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Assessing the contribution of migration related policies to equity in access to healthcare in European countries: A multilevel analysis

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Abstract

Access to good healthcare and the conditions for good health is one of the central dimensions of immigrant integration. National health policies play a major role in equipping residents with the necessary entitlements to accessible and acceptable healthcare services. Rarely analysed so far is the contribution of migration-related health policies to equity in access to healthcare between immigrants and the general population. To address this gap, this study analysed whether the extent to which migration is considered within national health policies moderates the association between immigration status and subjectively perceived unmet medical need in Europe. Using data from the 2019 European Union Statistics on Income and Living Conditions (EU-SILC) survey in combination with the Migration Integration Policy Index (MIPEX) a multilevel analysis was carried out assessing the cross-level interaction between immigration status and MIPEX scores controlling for individual-level factors such as age, gender, education and employment status. While our results showed that immigrants are more likely to report unmet medical need than the general population (adjusted Odds Ratio (aOR) = 1.32; 95% confidence interval (CI) 1.22-1.43), the cross-level interaction indicated increased relative inequality in unmet medical need between immigrants and the general population in countries with high MIPEX scores compared to countries with low MIPEX scores (aOR = 1.39, 95% CI: 1.18-1.63). The main reason for this increase of inequality on the relative scale was the overall lower prevalence of unmet medical need in countries with high MIPEX scores. In conclusion, our findings indicate that even in countries with relatively migration-friendly health policies inequalities in access to healthcare between immigrants and the general population persist.

Keywords

unmet need, forgone care, healthcare, migration, integration policy, health policy, policy regime, multilevel modelling

Introduction

Following the assertion of a human right to health (United Nations, 2008), health is conceptualised as a key dimension of immigrant integration (Ager & Strang, 2008; Ndofor-Tah et al., 2019). Good health is an important precondition for achieving all forms of equitable socio-economic participation, through, for instance, the education system and the labour market (Sen, 2002). Therefore, equal chances of leading a healthy life form the basis for an equitable society.

National health policies are structural determinants that shape access to healthcare as they provide different groups of immigrants (documented/undocumented immigrants, asylum seekers) with specific entitlements to use services, they influence the accessibility and socio-cultural responsiveness of services and may or may not facilitate an intercultural approach to services provision (Ingleby, Petrova-Benedict, Houddleston, & Sanchez, 2019). In a broader framework, access to healthcare can be understood as an intermediary factor that links the influence of structural determinants, such as policies, with health outcomes (World Health Organization, 2010).

Research on access to healthcare has shown that even though European welfare states aspire to universal healthcare coverage, inequalities in access exist across population groups (Cylus & Papanicolas, 2015; Fjær, Stornes, Borisova, McNamara, & Eikemo, 2017). One of the core indicators of access to healthcare that has been used in large-scale European surveys is unmet medical need (Allin & Masseria, 2009), defined as the difference between services subjectively judged necessary to appropriately deal with a health problem, and the healthcare services actually received (Carr & Wolfe, 1976). There is significant evidence that unmet medical need is accompanied by negative consequences for both individual health status and the demand for further healthcare. For example, unmet need or forgone care is associated with lower health status (Koolman, 2007; Mielck, Kiess, van den Knesebeck, Stirbu, & Kunst, 2007), higher odds

of emergency care use (Zuckerman & Shen, 2004) and more physician visits (Elofsson, Undén, & Krakau, 1998; Mollborn, Stepanikova, & Cook, 2005). Thus, a lack of initial use of healthcare services can be followed by even higher healthcare use at a later time point and therefore entail higher overall healthcare expenditure.

Very little is known about the contribution of national health policies to equity in access to healthcare for immigrants in comparison to the general population. One of the few studies which analysed the impact of type of migrant integration policy on immigrant health compared exclusionist with assimilationist and multicultural policies, revealing that the highest differential in depressive symptoms between migrants and non-migrants is found in exclusionist countries (Malmusi, Palència, Ikram, Kunst, & Borrell, 2017). However, differences in the socio-demographic make-up of the migrant population across countries may bias the results of such country comparisons. What is missing so far is a comprehensive analysis of both individual characteristics and the impact of migration-related policies across countries. This is the research gap the present study addresses.

In our contribution, we investigate the extent to which migration-related health policies moderate the differences in unmet medical needs between immigrants and the general population when demographic and socio-economic factors are controlled for.

Access to healthcare and migration-related health policies

The *Indicators of Integration* conceptual framework developed by Ager and Strang (2008) and updated by Ndofor-Tah et al. (2019) identifies four overall key domains of integration: citizenship and rights; social connection within and between groups; language, culture and local environment; and finally, seen as both means to, and markers of, integration, achievement in and access to employment, housing, education and health. Here, health is central because “Good health enables greater social participation and engagement in employment and education

activities.” (Ndofor-Tah et al. 2019, p. 34). Ager and Strang (2008) identify three main barriers keeping immigrants from engaging in mainstream healthcare provision: language difficulties, a lack of information about available healthcare services, as well as perceptions of the gendered and cultural nature of healthcare delivery. Shim (2010) notes that a deficit of cultural health capital in both immigrants and providers undermines the ability to communicate effectively about health even when immigrants can speak the local language well. This is because interactions and understandings are learned in relation to particular healthcare systems and cultures. Evidence also shows that poor health can undermine integration processes (Cheung & Phillimore, 2014), with unaddressed psychological problems impacting across multiple integration domains (Phillimore, 2011). In summary, access to healthcare lays the foundation for integration into mainstream society by, at best, promoting good health and hence is a dimension of integration itself (Ndofor-Tah et al., 2019).

Welfare state research has highlighted the re-distributive function of welfare state regulations (Esping-Andersen, 1990). However, the success of different welfare states in reducing the negative impacts of an unequal distribution of resources varies between countries (Bambra & Eikemo, 2009; Mackenbach, 2012). Previous research shows that the interplay between welfare regimes and immigration policy regimes, depending on forms of and orientations to immigration, shape immigrants’ social rights (Sainsbury, 2006). In comprehensive welfare states non-citizens have more rights than in so-called incomplete welfare states. Yet rights can be jeopardized by an exclusionist immigration regime which impedes immigrants’ access to citizenship and hence to associated rights (Phillimore et al. 2021). Thus, policy formations shape immigrants’ everyday lives to a large extent.

While policy regimes can be classified in various ways, researchers have mainly used a three-group classification: the inclusive model, the assimilation model, and the exclusionist model (Meuleman, 2009; Weldon, 2006). The first is sometimes also referred to as the multicultural model. Countries which belong to this group assign citizenship through birth or

residence. Countries in the assimilation group are also relatively liberal when it comes to citizenship acquisition, but do not accommodate cultural diversity in public services. Exclusionist countries are characterized by restrictive citizenship policies which are based on ancestry, with little effort made towards integration in other areas of life. This tripartite classification of policy regimes is mainly based on different approaches towards citizenship. However, citizenship is only one factor that influences migrants' access to healthcare services and the current study uses a classification of migration-related policy regimes that incorporates a wider set of indicators regarding the accessibility and responsiveness of healthcare services in a country.

An interdisciplinary team of researchers from the Barcelona Centre for International Affairs and the Migrant Integration Group has recently updated the Migration Integration Policy Index (MIPEX) in several areas (Solano & Huddleston, 2020). Sub-indices comprise information on labour market mobility, education, political participation, access to nationality, family reunion, health, permanent residence, and anti-discrimination. The area-specific sub-indices provide the opportunity for a cross-national comparison of integration outcomes in different policy fields. Our contribution makes use of the MIPEX health strand in order to characterise and compare the outcomes of migration-related health policies.

On the individual level, studies have identified several factors that are related to migrants' access to healthcare. In general, it has been found that immigrants make use of healthcare services to a lesser extent than the general population (Butow et al., 2013; Fjær et al., 2017; Howe Hasanali, 2015; Ku & Matani, 2001). While the so-called healthy migrant effect, that is, a better health status among recently arrived immigrants compared to the general population, doubtless plays a role, it does not have a determining effect in explaining immigrants' under-use of healthcare services. Research following up on immigrants' health outcomes over time suggests that, while the healthy migrant effect is relevant for some conditions, other explanatory models are more appropriate (Abraído-Lanza, Dohrenwald, Ng-Mak, & Turner, 1999;

Norredam et al., 2014). Previous research has shown that inequalities in unmet medical need between immigrants and the general population do exist. Odds of unmet medical need differ within the immigrant population based on residence status: unmet need is 27 percent higher for documented immigrants and 59 percent higher for undocumented immigrants compared to the general population in Italy (Busetta et al., 2018). Studies in non-European countries also show higher unmet need for immigrants (Butow et al., 2013; Howe Hasanali, 2015; Ku & Matani, 2001). The inequality between the general population and immigrants can partly be explained by differences in socio-economic factors (Goldman et al., 2005; Lebrun & Dubay, 2010) because immigrants tend to have fewer economic resources than the general population. Other migration-related factors are also important, such as insurance status (Howe Hasanali, 2015), knowledge about the healthcare system (Dzùrová, Winkler, & Drbohlav, 2014), healthcare cultures (Shim 2010), length of residence and language skills (Dzùrová et al., 2014; Howe Hasanali, 2015), as well as citizenship and residence status (Busetta, Cetorelli, & Wilson, 2018; Howe Hasanali, 2015).

Analysing migration-related inequalities across countries is complicated by the fact that the socio-demographic characteristics of both the general and the immigrant population differ between countries. Further differences exist between countries with regard to immigrants' countries of origin, reasons for migration, immigrants' adverse exposure before and during migration as well as the countries' history of migration and their colonial legacy (Salway et al., 2011), which is another reason why the category 'immigrant' is inevitably highly heterogeneous across country-settings. In order to investigate social determinants of unmet medical need among immigrants and the general population we take into account characteristics of the welfare state on the collective level and socio-economic position on the individual level.

Method

Data

The analyses are conducted on data collected within the European Union Statistics on Income and Living Conditions (EU-SILC). EU-SILC collects comparable microdata on income, poverty, social exclusion and living conditions on the individual and household level in Europe. This data allows for monitoring the development of these characteristics over time. The EU-SILC project started in 2003 among six EU member states plus Norway and has included more and more European countries over the years. Sampling differs between countries and is based on the structure of the country and the population, and existing information sources. The project is also subject to budgetary constraints. The most used sampling design, however, is stratified multistage sampling. The most utilised sources are variants of census data and municipal registers. Hence, undocumented migrants and also migrants who live in refugee accommodation centres are not well represented in this sample.

We excluded country samples which contain fewer than a hundred immigrants in order to draw valid conclusions for the underlying migrant population, resulting in the exclusion of Bulgaria, Poland, and Romania. The final sample comprises data from 224,274 individuals collected in 2019 in 25 countries (namely, Austria, Belgium, Switzerland, Cyprus, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Croatia, Hungary, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Portugal, Serbia, Sweden, Slovenia, and Slovakia). For the additional analysis on region of origin we had to exclude another five countries (Germany, Estonia, Latvia, Malta, and Slovenia) due to missing information for this variable. The smallest sub-sample can be found in the Czech Republic (n=2,775), the largest in Portugal (n=24,118). A descriptive table displaying country specific information can be found in the appendix (Table A4). This table also contains information on the share of the foreign-born population in the included countries. The comparison between official country statistics and the data sources shows that, on average, migrants are slightly underrepresented in the EU-SILC data.

Indicators and variables

Self-reported unmet medical need was measured through the question: “In the past 12 months, have you once or several times absolutely needed [...] medical examination or treatment but did not receive it?” Furthermore, if unmet medical need was reported, participants were asked to indicate the main reason for this from a fixed list (see appendix Table A5).

In order to identify who can be considered an immigrant, the data contains information on the country/region of birth and citizenship. Information on region of birth allowed us to distinguish between persons born in the respective survey country, those born in another EU country and those born outside the EU (so called third country immigrants). Following the UN definition of an immigrant as someone who changes his or her country of usual residence irrespective of the reason for migration or legal status we defined as immigrants those who were born outside the survey country (foreign-born population) and all others as general population. Hence, here the term ‘general population’ also includes those whose ancestors immigrated. Since legal barriers for accessing healthcare can be larger for immigrants with a foreign nationality, we assessed whether citizenship as an indicator for migration status was related to unmet medical need in the additional analysis. Furthermore, we distinguished between EU immigrants and third country immigrants in the additional analysis because EU immigrants may face fewer barriers in accessing services due to EU regulations and easier access to citizenship.

The MIPeX health score assesses the degree of immigrant integration into the healthcare system and has a theoretical range from 1 to 100 (Solano & Huddleston, 2020). The MIPeX group collects information on integration policies in 52 countries, including all EU member states. The MIPeX score is built on a set of indicators relating to specific policy components and results from consultations with leading scholars and institutions. The MIPeX healthcare scores were collected among immigrant health policy experts evaluating health policies in 2014 and 2019. On the 1 to 100 scale, experts were asked to rate the respective health-related

integration policy of their country of expertise as compared to the highest European and international standards. These standards were defined by the MIPEX group based on a number of equality standards published, e.g., by the Council of Europe or UN International Conventions, i.e. fifteen target areas of the UN's *Sustainable Development Goals Agenda*. There are four domains in the MIPEX health strand: (1) entitlements to healthcare coverage which are separately assessed for 'legal' migrants, asylum seekers and undocumented migrants, (2) accessibility of health services, e.g., whether migrants are regularly reached by targeted information about available healthcare services and health promotion offers, (3) service responsiveness, e.g., whether there are qualified interpretation services and whether these are free of costs, and (4) policies to promote change, e.g., whether there is a comprehensive plan to ensure diversity mainstreaming in the whole system. Since national integration policies are compared with the highest standards, it is possible to make statements about the quality of these national policies. It is important to note that MIPEX scores reflect the content of policies and are not an evaluation of the effectiveness of those policies in meeting immigrant need. Within the MIPEX health policy area, the experts' indicator scores were averaged resulting in an overall score. We use the MIPEX score of 2019 since it matches the year when the main data from the EU-SILC was collected. For ease of interpretation, especially with regard to the interaction between policy and immigrant status, the MIPEX score was statistically divided into tertiles, cut-off at 46 and 65.

Other central variables refer to socio-economic indicators (employment status and highest level of education via ISCED level) and self-reported health on a five-point scale, as well as age and gender. These variables were used as controls throughout the entire regression analysis, but not reported in the tables in the main text. Coefficients can be found in the appendix.

The multilevel approach

The analysis comprised three steps. First, descriptive statistics were used to present sample characteristics and the reasons for unmet medical need by MIPEX group. Household sampling weights were used in all descriptive analyses to approximate representativeness. Second, a regression analysis was conducted to investigate the association between unmet need, migration status (general population/foreign-born population), and MIPEX. To ensure the robustness of the finding we used two other indicators of migration status (citizenship and region of origin) in the additional analysis.

Being sensitive to the nested structure of the data where respondents are settled in different countries, multilevel logistic regression analysis was applied. We used a hierarchical approach starting with individual socio-economic and health characteristics as determinants of unmet medical need and then integrating MIPEX information. The final model includes a cross-level interaction term between migration status and MIPEX in order to find out whether healthcare access is better for immigrants in countries with more accommodating health policies. For the entire analysis we used StataCorp's version 15.1 computer program (StataCorp, 2017).

Results

Description of the study population

The distribution of unmet need, migration status, health and socio-demographic characteristics is displayed in Table 1. About thirteen percent of the respondents are immigrants. The comparison of MIPEX groups shows that countries with a high MIPEX score have a larger proportion of immigrants. The overall prevalence of unmet medical need was 3.4%. In low MIPEX countries, the prevalence of unmet medical need was about four times higher than in high MIPEX countries. Correspondingly, self-rated health is lower as compared to respondents from high MIPEX countries.

Regarding other socio-demographic factors, the proportion of respondents with a high educational attainment is larger in the high MIPEX group compared to the other groups.

Countries in the low MIPEX group show the highest level of unemployment in the sample (9.5%). The distribution of age and gender over MIPEX groups is similar. The mean age is 52 years, and there are slightly more women in the sample (55%).

Table 1 here

The most common reasons for unmet medical need were a lack of financial resources and long waiting list (see Table A5 in the appendix). A lack of financial resources was mentioned more often by immigrants while long waiting lists were more important in the general population. The largest difference between immigrants and the general population was observable for other reasons (26% versus 12%). There was some variation in the reasons for unmet medical need across MIPEX groups. Surprisingly, a lack of financial resources was mentioned much more often in medium MIPEX group than in the low MIPEX group.

Main findings

Figure 1 displays the association between the prevalence of unmet medical need and MIPEX health scores by migration status. The comparison of immigrants with the general population shows the disparities in the prevalence of unmet need in each country. The broad scatter shows that there are manifold combinations of unmet need and MIPEX scores among the observed countries. There are countries, for example Cyprus, which have low percentages of unmet need and also low MIPEX scores. By the same token, there are countries like Sweden with high MIPEX scores and higher shares of unmet need compared to countries with similar MIPEX scores. However, the regression lines indicate that on average unmet medical need decreases with higher MIPEX scores. The linear regression coefficients for the immigrants and the general population are very similar, indicating the same trend in both groups. The parallel lines show that immigrants have a higher risk of approximately two percentage points for unmet needs

compared to the general population – regardless of the MIPEX scores. It also indicates no interaction between migration status and MIPEX scores on the absolute scale.

Figure 1 here

The results of the multilevel analysis show that immigrants have a 1.32-times higher chance of unmet medical need than non-immigrants (Table 2). There is a general trend that both immigrants and non-immigrants report fewer instances of unmet need in countries with high MIPEX scores than those in countries with low MIPEX scores. Although the point estimate is rather large (OR=.51), the respective macro-level coefficients are statistically insignificant due to the relatively low statistical power on the country level in this analysis. The significant cross-level interaction indicates that the differences in unmet need between immigrants and the general population increase with rising MIPEX scores on the relative scale. Thus, in countries with high MIPEX scores, the relative inequality in unmet medical need between immigrants and the general population is larger than in countries which scored low in MIPEX. However, given that the overall prevalence of unmet need is much lower in countries with high MIPEX scores, immigrants in these countries still have lower odds for unmet need than immigrants in countries with low MIPEX scores.

Table 2 here

Additional analyses

We repeated the multilevel analysis using citizenship instead of country of birth as the indicator of migration status. The results are very similar to the findings of the main analysis (Table A7 in the appendix). There are increased odds for unmet medical in persons with a foreign nationality (OR=1.31; 95% CI: 1.18-1.46). The interaction term combining migration status and

MIPEX group indicates again increased inequality in high MIPEX countries as compared to low MIPEX countries on the relative scale. The point estimate for the interaction effect is even higher than in the main analysis (OR=1.48, 95% CI: 1.20-1.81).

In the second additional analysis we distinguished between two broad regions of origin (EU immigrants and non-EU immigrants). The results show that the odds of unmet medical need are higher among non-EU immigrants than among immigrants from the EU (Table 3). The estimates from the interaction term in this analysis differ from the results of the main analysis. Compared to the low MIPEX countries, relative inequality in unmet need is lower in medium MIPEX countries for both EU and non-EU immigrants. However, in high MIPEX countries relative inequality in unmet medical need is higher for non-EU immigrants but not for EU immigrants than in low MIPEX countries. Overall, the findings for region of origin indicate that non-EU immigrants are at higher risk for unmet medical need and show less favourable outcomes even in high MIPEX countries.

Table 3 here

Discussion

This paper asked whether immigrants' access to healthcare is worse than access for the general population and whether health-related integration policy of the country of residence contributes to equity in access to healthcare. This paper goes beyond the previous research literature by systematically comparing migration-related health policies while controlling for individual-level differences in the socio-demographic make-up of the country samples. By investigating unmet medical need and its association with migration status, as well as its connection to policies in the area of health, we find that, overall, immigrants appear to face more difficulty accessing medical care compared to the general population in European countries. This especially applies to immigrants who were born outside the EU. The association persists when

we account for the country's tendency to develop health policy focused upon immigrant integration. On the relative scale, we even found increased inequality in countries that have more migration-friendly health policies according to the MIPEx scores. While this has to be interpreted in light of the overall lower prevalence in high MIPEx countries, it still means that these countries were not successful in reducing inequality in unmet medical need despite an explicit attempt to do so.

The fact that immigrants report higher unmet need than the general population is highly problematic because unmet medical need can exacerbate health disparities between those born abroad compared with those born in Europe. Our work supports previous findings on the association between the use of healthcare services and an immigration background (Butow et al., 2013; Howe Hasanali, 2015; Ku & Matani, 2001). Immigrants emanate from countries with widely ranging approaches to healthcare. Services may not meet immigrants' needs, unless an attempt is made to facilitate their understanding of how systems work and to build healthcare workers' capacity to understand and address differences in cultural health capital (Shim, 2010) and work to support immigrant patients' navigation of services. The difficulty of maintaining a good level of health that most immigrants present on arrival, is part of why the healthy migrant effect is seen as an inadequate explanation of immigrants' health outcomes (Norredam et al., 2014). Where immigrants arrive with good health, it is possible that poor access to healthcare in the years after arrival undermines the healthy migrant effect. Where immigrants arrived with poorer health, poor healthcare access exacerbates the existing conditions.

Furthermore, our findings suggest that the characteristics of the countries' health systems in terms of entitlements for immigrant groups, accessibility of healthcare and responsiveness of services, as measured by the MIPEx health strand, does not strongly mitigate the actual inequality in healthcare access. Hence, immigrants display a higher degree of unmet medical need than the general population, regardless of policies designed to ease access in their current country of residence. It is, however, noteworthy that when comparing only immigrants across

MIPEX groups, immigrants in high MIPEX countries are at lower risk for unmet medical need due to the overall lower prevalence of unmet need. Authors from the MIPEX health group have already reported that the MIPEX scores are positively correlated with Gross Domestic Product (GDP) (Ingleby et al., 2019) which point to the fact that wealthier countries have less difficulties to afford the infrastructure and services which is necessary to increase immigrants' access to and use of healthcare services such as freely available qualified interpretation services.

The first limitation to note is that the data provided only limited information regarding migration-related aspects. Therefore, we were not able to distinguish between 'legal' immigrants, asylum seekers or undocumented immigrants. We could also not assess cultural proximity between the country of origin and the country of residence, language competencies or recency of arrival. These factors would have helped to identify specific groups who suffer most from unmet medical need and who are not well addressed by existing health related integration policies. With regard to the representativeness of the immigrant samples in the included countries, the comparison with official statistics showed that immigrants were slightly underrepresented in a couple of countries. However, an important limitation is that the sampling approach led probably to an underrepresentation of recently arrived refugees and undocumented immigrants. This is of note because these groups are less entitled to use healthcare in many countries. The results of our analysis should therefore not be generalised to these groups.

Another limitation of our findings concerns the mechanism through which immigrants select specific countries: it is unclear whether immigrants are more likely to select countries with high levels of immigrant integration. Countries with lengthier histories of immigration, sometimes associated with a colonial history, have been found to develop more immigrant friendly policies than those with more recent histories and may have more experience in implementing those policies (Gregurović & Župarić-Iljić, 2018). It might also be the case that a different ethnic composition of the immigrant population in these countries requires different approaches in policy-making or that the relative recency of large numbers of arrivals, for

example of refugees in the 2015/16 migration emergency, may have generated more migrant-friendly health policies.

Furthermore, it is possible that some survey respondents had immigrated within the preceding twelve months period to which the reporting of unmet need refers. Hence, reported unmet need might refer to a situation in an earlier country of residence even though we assume that this does not apply to many respondents. Moreover, we made no further investigation of the association between the observed frequency of forgoing medical services when needed and actual health outcomes. Based on previous research, we strongly assume that under-use of medical care in situations where care is needed has negative effects on overall health status (Koolman, 2007; Mielck et al., 2007).

We note the potential limitations of using the MIPEX score in our analyses. The MIPEX score is generated by appointed experts allocating scores of the respective country policy on a pre-determined scale. Experts are required to follow guidelines to score a specific country's policies such that scores have a subjective, interpretative element. Furthermore, the MIPEX score attends to the content of a country's policy, but does not take into account the actual practice with respect to the accommodation of immigrants. That there are instances in our findings, for example in the case of Sweden, where individuals report high unmet need despite high MIPEX scores, underlines the aspirational and reputational nature of policies, a point also observed by Gregurović and Župarić-Iljić (2018) in their work comparing MIPEX scores for employment policy and immigrant outcomes. Ethnographic work examining immigrants' access to healthcare in countries presumed to offer high levels of access to healthcare also finds that immigrants may have rights to access care but face barriers associated with poor language provision, complex bureaucracy and discrimination (Bradby, Humphris, & Padilla, 2020; Phillimore, Bradby, Brand, Padilla, & Pemberton, 2021). It may also be the case in countries with high MIPEX scores that immigrant expectations of access to healthcare are raised but not realised leading to high levels of self-reported unmet need. Nonetheless, despite the presence

of immigrants' unmet need in high scoring MIPEX countries, the fact that the levels of unmet need are lower than in lower scoring countries suggests the necessity in low scoring countries of stronger policies to help increase immigrant access. There is a need for research to identify examples of effective policies that could be implemented in low scoring countries.

Reports from the MIPEX group have highlighted that policy change in low MIPEX countries usually start with extending entitlements to foreign nationals while the service delivery mostly continues to follow a 'one size fits all' approach. Thus, the next step for low MIPEX countries would be to increase accessibility and responsiveness of healthcare services. In some high MIPEX countries improvement has been witnessed regarding the responsiveness of services whereas entitlements are not as inclusive as they could be, especially for asylum seekers and undocumented immigrants (MIPEX, 2020). Some high-MIPEX countries, such as Sweden, witnessed cut backs in terms of entitlement for rejected asylum seekers.

Further investigation of the connection between immigrant status, unmet medical need and overall health status is warranted, as well as the role of other factors of immigrant integration. Additionally, analyses which allow for a thorough differentiation between ethnic groups, immigration status and the immigrant generation would be worthwhile. Access to healthcare might be shaped differently based on individual and group-specific migration experiences, cultural characteristics and socialization in the receiving country as well as the country's level of experience implementing immigrant friendly health policies.

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Table 1. Distribution of socio-demographic characteristics by MIPEX group, percent.

	MIPEX groups			Total
	Low	Medium	High	
<i>Immigrant</i>	9.62	12.84	15.15	13.17
<i>Unmet medical need</i>	8.63	3.05	2.10	3.40
<i>Self-rated health</i>				
Very good	14.36	14.41	18.26	15.57
Good	35.68	43.13	51.31	44.76
Fair	32.71	30.41	22.02	28.13
Bad	13.75	9.93	6.70	9.39
Very bad	3.49	2.11	1.70	2.15
<i>Education</i>				
Primary	4.29	12.32	12.38	11.43
Lower secondary	19.21	19.24	26.35	21.39
Upper secondary	46.00	26.69	21.14	27.21
Post-secondary	4.52	7.17	0.87	4.96
Short-cycle tertiary	25.97	34.57	39.25	35.01
<i>Unemployed</i>	9.52	4.63	7.52	6.07
<i>Age (mean)</i>	53.8	52.4	52.8	52.66
<i>Female</i>	55.79	54.76	53.55	54.51
N	79,048	87,990	57,236	224,274

Source: EU-SILC 2019; MIPEX 2019; weighted data.

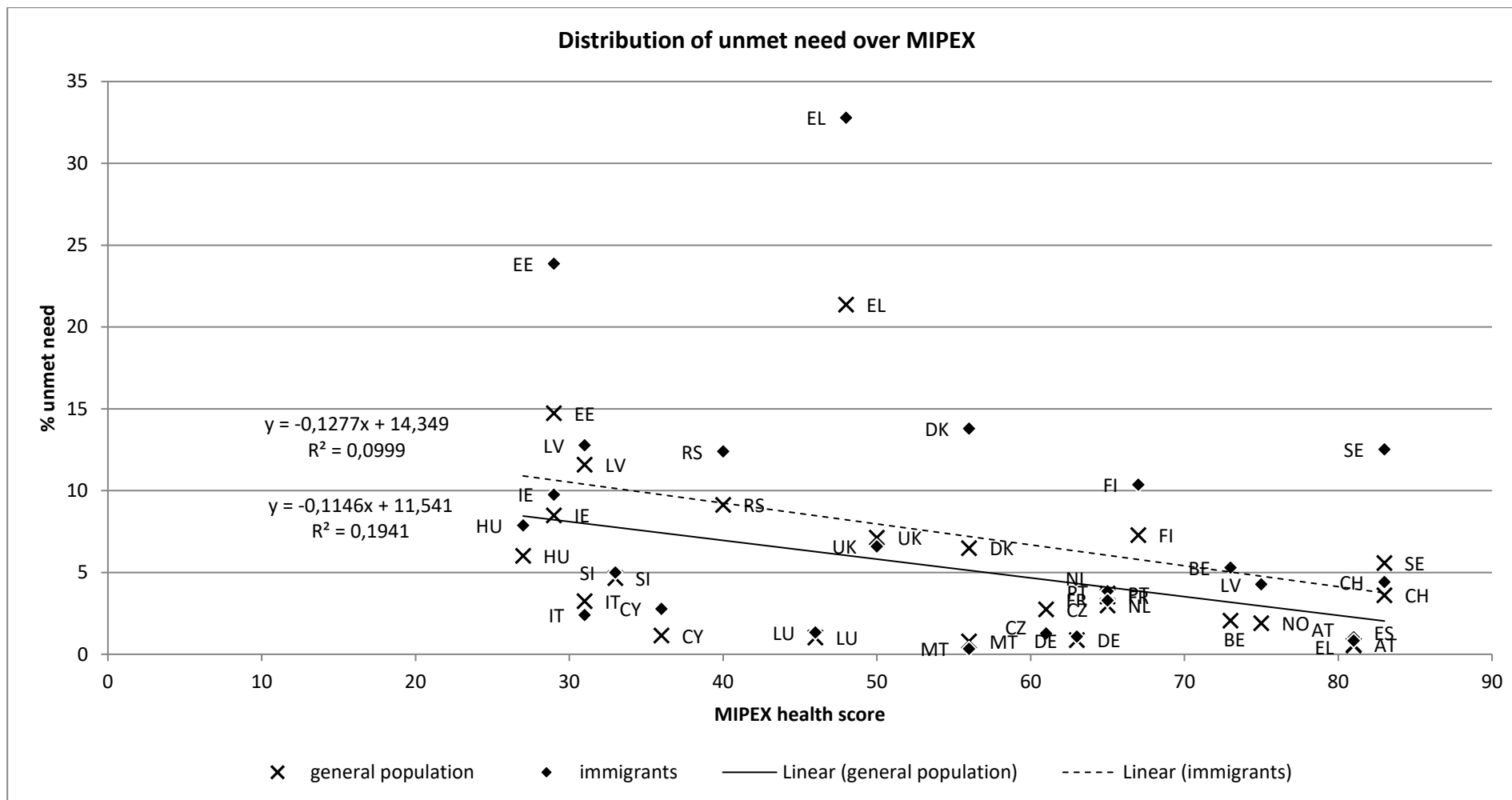


Figure 1. Distribution of unmet need over MIPEX by migration status (foreign-born). Source: EU-SILC 2019; MIPEX 2019. AT=Austria, BE=Belgium, CH=Switzerland, CY=Cyprus, CZ=Czech Republic, DE=Germany, DK=Denmark, EE=Estonia, EL=Greece, ES=Spain, FI=Finland, FR=France, HR=Croatia, HU=Hungary, LT=Lithuania, LU=Luxembourg, LV=Latvia, MT=Malta, NL=Netherlands, NO=Norway, PT=Portugal, RS=Serbia, SE=Sweden, SI=Slovenia, SK=Slovakia.

Table 2. Mixed effects logistic regression of unmet medical needs on migration status (foreign-born) and MIPEX health groups.

	Model 0 (null)	Model 1 (Model 0 + country of birth)	Model 2 (Model 1 + MIPEX)	Model 3 (Model 2 + interaction)
<i>Migration status</i>				
General population		Ref.	Ref.	Ref.
Immigrant		1.43*** (1.34, 1.51)	1.43*** (1.34, 1.51)	1.32*** (1.22, 1.43)
<i>MIPEX group</i>				
Low			Ref.	Ref.
Medium			.73 (.29, 1.84)	.72 (.29, 1.81)
High			.54 (.21, 1.46)	.51 (.19, 1.36)
<i>Migration status*MIPEX group</i>				
Immigrant*low MIPEX				Ref.
Immigrant*medium MIPEX				1.08 (.94, 1.25)
Immigrant*high MIPEX				1.39*** (1.18, 1.63)
Constant	.17*** (.11, .27)	.17*** (.11, .26)	.27*** (.12, .44)	.23*** (.12, .44)
<i>Statistics</i>				
N(Countries)	25	25	25	25
N(Individuals)	224,274	224,274	224,274	224,274
AIC	86066.9	85939.8	85942.4	85930.4
BIC	86201.1	86084.3	86107.5	86116.2
Log likelihood	-43020.461	-42955.9033	-42955.197	-42947.206

Source: EU-SILC 2019; MIPEX 2019; unweighted data.

Notes: Odds ratio (95% CI). * p<0.05, ** p<0.01, *** p<0.001, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.

All models control for self-rated health, education (ISCED-level), employment status, age and gender. See Appendix for respective coefficients (Table A6).

Table 3. Mixed effects logistic regression of unmet medical needs on region of origin and MIPEX health groups.

	Model 0 (null)	Model 1 (Model 0 + country of birth)	Model 2 (Model 1 + MIPEX)	Model 3 (Model 2 + interaction)
<i>Region of origin</i>				
General population		Ref.	Ref.	Ref.
EU immigrant		1.29*** (1.14, 1.46)	1.29*** (1.14, 1.46)	1.44*** (1.21, 1.72)
Non-EU immigrant		1.61*** (1.48, 1.75)	1.61*** (1.48, 1.75)	1.60*** (1.42, 1.79)
<i>MIPEX group</i>				
Low			Ref.	Ref.
Medium			.91 (.34, 2.44)	.95 (.35, 2.55)
High			.58 (.22, 1.49)	.56 (.22, 1.45)
<i>Region of origin *MIPEX group</i>				
EU/Non-EU immigrant*low MIPEX				Ref.
EU immigrant*medium MIPEX				.63* (.44, .89)
EU immigrant*high MIPEX				.97 (.57, 1.29)
Non-EU immigrant*medium MIPEX				0.72** (.57, 0.91)
Non-EU immigrant*high MIPEX				1.32** (1.08, 1.61)
Constant	.22*** (.14, .34)	.21*** (.13, .32)	.26*** (.13, .52)	.25*** (.12, .51)
<i>Statistics</i>				

N(Countries)	20	20	20	20
N(Individuals)	176,389	176,389	176,389	176,389
AIC	65796.8	65681.7	65684.3	65664.7
BIC	65927.8	65833.0	65855.7	65876.4
Log likelihood	-32885.396	-32825.875	-32825.171	-32811.343

Source: EU-SILC 2019; MIPEX 2019; unweighted data.-

Notes: Mixed-effects logistic regression, estimates are odds ratios (95% CI). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.

All models control for self-rated health, education (ISCED-level), employment status, age and gender. See Appendix for respective coefficients (Table A8).

Appendix

Table A4. MIPEX score, immigrant sample and proportion of migrants in the official statistics.

	MIPEX score	N	% Immigrants in the sample	% Immigrants in official statistics ^a
Switzerland	83	3,270	39.1	29.7
Sweden	83	5,701	18.2	19.5
Austria	81	9,305	20.9	19.3
Spain	81	21,357	11.7	14.0
Norway	75	5,457	11.5	15.6
Belgium	73	6,447	15.6	17.2
Finland	67	5,698	2.9	7.0
France	65	9,930	12.4	12.8
Netherlands	65	4,432	14.6	13.4
Portugal	65	24,118	7.9	10.8
Germany	63	14,292	15.6	16.1
Czech Republic	61	2,775	6.5	8.5
Denmark	56	3,366	7.0	10.5
Malta	56	4,146	8.0	na
Slovakia	50	10,736	1.5	3.6
Greece	48	14,195	4.7	12.5
Luxembourg	46	5,439	50.8	47.3
Serbia	40	13,111	10.2	na
Cyprus	36	6,343	16.2	na
Slovenia	33	11,924	9.8	12.7
Lithuania	31	4,018	6.7	5.0
Latvia	31	6,716	16.2	12.7
Estonia	29	10,807	15.9	14.9
Hungary	29	8,747	2.2	5.8
Croatia	27	11,043	13.0	9.41

Source: EU-SILC 2019, weighted data

^a OECD data form 2019 (<https://data.oecd.org/migration/foreign-born-population.htm>)

Note: immigrants are defined as foreign-born population, na = not available

Table A5. Reasons for unmet medical need for general population and immigrants in percent.

	Total		MIPEX low		MIPEX medium		MIPEX high	
	General population	Immigrants	General population	Immigrants	General population	Immigrants	General population	Immigrants
Could not afford to (too expensive)	25.95	30.70	15.27	15.21	35.91	44.44	12.61	23.66
Long waiting list	20.12	15.91	22.05	28.61	13.17	8.86	39.88	16.38
Could not take time because of work, care for children or for others	11.36	8.22	16.41	16.11	10.06	6.57	6.15	5.05
Too far to travel/no means of transportation	3.41	1.66	5.30	4.90	3.28	1.27	0.25	0.00
Fear of doctor/hospitals/examination/treatment	4.80	4.37	3.62	3.86	6.63	6.97	0.85	1.42
Wanted to wait and see if problem got better on its own	20.21	10.02	29.88	18.38	18.70	7.48	7.00	7.67
Did not know any good doctor or specialist	1.92	3.42	1.43	1.97	1.96	2.74	2.68	5.23
Other reasons	12.24	25.69	6.04	10.96	10.29	21.65	30.58	40.49
n	11,150	1,960	5,338	705	4,975	701	1,011	380

Source: EU-SILC 2019; weighted data

Table A6. Mixed effects logistic regression of unmet medical needs on migration status (foreign-born) and MIPEX health groups including coefficients of control variables.

	Model 0 (null)	Model 1 (Model 0 + country of birth)	Model 2 (Model 1 + MIPEX)	Model 3 (Model 2 + interaction)
<i>Migration status</i>				
General population		Ref.	Ref.	Ref.
Immigrant		1.43*** (1.34, 1.51)	1.43*** (1.34, 1.51)	1.32*** (1.22, 1.43)
<i>MIPEX group</i>				
Low			Ref.	Ref.
Medium			.73 (.29, 1.84)	.72 (.29, 1.81)
High			.54 (.21, 1.46)	.51 (.19, 1.36)
<i>Migration status*MIPEX group</i>				
Immigrant*low MIPEX				Ref.
Immigrant*medium MIPEX				1.08 (.94, 1.25)
Immigrant*high MIPEX				1.39*** (1.18, 1.63)
<i>Self-rated health</i>				
Very bad	Ref.	Ref.	Ref.	Ref.
Bad	.78*** (.71, .86)	.78*** (.72, .86)	.78*** (.72, .86)	.78*** (.72, .86)
Fair	.56*** (.51, .61)	.56*** (.52, .62)	.56*** (.52, .62)	.57*** (.52, .62)
Good	.30*** (.27, .33)	.30*** (.28, .33)	.30*** (.28, .33)	.30*** (.28, .33)

Very good	.18*** (.16, .20)	.18*** (.16, .21)	.18*** (.16, .21)	.18*** (.16, .21)
<i>Education</i>				
Primary	Ref.	Ref.	Ref.	Ref.
Lower secondary	.79*** (.74, .85)	.78*** (.73, .83)	.78*** (.73, .83)	.78*** (.73, .84)
Upper secondary	.74*** (.69, .79)	.73*** (.68, .77)	.73*** (.68, .77)	.73*** (.69, .78)
Post-secondary non- tertiary	.71*** (.64, .80)	.69*** (.62, .78)	.69*** (.62, .77)	.70*** (.62, .78)
Short-cycle tertiary	.69*** (.65, .74)	.68*** (.63, .72)	.68*** (.63, .72)	.68*** (.64, .73)
Unemployed	1.72*** (1.61, 1.84)	1.69*** (1.58, 1.81)	1.69*** (1.58, 1.81)	1.69*** (1.58, 1.81)
Female	1.03 (1.00, 1.07)	1.03 (.99, 1.07)	1.03 (.99, 1.07)	1.03 (1.00, 1.07)
Age	.992*** (.990, .993)	.992*** (.990, .993)	.992*** (.990, .993)	.992*** (.991, .993)
Constant	.17*** (.11, .27)	.17*** (.11, .26)	.27*** (.12, .44)	.23*** (.12, .44)

Statistics

N(Countries)	25	25	25	25
N(Individuals)	224,274	224,274	224,274	224,274
AIC	86066.9	85939.8	85942.4	85930.4
BIC	86201.1	86084.3	86107.5	86116.2
Log likelihood	-43020.461	-42955.9033	-42955.197	-42947.206

Source: EU-SILC 2019; MIPEX 2019; unweighted data.

Notes: Mixed effects logistic regression, estimates are odds ratios (95% CI). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.

Table A7. Mixed effects logistic regression of unmet medical needs on migration status (foreign citizenship) and MIPEX health groups.

	Model 0 (null)	Model 1 (Model 0 + country of birth)	Model 2 (Model 1 + MIPEX)	Model 3 (Model 2 + interaction)
<i>Migration status</i>				
General population		Ref.	Ref.	Ref.
Foreign citizenship		1.47*** (1.36, 1.59)	1.47*** (1.36, 1.59)	1.31*** (1.18, 1.46)
<i>MIPEX group</i>				
Low			Ref.	Ref.
Medium			.73 (.29, 1.83)	.72 (.29, 1.80)
High			.55 (.21, 1.46)	.53 (.20, 1.40)
<i>Migration status*MIPEX group</i>				
Immigrant*low MIPEX				Ref.
Immigrant*medium MIPEX				1.18 (.97, 1.44)
Immigrant*high MIPEX				1.48*** (1.20, 1.81)
<i>Statistics</i>				
N(Countries)	25	25	25	25
N(Individuals)	224,274	224,081	224,081	224,081
AIC	86066.9	85849.8	85852.4	85842.6
BIC	86201.1	85994.3	86017.6	86028.4
Log likelihood	-43020.461	-42910.911	-42910.217	-42903.32

Source: EU-SILC 2019; MIPEX 2019; unweighted data.

Notes: Odds ratio (95% CI). * p<0.05, ** p<0.01, *** p<0.001, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.

Table A8. Mixed effects logistic regression of unmet medical needs on region of origin and MIPEX health groups including coefficients of control variables..

	Model 0 (null)	Model 1 (Model 0 + country of birth)	Model 2 (Model 1 + MIPEX)	Model 3 (Model 2 + interaction)
<i>Region of origin</i>				
General population		Ref.	Ref.	Ref.
EU immigrant		1.29*** (1.14, 1.46)	1.29*** (1.14, 1.46)	1.44*** (1.21, 1.72)
Non-EU immigrant		1.61*** (1.48, 1.75)	1.61*** (1.48, 1.75)	1.60*** (1.42, 1.79)
<i>MIPEX group</i>				
Low			Ref.	Ref.
Medium			.91 (.34, 2.44)	.95 (.35, 2.55)
High			.58 (.22, 1.49)	.56 (.22, 1.45)
<i>Region of origin *MIPEX group</i>				
EU/Non-EU immigrant*low MIPEX				Ref.
EU immigrant*medium MIPEX				0.63* (.44, .89)
EU immigrant*high MIPEX				.97 (.57, 1.29)
Non-EU immigrant*medium MIPEX				0.72** (.57, 0.91)
Non-EU immigrant*high MIPEX				1.32** (1.08, 1.61)
<i>Self-rated health</i>				
Very bad	Ref.	Ref.	Ref.	Ref.
Bad	.73*** (.66, .81)	.73*** (.66, .81)	.73*** (.66, .81)	.73*** (.66, .81)

Fair	.52*** (.47, .57)	.52*** (.47, .58)	.52*** (.47, .58)	.52*** (.47, .58)
Good	.30*** (.27, .32)	.30*** (.27, .32)	.30*** (.27, .32)	.30*** (.27, .32)
Very good	.18*** (.16, .20)	.18*** (.16, .20)	.18*** (.16, .20)	.18*** (.16, .21)
<i>Education</i>				
Primary	Ref.	Ref.	Ref.	Ref.
Lower secondary	.82*** (.77, .89)	.81*** (.76, .87)	.81*** (.76, .87)	.82*** (.76, .88)
Upper secondary	.71*** (.66, .76)	.70*** (.65, .75)	.70*** (.65, .75)	.70*** (.65, .75)
Post-secondary non-tertiary	.60*** (.51, .70)	.59*** (.51, .69)	.59*** (.51, .69)	.60*** (.51, .70)
Short-cycle tertiary	.59*** (.55, .64)	.58*** (.54, .63)	.58*** (.54, .63)	.59*** (.54, .63)
Unemployed	1.77*** (1.64, 1.90)	1.74*** (1.62, 1.87)	1.74*** (1.62, 1.87)	1.74*** (1.61, 1.87)
Female	1.01 (0.97, 1.07)	1.01	1.01	1.01
Age	.99*** (.99, .99)	.99*** (.99, .99)	.99*** (.99, .99)	.99*** (.99, .99)
Constant	.17*** (.11, .27)	.17*** (.11, .26)	.23*** (.12, .44)	.22*** (.12, .44)

Statistics

20	20	20	20	20
176,389	176,389	176,389	176,389	176,389
65796.8	65681.7	65684.3	65664.7	65796.8
65927.8	65833.0	65855.7	65876.4	65927.8
-32885.396	-32825.875	-32825.171	-32811.343	-32885.396

Source: EU-SILC 2019; MIPEX 2019; unweighted data.

Notes: Odds ratio (95% CI), * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion.