the opening hours of their GP practice were too limited and indicate that the practice was too far away from their work or home (lower access). They are more likely to report negative patient–doctor communication and less continuity of care than native patients (worse treatment). In addition, they are less satisfied with the care they received and are more likely to postpone care (worse outcomes).
Conclusions In general, migrants are still disadvantaged during the health care process. However, our results also indicate that satisfaction with the health care process improves for second-generation migrants in comparison with first-generation migrants.

Keywords Ethnic minorities · Primary health care · Europe · Logistic regression

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Introduction

In the last decade, the attention of policymakers to the situation of ethnic minorities and migrants in (primary) health care has increased steadily. The growing concern about the health situation of these specific populations stems from both demographic and policy-related changes. One of these changes is the constant migration to and within Europe which has increased population diversity (Raymer 2009; Stalker 2002). On the policy level, both national governments and international institutions are engaging with inequalities in health and inequities within healthcare (Oliver and Mossialos 2004).

Equitable care is achieved when people with equal needs receive similar care (horizontal equity) or when people with greater needs are provided with specific care that meets these needs (vertical equity) (Starfield 2001). Drawing on these definitions, an equitable healthcare system implies that patient care not only has similar outcomes, regardless of socioeconomic or cultural background, but also that patients have equal access to healthcare services and are equitably treated.

The growing attention of policymakers towards ethnic minorities is also reflected in the increase in scientific and empirical research in this area. Several studies have investigated the experiences of ethnic minority groups with regard to access to healthcare (Malmusi et al. 2014; Szczepura 2005). A number of authors have demonstrated that access to care is generally worse for ethnic minority groups (Campbell et al. 2001; Kontopantelis et al. 2010; Malmusi et al. 2014). Kontopantelis et al. (2010) suggest that ethnic minorties do not only experience less access to health care facilities, but that their satisfaction with a number of access-related topics such as opening hours and being able to get a timely appointment is also lower. In

addition, Buja et al. (2014) have shown that emergency care is still widely used by immigrant populations. They suggested that this overuse of emergency departments can be interpreted as an indirect indication of barriers to primary healthcare access.

Concerning treatment, the same tendencies are found. Continuity of care and satisfaction with patient–provider interaction is generally lower among ethnic minorities (Nelson et al. 2002). Stein et al. (2007) found that African–American adults are significantly less likely to receive follow-up care after psychiatric hospitalisation than Caucasian Americans. Fontanella et al. (2014) confirm these results for ethnic minorities suffering from schizophrenia. On top of that, research suggests that worse continuity of care for ethnic minorities persists after controlling for socioeconomic status and even access to care (Mainous et al. 2007). These results underpin the hypothesis that ethnic minorities encounter a 'double disadvantage' during the healthcare process, because they not only have less access but also once access is gained are often treated worse.

Continuity of care has been shown to relate closely to patient–provider communication (Love et al. 2000; Moy and Freeman 2014), indicating that good continuity leads to better patient–provider communication and vice versa. However, patient–provider communication has also been shown to be less positive when the patient belongs to an ethnic minority (Nelson et al. 2002). Patients often report reluctance to help them and lack of respect.

Quality of care has been put forward as one of the most important dimensions with regard to outcomes (Kringos et al. 2010). Concerning quality, patient satisfaction has long been established as an indicator of quality of care (Cleary and Mcneil 1988). Recently, research has shown that satisfaction with healthcare is lower for ethnic minorities compared to the native population (Haviland et al. 2005; Mead and Roland 2009; Weech-Maldonado et al. 2003). Two suggestions for why these differences exist have been made by Mead and Roland (2009). On the one hand, the lower socioeconomic status of ethnic minorities could account for some of the differences in satisfaction rates, while on the other, limited access to and quality of care may explain why ethnic minorities report lower satisfaction than the native population.

While the results above clearly illustrate why the ongoing research on healthcare received by ethnic minorities remains important, most studies are from the US and UK and are not necessarily representative for (other) European countries. In addition, all of these studies are single-country studies and do not allow for comparison between different countries. For this reason, in this study we compare the differences between the native population and ethnic minorities as to access-, treatment- and outcome-related indicators within the healthcare systems in 31 European countries.

Methods

This research is conducted with data from the QUALICOPC study (Quality and Costs of Primary Care in Europe). QUALICOPC is an international study that evaluates the performance of primary care (PC) systems in Europe in terms of quality, equity and costs (Schafer et al. 2011).

Data collection

Surveys were conducted with GPs and patients in 31 European countries. These included the 27 EU member states, except for France, where permission from the French National Ethics committee was unobtainable. The remaining five European countries were the Former Yugoslav Republic (FYR) Macedonia, Iceland, Norway, Switzerland and Turkey. In each country, a nationally representative sample of GPs (target: $N = 220$ GPs/country; Cyprus, Iceland, Luxembourg and Malta $N = 80$ GPs) and patients (target: $N = 2200$/country, respectively, $N = 800$) filled in the questionnaires. One GP per practice was eligible to participate.

Data were collected at two levels: practice and patient level within countries. At practice level, the GP was asked to fill in a questionnaire about his or her personal and practice characteristics. Subsequently, each trained fieldworker filled in a short questionnaire about the practice facility, e.g. access to the practice for disabled people.

At patient level, only patients who had had face-to-face consultations with the GP and were older than 18 were invited to participate. In each practice, ten patient surveys were collected. Nine patients completed questions about their experiences in the consultation which had just occurred. One patient completed a questionnaire about the patient's values in primary care.

All questionnaires are based on international validated instruments and tested through a pilot study (for more details see: (Schafer et al. 2013).

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

Measures

Access indicators (opening hours; distance to practice)

Two dependent variables were used to measure the access component of the healthcare process.

'Opening hours' measure whether people found the opening hours of the practice they just visited were too restricted. For the variable 'distance to practice', people were asked if they thought the practice was too far from their home or work. For both questions, patients could choose between the answer options 'yes', 'no' and 'don't know'. We opted to recode the latter category as a missing.

Treatment indicators (patient–GP interaction; continuity)

The two treatment indicators give us some information about the continuity of care. 'Patient–GP interaction' provides information about relational continuity, 'continuity' gives insight into the longitudinal and informational continuity of care.

'Patient–GP interaction' is a categorical variable derived from a scale. Respondents were asked whether they (dis)agreed on eight different topics concerning interaction (viz.: 'The doctor was polite', 'the doctor listens carefully', 'the doctor hardly looked at me when we talked', 'the doctor asked questions about my health problem', 'I couldn't really understand what the doctor was trying to explain', 'the doctor took sufficient time', 'the doctor involved me in making decisions about treatment', 'the doctor asked about possible other problems besides the ones I just came for'). Respondents could answer 'yes' or 'no'. If respondents had a valid answer to all eight questions, a scale was made which counted the times people agreed to the statements, if respondents did not give a valid answer to one or more statements, they received a missing score for the scale. To get more contrast in the statements, we transformed the variable to a dichotomous one with '0' = more (or) positive interaction '1' = no/negative interaction. People who agreed to six or more of the previous statements were rated with score '0', which means they had an overall positive evaluation of the interaction. All the others were rated with score '1'.

The variable 'continuity' is constructed in a similar way. Respondents were asked whether they (dis)agreed with following two statements: 'the doctor knows important information about my medical background' and 'the doctor knows about my living situation'. Respondents could answer 'yes', 'no' or 'don't know'. The latter was recoded as missing. If respondents had a valid answer to both questions, a scale was made that counted the times people agreed to the statements. People who answered positive on both questions received score '1' on continuity, others scored '0'.

Outcome indicators (satisfaction; postponement of care)

Two variables measured the outcome of the healthcare process. Overall 'satisfaction' of respondents was measured by asking them whether they would recommend this doctor to a friend or relative. For the variable 'postponement', patients were asked whether in the last twelve months they had postponed or abstained from visiting a doctor when they needed one. For both questions, patients could choose between the answer options 'yes' or 'no'.

Explanatory variables

The variable 'ethnicity' was constructed according to the framework of (Rumbaut 2006). Here, the migration status of an individual serves as a proxy for ethnicity, which is determined by both the birthplace of the patient and the mother. If both were born in the country of residence the patient is considered 'native'. This also applies if only the mother was born in the country of residence. Where both were born in another country the patient is categorised as 'first-generation migrant'. If the patient but not the mother was born in the country of residence they were categorised as 'second-generation' migrants.

The influence of 'ethnicity' is measured in two steps. In the first step, we controlled for differences between the native population and the migrant group. In a second step, we differentiated within the minority group by dividing them according to their family history. For practical purposes we call these groups first- and second-generation migrants.

We controlled the analysis for four other socioeconomic/demographic variables, namely: self-reported household income (low, middle and high income), education (no education or primary education, upper secondary education and post-secondary or tertiary education), gender and age.

Statistical analysis

Binominal logistic regressions are carried out to estimate the influence of belonging to the migrant population on the healthcare process. In a first analysis, we estimated differences between the migrant population and the native population. In a second step, we analysed in more detail, comparing differences between first-generation migrants or second-generation migrants and the native population. The analysis was only done in countries where the migrant group was large enough, i.e. had a minimum of 25 individuals (per group) per analysis.

Before analysis, the existence of multicollinearity between the control variables (household income, education, gender and age) was verified. No indication of multicollinearity was found. The regression analyses were done separately for each country. The level of statistical significance was set at $P \leq 0.05$. For each variable the odds ratios and a 95 % confidence interval are reported. All tests were conducted in IBM SPSS version 21.

Results

Table 1 displays the results of the descriptive analysis. In the overall sample, 10.1 % of the population had a migrant background. Large differences exist between the countries within Europe. Proportions vary from 0.8 % migrants in Romania to 52.6 % migrants in Luxembourg.

General findings

Firstly, we see that in general most differences were found between first-generation migrants and the native population. Although in some countries we also found some differences between second-generation migrants and the native population, these are less numerous. However, for two of the indicators, continuity and postponement, this observation was not so straightforward. Here, the number of differences found between second-generation migrants and natives was similar to those between first-generation migrants and natives.

Secondly, with one exception (for the treatment indicator 'continuity' in Spain), all significant effects, for all indicators, were in favour of the native population.

Thirdly, there were some countries where migrants were consistently worse off during the healthcare process. Belgium was the most explicit case. Here, being migrant (first- and/or second-generation migrants) had a significant effect on all indicators, meaning that migrants reported less access, more negative experiences with treatment procedures and indicated to be less satisfied and to postpone more care than the native population. In the Netherlands and Sweden, migrants scored worse on five of the six variables, indicating that here too migrants report less access, worse treatment and more negative outcomes. By contrast, in Iceland, Luxembourg, Malta, Poland, Portugal and Turkey no differences were found between migrants and natives.

Table 1 % of ethnic minorities in the QUALICOPC sample (2013)

	N (%) of ethnic minorities (valid percentages)		
	Migrants (total)	Second generation	First generation
Europe	5406 (10.1)	1815 (3.4)	3591 (6.7)
Austria	290 (19.0)	100 (6.5)	190 (12.4)
Belgium	625 (17.0)	226 (6.2)	399 (11.0)
Bulgaria	24 (1.2)	19 (1.0)	5 (0.3)
Cyprus	17 (2.8)	13 (2.2)	4 (0.7)
Czech Republic	144 (7.3)	76 (3.8)	68 (3.4)
Denmark	147 (8.1)	56 (3.1)	91 (5.0)
England	155 (12.2)	48 (3.8)	107 (8.4)
Estonia	250 (22.5)	134 (12.1)	116 (10.4)
Finland	20 (1.7)	11 (0.9)	9 (0.8)
FYR Macedonia	86 (6.8)	52 (4.1)	34 (2.7)
Germany	273 (13.0)	77 (3.7)	196 (9.3)
Greece	107 (5.5)	51 (2.6)	56 (2.9)
Hungary	62 (3.2)	24 (1.2)	38 (2.0)
Iceland	31 (4.3)	15 (2.1)	16 (2.2)
Ireland	232 (14.6)	26 (1.6)	206 (13.0)
Italy	146 (7.6)	26 (1.3)	120 (6.2)
Latvia	223 (11.6)	125 (6.5)	98 (5.1)
Lithuania	71 (3.6)	40 (2.0)	31 (1.6)
Luxembourg	372 (52.6)	82 (11.8)	290 (41.8)
Malta	45 (7.2)	7 (1.1)	38 (6.1)
The Netherlands	268 (13.8)	97 (5.0)	171 (8.8)
Norway	157 (10.6)	40 (2.7)	117 (7.9)
Poland	42 (2.1)	30 (1.5)	12 (0.6)
Portugal	115 (6.1)	24 (1.3)	91 (4.9)
Romania	16 (0.8)	14 (0.7)	2 (0.1)
Slovakia	29 (1.5)	16 (0.8)	13 (0.7)
Slovenia	333 (17.2)	128 (6.6)	205 (10.6)
Spain	379 (10.2)	54 (1.5)	325 (8.8)
Sweden	134 (18.1)	38 (5.1)	96 (12.9)
Switzerland	568 (31.9)	140 (7.9)	428 (24.0)
Turkey	45 (1.7)	26 (1.0)	19 (0.7)

Access

Tables 2 and 3 display the results of the logistic analysis for the access indicators. In 8 countries, Belgium, Germany, Greece, Hungary, Latvia, the Netherlands, Norway and Sweden, more migrants indicated that the opening hours of the practice they visited were too restrictive, compared to the native population. Differences were almost exclusively found between the first-generation migrants and the native population. Results are especially remarkable in Latvia, the Netherlands and Sweden. Here, the odds to indicate that the opening hours are too restrictive are three times higher for first-generation migrants compared to the native population.

Although no significant effect was found in the general analysis for Slovenia, first-generation migrants indicate significantly more often that they found opening hours too restrictive (odds ratio 1462).

Similar tendencies are found for the second indicator of access. In seven countries, first-generation migrants indicated significantly more often that the practice was too far away from their home or work. The results of Sweden are remarkable, in that the odds are three times (2848) higher for first-generation migrants in comparison with the native population. In addition, in six of these countries, viz. Belgium, Germany, Greece, Latvia, the Netherlands and Sweden, first-generation migrants appear to be significantly

Table 2 Access indicator: Opening Hours (2013)

	Opening Hours Binomial logistic regression[a]					
	Migrants		Native versus second generation		Native versus first generation	
	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI
Europe	1.102*	1.023–1.188	0.951	0.836–1.081	0.844***	1.084–1.295
Austria	1.079	0.726–1.602	1.151	0.629–2.105	1.039	0.643–1.679
Belgium	1.325*	1.018–1.725	1.063	0.694–1.628	1.498*	1.096–2.046
Bulgaria	–	–	–	–	–	–
Cyprus	–	–	–	–	–	–
Czech Republic	1.348	0.833–2.182	1.447	0.761–2.751	1.245	2.494
Denmark	1.236	0.679–2.249	1.183	0.451–3.104	1.267	0.610–2.635
England	1.099	0.667–1.811	1.164	0.503–2.694	1.070	0.592–1.935
Estonia	0.881	0.578–1.341	0.880	0.514–1.505	0.882	0.485–1.604
Finland	–	–	–	–	–	–
FYR Macedonia	0.879	0.468–1.652	1.040	0.484–2.233	0.654	0.222–1.923
Germany	1.434*	1.002–2.053	1.468	0.785–2.745	1.420	0.938–2.149
Greece	1.629*	1.035–2.562	1.050	0.528–2.089	2.363**	1.289–4.333
Hungary	2.068*	1.109–3.857	–	–	–	–
Iceland	1.788	0.681–4.692	–	–	–	–
Ireland	0.953	0.653–1.431	–	–	–	–
Italy	1.174	0.786–1.754	1.640	0.733–3.671	1.070	0.681–1.681
Latvia	2.256***	1.590–3.202	1.675*	1.055–2.660	3.364***	2.031–5.572
Lithuania	1.305	0.631–2.698	0.691	0.209–2.287	2.331	0.918–5.920
Luxembourg	1.002	0.558–1.800	1.038	0.411–2.619	0.994	0.538–1.836
Malta	0.669	0.268–1.672	–	–	–	–
The Netherlands	3.214***	2.324–4.446	1.509	0.847–2.686	4.581***	3.148–6.668
Norway	2.205***	1.439–3.380	1.773	0.791–3.976	2.380***	1.466–3.862
Poland	1.592	0.710–3.572	–	–	–	–
Portugal	1.273	0.795–2.038	1.027	0.369–2.860	1.348	2.275
Romania	–	–	–	–	–	–
Slovakia	1.824	0.732–4.540	–	–	–	–
Slovenia	1.210	0.909–1.611	0.856	0.533–1.375	1.462*	1.040–2.057
Spain	1.185	0.924–1.519	1.236	0.694–2.198	1.175	0.899–1.537
Sweden	2.026**	1.248–3.287	0.309	0.088–1.077	3.572***	2.073–6.156
Switzerland	1.084	0.737–1.593	1.284	0.693–2.379	1.018	0.661–1.568
Turkey	1.046	0.475–2.304	–	–	–	–

Results of the logistic regression, odds ratios and 95 % CI

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; – indicates that groups were <25

[a] Controlled for age, education, gender and income

more likely to indicate that the opening hours were too restricted as well as that the practice was too far away.

Treatment

Tables 4 and 5 display the results of the logistic analysis for the treatment indicators. In eight countries migrants appear to be significantly more likely to score positively on 'patient–GP interaction', indicating that migrants report a more negative experience of the interaction with their GP than the native population. In those countries, the odds of experiencing negative patient–provider interaction are at least 1.5 higher for migrants. If we make a distinction between first- and second-generation migrants, the

Table 3 Access indicator: distance to practice (2013)

	Opening Hours Binomial logistic regression[a]					
	Migrants		Native versus second generation		Native versus first generation	
	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI
Europe	0.954	0.869–1.049	0.845*	0.717–0.995	1.012	0.905–1.131
Austria	1.507	0.995–2.283	1.309	0.673–2.546	1.621	0.999–2.630
Belgium	1.865***	1.348–2.576	1.648	0.998–2.722	1.998***	1.364–2.927
Bulgaria	–	–	–	–	–	–
Cyprus	–	–	–	–	–	–
Czech Republic	1.214	0.713–2.068	1.362	0.684–2.713	1.052	0.472–2.347
Denmark	1.846	0.960–3.551	2.396	0.973–5.896	1.506	0.627–3.615
England	2.452*	1.110–5.417	0.907	0.119–6.937	3.114**	1.350–7.186
Estonia	0.825	0.497–1.367	0.557	0.262–1.186	1.180	2.236
Finland	–	–	–	–	–	–
FYR Macedonia	0.420	0.165–1.066	0.402	0.122–1.325	0.449	0.105–1.923
Germany	1.550*	1.026–2.340	1.028	0.437–2.422	1.759*	1.117–2.770
Greece	1.776*	1.122–2.811	1.083	0.515–2.277	2.565**	1.426–4.616
Hungary	0.725	0.322–1.630	0.681	0.199–2.327	0.761	0.261–2.216
Iceland	0.000	0.000–∞	–	–	–	–
Ireland	0.823	0.435–1.558	–	–	–	–
Italy	1.523	0.918–2.528	1.088	0.321–3.688	1.636	0.947–2.828
Latvia	1.461	0.970–2.200	1.107	0.626–1.957	2.000*	1.146–3.486
Lithuania	1.565	0.801–3.058	1.384	0.568–3.374	1.852	0.686–4.994
Luxembourg	1.468	0.739–2.915	1.459	0.495–4.301	1.470	0.719–3.005
Malta	1.562	0.637–3.832	–	–	–	–
The Netherlands	1.991**	1.181–3.55	1.305	0.505–3.371	2.379**	1.326–4.267
Norway	0.937	0.487–1.802	0.285	0.038–2.127	1.203	0.605–2.393
Poland	1.640	0.767–3.503	–	–	–	–
Portugal	1.202	0.710–2.036	–	–	–	–
Romania	–	–	–	–	–	–
Slovakia	0.367	0.084–1.610	–	–	–	–
Slovenia	1.303	0.880–1.929	1.359	0.735–2.514	1.274	0.796–2.040
Spain	0.808	0.577–1.132	0.782	0.329–1.861	0.812	0.567–1.163
Sweden	2.175*	1.029–4.595	0.643	0.083–4.960	2.848**	1.300–6.241
Switzerland	1.582	1.042–2.043	1.695	0.853–3.370	1.548	0.983–2.439
Turkey	0.235	0.032–1.726	–	–	–	–

Results of the logistic regression, odds ratios and 95 % CI

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; – indicates that groups were <25

[a] Controlled for age, education, gender and income

significant effect disappears in Austria. For the remaining countries all differences were found between first-generation migrants and the native population, with the exception of Lithuania. Differences between migrants and the native population are even more explicit in detailed analysis. In England, the odds of experiencing negative patient–provider interaction are 3.3 higher, in comparison with 2.7 in the general analysis.

Regarding continuity, the differences are less consistent. In eight countries significant differences between the native population and respondents with a migrant background were found. In Austria, Estonia and Greece differences were found between second-generation migrants and the native population, whereas in Denmark and the Netherlands differences were mostly situated between first-generation migrants and the native population. In Belgium,

Table 4 Treatment indicator: patient–GP interaction (2013)

	Opening Hours Binomial logistic regression[a]					
	Migrants		Native versus second generation		Native versus first generation	
	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI
Europe	1.116*	1.014–1.228	1.051	0.893–1.237	1.149*	1.025–1.288
Austria	1.544*	1.006–2.370	1.689	0.882–3.232	1.472	0.885–2.449
Belgium	2.113***	1.355–3.295	1.831	0.927–3.613	2.301**	1.363–3.887
Bulgaria	–	–	–	–	–	–
Cyprus	–	–	–	–	–	–
Czech Republic	0.979	0.528–1.814	1.386	0.674–2.847	0.522	0.161–1.687
Denmark	1.883*	1.119–3.166	1.454	0.599–3.531	2.151*	1.165–3.972
England	2.689***	1.551–4.660	1.575	0.541–4.582	3.274***	1.778–6.028
Estonia	1.338	0.798–2.244	1.555	0.835–2.895	1.071	0.490–2.343
Finland	–	–	–	–	–	–
FYR Macedonia	0.918	0.320–3.629	0.590		0.590	
Germany	1.610	0.975–2.660	1.716	0.721–4.080	1.571	0.882–2.799
Greece	1.226	0.656–2.290	1.522	0.669–3.461	0.964	0.377–2.465
Hungary	–	–	–	–	–	–
Iceland	0.718	0.093–5.528	–	–	–	–
Ireland	1.484	0.971–2.268	2.324	0.898–6.019	1.376	0.872–2.172
Italy	0.891	0.553–1.434	0.594	0.177–1.998	0.965	0.578–1.610
Latvia	1.271	0.853–1.893	1.090	0.639–1.860	1.534	0.878–2.682
Lithuania	2.140*	1.164–3.934	2.519*	1.171–5.417	1.684	0.633–4.479
Luxembourg	1.523	0.762–3.045	1.123	0.347–3.633	1.630	0.796–3.337
Malta	1.104	0.370–3.296	–	–	–	–
The Netherlands	2.130***	1.439–3.151	1.457	0.729–2.914	2.507***	1.610–3.906
Norway	1.416	0.805–2.491	1.219	0.358–4.151	1.471	0.791–2.734
Poland	1.686	0.732–3.880	–	–	–	–
Portugal	0.918	0.412–2.042	–	–	–	–
Romania	–	–	–	–	–	–
Slovakia	–	–	–	–	–	–
Slovenia	0.895	0.590–1.358	0.953	0.508–1.788	0.860	0.511–1.447
Spain	0.839	0.602–1.170	0.635	0.249–1.619	0.873	0.616–1.239
Sweden	2.109**	1.270–3.501	0.712	0.209–2.424	2.768***	1.610–4.756
Switzerland	1.994*	1.084–3.669	1.677	0.599–5.034	2.079*	1.095–3.948
Turkey	0.000	0–∞	–	–	–	–

Results of the logistic regression, odds ratios and 95 % CI

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; – indicates that groups were <25

[a] Controlled for age, education, gender and income

both first- and second-generation migrants experience significantly lower continuity of care. With the exception of the effect for Spain (second generation), in all countries both first- and/or second-generation migrants indicated experiencing less continuity in comparison with the native population. These results hint that in the countries mentioned above, both first- and/or second-generation migrants experienced worse continuity of care. More specifically their doctors were less likely to have access to information about their medical background and/or living situation.

Outcomes

Tables 6 and 7 display the results of the logistic analysis for the outcome indicators. In seven countries, migrants reported less satisfaction than native patients. Most

Table 5 Treatment indicator: continuity (2013)

	Opening Hours Binomial logistic regression[a]					
	Migrants		Native versus second generation		Native versus first generation	
	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI
Europe	1.119*	1.033–1.212	1.104	0.968–1.258	1.127*	1.023–1.243
Austria	0.638*	0.434	0.484*	0.273–0.859	0.749	0.467–1.201
Belgium	0.411***	0.318–0.532	0.639*	0.418–0.978	0.326**	0.242–0.439
Bulgaria	–	–	–	–	–	–
Cyprus	–	–	–	–	–	–
Czech Republic	1.743*	1.005–3.026	1.956	0.897–4.263	1.550	0.723–3.322
Denmark	0.474*	0.263–0.856	0.569	0.222–1.459	0.427*	0.210–0.866
England	1.084	0.617–1.907	–	–	–	–
Estonia	0.310***	0.202–0.476	0.416***	0.245–0.705	0.197	0.108–0.362
Finland	–	–	–	–	–	–
FYR Macedonia	1.205	0.558–2.604	1.099	0.418–2.892	1.383	0.407–4.696
Germany	0.951	0.642–1.408	0.814	0.422–1.569	1.019	0.640–1.622
Greece	0.467**	0.287–0.761	0.371**	0.181–0.761	0.566	0.295–1.088
Hungary	0.934	0.485–1.797	–	–	–	–
Iceland	0.550	0.171–1.765	–	–	–	–
Ireland	1.039	0.636–0.1.697	–	–	–	–
Italy	0.494**	0.309–0.791	–	–	–	–
Latvia	0.936	0.613–1.430	0.979	0.574–1.669	0.874	0.458–1.670
Lithuania	0.969	0.532–1.765	0.920	0.405–2.091	1.025	0.433–2.428
Luxembourg	0.610	0.348–1.069	0.677	0.299–1.530	0.590	0.328–1.064
Malta	0.705	0.326–1.524	–	–	–	–
The Netherlands	0.606*	0.403–0.912	0.638	0.339–1.200	0.588*	0.359–0.964
Norway	0.627	0.371–1.059	0.467	0.187–1.168	0.703	0.379–1.306
Poland	0.881	0.445–1.743	–	–	–	–
Portugal	1.052	0.467–2.371	–	–	–	–
Romania	–	–	–	–	–	–
Slovakia	–	–	–	–	–	–
Slovenia	0.858	0.628–1.71	0.769	0.486–1.217	0.926	0.623–1.375
Spain	0.754	0.564–1.009	3.108*	1.078–8.963	0.641**	0.474–0.868
Sweden	1.294	0.729–2.300	–	–	–	–
Switzerland	0.856	0.588–1.245	0.811	0.447–1.472	0.873	0.579–1.325
Turkey	0.673	0.335–1.353	–	–	–	–

Results of the logistic regression, odds ratios and 95 % CI

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; – indicates that groups were <25

[a] Controlled for age, education, gender and income

differences again were found between first-generation migrants and the native population. In Belgium, England, Estonia, Germany, the Netherlands and Sweden, first-generation migrants all indicated less satisfaction with their doctor than did the native population.

In Norway this was true for both first- and second-generation migrants. Here, the odds were, respectively 2,02 and 3,05 lower for first- and second-generation migrants.

In six countries, migrants indicated that they had experienced more postponement than had the native population. However, when first- and second-generation migrants were analysed separately, we found differences between the native populations and either one of the groups in ten

Table 6 Outcome indicator: satisfaction (2013)

	Opening Hours Binomial logistic regression[a]					
	Migrants		Native versus second generation		Native versus first generation	
	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI
Europe	0.809***	0.725–0.903	0.971	0.799–1.178	0.745*	0.655–0.846
Austria	0.727	0.452–1.169	0.912	0.406–2.049	0.656	0.382–1.128
Belgium	0.497**	0.301–0.821	1.392	0.430–4.506	0.362***	0.212–0.616
Bulgaria	–	–	–	–	–	–
Cyprus	–	–	–	–	–	–
Czech Republic	1.358	0.583–3.163	1.091	0.389–3.063	1.891	0.454–7.879
Denmark	0.667	0.360–1.235	0.649	0.250–1.689	0.677	0.315–1.456
England	0.369**	0.197–0.694	0.588	0.173–1.996	0.313***	0.156–0.628
Estonia	0.751	0.483–1.167	1.059	0.567–1.976	0.536*	0.305–0.941
Finland	–	–	–	–	–	–
FYR Macedonia	0.611	0.136–2.745	–	–	–	–
Germany	0.504*	0.276–0.920	0.513	0.179–1.472	0.500*	0.253–0.989
Greece	0.540	0.240–1.219	0.836	0.198–3.537	0.418	0.158–1.103
Hungary	0.793	0.352–1.784	–	–	–	–
Iceland	0.643	0.142–2.907	–	–	–	–
Ireland	0.596*	0.364–0.976	0.310*	0.112–0.863	0.671	0.392–1.148
Italy	1.331	0.693–2.560	2.617	0.350–19.555	1.199	0.603–2.385
Latvia	1.089	0.658–1.804	1.483	0.709–3.102	0.793	0.408–1.543
Lithuania	1.095	0.467–2.571	0.917	0.321–2.620	1.451	0.342–6.160
Luxembourg	1.050	0.493–2.237	1.326	0.360–4.890	0.990	0.448–2.188
Malta	0.410	0.085–1.980	–	–	–	–
The Netherlands	0.592*	0.382–0.919	1.298	0.514–3.278	0.445***	0.275–0.720
Norway	0.442**	0.257–0.760	0.327*	0.129–0.830	0.494*	0.263–0.927
Poland	0.548	0.208–1.443	–	–	–	–
Portugal	0.448	0.181–1.111	0.449	0.057–3.552	0.448	0.167–1.201
Romania	–	–	–	–	–	–
Slovakia	–	–	–	–	–	–
Slovenia	1.204	0.752–1.929	1.138	0.572–2.262	1.255	0.687–2.290
Spain	0.878	0.591–1.305	0.820	0.317–2.120	0.889	0.582–1.358
Sweden	0.560*	0.331–0.945	1.049	0.353–3.122	0.465**	0.263–0.820
Switzerland	0.951	0.521–1.734	2.192	0.511–9.416	0.802	0.430–1.495
Turkey	–	–	–	–	–	–

Results of the logistic regression, odds ratios and 95 % CI

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; – indicates that groups were <25

[a] Controlled for age, education, gender and income

countries. In Austria, FYR Macedonia, Lithuania and Sweden differences were found between second-generation migrants and natives. In Belgium, Germany, the Netherlands, Spain and Switzerland differences were found between first-generation migrants and natives. In Slovenia both first- and second-generation migrants reported significantly more postponement in comparison with the native population.

Discussion

In most European countries, ethnic diversity is a common phenomenon and ethnic minorities make up a notable proportion of the population (Raymer 2009; Stalker 2002). Despite the fact that they represent a significant proportion of the population, ethnic minorities are still disadvantaged at several levels, including healthcare. They often

Table 7 Outcome indicator: postponement of care (2013)

	Opening Hours Binomial logistic regression[a]					
	Migrants		Native versus second generation		Native versus first generation	
	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI	Odds ratio Exp (*B*)	95 % CI
Europe	1.188**	1.101–1.281	1.186**	1.048–1.345	1.188***	1.084–1.302
Austria	1.419	0.979–2.057	1.806*	1.050–3.105	1.229	0.779–1.939
Belgium	1.130	0.888–1.439	0.739	0.482–1.132	1.384*	1.048–1.829
Bulgaria	–	–	–	–	–	–
Cyprus	–	–	–	–	–	–
Czech Republic	0.997	0.607–1.644	0.958	0.481–1.908	1.044	0.521–2.092
Denmark	0.768	0.452–1.306	0.776	0.336–1.793	0.763	0.393–1.480
England	0.568	0.301–1.072	0.642	0.222–1.857	0.536	0.249–1.151
Estonia	0.709	0.483–1.041	0.709	0.439–1.144	0.710	0.402–1.256
Finland	–	–	–	–	–	–
FYR Macedonia	1.516	0.927–2.479	2.038*	1.122–3.700	0.895	0.381–2.101
Germany	1.682**	1.198–2.360	1.581	0.868–2.881	1.723**	1.169–2.537
Greece	1.199	0.733–1.692	1.026	0.488–2.157	1.359	0.713–2.590
Hungary	0.844	0.449–1.588	–	–	–	–
Iceland	0.602	0.137–2.650	–	–	–	–
Ireland	1.184	0.827–1.696	–	–	–	–
Italy	0.987	0.633–1.541	0.984	0.361–2.682	0.988	0.608–1.606
Latvia	1.096	0.743–1.616	1.273	0.789–2.052	0.871	0.470–1.613
Lithuania	1.828*	1.098–3.045	2.331*	1.215–4.470	1.284	0.564–2.919
Luxembourg	0.834	0.508–1.369	0.956	0.460–1.988	0.796	0.468–1.355
Malta	0.499	0.115–2.166	–	–	–	–
The Netherlands	1.302	0.901–1.882	1.170	0.655–2.091	1.385	0.889–2.157
Norway	1.581	0.977–2.558	1.049	0.393–2.081	1.808*	1.058–3.087
Poland	0.953	0.435–2.090	–	–	–	–
Portugal	1.518	0.883–2.609	–	–	–	–
Romania	–	–	–	–	–	–
Slovakia	–	–	–	–	–	–
Slovenia	1.630**	1.192–2.229	1.683*	1.062–2.666	1.595*	1.083–2.351
Spain	1.824***	1.419–2.345	1.509	0.796–2.861	1.879***	1.441–2.450
Sweden	2.304**	1.336–3.975	4.055***	1.759–9.353	1.770	0.924–3.391
Switzerland	1.513*	1.076–2.126	1.320	0.739–2.358	1.577*	1.093–2.274
Turkey	0.845	0.200–3.567	–	–	–	–

Results of the logistic regression, odds ratios and 95 % CI

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; – indicates that groups were <25

[a] Controlled for age, education, gender and income

experience less access to care (Campbell et al. 2001; Kontopantelis et al. 2010; Szczepura 2005), receive lower quality treatments (Nelson et al. 2002) and as a result are often less satisfied with the care received (Haviland et al. 2005; Mead and Roland 2009; Weech-Maldonado et al. 2003). These results are unacceptable from an equity perspective on healthcare and prove that, while ethnicity should not be a determinant in receiving care and the quality of treatment, it often is the case.

Our results confirm the literature on several areas and show that ethnic minorities are often disadvantaged in the healthcare process. For access-, treatment- and outcome-related indicators ethnic minorities have systematically lower scores in several countries. For access this means

that not only are ethnic minorities less satisfied with the opening hours of the practice, they also indicate more frequently that their GP practice is too far away from their home or work in comparison to the native population. With regard to treatment, they experience more negative patient–GP interaction and less continuity of care. These experiences can contribute to more negative outcomes, which are also reflected in our data. In general, ethnic minorities are less satisfied with the care received and are more likely to postpone care in the future.

While in most countries ethnic minorities have negative experiences for at least one indicator, in some countries, like Belgium, Sweden and the Netherlands, ethnic minorities have consistently more negative experiences during the healthcare process, in comparison with native inhabitants. This may indicate that the policies with regard to ethnic minorities are not properly developed, applied and/or supervised in these countries. It can also signal that in these countries ethnic minorities are, or at least feel, systematically discriminated.

In contrast to these results, in some countries (Iceland, Luxembourg, Malta, Poland, Portugal, and Turkey) no effects are found at all. However, the absence of differences in our results does not automatically imply that there are no differences as such. Especially because in some countries the ethnic minority groups are relatively small, making analysis of the groups more difficult and less reliable.

Notwithstanding, we found evidence for at least one positive tendency in our results. Most differences are found between first-generation migrants and the native population, while fewer differences are found for second-generation migrants. This seems to endorse the 'social integration hypothesis' that so many have put forward (Berry 1997; Matschke and Sassenberg 2010). This theory focusses on the contact that takes place between migrants and the native population with the assumption that more contact, and more positive contacts increase the integration of migrants in the host country. Applied to healthcare this could mean that migrants who have more contact with the native population and/or have larger social networks perceive more access to healthcare.

On the other hand it could also indicate that governments, after witnessing that healthcare facilities failed to address migrants properly, re-evaluated policies, making them better adapted to the specific needs of this group. Future research about the experience of third- and fourth-generation migrants will have to test this hypothesis to verify the truthfulness of this claim.

In summary, our research concludes that, while improvements are being made, a large group of first-generation migrants is significantly worse off in their search for healthcare, during the treatment procedure, and subsequently evaluate the outcome of the process more negatively. However, these results should be carefully interpreted since patient satisfaction and other evaluations of the health care process (such as perceived access or perceived continuity) can be influenced by their expectations based on their socioeconomic status or cultural background rather than the objective health care provision. Therefore, these results should be considered as a subjective experience of the health care process instead of an objective evaluation. In addition, in certain countries there were only small groups of ethnic minorities, making analysis difficult and results unreliable.

Lastly, we used 'migration status' as a proxy for ethnic minorities, meaning that our results are probably not as detailed as they would have been if we had had data on the ethnicity of patients. Given this consideration, the fact that we did not control for health status and the finding that ethnic minorities are often overrepresented in lower socioeconomic groups, of which we know that they have worse health status (Marmot et al. 1991) our results are most likely an underestimation of the real social differences in healthcare.

While not without limitations the contribution of this study is significant since it is the first time that such an extensive overview has been made of the situation of ethnic minorities within primary healthcare in Europe. These data allow us, for the first time, to make a comparison between different European countries, with different health care systems and a different approach to health care in general. In addition, it clearly shows the difficulties which ethnic minorities encounter in their search for care by including access, treatment and outcome indicators. Finally, it is also a starting point for policy makers who are currently developing new healthcare policies. Policy makers could improve both geographical and financial access by attempting to obtain unconditional universal healthcare coverage for all population groups. In addition, making care free at the point of service ensures not only (financial) access, but can also limit postponement of care for financial reasons. Likewise, training physicians in intercultural communication will be beneficial to improve both continuity and patient–GP interaction. Another policy measure to address these topics that has already been proven to be effective is the training of community healthcare workers, who originate from migrant or ethnic minority communities. More generally it could be beneficial to include 'migration' and 'ethnic minorities' as a 'cross-cutting' topic in health care targets, as has already been suggested by (Brzoska et al. 2015). They argue that this will not only improve the health situation of migrants, but also encourage the publication of results on health-related topics for migrants. Above all, these recommendations fit into, and advocate

for a migrant sensitive, but inclusive approach to health-related interventions. Indeed, as Razum and Spallek (2014) argue, ethnicity should be taken into account, but at the same time the fact that several barriers are also related to social determinants cannot be neglected.

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Compliance with Ethical standards All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments of comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Conflict of interest Lise G. M. Hanssens declares that she has no conflict of interest. Jens Detollenaere declares that he has no conflict of interest. Wim Hardyns declares that he has no conflict of interest. Sara J. T. Willems declares that she has no conflict of interest.

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