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Keywords: health inequalities, migrants' health, access, use, economic crisis

Introduction

Inequalities in health care access constitute a complex issue representing variations and disparities in the health achievements of individuals and groups.[1] Especially in the field of health services' provision, inequalities constitute a multifaceted social problem[2] as they are linked with the fundamental human rights and the principles of equality, social justice, solidarity and social embodiment.[3,4] Despite the fact that health outcomes, in terms of life expectancy and other indicators, have improved significantly due to advances in health technology and knowledge, increasing progress in the prevention and treatment of diseases and improvements in social conditions, disparities yet persist.

Situation worldwide

Currently, due to the high population mobility, especially from Africa, Asia, the Middle East and Eastern Europe to the European Union (EU), another aspect of social and health inequalities has emerged. This has to do with the obstacles and difficulties migrants might face in accessing the health care services of the country of their new residence as well as the quality of any services provided. The inequalities in accessing and using health care services, particularly by migrants, is well documented in the literature.[5-9] According to a number of studies, though they might have increased health needs due to their exposure to a number of health risks before, during and after their journey, they face significant disparities related to access, use and quality of social and health services.[10-12]

In general, migrants appear to have worse health outcomes than the native population of a country in a number of dimensions such as emergency hospital admissions and the

development of chronic conditions such as diabetes and heart disease,[9,13] even though, upon on their arrival, they may be healthier than the native population especially in terms of chronic diseases (healthy migrant effect). In addition to differences in objective outcomes, they rank lower in subjective health outcome measures with lower self-perceived health status than the native population.[14,15]

The increasing number of migrants and the challenges posed to the health care systems of the receiving countries, including Greece, have led to a growing literature in the last decade on the challenges faced by this population.[2,4,8,16,17] As the up-to-date research has shown, restrictive laws, lack of information, administrative, organizational, institutional barriers and discriminatory barriers can decisively limit access to health care services for migrants and refugees, while, at the same time, the health of this population is compromised by unhealthy living conditions in the country of migration.[18-24]

Additionally, health insurance is considered to be one of the most significant factors affecting access to health care services for both migrants and non-migrants and as migrants often lack health insurance protection as well as lack of information about programs which may provide access to health care service as a "safety net",[25,26] they are more vulnerable to such restrictive barriers in accessing health care services. Therefore, health insurance coverage has been used as a proxy of health protection for population.[27] Also, migrants may have a different disease profile, different socioeconomic and cultural characteristics and a different perspective on how to cover those needs compared to the native population and this imposes an additional

challenge on a health system with regard to managing the needs of this vulnerable group.

Situation in Greece

Although Greece has been traditionally a country of economic workers migrating to wealthier countries, since the early '90s it has transformed into a country that has been receiving migrants mainly from the Balkans. According to 2011 census, 912,000 migrants were estimated to be living in Greece comprising 8.5% of the population; however, this number is considered to be an underestimation, as it does not include the majority of the undocumented migrants.[28]

In recent years, however, migration patterns have changed. Due to the country's geographical position, migration has become a modern social problem, of various parameters, including their health and medical needs' coverage. During 2015, Greece among other European countries (e.g. Italy) has been receiving extremely large immigrant and refugee influx waves. More than 857,363 immigrants and refugees have reached Greece in 2015 and although there was a significant decrease of 79% in 2016, more than 176,000 migrants arrived in the country.[29] Syria, Afghanistan and Iraq are listed as the top three countries of origin, based on the number of arrivals, while constant incoming flows are being observed from Pakistan and Bangladesh.[30] Greece along with Italy (181,436 arrivals during 2016) are the main arrival countries being left to shoulder the bulk of the strain the refugee crisis.

To this day, as the economic crisis has further deepened in Greece, health and social indicators have further deteriorated, especially among vulnerable population groups

such as migrants.[31] Their access to fundamental rights for healthcare is limited; long waiting times in hospitals, bureaucracy, overcrowding in both primary and hospital facilities, inadequate infrastructure, difficulties in communicating with the healthcare professionals and the high cost of healthcare emerge as the most important issues, although research is very limited on the field.[22] Yet, inadequate health care for migrants and refugees, due to access obstacles, poses serious threats on public health for the whole population as well as creating an environment of social exclusion and "ghettos" that endanger social cohesion. It is therefore important that conditions for adequate health care for migrants should be developed as soon as possible, but, in order to do so, it is essential to address the problem in its real dimensions, to bring into light evidence on healthcare needs, the difficulties and obstacles in healthcare access and put forward specific suggestions for measures.

Policies in Greece

At the time this study was performed, access to care for the uninsured population including migrants, was quite limited. In Greece, employment is linked with the right to access health care. In 2014, the number of employed amounted to 3.5 million persons while the number of unemployed amounted to 1.3 million. The unemployment rate was 26.5% and long-term unemployment 67.1% of all unemployed.[32] Those who were unemployed for less than 12 months, continued to have access to sickness benefits in kind for one year after the commencement of unemployment. For certain cases, after the expiry of the one year, a governmental organization aiming at employment advocacy (OAED) provided health coverage for up to two additional

years. After a person had exhausted their insurance right for sickness benefits and eligibility for OAED programs, an option was at that time, to request a Health Voucher. The "Health Voucher" program was launched in September 2013 and targeted people who had lost their insurance coverage and allowed them access only to primary healthcare services. The voucher did not cover the cost of hospital care, so the scope of the measure was very limited; perhaps this explains why only a small number of vouchers were issued.

Another important reason may be the lack of information; indeed the uninsured population (including migrants) in our study reported lack of information about the programs which at that time provided access to health care services. Similarly, a large majority of respondents in a study conducted in Athens in 2014[26] reported that they were not informed about their rights or the legislation passed for the health service coverage of the uninsured population. Other significant barriers in accessing health care services included the cost of the use of the services and bureaucratic procedures, as reported in the same study.

To try to overcome these problems, in June 2014, two ministerial decisions were issued, according to which all citizens and legal residents of Greece not covered by Social Health Insurance, voluntary health insurance or poverty booklets, as well as their dependents, would be covered for inpatient care (subject to referral from primary care plus approval from a hospital committee set up to certify patients' need for hospitalization), as well as for pharmaceuticals (excluding co-payments) prescribed by an NHS (ESY) physician. Although it was expected that this measure would reduce

gaps in coverage, issues were raised regarding its implementation in practice, including unaffordable co-payments for pharmaceuticals and differences in how hospitals interpreted the law.[33] Additionally, it was a rather stigmatizing procedure, given that a specific committee had to certify the need for hospitalization of the uninsured patients, but not for the insured population. As a result, the uninsured who were seeking inpatient treatment faced serious unjustified administrative barriers in accessing health care.

The ineffectiveness of this second effort to ease the access of the population resulted in the amendment of the relevant legislation in 2016.[34] Finally, the new law, which is currently in effect, ensured free access to health services for uninsured citizens and legal residents, refugees, asylum seekers as well as undocumented migrants, namely children, pregnant women, those in pain or life threatening situation and those with chronic conditions or disabilities. They are now entitled to the same level of access as are Greek citizens as long as they have been issued a Social Insurance Number or a migrant health care card. Undoubtedly this legislation is of key importance to improving equity and access to health care for vulnerable groups.

Yet, it should be noted that there was a remarkable delay of more than five years in adopting an effective reform to cover the uninsured and the poor. For more than five years, due to uncoordinated efforts, failure to strategically plan and support a structured policy for accessing health services, the implementation of semi-measures not succeeding to address the real needs of the population and remaining

administrative barriers, failed to face the growing need for access to the health services by those most in need.

Aim

The objective of the present study was to explore if inequalities to access and utilization of health services by migrants compared to non-migrants in Greece exist and test the influence of various factors, including health care insurance, on any disparities identified. Also, we investigated the influence of several socio-economic and demographic characteristics.

Materials and Methods

Study Population

As there is no consensus regarding the terminology about migrants, we partly followed the definition given by the MEHO group,[14] and included in our study any person who migrated to Greece from outside the EU-15 member states (i.e. the 15 EU member states before the expansion in 2004), while further excluding North America and Australia. Also, we followed the definition as it is published in the Glossary of Migration;[35] i.e. migrants are persons, and family members, moving to another country or region to better their material or social conditions and improve the prospect for themselves or their family. The migrant participants included in the study reported being documented migrants, although this information was not verified.

A cross-sectional study was conducted from April 2013 until March 2014. The study population consisted of 1,152 migrants and 702 non-migrants. An effort was made to ensure a maximum variation of the study population, therefore the study population, for both migrants and non-migrants, was from urban (Athens, Thessaloniki) but also rural areas of Greece (Creta, Lakonia, Larissa/Volos, Ioannina and Lamia). A qualitative study[36] was conducted prior to this one to construct the questionnaire of this study. Afterwards, a pilot quantitative study was carried out, in order to improve the reliability and the validity of the questionnaire. More information about the questionnaire development may also be found in the pilot study published.[22]

Sampling method

Regarding the sampling method, there is no accurate census of migrants residing in Greece and thus, probability or random sampling could not be used. Therefore, a convenience snowball sampling (a nonprobability sampling method) was applied. Initially, the researchers contacted key persons in migrant communities, such as their leaders or representatives. Those key persons acted as mediators between researchers and migrants in order to increase feelings of trust and asked everyone present in the gathering place at the time of the study if they wanted to participate. Migrants were located in social gathering places, religious places and workplaces (mostly agricultural workers). An effort was made to have a same source population for the non-migrants; therefore the researchers approached non-migrants in the same areas and similar places, e.g. churches, markets, squares. Migrants and non-migrants completed the questionnaire at the place they had been located by the researchers in order to improve

their convenience and increase response rates. So, a convenience sample of non-migrants was achieved to be comparable with migrants.

The questionnaire was translated in all the languages of the sample population. The questionnaires were anonymous and self-completed by the migrants and non-migrants. However, migrants with a good level of Greek language proficiency facilitated the procedure as translators, in case questions were raised by the study participants. At least one researcher was also present during the completion of the questionnaires.

Ethics

Ethics approval for the study protocol was received from the Ethics Committee of Department of Nursing, National & Kapodistrian University of Athens (Date of approval 03/07/2013, number of approval 115). All the participants were informed comprehensively for the study protocol and they gave their written informed consent. Participation was voluntary and the participants completed the study questionnaires anonymously.

Questionnaire

The questionnaire included information on sociodemographic characteristics, health status, public health services knowledge and utilization and perception of difficulties in health services access (view supplementary online material). A qualitative study[36] was conducted prior to this one, in order to construct the quantitative questionnaire of our study. Following the qualitative study, a pilot quantitative study with 30 immigrants was carried out, in order to improve the comprehensibility of the

questionnaire and to test face validity. Internal consistency of the questionnaire was calculated by Cronbach's alpha and was found equal to 0.7 which was considered acceptable. More information about the questionnaire developed may also be found in the pilot study published.[22]

Sociodemographic characteristics included age, country of origin, months of stay in Greece, gender, marital status, number of children, educational level (less than high school, high school, at least some college), health insurance coverage, employment at the time of study, family monthly income and living arrangements.

Information about health status included self-reported health status, medication use for chronic diseases and existence of diagnosed hypertension, asthma, diabetes, cardiovascular disease, mental health diseases, sexually transmitted diseases and diseases of digestive system.

Public health care services knowledge was measured on a five-point Likert-type scale (very poor, poor, moderate, good and very good) and public health services utilization included physician visits, dentist visits, visits to outpatient hospital services, use of emergency department services and inpatient hospital care. Difficulties in public health services access was measured on a five-point Likert-type scale (not at all, slightly, moderately, quite a bit and extremely difficult). For statistical analysis purposes, not at all and slightly difficult were considered as one category; quite a bit and extremely difficult were also considered as one category.

Migrants answered additionally the following questions: "Do you have residence permit documents for Greece?", "How would you describe your ability to Understand, Speak, Read and Write Greek and English" and "Do you believe that your access to

public healthcare services is worse compared to Greeks?". In order to avoid confusion, non-migrants questionnaire did not include the above questions. Also, the questionnaire was appropriately adjusted in some questions for migrants and non-migrants, e.g. the question "Do you believe that your friends in Greece are sufficiently supportive of you?" for the migrants was equal to "Do you believe that your friends are sufficiently supportive of you?" for the non-migrants.

Variables

Migrants were identified by country of birth. Access to health care, as the main outcome measure, was examined through two well established measures of perceived access (dependent variables): unmet pharmaceutical needs of patients with chronic diseases, and unmet medical needs for health services during the last 12 months. Both of these variables were dichotomous. Unmet health need was selected as an indicator of access to care, as it is one of the most widely used indicators and therefore easy to compare and measure.[37]

Inequalities in use of health services were examined through visits to hospital outpatient services in order to go for a preventive blood test during the last two years. This dependent variable was also dichotomous. The variable was chosen to overcome the issue, demonstrated by a number of studies, that migrants are much less likely to use health services compared to the native population because they are in better health (healthy migrant effect).[38-40] Our rationale for selecting a diagnostic hospital service was also that the use of hospital outpatient services in Greece by both native born and migrants may act as a substitute for primary preventive care services, as only very few

urban health centers exist. It also represented the most affordable way to receive preventive services compared to the contracted private providers, as the co-payment for using outpatient services has been set to five Euros at the time of the study (this fee was removed later in order to enhance the use of these services).

The independent variables (Table 1) associated with access to health services were nativity (migrant/non-migrant), health insurance status (yes/no answers) and other socio-economic and demographic characteristics (age, sex [male/female], education [elementary school, junior high school, high school, vocational training diploma, higher education degree], employment status [workers/non workers], family income) and finally self-reported health status (not at all good, a little good, moderate, sufficiently good and very good) which was used to assess the need for health services. In order to assess self-reported health status a single question "In general, how would you rate your health today?" on a five point Likert scale (with the following answers: very good, good, moderate, a little good, not at all good) was used.

The independent variables were selected based to the Andersen model, according to which health services utilization is a function of people's predisposition to health services (e.g. age, sex), enabling resources (e.g. education, employment status), and need as well as the characteristics of the health care system in terms of its organization, resources, and policies.[41] As migrants tend to be younger and also often socioeconomically disadvantaged compared with the native population, the risk adjustment for the above mentioned variables was considered necessary in order to assure comparability of data and quality of results.

During the period of the economic crisis (2010-2018) in Greece, access was reduced, due to reduced resources for health care, increased copayments and decreased ability of users to make formal and informal payments.[42] Therefore economic hardship was further assessed by two variables associated with the inability to make payments for activities of daily life, namely difficulties to shop for everyday products at a supermarket (e.g. dairy products, vegetables etc.) and for utility bills. Responses were made on a three-point scale (with the following answers: never, sometimes and often)

Statistical Analysis

Continuous variables are presented as mean (standard deviation), while categorical variables are presented as numbers (percentages). The Kolmogorov-Smirnov test and graphs (histograms and normal Q-Q plots) were used to test the normality of the distribution of the continuous variables. Age followed normal distribution while personal and family monthly income did not follow normal distribution.

Firstly, we performed bivariate analyses that included the following: chi-square test (for relation between categorical variables), chi-square trend test (for relation between nominal and ordinal variables), independent samples t-test (for relation between dichotomous and continuous variables that followed normal distribution) and Mann-Whitney test (for relation between dichotomous and continuous variables that did not follow normal distribution).

Then, independent variables with $p<0.20$ in bivariate analyses were included in multivariate models. The backward elimination method was used for model development in multivariate logistic regression since the dependent variables are

dichotomous. Criteria for entry and removal of variables were based on the likelihood ratio test, with enter and remove limits set at $p<0.05$ and $p>0.10$. Multivariate analysis was applied for the control of each potentially confounding of each statistically significant factor to the others. The predictive variables were identified in terms of odds ratios with 95% confidence intervals and the respective p-values.

All tests of statistical significance were two-tailed, and p-values of less than 0.05 were considered significant. Statistical analysis was performed using the Statistical Package for Social Sciences software (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.).

Results

Descriptive statistics

Demographics

In total, 1,152 migrants and 702 natives completed the questionnaire. The response rate was 60% (1,152 out of 1,920) for the migrants and 52% (702 out of 1,350) for the non-migrants. We used only the questionnaires with answers in all questions. Descriptive statistics by nativity are shown in Table 1. More than 52% of the migrants were men and the respective figure for the non-migrants was 33.6% ($p<0.001$) while 36.5% of the migrants and 8.5% of the non-migrants were uninsured ($p<0.001$). The mean duration of living in Greece was 10.9 years for the migrants. Non-migrants had higher levels of education than did migrants with >34% reporting a college degree or

higher ($p<0.001$). However, migrants were more likely than non-migrants to be currently employed (63.5% vs 48.3%, $p<0.001$) but they reported much lower personal and family income than the non-migrants ($p<0.001$ in both cases). Despite that, migrants reported much lower difficulties in covering running household expenses and costs for the supermarket compared to the non-migrants ($p<0.001$ in both cases) (Table 1).

Please insert Table 1, about here

Unmet pharmaceutical needs

Migrants with chronic diseases had more often unmet pharmaceutical needs (55.7%) than non-migrants (22.3%). The main reasons reported by migrants for not receiving their medication were the high cost of the pharmaceuticals (co-payments and the total cost of the pharmaceuticals in case of non-insurance (82.6%) and the lack of information about the procedures needed in order to obtain the pharmaceuticals (7.4%) as well the perception that the pharmaceuticals prescribed were not really needed (9.5%).

Unmet medical needs and prevention services

Also, the main barriers reported by migrants in the use of outpatient health care services were bureaucratic procedures (43.8%) and the cost of using such services (47.9%). Moreover, unmet needs for health services during the last 12 months were almost equal for migrants (21%) and non-migrants (23.6%), while migrants had

performed more often blood test during the last 24 months than non-migrants (86.6% versus 68.9%).

Bivariate and multivariate analysis

As mentioned in methods, nativity (migrant/non-migrant), health insurance status and other socio-economic and demographic characteristics were used as independent variables in the following bivariate and multivariate analysis.

Unmet pharmaceutical needs

Migrants had more often unmet pharmaceutical needs than non-migrants (55.7% vs. 22.3%). Bivariate analysis for unmet pharmaceutical needs of patients with chronic diseases is shown in Table 2, while multivariate logistic regression analysis is shown in Table 3. Patients suffering from a chronic disease without health insurance (odds ratio [OR]=3.4, 95% confidence interval [CI] = 1.87 to 6.20), migrants (OR=2.41, 95% CI = 1.41 to 4.11), and patients who assessed their health status as a not at all good/little good/moderate (OR=1.71, 95% CI = 1.03 to 2.85) were more likely to report unmet needs in getting their medication. Also, reduced monthly family income was associated with an increased percentage of not taking medication for chronic disease ($p<0.001$ for trend test). The above variables explain 34% of variance in the dependent variable.

Unmet medical needs

Bivariate analysis for unmet medical needs is shown in Table 2, while multivariate logistic regression analysis is shown in Table 3. Participants without health insurance (OR=1.49, 95% CI = 1.15 to 1.93), females (OR=1.62, 95% CI = 1.27 to 2.05), those who were unemployed (OR=1.74, 95% CI = 1.31 to 2.30) or without a permanent occupational status (OR=2.23, 95% CI = 1.64 to 3.03) and participants who assessed their health status as not at all good/little good/moderate (OR=1.60, 95% CI = 1.27 to 2.02) were more likely to have unmet needs. Non-migrants had more often unmet medical needs than migrants (23.6% vs. 21%) but this relationship was not statistically significant (p=0.2).

Prevention services

Non-migrants went more often for a blood test than migrants (86.6% vs. 68.9). Bivariate analysis for the use of outpatient hospital services in order to go for a blood test is shown in Table 2, while multivariate logistic regression analysis is shown in Table 3. Participants with health insurance (OR=4.00, 95% CI = 3.16 to 5.07), non-migrants (OR=1.81, 95% CI = 1.38 to 2.37) and females (OR=1.74, 95% CI = 1.38 to 2.20) were more likely to go for a blood test.

Please insert Table 2, about here

Please insert Table 3, about here

Discussion

Logistic regression analysis showed that the unmet needs for pharmaceuticals and other health services were higher for participants with worse self-reported health status, the unemployed, the migrants, the uninsured and the poor. They were also more likely not to use the health services.

Unmet pharmaceutical needs

Health insurance is one of the most important factors affecting access and use of health services. For example, according to our findings uninsured suffering from a chronic disease reported more often unmet needs in getting their medication compared to insured. At the time this study was conducted, insured patients had to pay in general a 25% co-payment for the majority of pharmaceuticals (apart from some medicines for which co-payment was set at 10%) while the uninsured had to pay the full cost of their medication. These patients represent a high risk group and non-compliance with therapeutic guidelines may dramatically affect their health status and impose further pressure on health care system funding.[40] Our results echo findings from other studies, according to which disparities in access and use of health services are greatly attenuated among the insured population.[44-46] According to our findings, 36.5% of migrants were not covered by a health insurance scheme, a very high proportion compared to non-migrants (8.5%). This may be explained by the fact that migrants either are unemployed, informally employed or undocumented (but were reluctant to state so) and therefore not able to apply for health insurance.

Migrants were 2.4 times more likely not to get their medicine compared with non-migrants. The high cost of pharmaceuticals (co-payment is set at 25%) and the bureaucratic procedures in order to get a prescribed medicine were two main reasons for not receiving their medication. These findings coincide with a number of studies that have shown that migrants face a number of barriers including information gaps, restrictive laws and other administrative barriers which limit their access to health care services.[19,20,47,48]

Unmet medical needs

Our findings for the unmet medical needs were similar. Participants without health insurance were more likely to report unmet needs compared to those with health insurance. Other variables associated with increased unmet need for health services were gender, bad state of self-reported health, unemployment and absence of a permanent job with the latter two representing the most important factors in reporting unmet medical needs. This can be partly explained by the benefits provided at the time this study was conducted. In 2014, all population had access to medical visits in public primary health care facilities while on the other hand, in order to get medication or to go for laboratory tests a co-payment was needed for the insured and a full out of pocket payment for the uninsured.

Prevention services

As explained earlier (see Methods section), the use of hospital outpatient blood test services for preventive purposes, was chosen in order to assess the use of health care

services, in order to reduce the effect of the "healthy migrant" factor. Our findings confirmed our initial hypothesis that inequalities exist regarding the utilization of health services by migrants and non-migrants in Greece as well as for those not having health care insurance.

Comparison with other countries

Use of health services

Our results coincide with many studies according to which migrants tend to use less health services and especially prevention services than the native population. However, this phenomenon may lead to increased demand for in-patient or emergency services, having negative effects for the health outcome of the population, especially for vulnerable groups such as migrants and also impose increased costs and pressures to the sustainability of the health system.[2,49]

As mentioned in the Introduction section, steps have been taken during the last 3 years in order to provide health coverage for the migrants, which however are not without cost. The latest data referring to the financial burden associated to this decision are from the year 2017. The additional cost incurred because of the health coverage of the uninsured was estimated by the Ministry of Health at approximately €400 million (the amount represents 6.5% of public health expenditure for the above mentioned categories of services while the total number of the uninsured represents approximately 19% of the population).[50] In particular, services were provided to 840,000 of the uninsured population (including migrants and refugees) and the relative

costs were €165 million for pharmaceuticals, €57 million for laboratory and diagnostic imaging tests and €185 million for inpatient care.[50]

Despite the fact that the cost of the adoption of a Universal Health Coverage policy is significant, the benefits are expected to outweigh this cost. Although data are scarce, an indicative economic model adopted for two separate medical conditions (hypertension and prenatal care) found that the provision of access to regular preventive healthcare for migrants in Greece would be economically sound.[51] Specifically, according to the findings, free access of migrants to prenatal care may generate savings of up to 48 % in Greece (this amounts to about €52 per woman) over two year as the provision of prenatal care may actually be half as expensive as treating a low birth weight baby as a consequence of not providing access to care during pregnancy. Findings were similar for hypertension as well as the cost-savings over a year were estimated of around 9% compared to no access to healthcare.[51] If emergency care only was provided instead, the costs in the first year alone would amount to €66 per person.[51] Although there is no official cost-benefit analysis regarding the effects of this policy, these findings provide clear evidence of the cost savings incurred by providing access to primary healthcare to migrants.

Access to healthcare

Similar problems in regards with the access of migrants to healthcare are also encountered by a number of European countries (such as Italy, Spain, Portugal etc)

with large migrant influx as they also report existing healthcare disparities among vulnerable populations. A common agreed policy, regarding the most appropriate management of healthcare needs in sensitive populations, such as refugees and migrants, is to improve access, in order to mitigate healthcare inequalities among non-migrant and migrant groups and there are significant efforts towards this direction.[16,52,53]

Despite the latter positive measures, however, there is still room for improvement as some barriers for the uninsured in accessing health care services remain. Importantly, the 2016 law only allows access public health care providers, but not private providers contracted with the National Security Fund (EOPYY) (e.g. private diagnostic imaging laboratories). Due to this limitation, accessibility problems are emerging in regions where public health care units are either understaffed or/and facing shortages of modern equipment (e.g. CTs and MRIs).

Additionally, in 2011, increases in co-payments for medicines for specific diseases were introduced, transferring more costs to patients. As the uninsured are not exempted from the co-payments for pharmaceuticals they sometime become unaffordable imposing further barriers in the access to care.[54]

Electronic prescription system

Finally, problems associated with the electronic prescription system are still imposing barriers in accessing benefits in kind, as for example consumables for diabetic patients. Diabetics, for example, may not receive a prescription for the consumables they use daily (e.g. needles) as the doctors may not proceed with an electronic prescription for these categories of patients without having a Social Security Number. Likewise, for the same reason, the uninsured lack other benefits in kind such as glasses, respiratory devices and orthopedic supplies, headphones, decubitus pads, catheters and other sanitary materials. In order to be compensated for the above mentioned benefits, a quite long and complicated bureaucratic procedure has been established. Regarding migrants, no effective measures to enhance communication and remove language barriers are in effect (e.g. absence of intercultural mediators or other facilitating tools), probably having an impact on the provision of quality care and to adherence to the treatment. Towards that direction, further studies in order to assess the effectiveness of this legislation and its impact on the access and use of health services by vulnerable groups (including migrants) should be conducted.

Public health policy measures

Our findings suggest that migrants face barriers in accessing health services than non-migrants and this represents a great challenge to policy makers and health care professionals. A number of critical dimensions should be taken into account to improve health care access. As already discussed, efforts have been made in regards

with the legal framework and entitlements in order to cover the right for access in health care as well as any potential for improvement.

Another important step, would be to further include migrants' access to healthcare issues in the national health policy agenda. Although, discussions on a policy level have been made, no specific national plan have been developed in order to improve migrants' access. Specific procedures or guidelines on how to overcome financial, cultural and other barriers associated with health literacy issues should be included in the national policy documents. Until today, the health delivery model has not been adjusted to incorporate the population diversity (e.g. develop more targeted services for migrants' health). However, the empowerment and facilitation of health care access for migrants in Greece is necessary.

Depending on the needs of the migrant population, simple measures such as promotion of information and awareness of the migrant populations on health and hygiene issues, improvement of health literacy regarding the existing health services and knowledge of how the country's health system functions, will enable better access health services.[55] Promotion of intercultural mediation in healthcare services and improvement of provided services, through information, awareness and training of staff in order to better understand the special needs of the migrants and the importance of accepting cultural differences will eventually help to eliminate phenomena of discriminations in health care services. The diversity-responsiveness in health sciences educational curricula should be assessed and further improved with an intersectionality-based approach.[58]

Public health policy measures related to appropriate coverage as for example re-consideration of the levels of co-payments and access to all available services, including those provided by contracted providers, may improve accessibility by reducing waiting lists and increasing compliance with the prescribed therapies.

Conclusions

The issue of migrants' health has been addressed many times by the European Union, which has identified access to health services as a factor of paramount importance in the effort to reduce health inequalities. Migrants' access to health services is also considered as a prerequisite for social inclusion and integration of migrants,[56,57] while the need for improved national policies to promote migrants' access has been also stressed many times.[24] Although hosting countries recognize that these populations may have distinct needs from non-migrants and that they constitute a population group diverse in origin and ethnic background which is at risk of exclusion, many countries, including Greece, have not managed yet to develop effective services in order to meet these needs.

As shown in our analysis, health insurance is a major factor that interacts with migration status to play an important role in people's ability to access and use health care. Universal health insurance coverage should be dealt as a major component of any strategy to reduce disparities in health care. It is worth noting, that Greece, despite administrative delays and barriers, provided full coverage to the uninsured, asylum seekers and migrants, even many groups of undocumented migrants. Despite the fact

that the country is severally hit by the economic turmoil, having lost more than 25% of its GDP between 2008-2015, this reform represents a structured effort to address the challenges faced by the vulnerable populations, including migrants, as long as it has continuity and there are further policies in order not only to permit but also empower access and use of health services.

Limitations

Our study was a cross-sectional study providing only a snapshot of differences in unmet need and the use of health services between migrants and non-migrants, and other subgroups. Possible changes over time, especially during the severe economic crisis in Greece, are not depicted. Additionally, as data were self -reported some issues of cross-cultural validity may be raised. Despite the fact that researchers were used to facilitate the completion of the questionnaires, in order to assure the understandability of the questionnaire, other issues related with the context of the questionnaire (e.g. the differences in the delivery of health services between the Greek health care system and the health system of the origin countries, the organization of the health system and other cultural differences) should be taken into account when interpreting our results. Moreover, exclusion of illiterate migrants may be introducing bias in our study, since this group probably faces more difficulties. Another possible bias may be introduced by the fact that the migrants accepted to fill-out the questionnaire for fear of being denied access to services. Additionally, migrants were grouped and analyzed as a homogenous group which is likely to obscure differences across migrant subgroups (e.g. by country of origin). Also, we did not use control variables and we considered

nativity (migrant/non-migrant), health insurance status and other socio-economic and demographic characteristics (e.g. age, sex, education, employment status, family income etc.) and self-reported health status as the independent variables.

All these independent variables were included in the regression models. Unfortunately, we did not use control variables such as geographical distance to health care facilities, personal values and beliefs about health care, objective measures of health status, personal income, etc. These control variables could probably affect the results of our study, e.g. increased geographical distance to health care facilities is associated with decreased access and use of these facilities, while objective measures of health status are more valid than self-reported health status.

Also, we estimated face validity and reliability of the questionnaire but we did not perform rigorous test of validity such as factor analysis or discriminant analysis. A qualitative study[36] was conducted prior to this one, in order to construct the quantitative questionnaire of our study. Following the qualitative study, a pilot quantitative study with 30 immigrants was carried out, in order to improve the comprehensibility of the questionnaire and to test face validity. Internal consistency of the questionnaire was considered acceptable (Cronbach's alpha = 0.7). More information about the questionnaire developed may also be found in the pilot study published.[22]

Finally, a convenience sample was used since the random sampling was impossible especially in case of migrants. A convenience sample is more prone to bias than a random sample since participants with a better health usually have an increased response rate.

References

1. Kawachi I, Subramanian S, Almeida-Filho N. A glossary for health inequalities. *J Epidemiol Community Health*. 2002;56(9):647-652. doi:org/10.1136/jech.56.9.647
2. Asanin J, Wilson K. I spent nine years looking for a doctor: exploring access to health care among immigrants in Mississauga, Ontario, Canada. *Soc Sci Med*. 2008;66(6):1271-1283. doi:10.1016/j.socscimed.2007.11.043
3. Cooper H. Investigating socio-economic explanations for gender and ethnic inequalities in health. *Soc Sci Med*. 2002;54(5):693-706.
4. Dean JA, Wilson K. My health has improved because I always have everything I need here...: A qualitative exploration of health improvement and decline among immigrants. *Soc Sci Med*. 2010;70(8):1219-1228. doi: 10.1016/j.socscimed.2010.01.009
5. Keygnaert I, Ivanova O, Guieu A, Van Parys AS, Leye E, Roelens K. *What is the evidence on the reduction of inequalities in accessibility and quality of maternal health care delivery for migrants? A review of the existing evidence in the WHO European Region*. Copenhagen, Denmark: WHO Regional Office for Europe; 2016.
6. Stan S. Transnational healthcare practices of Romanian migrants in Ireland: inequalities of access and the privatisation of healthcare services in Europe. *Soc Sci Med.* 2015;124:346-355. doi: 10.1016/j.socscimed.2014.04.013
7. Mirkuzie AH. Exploring inequities in skilled care at birth among migrant population in a metropolitan city Addis Ababa, Ethiopia; a qualitative study. *Int J Equity Health*. 2014;13:110. doi:org/10.1186/s12939-014-0110-6

8. Norredam M, Krasnik A, Pipper C, Keiding N. Differences in stage of disease between migrant women and native Danish women diagnosed with cancer: results from a population-based cohort study. *Eur J Cancer Prev.* 2008;17(3):185-190. doi: 10.1097/CEJ.0b013e3282f0bfd1

9. Lanting LC, Joung IMA, Mackenbach JP, Lamberts SWJ, Bootsma AH. Ethnic differences in mortality, end-stage complications, and quality of care among diabetic patients: a review. *Diabetes Care.* 2005;28(9):2280-2288. doi: 10.1186/1475-9276-6-8

10. *5th Annual Report on Immigration and Asylum. Communication from the commission to the European Parliament and the council.* European Commission. https://emnbelgium.be/sites/default/files/publications/5_th_annual_report.pdf. Published 2014. Accessed January 1, 2018.

11. Sharma A, Cottrell E. Migration and health. *Australas Med J*. 2010;1(3):3-8.

12. WHO. *International Migration, Health and Human Rights*. Publication Series, Issue No.4, 2003.

13. Whincup PH, Gilg JA, Papacosta O, Seymour C, Miller GJ, Alberti K, Cook D. Early evidence of ethnic differences in cardiovascular risk: cross sectional comparison of British South Asian and white children. *BMJ.* 2002;324:635. doi:org/10.1136/bmj.324.7338.635

14. Nielsen S, Krasnik A, Rosano A. Registry data for cross-country comparisons of migrants' healthcare utilization in the EU: a survey study of availability and content. *BMC Health Serv Res.* 2009;9:210. doi: 10.1186/1472-6963-9-210

15. Sheikh A. Ethnic minorities and their perceptions of the quality of primary

care. *BMJ*. 2009;339:b3797. doi:org/10.1136/bmj.b3797

16. Pavli A, Maltezou H. Health problems of newly arrived migrants and refugees in Europe. *J Travel Med*. 2017;24:4. doi: 10.1093/jtm/tax016

17. Shortall CK, Glazik R, Sornum A, Pritchard C. On the ferries: the unmet health care needs of transiting refugees in Greece. *Int Health.* 2017;9(5):272-280. doi: 10.1093/inthealth/ihx032

18. Papadakaki M, Lionis C, Saridaki A, et al. Exploring barriers to primary care for migrants in Greece in times of austerity: Perspectives of service providers. *Eur J Gen Pract.* 2017;23(1):128-134. doi: 10.1080/13814788.2017.1307336

19. Czapka EA, Sagbakken M. "Where to find those doctors?" A qualitative study on barriers and facilitators in access to and utilization of health care services by Polish migrants in Norway. *BMC Health Serv Res.* 2016;16:460. doi: 10.1186/s12913-016-1715-9

20. Gil-González D, Carrasco-Portiño M, Vives-Cases C, Agudelo-Suárez AA, Castejón Bolea R, Ronda-Pérez E. Is health a right for all? An umbrella review of the barriers to health care access faced by migrants. *Ethnic Health.* 2015;20(5):523-541. doi: 10.1080/13557858.2014.946473

21. Blondell SJ, Kitter B, Griffin MP, Durham J. Barriers and facilitators to HIV testing in migrants in high-income countries: a systematic review. *AIDS Behavior.* 2015;19(11):2012-2024. doi: 10.1007/s10461-015-1095-x

22. Galanis P, Sourtzi P, Bellali T, Theodorou M, Karamitri I, Siskou O, ET AL. Public health services knowledge and utilization among immigrants in Greece: a cross-sectional study. *BMC Health Serv Res.* 2013;13:350. doi: 10.1186/1472-

6963-13-350

23. Rechel B, Mladovsky P, Ingleby D, Mackenbach JP, McKee M. Migration and health in an increasingly diverse Europe. *Lancet.* 2013;381(9873):1235-1245. doi: 10.1016/S0140-6736(12)62086-8

24. Dias SF, Severo M, Barros H. Determinants of health care utilization by immigrants in Portugal. *BMC Health Serv Res.* 2008;8:207. doi: 10.1186/1472-6963-8-207

25. *Summary report on the MIPEX health strand and country reports.* International Organization for Migration. https://publications.iom.int/system/files/mrs_52.pdf. Published 2016. Accessed January 1, 2018.

26. Polyzou P, Kaitelidou D, Galanis P, Siskou O, Kalogeropoulou M, Konstantakopoulou O. Investigating the accessibility of uninsured population to health services in Greece. *Value Health.* 2015;18(7):A526-527. doi:org/10.1016/j.jval.2015.09.1627

27. Lam K, Johnston J. Health insurance and healthcare utilization for Shenzhen residents: a tale of registrants and migrants? *BMC Public Health.* 2012;12:868. doi.org/10.1186/1471-2458-12-868

28. *Greece in Figures.* ELSTAT (National Statistical Service of Greece). http://www.statistics.gr/documents/20181/1515741/GreeceInFigures_2017Q3_EN.pdf/dbbdb56b-4a0b-4672-a83f-1a316716c09a. Published 2017. Accessed January 1, 2018.

29. *Mixed migration flows in the Mediterranean and beyond.* International

Organization of Migration. The UN Migration Agency. https://reliefweb.int/sites/reliefweb.int/files/resources/2016_Flows_to_Europe_Overview.pdf. Published 2017. Accessed January 1, 2018.

30. *Epidemiological/Statistical data*. Hellenic Center for Disease Control & Prevention (Hellenic CDC). http://www.keelpno.gr/en-us/home.aspx. Published 2016. Accessed January 1, 2018.

31. Kentikelenis A, Karanikolos M, Williams G, Mladovsky P, King L, Pharris A, ET AL. How do economic crises affect migrants' risk of infectious disease? A systematic-narrative review. *Eur J Public Health.* 2015;25(6):937-944. doi: 10.1093/eurpub/ckv151

32. *Greece in Figures.* ELSTAT (National Statistical Service of Greece). http://www.statistics.gr/documents/20181/301069/GreeceInFigures_1015_EN.pdf/9ce8859e-17c6-4669-852e-1b9d4568e3ac. Published 2015. Accessed January 1, 2018.

33. Economou Ch, Kaitelidou D, Katsikas D, Siskou O, Zafeiropoulou M. Impacts of the economic crisis on access to healthcare services in Greece with a focus on the vulnerable groups of the population. *Soc Cohesion and Development*. 2014;9(2):99-115.

34. *Law 4368/2016 (in Greek).* http://webcache.googleusercontent.com/search?q=cache:zDYFXRMDLYEJ:www.moh.gov.gr/articles/health/anaptyksh-monadwn-ygeias/3999-prosbash-twn-anasfalistwn-sto-dhmosio-systhma-ygeias%3Ffdl%3D10014+&cd=2&hl=el&ct=clnk&gl=gr. Published 2016.

Accessed January 1, 2018.

35. Perruchoud R. *Glossary on migration.* 2nd edition. Switzerland, International Organization for Migration; 2011.

36. Karamitri I, Bellali T, Galanis P, Kaitelidou D. The accessibility of vulnerable groups to health services in Greece: a Delphi study on the perceptions of health professionals. *Int J Health Plann Manage.* 2012;28(1):35-47. doi: 10.1002/hpm.2115

37. Allin S, Masseria C. *Unmet need as an indicator of access to health care in Europe.* Research Note, London School of Economics and Political Science; 2009.

38. Gimeno-Feliu LA, Calderón-Larrañaga A, Diaz E, Poblador-Plou B, Macipe-Costa R, Prados-Torres A. Global healthcare use by immigrants in Spain according to morbidity burden, area of origin, and length of stay. *BMC Public Health.* 2016;16:450. doi: 10.1186/s12889-016-3127-5

39. Gimeno-Feliu L, Magallon-Botaya R, Macipe-Costa R, Luzon-Oliver L, Canada-Millan JL, Lasheras-Barrio M. Differences in the use of primary care services between Spanish national and immigrant patients. *J Immigr Minor Health*. 2013;15:584-590.

40. Walsh J, Mahony R, Armstrong F, Ryan G, O' Herlihy C, Foley M. Ethnic variation between white European women in labour outcomes in a setting in which the management of labour is standardised-a healthy migrant effect? *BJOG.* 2011;118(6):713-718. doi: 10.1111/j.1471-0528.2010.02878.x

41. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav.* 1995;36(1):1-10.

42. Souliotis K, Golna C, Tountas Y, Siskou O, Kaitelidou D, Liaropoulos L. Informal payments in the Greek health sector amid the financial crisis: old habits die last... *Eur J Health Econ.* 2016;17(2):159-170. doi: 10.1007/s10198-015-0666-0

43. Bozorgmehr K, Razum O. Effect of restricting access to health care on health expenditures among asylum-seekers and refugees: a quasi-experimental study in Germany, 1994–2013. PLoS One. 2015;10(7):e0131483. doi:org/10.1371/journal.pone.0131483

44. Hu J. The role of health insurance in improving health services use by Thais and ethnic minority migrants. *Asia Pac J Public Health.* 2010;22(1): 42-50. doi:org/10.1177/1010539509351183

45. Kirby JB, Taliaferro G, Zuvekas SH. Explaining racial and ethnic disparities in health care. *Medical Care.* 2006;44 Suppl 5:S64-72. doi:10.1097/01.mlr.0000208195.83749.c3

46. Lillie-Blanton M, Hoffman C. The role of health insurance coverage in reducing racial/ethnic disparities in health care. *Health Aff (Millwood).* 2005;24(2):398-408. doi:10.1377/hlthaff.24.2.398

47. Agudelo-Suárez AA, Gil-González D, Vives-Cases C, Love JP, Wimpenny P, Ronda Pérez E. A metasynthesis of qualitative studies regarding opinions and perceptions about barriers and determinants of health services' accessibility in economic migrants. *BMC Health Serv Res.* 2012;12:461. doi: 10.1186/1472-6963-12-461

48. Hacker K, Anies M, Folb BL, Zallman L. Barriers to health care for

undocumented immigrants: a literature review. *Risk Manag Healthc Policy*. 2015;8:175-183. doi:10.2147/RMHP.S70173

49. Gimeno-Feliu LA, Calderón-Larrañaga A, Diaz E, Poblador-Plou B, Macipe-Costa R, Prados-Torres A. The healthy migrant effect in primary care. *Gaceta Sanitaria.* 2015;29(1):15-20. doi.org/10.1016/j.gaceta.2014.07.007

50. *Ministry of Health (in Greek).* http://www.moh.gov.gr/articles/ministry/grafeio-typoy/press-releases/ Published 2018. Accessed January 1, 2019.

51. FRA-European Union Agency for Fundamental Rights. Cost of exclusion from healthcare. The case of migrants in an irregular situation. Vienna, Austria: Publications Office of the European Union; 2015.

52. Borges D, Guidi CF. Rights of access to healthcare for undocumented migrants: understanding the Italian and British national health systems. *IJHRH*. 2018;11(4):232-243. doi.org/10.1108/IJHRH-01-2018-0006

53. Rosano A, Dauvrin M, Buttigieg SC, Ronda E, Tafforeau J, Dias S. Migrant's access to preventive health services in five EU countries. BMC Health Services Research. 2017;17(1):588. doi: 10.1186/s12913-017-2549-9

54. Economou C, Kaitelidou D, Karanikolos M, Maresso A. Greece: Health system review. Health Systems in Transition, 2017;19(5):1-192.

55. Economou C, Fouskas T, Sakellaropoulos T, Varsamides K. "Unhealthy" integration: Inequalities of immigrants' access to health services in Greece and policy recommendations for their elimination. *Nursing Care and Research*. 2014;40(3):214-235.

56. Ingleby D. *European Research on Migration and Health. Background paper developed within the framework of the IOM project "Assisting Migrants and Communities (AMAC): Analysis of social determinants of health and health inequalities"*. Geneva, International Organization for Migration; 2009.

57. Bernd R, Mladovsky P, Devillé W, Rijks B, Petrova-Benedict R, McKee M. 2011. Migration and health in the European Union: an introduction. In: Bernd R, Mladovsky P, Devillé W, Rijks B, Petrova-Benedict R, McKee M. Migration and health in the European Union. London, United Kingdom: Open University Press; 2011:3-17.

58. Muntinga M, Krajenbrink V, Peerdeman S, Croiset G,Verdonk P. Toward diversity-responsive medical education: taking an intersectionality-based approach to a curriculum evaluation. Adv Health Sci Educ Theory Pract. 2016;21(3):541-559. doi: 10.1007/s10459-015-9650-9

Table 1. Demographic characteristics of the participants

Characteristic	Migrants	Non-migrants	Test statistic	P value
Gender			Chi-square test	**<0.001**
Male	606 (52.6)	236 (33.6)		
Female	546 (47.4)	466 (66.4)		
Age[a]	37.6 (11.6)	44.0 (17.4)	Independent samples t-test	**<0.001**
Educational level			Chi-square trend test	**<0.001**
Elementary school graduate	227 (19.7)	105 (15.0)		
Junior high school graduate	288 (25.0)	61 (8.7)		
High school graduate	360 (31.3)	198 (28.2)		
Vocational training diploma	100 (8.7)	96 (13.7)		
Higher education degree	177 (15.4)	242 (34.5)		
Valid healthcare insurance booklet/card			Chi-square test	**<0.001**
Yes	732 (63.5)	642 (91.5)		
No	420 (36.5)	60 (8.5)		
Employed at the moment of the study			Chi-square test	**<0.001**

Yes	731 (63.5)	339 (48.3)		
No	421 (36.5)	363 (51.7)		
Permanent job			Chi-square test	0.3
Yes	424 (36.8)	241 (34.3)		
No	728 (63.2)	461 (65.7)		
Personal monthly income (€)[a]	407 (374)	656 (425)	Mann-Whitney test	**<0.001**
Family monthly income (€)[a]	623 (594)	1427 (1791)	Mann-Whitney test	**<0.001**
Difficulties in covering running costs (electricity, phone, shared bills etc)			Chi-square trend test	**<0.001**
Often	146 (12.7)	287 (40.9)		
Sometimes	310 (26.9)	198 (28.2)		
Rarely/almost never	636 (55.2)	174 (24.8)		
Difficulties in covering supermarket costs			Chi-square trend test	**<0.001**
Often	262 (22.7)	201 (28.6)		
Sometimes	305 (26.5)	226 (32.2)		
Rarely/almost never	504 (43.8)	228 (32.5)		
Self-estimation of health status today			Chi-square	0.6

			trend test	
Not at all good	42 (3.6)	30 (4.3)		
A little good	42 (3.6)	22 (3.1)		
Moderate	300 (26.0)	198 (28.2)		
Sufficiently good	451 (39.1)	276 (39.3)		
Very good	317 (27.5)	176 (25.1)		

Values are expressed as n (%) unless otherwise is indicated.

[a] mean (standard deviation)

Table 2. Bivariate analysis between independent variables and unmet pharmaceutical needs of patients with chronic diseases, unmet medical needs for health services during the last 12 months, and performance of a blood test during the last 24 months.

Independent variable	Unmet pharmaceutical needs		Test statistic	P-value	Unmet needs for health services during the last 12 months		P-value	Blood test during the last 24 months		P-value
	Yes	No			Yes	No		Yes	No	
Gender			Chi-square test	0.4			**0.001**			**<0.001**
Male	64 (38.1)	104 (61.9)			156 (18.5)	686 (81.5)		569 (67.6)	273 (32.4)	
Female	102 (33.8)	200 (66.2)			252 (24.9)	760 (75.1)		833 (82.3)	179 (17.7)	
Migrants			Chi-square test	**<0.001**			0.2			**<0.001**
No	64 (22.3)	223 (77.7)			166 (23.6)	536 (76.4)		608 (86.6)	94 (13.4)	
Yes	102 (55.7)	81 (44.3)			242 (21.0)	910 (79.0)		794 (68.9)	358 (31.1)	
Age[a]	45.8 (15.8)	53.4 (16.3)	Independent samples t-test	**<0.001**	41.6 (14.5)	39.6 (14.4)	**0.02**	41.3 (14.9)	39.2 (13.7)	**<0.001**
Educational level			Chi-square trend test	**0.01**			**0.04**			**<0.001**
Elementary school graduate	43 (35.5)	78 (64.5)			81 (24.4)	251 (75.6)		243 (73.2)	89 (26.8)	
Junior high school graduate	40 (51.9)	37 (48.1)			85 (24.4)	264 (75.6)		240 (68.8)	109 (31.2)	

High school graduate	48 (35.8)	86 (64.2)			121 (21.7)	437 (78.3)		400 (71.7)	158 (28.3)	
Vocational training diploma	10 (25.0)	30 (75.0)			40 (20.4)	156 (79.6)		163 (83.2)	33 (16.8)	
Higher education degree	25 (25.5)	73 (74.5)			81 (19.3)	338 (80.7)		356 (85.0)	63 (15.0)	
Valid healthcare insurance booklet/card			Chi-square test	**<0.001**			**<0.001**			**<0.001**
Yes	93 (25.5)	272 (74.5)			247 (19.4)	1029 (80.6)		1090 (85.4)	186 (14.6)	
No	73 (69.5)	32 (30.5)			161 (27.9)	417 (72.1)		312 (54.0)	266 (46.0)	
Employed at the moment of the study			Chi-square test	0.5			0.4			0.2
Yes	74 (37.2)	125 (62.8)			228 (21.3)	842 (78.7)		822 (76.8)	248 (23.2)	
No	92 (33.9)	179 (66.1)			180 (23.0)	604 (77.0)		580 (74.0)	204 (26.0)	
Permanent job			Chi-square test	**0.01**			**<0.001**			**<0.001**
Yes	34 (26.4)	95 (73.6)			103 (15.5)	562 (84.5)		548 (82.4)	117 (17.6)	
No	132 (38.7)	209 (61.3)			305 (25.7)	884 (74.3)		854 (71.8)	335 (28.2)	
Personal monthly income (€)[a]	435 (1038)	697 (472)	Mann-Whitney test	**0.001**[e]	427 (379)	504 (519)	**0.009**	540 (526)	336 (342)	**<0.001**
Family monthly income (€)[a]	563 (568)	1203 (1295)	Mann-Whitney	**<0.001**[e]	749 (615)	904 (1287)	**0.001**	998 (1269)	482 (690)	**<0.001**

			test							
Difficulties in covering running costs (electricity, phone, shared bills etc)			Chi-square trend test	**<0.001**			**<0.001**			**<0.001**
Often	116 (47.2)	130 (52.8)			239 (25.9)	684 (74.1)		634 (68.7)	289 (31.3)	
Sometimes	33 (28.0)	85 (72.0)			100 (19.7)	408 (80.3)		432 (85.0)	76 (15.0)	
Rarely/almost never	11 (13.9)	68 (86.1)			53 (16.6)	267 (83.4)		271 (84.7)	49 (15.3)	
Difficulties in covering supermarket costs			Chi-square trend test	**<0.001**			**<0.001**			**<0.001**
Often	99 (52.1)	91 (47.9)			180 (25.5)	525 (74.5)		460 (65.2)	245 (34.8)	
Sometimes	39 (27.9)	101 (72.1)			128 (24.1)	403 (75.9)		444 (83.6)	87 (16.4)	
Rarely/almost never	21 (19.6)	86 (80.4)			76 (15.5)	414 (84.5)		422 (86.1)	68 (13.9)	
Self-estimation of health status today			Chi-square trend test	**<0.001**			**<0.001**			0.3
Not at all good	23 (60.5)	15 (39.5)			21 (29.2)	51 (70.8)		47 (65.3)	25 (34.7)	
A little good	22 (59.5)	15 (40.5)			24 (37.5)	40 (62.5)		43 (67.2)	21 (32.8)	
Moderate	76 (35.2)	140 (64.8)			135 (27.1)	363 (72.9)		376 (75.5)	122 (24.5)	
Sufficiently good	37 (25.9)	106 (74.1)			159 (21.9)	568 (78.1)		579 (79.6)	148 (20.4)	
Very good	8 (22.2)	28 (77.8)			69 (14.0)	424 (86.0)		357 (72.4)	136 (27.6)	

Values are expressed as n (%) unless otherwise is indicated.

[a] mean (standard deviation)

Table 3. Multivariate logistic regression analysis with the following dependent variables: unmet pharmaceutical needs, unmet medical needs for health services during the last 12 months, and blood test during the last 24 months.

Dependent variable *Independent variable*	**Odds ratio**	**95% confidence interval for odds ratio**	**P-value**
Unmet pharmaceutical needs			
Valid healthcare insurance booklet/card (yes: reference category)	3.40	1.87 to 6.20	<0.001
Migrants (non-migrants: reference category)	2.41	1.41 to 4.11	<0.001
Family monthly income (0-200€: reference category)[a]			<0.001
>1200€	0.20	0.08 to 0.50	
801-1200€	0.29	0.14 to 0.61	
201-800€	0.52	0.24 to 1.11	
Not at all good/a little good/moderate self-estimation of health status (sufficiently good/very good: reference category)	1.71	1.03 to 2.85	<0.001
Unmet medical needs for health services			
Valid healthcare insurance booklet/card (yes: reference category)	1.49	1.15 to 1.93	<0.001
Females (males: reference category)	1.62	1.27 to 2.05	<0.001

Employed at the moment of the study (yes: reference category)	1.74	1.31 to 2.30	<0.001
Permanent job (yes: reference category)	2.23	1.64 to 3.03	<0.001
Not at all good/a little good/moderate self-estimation of health status (sufficiently good/very good: reference category)	1.60	1.27 to 2.02	<0.001
Blood test			
Valid healthcare insurance booklet/card (no: reference category)	4.00	3.16 to 5.07	<0.001
Non-migrants (migrants: reference category)	1.81	1.38 to 2.37	<0.001
Females (males: reference category)	1.74	1.38 to 2.20	<0.001

[a] Family monthly income transformed in an ordinal variable according to quartiles (25º percentile: 200€, 50º percentile: 800€ and 75º percentile: 1200€).

Appendix A. Study questionnaire

NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS

FACULTY OF NURSING

CENTER FOR HEALTH SERVICES MANAGEMENT AND EVALUATION

The present study is investigating the access of immigrants to health services in Greece and is conducted for research purposes only. The completion of the questionnaire is strictly anonymous and personal data are not asked of the participants. Participant personal data will not be published and no one will know the identity of the participants. Please use ☒ to mark your answers.

Thank you for participating in this study!

Place of data collection:.....

Date:.....

1. Please identify your gender

☐ Male ☐ Female

2. What is your year of birth? .....

3. What is your country of birth?.....

4. How long have you been living in Greece in total?

_____ years and _____ months

5. Do you have a healthcare insurance booklet/card?

Yes ☐ No ☐

Is your healthcare insurance booklet/card currently valid?

Yes ☐ No ☐

6. In Greece, you currently live:

Alone..... ☐

With a spouse/partner..... ☐

7. How many children do you have?.....

8. Which is the highest level of education you have completed?

Elementary school graduate..... ☐

Junior high school graduate..... ☐

High school graduate..... ☐

Vocational training diploma..... ☐

Higher education degree..... ☐

Other (please specify)..... ☐

9. How many people live in the same house with you?.....

10. The people who live in the same house with you are: (you can mark more than one answers)

Your spouse/partner..... ☐

Your children..... ☐

Other relatives..... ☐

Friends..... ☐

Your employer and his/her family..... ☐

Co-workers..... ☐

Other (please specify)..... ☐

11. In the present moment:

I pay my housing rent with my own money..... ☐

I do not pay rent..... ☐

My employer pays my rent..... ☐

I am homeless..... ☐

Other (please specify)..... ☐

12. Which floor do you live in?

Basement..... ☐

Ground floor..... ☐

First floor or above..... ☐

13. During the winter months, was your residence sufficiently heated?

Not at all	A little	Moderately	Sufficiently	Very much
▼	▼	▼	▼	▼
☐	☐	☐	☐	☐

14. Are you employed at this moment?

Yes ☐ No ☐

15. Do you have a permanent job?

Yes ☐ No ☐

16. Do you have a full-time job?

Yes ☐ No ☐

17. In Greece, what is your job?.....

18. What is your net monthly income?.....euros

19. What is the monthly income of your family in Greece?.....euros

20. Do you believe that your relatives in Greece are sufficiently supportive of you?

Yes ☐ No ☐

21. Do you believe that your friends in Greece are sufficiently supportive of you?

Yes ☐ No ☐

22. Do you have residence permit documents for Greece?

Yes ☐ No ☐

23. During the last 6 months, how often would you say that you have faced difficulties in covering each of your following household needs?

	Often	Sometimes	Rarely/almost never	I don't know/I don't answer
Running costs (Electricity, phone, shared bills etc)	☐	☐	☐	☐
Loan installment	☐	☐	☐	☐
Minimum credit card installment	☐	☐	☐	☐
Car installment	☐	☐	☐	☐
Residence rent	☐	☐	☐	☐
Tutorials tuition	☐	☐	☐	☐
Clothing and footwear costs	☐	☐	☐	☐
Supermarket costs	☐	☐	☐	☐

24. How would you describe your ability to:

	Very bad	Bad	Moderate	Good	Very good
Understand Greek	☐	☐	☐	☐	☐
Speak Greek	☐	☐	☐	☐	☐
Read Greek	☐	☐	☐	☐	☐
Write Greek	☐	☐	☐	☐	☐
Understand English	☐	☐	☐	☐	☐
Speak English	☐	☐	☐	☐	☐
Read English	☐	☐	☐	☐	☐
Write English	☐	☐	☐	☐	☐

25. How good would you characterise in general the state of your health today?

Not at all	A little	Moderate	Sufficiently	Very good
☐	☐	☐	☐	☐

26. Compared to a year ago, how would you characterise in general the state of your health today?

Much worse	Worse	The same	Better	Much better
☐	☐	☐	☐	☐

27. Do you smoke?

Yes ☐

Ex-smoker ☐

No ☐ *(if No, please go to question 30)*

28. Approximately how many cigarettes do you smoke/smoked per day?.....

29. How many years have you been smoking/smoked in the past?.....

30. How many hours do you exercise per week?.....

31. How many glasses of alcoholic beverages (e.g. beer, wine, whisky etc) do you consume in a week?.....

32. Do you suffer from the following diseases? (you can mark more than one) *(If the answer is NO to all, please go to question 35)*

Hypertension..... ☐

Asthma..... ☐

Diabetes..... ☐

Cardiovascular disease..... ☐

Diseases of the gastrointestinal tract..... ☐

Psychiatric disease..... ☐

Sexually transmitted disease..... ☐

Malaria..... ☐

Hepatitis B..... ☐

Tuberculosis..... ☐

Other (please specify)..... ☐

33. Do you receive medication(s) for a chronic disease?

Yes ☐ No ☐

34. Have there been times when you didn't receive your medication because you couldn't buy it?

Yes ☐ No ☐

35. During the last two years, have you done any of the following health tests? (You can select more than one).

	Has been measured and was normal	Has been measured and was abnormal	Has not been measured	Has been measured but I do not know whether it was normal or not
Complete blood count				
Blood pressure				
Cholesterol				
Blood sugar				
Pap smear (for women only)				
Mammography (for women only)				
Prostate examination (for men only)				

36. Have you been ill during the last 12 months?

Yes ☐ No ☐

If yes, what was your illness?.....

What did you do to manage this illness?

I visited a private physician in Greece..... ☐

I visited a private physician from my country..... ☐

I visited a private physician in Greece who is contracted with my healthcare insurance organisation..... ☐

I visited a physician in my country..... ☐

I visited the Accidents and Emergency Department of a public hospital..... ☐

I visited a municipal health clinic..... ☐

I visited the National Organisation for Health Care (EOPYY), (former IKA), of my district..... ☐

I visited a non-governmental organization health clinic..... ☐

I consulted a pharmacist..... ☐

I consulted my friends..... ☐

I consulted my family..... ☐

I consulted my employer..... ☐

I consulted an immigrant association..... ☐

I telephoned a doctor in my country..... ☐

I did nothing/I waited for it to pass on each own..... ☐

Other (please specify)..... ☐

37. Have you suffered any injury (e.g. fracture, burn, laceration/skin cut) over the past 12 months?

Yes ☐ No ☐

Did this injury happen during your work hours?

Yes ☐ No ☐

Did this injury happen during a violent assault against you?

Yes ☐ No ☐

What did you do to manage this injury?

I visited a private physician in Greece..... ☐

I visited a private physician in my country..... ☐

I visited a pharmacist..... ☐

I visited a non-governmental organization health clinic..... ☐

I visited the Accidents and Emergency Department of a public hospital..... ☐

I visited a private hospital..... ☐

I did nothing..... ☐

Other (please specify)..... ☐

38. Over the past 12 months, have you visited the Accidents and Emergency Department of a public hospital?

Yes ☐ No ☐ *(If No, please go to question 40*

If yes, how many times?.....

What was the reason?.....

39. During this visit, have you faced any difficulties?

Not at all	A few	Moderate	Rather much	A lot
☐	☐	☐	☐	☐

If you faced difficulties, what was it about? (You can mark more than one)

Communication difficulties..... ☐

Complicated bureaucratic procedures..... ☐

The health professionals did not pay any attention to me..... ☐

They did not inform me about my health problem..... ☐

High cost..... ☐

Other (please specify)..... ☐

40. Over the past 12 months, have you visited any public hospital outpatient clinics?

Yes ☐ No ☐ *(If No, please go to question 44)*

If Yes, how many times?.....

41. During this visit, have you faced any difficulties?

Not at all	A few	Moderate	Rather much	A lot
☐	☐	☐	☐	☐

If you faced difficulties, what was it about? (You can mark more than one)

Communication difficulties..... ☐

Complicated bureaucratic procedures..... ☐

The health professionals did not pay any attention to me..... ☐

They did not inform me about my health problem..... ☐

High cost..... ☐

Other (please specify)..... ☐

42. During this visit, was the waiting time long?

Not at all	A little	Moderate	Rather long	Very long
☐	☐	☐	☐	☐

43. During this visit, did you pay a bribe/"under the table" illegal payment?

Yes ☐ No ☐

If Yes, how much did you pay?.....

44. Over the past 12 months, have you been hospitalised in a public hospital?

Yes ☐ No ☐ *(If No, please go to question 49)*

If Yes, how many times?.....

What was the reason of your hospitalisation?.....

45. During this hospitalisation, have you faced any difficulties?

Not at all	A few	Moderate	Rather much	A lot
▼	▼	▼	▼	▼
☐	☐	☐	☐	☐

If you faced difficulties, what was it about? (You can mark more than one)

Communication difficulties..... ☐

Complicated bureaucratic procedures..... ☐

The health professionals did not pay any attention to me..... ☐

They did not inform me about my health problem..... ☐

High cost..... ☐

Other (please specify)..... ☐

46. In order to be admitted to the hospital, was the waiting time long?

Not at all	A little	Moderate	Rather long	Very long
▼	▼	▼	▼	▼
☐	☐	☐	☐	☐

47. With regards to your hospitalisation in a public hospital, did you pay the legal participation fee, if applicable?

Yes ☐ No ☐

48. During your hospitalisation in a public hospital, did you pay a bribe/"under the table" illegal payment?

Yes ☐ No ☐

If Yes, how much did you pay?.....

49. Over the past 12 months, have you visited a private physician?

Yes ☐ No ☐

If Yes, how many times?.....

If yes, why?

My healthcare insurance booklet/card was not valid..... ☐

Long waiting times in the public health services ..... ☐

The private physician offers better quality of services..... ☐

Other (please specify)..... ☐

50. Over the past 12 months, have you visited a private dentist?

Yes ☐ No ☐

If Yes, how many times?.....

If yes, why?

My healthcare insurance booklet/card was not valid..... ☐

Long waiting times in the public health services..... ☐

The private dentist offers better quality of services..... ☐

Other (please specify)..... ☐

51. Over the past 12 months, have you visited a private hospital/clinic?

Yes ☐ No ☐

If yes, why?

My health insurance booklet/card is not valid..... ☐

Long waiting times in the public health services..... ☐

The private hospital/clinic offers better quality of services..... ☐

Other (please specify)..... ☐

52. Over the past 12 months, was there a time when you needed to use healthcare services but you couldn't?

Yes ☐ No ☐ *(If No, please go to question 55)*

53. Which of the following services you couldn't use? (You can mark more than one)

Private physician..... ☐

Private dentist..... ☐

Diagnostic tests, etc..... ☐

Hospitalisation..... ☐

Surgical procedure in a hospital..... ☐

54. What were the most important reasons for not being able to use health services? (You can mark up to three answers)

I did not know where to go.....☐

My employer did not give me permission.....☐

I had no time.....☐

I couldn't book an appointment.....☐

High cost.....☐

The behaviour of health professionals.....☐

The long waiting times.....☐

I did not have a valid healthcare insurance booklet/card.....☐

I was afraid that I would face problems with the police authorities.....☐

I had trouble communicating and reaching an understanding.....☐

Other (please specify).....☐

55. Over the past 12 months, was there a time where you needed medications, but you couldn't obtain them?

Yes ☐ No ☐ *(If No, please go to question 57)*

56. What were the most important reasons for not being able to obtain the medications that you needed? (You can mark up to three answers)

I believed that the medication was not necessary.....☐

I had no time.....☐

I did not know where to find the medication.....☐

I had no money.....☐

Other (please specify).....☐

57. The following questions are related to the public healthcare services. In the following questions please mark with X the answer that best describes your opinion.

	Not at all	A little	Moderately	Sufficiently	A lot
How well do you know the available healthcare services?	☐	☐	☐	☐	☐
How well do you know your rights regarding the use of healthcare services?	☐	☐	☐	☐	☐
Do you believe that the cost of healthcare services forms a barrier preventing their use?	☐	☐	☐	☐	☐
Do you believe that the healthcare system is complex?	☐	☐	☐	☐	☐
How much do you trust healthcare professionals?	☐	☐	☐	☐	☐
How satisfied are you with the behaviour of the healthcare professionals?	☐	☐	☐	☐	☐
How satisfied are you with the behaviour of the healthcare services administrative staff?	☐	☐	☐	☐	☐
How satisfied are you with the healthcare services quality?	☐	☐	☐	☐	☐
How satisfied are you with the healthcare services cost?	☐	☐	☐	☐	☐

58. What further information would you like to receive, because your current knowledge does not meet your needs? (You can mark up to three)

Information about my healthcare insurance/National Organisation for Health Care (EOPYY) ..... ☐

Information about my rights to use healthcare services..... ☐

Information about access to hospitals (e.g. location, transport)..... ☐

Information about access to primary health care..... ☐

Information about access to general practitioners or pathologists..... ☐

Information about the cost of visiting a doctor or a healthcare service..... ☐

Other (please specify)..... ☐

59. Do you believe that YOUR access to public healthcare services is worse compared to Greeks?

Yes ☐ No ☐

With regards to healthcare services in Greece

What difficulties did you face?

.....

.....

.....

.....

What did you find helpful?

.....

.....

.....

.....

What do you think would be helpful to you?

.....

.....

.....

.....

Thank you very much for your participation!

Biographical notes

Kaitelidou Daphne is Associate Professor on Health Services Management and Policy, in Department of Nursing, National and Kapodistrian University of Athens (full time academic staff) since 2005 and Director of Center for Health Services Management and Evaluation since 2011. Since 2002 she lectures in a Health Services Management graduate course at the University of Athens (Master in Health Services Management) and has also worked as a Contractual Academic Staff at the Greek Open University and Open University of Cyprus. Over the last 10 years she has worked as a Researcher in the Center for Health Services Management and Evaluation, University of Athens. She has participated in many Greek and International Projects (over 40) and published many articles in national and international level. Her main research interests lie in the areas of health management, health policy, health economics and technology assessment, performance measurement of health services and human resources management.

Petros Galanis has a PhD degree at Public Health and since 2008 he has worked as a research fellow in Department of Nursing, National and Kapodistrian University of Athens and in particular in the Center for Health Services Management and Evaluation. He is a registered nurse and he has a Master's degree in Public Health. He is coauthor in over 150 publications in peer reviewed journals with over 900 citations on his work. Also, he has written the following 7 books in Greek: (a) Epidemiology I, (b) Essays in Epidemiology, (c) Textbook of Epidemiology, (d) Clinical and Epidemiological Research, (e) Data analysis methodology in health sciences. Applications with IBM SPSS Statistics, (f) Writing and publication of papers in health sciences, (g) Research Methodology in Health Sciences. He participated in National

and International research projects (e.g. (a) The detection, transcription, and analysis of inequalities to healthcare access for immigrants living in Greece, (b) Support to the Ministry of Health of Greece in developing the tools for conducting periodic user satisfaction surveys in public health care facilities, (c) The accessibility of vulnerable groups to health services in Greece etc.).

Charalambos Economou is Professor of Health Policy and Sociology of Health in the Department of Sociology of Panteion University of Social and Political Sciences, Athens. His teaching and research activities, and his publications concern social policy, supranational social policies, European social policy, social exclusion, health policy and sociology of health. He has participated in many international and national research projects and he is collaborating with international organizations (OECD, WHO) and research centres (European Observatory on Health Care Systems, LSE).

Philipa Mladovsky is Assistant Professor in International Development. Her research interests include universal health coverage, health care financing, equity in access to health care, migrant and refugee health and the impact of the financial crisis on health systems. She is leader of the "Global Health and Development" course at the LSE. Between 2011 and 2014 she was scientific coordinator of Health Inc. (Financing health care for inclusion), a large EU funded research project which explored how social exclusion restricts access to health services despite recent health financing reforms in Ghana, Senegal and the Indian states of Maharashtra and Karnataka. She has published extensively in major refereed journals and has also coordinated, authored and edited several studies published by the World Health Organization and the European Observatory on Health Systems and Policies. Philipa completed a PhD at the LSE, focusing on community-based health insurance and social capital in

Senegal. This research was part of an ongoing collaboration with the Institute of Tropical Medicine in Antwerp. She has an MSc from the LSE in Health, Population and Society and a BA Hons in Social Anthropology from Cambridge University. Before joining the LSE, Philipa was a Technical Officer at the World Health Organization in Geneva.

Olga Siskou RN, MSc, PhD is a Senior Researcher, in the Center for Health Services Management and Evaluation in the Department of Nursing at the National and Kapodostrian University of Athens (since 12/2002). She is also working as a Contractual Academic Staff at Open University of Cyprus (since 2008). With more than10 years of public health experience, she was the Deputy National Representative at OECD Health committee (12/2008-9/2016). The period 02/2011-02/2012 she was member of the Scientific Technical Supportive Secretariat of Independent Group of Experts for Health Sector. She has participated in many Greek and International Projects and published many articles in national and international level. Indicative projects she participated as working group co-ordinator are the following: Study for the re-constructure of NHS Hospitals in Greece (2010-2011). Entrusting Body: Ministry of Health and Social Solidarity; Study for the implementation of the OECD System of Health Accounts (2011-2013, Funded by EU and National funds). The period 2013- 2016 she participated as country expert in the HEDIC (Health Expenditures by Diseases and Conditions) European project funded by Eurostat.

Panayota Sourtzi is Professor in Occupational Health Nursing at the Sector of Public Health, Department of Nursing, National and Kapodistrian University of Athens, Greece. She has experience in OHN practice in Greece and the UK. Her research interests focus on health promotion of adult and vulnerable populations, such as migrants, as well as on occupational risks in all sectors of activity. She has published

numerous articles in the field of occupational health and health promotion in Greek and International scientific Journals. She has also authored books and chapters in books related to OH in general and OH for health care professions in Greece and in international editions.