The Link between Documentation Status, Occupation Status, and Healthcare Access for African migrants: Evidence from Kenya, Nigeria, and South Africa

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The link between migrants' legal and employment status, access to health and health outcomes is widely explored in the academic literature on migration and health. However, there are few, if any, studies examining this link within African states. In this article we present survey data collected from refugees and people in refugee-like situations in Kenya, regular (labor) migrants in Nigeria, and irregular migrants in South Africa to examine the link between registration status, employment or occupation status, gender, and (perceptions of) access to healthcare. A range of statistical tests and models were applied to examine the effects of these different characteristics. A consistent finding throughout the three sample countries is that access for people without any documentation is lower than other groups, not only by means but also within the linear models. This strongly suggests that extending regularization pathways in African states, even if on a temporary basis, would be an effective policy lever to improve migrants' access to healthcare, and by extension migrants' health. However, the effects of employment status and gender on access to healthcare were more ambiguous, and further research in African contexts is required to clarify their impact.

Keywords: migration, access to healthcare, Africa, African Union, refugees, regular migrants, irregular migrants, health policy, migration policy, health systems, migrant registration status

INTRODUCTION

The impact of migration on health, and of the link between migrants' health status and their registration status is an area of growing interest and importance amongst scholars and policy-makers alike. There is already a substantial body of literature that examines the linkages between migrants' health outcomes, and states' migration policies, especially where these are restrictive or exclusionary, as well as the impact of registration status on health outcomes and access to health services (see, inter alia, Juárez et al., 2019, Wickramage et al., 2019).

However, as Castañeda et al. (2015) note, the vast majority of these articles focus on migrants' health or access to health in high-income countries, with only 3% covering the World Health Organization (WHO) African region. Moreover, many also consider the impact of exclusionary, xenophobic, or racist policies and practices on migrants to high- or medium-income countries from other regions (Martinez et al., 2015; Venkataramani et al., 2017; Filges et al., 2018). Whilst this is an important area for further research and for policy focus, and there is undoubtedly some evidence of xenophobic or racist attitudes towards African migrants in other African countries, it is likely that this is mediated and experienced differently in intra-African rather than extra-African migration contexts (cf. Crush and Ramachandran, 2009; Akinola, 2018; King, 2019).

In this article we consider the impact of African migrants' registration status on migrants' own perceived health status in Kenya, Nigeria, and South Africa, based on primary data collection in these countries. The goal of this article is to identify differences of health access based on different characteristics. This informs our research question, which is, "does gender, occupation or documentation status affect perceived access to healthcare among migrants?"

It is often assumed that migrants' registration status affects their health and access to health services, and data from other regions supports this hypothesis, which has also underpinned advocacy efforts from international agencies and non-governmental organizations (NGOs) for increased regularization of migration (Kossoudji, 2016; Kraler, 2019; Freier, 2020). Logically and experientially, this would appear to be the case, but we were interested to test this assumption by analyzing data from different sub-categories of migrants in three heterogeneous African contexts.

In 2020, a research team at the Centre for Rural Development (SLE) at the University of Humboldt in Berlin undertook a research project for the African Union Commission (AUC) and the Gesellschaft für Internationale Zusammenarbeit (GIZ) examining migration and health policy and practice across Africa. The objective of this research was to survey migration and health policy and practice at the continental, regional, and national levels. This was complemented and enriched by primary data collection in Kenya, Nigeria, and South Africa from migrants and refugees, health workers, as well as regional and national officials from the African Union (AU) and agency staff from the United Nations (UN).

The project was divided into two main phases of data collection. The first

phase comprised of a scoping study of relevant policy and governance frameworks for migration and health at the continental, regional, and Member State levels (15 AU MSs were selected, three from each of the five African regions), as well as a literature review of relevant scientific and academic literature. The second phase comprised of primary data collection on three migrant sub-groups in three African countries: refugees and people in refugee-like situations in Kenya; regular (labor) migrants in Nigeria; and undocumented migrants in South Africa (AUC and SLE, forthcoming). Primary data collection included surveys of the migrant sub-groups in each of the three countries, complemented by semi-structured key informant interviews and focus group discussions with migrants, government officials, and health workers in each country (AUC and SLE, forthcoming).

A review of available secondary data identified in the study showed that there is a lack of research on intra-African migration patterns and trends, especially at the regional and continental levels, and a lack of routine data collection on migrants' health, specifically (AUC and SLE, forthcoming). Primary data collected in the second phase of the study indicated that migrants from all three sub-categories reported being in good health before their departure from their country of origin, upon arrival in their country of settlement, and at the time of data collection (AUC and SLE, forthcoming). It also suggested a positive correlation between health status and access to health services, and between registration status and health status (AUC and SLE, forthcoming).

In addition, the data showed that the majority of respondents enjoyed at least a degree of social coverage – i.e., they were able to access some health services – in the three countries concerned, either as a result of their registration status (in Nigeria and Kenya) or due to policies and programs that enable undocumented migrants to access health services (in South Africa and Kenya) (AUC and SLE, forthcoming).

In this article we seek to examine the effects of registration status on respondents' perceived (perceptions of) health status through statistical analysis of the survey data collected from the three study countries. We argue that across these heterogeneous contexts the data shows that registration status, even temporary registration, has an impact on migrants' health as well as their access to healthcare. Our discussion about these characteristics will be enriched by additional data about potential variations. We hope that policy-makers will find this evidence useful for more informed decision-making to enhance health access for migrants.

The structure of this article is as follows: first we present key theoretical frameworks on migration and health, and an overview of migration and health policy and practice in the three study countries; we also provide a common understanding of the most important terms in this paper by defining them and briefly presenting drivers for them. Second, we describe the data collection process and its analysis along with the methodology. Third, we present the findings within the data. This is followed by a broader discussion, which informs the recommendations and conclusion of this article.

THEORETICAL BACKGROUND AND DEFINITIONS

In this section we explore the theoretical background and common understanding of migrants' health status and access to healthcare. We also define and discuss key terms used.

Theoretical frameworks on migration and health

The systematic scoping review of the literature conducted as part of the AUC/SLE study identified the main theoretical frameworks used in research on migration and health. Perhaps the two most common of these – othering and health inequalities approaches, and cultural frameworks / acculturation hypotheses – are widely found in the literature and have influenced both research and policy-making in migration over recent decades (Hossin, 2020).

In the first of these, migrants (among other social minority or out-groups) are affected, as Grove and Zwi (2006: 1931) argue, by a "a variety of mechanisms by which refugees, asylum seekers and irregular migrants are positioned as 'the other' and are defined and treated as separate, distant and disconnected from the host communities in receiving countries". Different migrant sub-groups are further affected in this regard, for example "othering effects" are likely to be experienced more severely by forced migrants or refugees (Grove and Zwi, 2006: 1931).

In the second of these models, cultural differences (which also influence lifestyle and other factors underpinning health) affect migrant groups, with health effects and inequalities in theory reducing as acculturation in the country of destination increases over time, whether in a migrant's lifetime or across generations (Viruell-Fuentes, 2007).

Acculturation models have been criticized for their inability to adequately address the structural underpinnings of culture, race, and racism, as well as potentially problematic constructions of 'acculturation', which is sometimes seen in rather binary terms (Hossin, 2020). Indeed, one argument for using structural or othering and health inequalities approaches is that these are better able to account for structural factors underpinning health inequalities (Ingleby et al., 2019). However, both frameworks described above were largely developed out of research into patterns of migrant health and immigrant experience in the Global North, which may limit their applicability in other contexts (Wickramage et al., 2018).

The global strategic frameworks for health and development (notably the Sustainable Development Goals (SDGs), but also for our purposes the Global Compacts on Refugees and Safe, Orderly, and Regular Migration) are grounded in a 'leave no-one behind' approach to public health and give expanding Universal Health Coverage (UHC) a central role in improving health outcomes for all (UNGA, 2017; UN, 2018). There is a significant body of public health research and policy-making on using rights-based approaches to identify and reduce health inequalities, often to achieve better health outcomes (Lougarre, 2016). Rights-based approaches have thus

influenced research, policy formulation, and implementation in the development sector, including migration and migrants' health (Sweileh et al., 2018). Rights-based approaches can be especially valuable in relation to health advocacy for migrants, who are often excluded from UHC (whether wholly or in part) when this is interpreted to pertain to national citizens only (Abubakar et al., 2018).

Social determinants of health (SDH) approaches are favored by the WHO and the International Organization for Migration (IOM), and stress that definitions of health need to incorporate the broader social dimensions underpinning health, such as (access to) employment, education, family status, etc. (WHO, 2011; Braveman and Gottlieb, 2014; Wallace et al., 2018). Moreover, migration itself is increasingly seen as a determinant of health (Davies et al., 2009; IOM, 2017; Chung and Griffiths, 2018). However, SDH approaches have been criticized for inadequately considering migration (especially in their earlier iterations), and for focusing on socio-economic status at the expense of other determinants such as race, gender, and legal status (Ingleby et al., 2019).

A further set of theoretical frameworks revolve around the health status of migrants and how migration affects migrants' health before, during, and after the migration journeys. One common example cited above is the 'selectivity model', often described as the 'healthy migrant effect', which posits that migrants as a self-selecting group tend to be healthier than those who do not migrate (Constant et al., 2018). Another framework, and in some ways its reverse image, is the 'negative impacts' model, which looks at the negative health impacts of migration in the home country pre-departure (such as malnutrition), difficult migration processes (such as forced migration or risky journeys), and difficult conditions in the country of residence or transit (such as lack of employment) (Attanapola, 2013).

More recently, intersectional approaches have become popular due to their usefulness in exploring inequalities in and between social groups, and their suitability for explaining inequalities in health status among groups, especially migrants (Viruell-Fuentes et al., 2012; Green et al., 2017). These originated in black feminist scholarship and consider the multiple ways in which aspects of an individual's identity – such as race, class, or gender – intersect to affect their life experiences (Carbado et al., 2013). Hossin (2020: 4) notes that "conventional structural and cultural frameworks have limited utility in explaining the multifactorial health disadvantages" faced by migrants, and argues that intersectionality can incorporate and highlight both pre- and post-migration contextual factors affecting migrants' health.

The two principal approaches to incorporating intersectionality in social research identified in the literature are the traditional fixed effects approach, which examines interactions between social categories or variables, and more complex multilevel models, such as the Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA) approach (Evans et al., 2020). While the former is best suited to research where the number of aspects of identity and other variables under consideration are relatively limited, the latter is preferred for where

the number of identity and other variables under consideration is large (Green et al., 2017).

Wickramage et al. (2019) argue that a focus on migrants' health according to different typologies of migrants is essential to understand the complex interlinkages between international (and internal) migration and health, and to avoid the exceptionalization of migration and migrants. They propose two areas of research focus: (a) exploring health issues across various migrant typologies; and (b) improving understanding of the interactions between migration and health to achieve better public health for all (Wickramage et al., 2019).

KEY TERMS AND DEFINITIONS

Migrants

For the purpose of this article, we use the umbrella term 'migrant', which even though it has no universal legal definition, reflects the common understanding of a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons (IOM, 2018: 132). However, this article does not consider 'internal migrants', including internally displaced people and rural-urban migrants in-country, as the focus of the research is on transnational intra-African migrants.

The main groups of interest to this article were international regular (labor) migrants, refugees, as well as irregular migrants and people in refugee-like situations, in Nigeria, Kenya, and South Africa. Table 1 in the Appendix sets out definitions used (adapted from Zimmerman et al., 2011). It should also be noted that these categories are not necessarily constant. People's status and categorization imposed on them by international law and states' application of these may change repeatedly on their journeys, a phenomenon which is increasingly termed 'mixed migration' (Mixed Migration Centre, 2021).

Migrants and refugees are often marginalized in their communities and countries of settlement and can face multiple barriers in accessing entitlements and services (O'Donnell et al., 2016; Mphambukeli and Nel, 2018). Reasons for this can include having a different mother tongue, differing cultural backgrounds, restrictive policy environments, or just the challenges of adapting to living in a new society (Flahaux and De Haas, 2016; Helgesson et al., 2019). Disadvantages may be intensified depending on the manifestation of other characteristics, such as gender, documentation status, or occupational situation.

Access to healthcare

Economic accessibility, also referred to as affordability,

> … is a measure of people's ability to pay for services without financial hardship. It takes into account not only the price of the health services but also indirect

and opportunity costs (e.g., the costs of transportation to and from facilities and of taking time away from work) (Evans, Hsu, and Boerma, 2013:1).

Accessibility of healthcare can also refer to the appropriateness of service provision to specific groups (e.g., whether services or information are available in community languages commonly used by service users). Information accessibility also refers to "the right to seek, receive and impart information and ideas concerning health issues" without compromising patient confidentiality (WHO, 2002: 13).

Access to healthcare may reflect how well a group is embedded in society. If variations arise based on socio-demographic characteristics, it may be considered as unequal treatment (Nørredam and Krasnik, 2011). Many possible proxies could be used to measure health access, for example clinical measurements such as mortality (e.g. excess deaths) or length of stays in clinics (Nørredam et al., 2007). However, such approaches require large samples to control for all necessary covariates that influence health access.

Besides access to the health system, the need for migrant-sensitive health systems has been identified as necessary by the 61st World Health Assembly (WHO, 2018a). Therefore, workforce training (e.g., about mental health issues) or, reduction of barriers such as communication, may enhance the perceived health access (WHO, 2018a).

The notion of access to healthcare used within this study is based on self-perception. Therefore, migrants were asked to rate their access to health on a scale from 1 (=non-existent) to 10 (perfect) (see Appendix 5). The use of this measurement of health access makes the migrants' voices heard. At the same time, it is important to note that it cannot be seen as completely objective. To assess health access, survey participants were asked the question, "How do you rate the general access to healthcare provision where you currently live? (10=excellent, to 1=non-existent)" as an indicator of health access.

Gender

Female migrants can be more vulnerable than other groups. Examples are the exploitation in low-paid domestic work or trafficking (WHO, 2018c). A bias exists as most data is based on men and thereby health needs of women are neglected (Perez, 2019). As a result, humanitarian action or laws can be designed for male migrants rather than for females. For example, the support of women who have become victims of gender-based violence along the migration route, is likely to be disregarded as there are few, if any, safe or private spaces to share their stories or complaints (Women's Refugee Commission, 2016). Furthermore, the majority of victims of human trafficking are females (UNODC, 2009: 11). Thus, health needs of women are different and not always adequately met. This is why, the SDG 5 is focused on gender equality and indicator 5.2.2 measures the violence against women and girls (UNDESA, 2020).

Occupation

Health disparities may arise based on migrants' occupation or employment status. Moyce and Schenker (2018) emphasize environmental exposure (e.g. pesticides), working conditions (e.g. physical hazards) or trafficking and forced labor in general as potential disadvantages. Hargreaves et al. (2019) conclude that because of such existing higher risks, accessible and affordable healthcare are important to cope with special health needs. In line with this, SDGs 8.7 and 8.8 aim to prevent human trafficking and to protect labor rights, respectively (UNDESA, 2020).

Documentation status

The legal status granted to different sub-groups of migrants by states, often on the basis of their reasons for migrating and their migration journeys, defines their residence status. Potential groups of migrants in this category will be people with permanent documentation (e.g. labor migrants), migrants with temporary documents (e.g. refugees, asylum seekers or students) and migrants without a legal status (e.g. undocumented migrants).

International and national laws categorize migrants into different groups, giving them different rights in their countries of residence (AUC and SLE, forthcoming). The application of these laws may affect access to national healthcare. SDG 10.7 aims to ensure well-managed migration policies and measures, for example migrants' right to healthcare (UNDESA, 2020). Several studies have identified different rights in access to healthcare according to their documentation status (Pace, 2009). As a result, irregular migrants seek medical assistance less than the normal population or migrants and in doing so, they are neglected in vaccinations, pregnancy care or safe childbirth (IOM, 2011).

MIGRATION AND HEALTH POLICY AND PRACTICE IN KENYA, NIGERIA, AND SOUTH AFRICA

Before setting out the conceptual framework used for this article (and the broader study it forms part of) it is perhaps useful to briefly discuss the migration and health policy frameworks in place in the three study countries, the mix of health services available, and how these impact on eligibility to access healthcare.

Kenya

Kenya has recognized the need for a unified and mainstreamed approach to the area of migration and health and has undertaken several actions. In 2016, the government launched the National Coordination Mechanism on Migration (NCM), which drafted the country's first unified National Migration Policy in 2017, containing comprehensive migration management guidelines, in line with the UN Sustainable Development Goals (IOM, 2018).

The Refugees Bill (Republic of Kenya 2019), which promises special protection

and attention to health needs of women, children, people with disabilities, and other vulnerable groups, extends this tendency to mainstream migration in health provision. The Bill also calls for health screening of all refugees and asylum seekers who enter Kenya to stop the spread of contagious diseases. Furthermore, it stipulates the equal treatment and integration of refugees as well as the sensitization of host communities of the presence of and coexistence with refugees.

Migrants residing in Kenya can access healthcare through various channels. Those who officially reside in Kenya, i.e., those who have legal status or are registered as refugees, may access the National Hospital Insurance Fund (NHIF) (WHO, 2018a; IIED, 2019). It provides unrestricted secondary and tertiary healthcare to subscribers. Initially, non-nationals were only allowed to subscribe when presenting a work permit or student visa (WHO, 2018a; IIED, 2019). As work permits are virtually inaccessible to refugees, they were driven into informal labor markets without healthcare (Hargrave et al., 2020). Even migrants with theoretical access to this fund are often excluded due to missing documentation. Newly arrived migrants in particular may have to wait for their documents for extended periods of time, while there have also been cases of migrants waiting for years for their documentation to be processed by the agencies (IIED, 2019).

Concerning other barriers that migrants face when trying to access health services, an important distinction between the locations they reside in has to be made. This is especially true for refugees. In 2014, after a series of attacks in Kenya by the terrorist organization Al-Shabaab, Kenyan politicians changed course in their refugee policy. Therefore, many refugees were required to relocate to camps, such as the Dadaab Refugee Complex, hosting 220,000 refugees – and as at 2020 one of the largest such complexes in the world – and the Kakuma Refugee Camp, hosting almost 200,000 refugees. These numbers are so large that the Kenyan government relies on significant assistance in the management and support of the camps by the UNHCR (UNHCR, 2020a; 2020b).

Another significant population of refugees of 60,000 is located in Nairobi. These are mainly refugees from Somalia who reside in a community named Eastleigh, where there is already a large diaspora community of Somalis. Several United Nations organizations are active there, led by the efforts of the IOM, providing care to refugees and locals alike in a model facility at the Eastleigh Community Wellness Centre (ECWC), in collaboration with the Kamukunji Sub-County Health Management Team (WHO, 2018b: 9). This facility provides treatment for HIV, sexual and reproductive health services, maternal and child health services, immunization and growth monitoring, nutrition services, health promotion through community mobilization and health outreach, and interpretation services for disease prevention (WHO, 2018b: 9).

Nigeria

Key policy frameworks in Nigeria include the 2015 National Migration Policy

(Federal Republic of Nigeria) and the National Policy on Labour Migration (Federal Republic of Nigeria, 2014). The former plays a crucial role in governing migration in Nigeria and covers a broad range of issues such as migration and development, border management, statelessness, and information management. Migrants' health is treated as one of several cross-cutting issues as seen in one of the NMP's objectives which aims to "facilitate migrants' access to health services in the same way as those of nationals" (Federal Republic of Nigeria, 2014: 60). Another objective states that persons wishing to enter Nigeria must meet the national standards of health (Federal Republic of Nigeria, 2014: 60), without further defining what this entails precisely.

The healthcare of migrant workers is further addressed in the 2014 National Policy on Labour Migration (NPLM) which aims to improve the protection of migrant workers and promotion of their and their families' welfare, including the promotion of the right to decent work and access to social protection, ensuring equality of treatment and non-discrimination for all workers, as well as labor standards and code of ethics for employment of migrant workers (Federal Republic of Nigeria, 2014: 6).

Unlike employment policies and legislation, Nigerian health policies and legal frameworks do not explicitly address migrants. For instance, the 2016 National Health Policy deploys terminology which excludes non-citizens (Federal Republic of Nigeria, 2016: Art. 3.3). The 2017 National HIV/AIDS Strategic Framework 2017-2021 uses the exclusive term "Nigerians" and inclusive terms "populations" or "people living with HIV" interchangeably, though not addressing migrants explicitly (Federal Republic of Nigeria, 2017).

Several of the regular migrants interviewed for the AUC/SLE study stated that they did not have any experience of using the national health insurance system, while others were covered through health insurance plans through their employers in the form of Health Management Organisations. Hence, the extent to which migrant workers can benefit from the Nigerian National Health Insurance Scheme (NHIS), if not directly through their employment schemes, appears to depend on their ability to pay for it (AUC and SLE, forthcoming).

South Africa

The National Health Act, No. 61/2003 of 2003 (RSA, 2003) provides for free healthcare services for all pregnant and lactating women, free primary healthcare for all, and free emergency care at the point of use for all. According to a clarification by the National Department of Health, this includes both documented and undocumented migrants as well as refugees and asylum seekers (IOM, 2009; Matlin et al., 2018). Accordingly, in theory at least, no documents are required for accessing services.

Nevertheless, in contradiction to this, the Immigration Act, No. 12/2002 of 2002 (RSA, 2002) and its Amendment, No. 8/2016 of 2016 (RSA, 2016) state in Art. 16 that medical staff must find out the legal status of patients before providing care, with the exception of emergency healthcare.

The National Health Insurance Bill of 2019 states, "[a]n asylum seeker or illegal foreigner is only entitled to—(a) emergency medical services; and (b) services for notifiable conditions of public health concern" (RSA, 2019: Section 4.2). However, to access these services, migrants must register as a user of the fund and in order to do that, they need to provide biometrics (including fingerprints, photographs, proof of habitual place of residence) and—(a) an identity card; (b) an original birth certificate; or (c) a refugee identity card, which irregular migrants often do not possess. Due to fear of being arrested and deported, many undocumented migrants tend to avoid public healthcare services in general (Crush and Tawodzera, 2014). The need to register therefore may exacerbate already existing access barriers.

COMPARATIVE OVERVIEW OF MIGRANT HEALTH POLICIES AND PROGRAMS IN THE STUDY COUNTRIES

While all three countries show important differences in terms of local context and historical development of health provision, there are also some broad similarities across the three countries that are worth noting. Firstly, health service provision in all three countries consists of a mix of public, private, and voluntary sector provision.

Secondly, international agencies such as the UNHCR and the IOM play an important role in service provision for refugees and migrants. However, this provision is not always well-integrated into country health systems overall (AUC and SLE, forthcoming). Thirdly, while migrants and refugees do enjoy some access to health services, this is often dependent on the ability to pay and/or register with national health insurance schemes; only in the South African example were undocumented migrants eligible to access health services. It should also be noted that citizens in each of the study countries can also face similar barriers to accessing – and paying for healthcare – that migrants experience.

Finally, while health policies in place in each country do offer degrees of access to different migrant groups, this also depends on the implementation of such policies, as well as the knowledge of health workers of these policy frameworks. In practice, this means that there can be real barriers to migrants accessing health services.

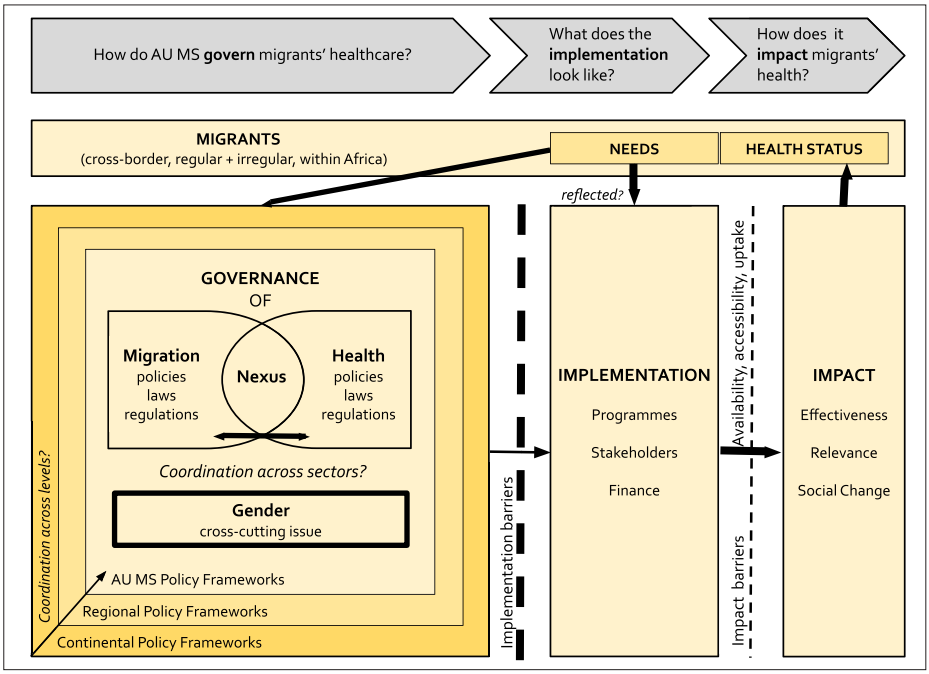
CONCEPTUAL FRAMEWORK

The diverse theoretical approaches identified in the scoping review were used to inform the conceptual framework and methodology developed by the research team for the study. Following Wickramage et al. (2019), this included surveying three different sub-groups of migrants in three different AU Member States, and centered on migrants' health and access to health services in each country.

Given the challenges inherent in surveying respondents in three different locations over a short time period, the research team decided to avoid more complex multi-level models and opted for a more traditional fixed-effects approach using a more limited set of variables drawn from the surveys, complemented and contextualized by data from interviews and focus groups.

In light of these considerations, the study deployed a conceptual framework that is set out in Figure 1. As can be seen, this focuses on the migration and health nexus at the policy-framework level, as well as the implementation of these relative to the needs and health status of migrants.

Figure 1: Conceptual framework of the study



(Source: Authors' illustration)

METHODOLOGICAL APPROACH

The goal of this article is to identify differences in access to healthcare based on different characteristics. This informs our research question, which is, "does gender, occupation or documentation status affect the perceived access to healthcare of migrants?" Thus, the hypothesis is:

> H1: No differences exist in self-perceived access to healthcare between the different manifestations in (a) gender; (b) occupation; (c) documentation status; and (iv) residence status; while alternatively the average group access to healthcare is rated as distinctive.

In order to be able to make a statement on this hypothesis, our procedure is as follows: (a) setting/population; (b) questionnaire creation; (c) data collection; (d) data cleaning; (e) formulation of assumptions; and (f) data analysis. Finally, we list

the limitations of the methodology. In the following paragraphs we describe the procedure in more detail.

Setting / population

The AUC/SLE study collected primary data from different migrant sub-groups based in three African states, namely: regular (labor) migrants in Nigeria (to reflect the existing patterns of free movement across the Economic Community of West African States (ECOWAS) space); people in refugee-like situations in Kenya (to reflect the significant refugee flows to the country from neighboring states, especially the Horn of Africa); and undocumented (irregular) migrants in South Africa (to reflect the significant irregular migration flows on the 'southern route'). Due to the global COVID-19 pandemic, travel restrictions in place in these countries, as well as challenges of time and resources, surveying these three groups was limited to major urban centers (see limitations section below).

Questionnaire creation

A survey was conducted in order to collect quantitative data on migrants' health and access to health services. Existing surveys from the Health on the Move Project and relevant WHO surveys were adapted towards the specific needs and context of this project. The survey targeted different cohorts in the three study countries, in order to cover many migrant groups. As a result, in Kenya most of the respondents were refugees, in Nigeria most of the respondents were labor migrants and in South Africa most of the respondents were irregular migrants.

Data collection

Data collection was done as part of a study on the healthcare of different groups of migrants in Africa (AUC and SLE, forthcoming). The questionnaires were distributed by partner researchers, both digitally and also in print format, among the specific groups of migrants. Surveys were distributed in English and translated into local languages by partner researchers. Surveys included multiple selection, single selection, ranking and open answer fields. Quantitative data collection ran from November to December 2020. Respondents could fill out questionnaires if they had the link to the survey, which was provided by research teams and distributed among migrant networks in each country. Most answers were collected through field teams, where the data collectors went through the surveys with participants question-by-question. The survey thus deployed purposive sampling to recruit participants.

Data cleaning

Surveys were excluded if the respondents did not live in any of the three countries or if they were not from the African continent. Based on these criteria, seven respondents were withdrawn from the dataset. A total of 965 eligible surveys were acquired, with

South Africa n=310, Nigeria n=355, and Kenya n=300. People who did not meet these criteria above were not included within the linear model.

Formulation of assumptions

The necessary assumptions used to apply this model, such as heteroskedasticity and uncorrelated independent variables, were checked – Appendix 2 and Appendix 3 provide the results.

Survey responses were collected using purposive sampling, rather than using random sampling. In order to ensure that potential differences are not entirely based on different covariates between the groups, we use a Kruskal-Wallis test to determine if differences exist (Kruskal and Wallis, 1952), even in the cases where normal distribution is absent. As this test is used to identify differences between groups of more than two, it is only applied to the variables of residence status and occupation, and the results of the test are presented in Appendix 4.

Data analysis

Based on this data, we identify differences of access to healthcare within the different sub-groups, which are characterized through different answers. Therefore, the question "How do you rate the general access of the healthcare provision where you currently live? (10=excellent, to 1=non-existent)" will be used as an indicator of access to healthcare. In order to identify different groups within the data, the survey asks for gender, residence status, and occupation. Only one response was possible for each question and it was not mandatory to reply to them.

To examine the different groups, we calculate the means of the groups and use a t-test to check if the differences are significant. We only consider groups consisting of at least 10 people. Comparisons are only made between different groups within the same country, to ensure fixed country effects are not responsible for the measured impacts. Additionally, a least squares linear regression model is calculated. The variable characteristics in each category are used as a dummy to indicate its effect on the self-rated access to healthcare, when controlled for the other variables. Appendix 5 contains the question and the possible answers. In addition to the quantitative evidence, migration and health experts were interviewed for further insights, regarding access in general, restrictions, or the health system, via online semi-structured interviews. Calculations and table drawings were made in RStudio and LaTeX.

Survey and data limitations

As noted above, the scope of the research study, as well as the selection of participants and sites, and the survey design, present certain limitations on the data generated, and the conclusions that can be drawn.

Firstly, focusing on different migrant sub-groups in each country raises issues of comparability of the datasets from each country. This is why no comparisons

between countries are made, just within different cohorts and groups within the same country.

Secondly, the sample sizes are relatively small, and were based on the limited data collection available in major urban centers. This was necessary given the travel and other restrictions imposed by the COVID-19 pandemic to protect researchers' and participants' health. Moreover, recruiting migrants as research participants is always challenging, especially at scale, as these may have very good reasons not to want to participate, especially if they are concerned it might affect their personal circumstances. This is particularly the case for undocumented migrants and refugees. As a result, the data cannot be understood as representative of all migrants, but nevertheless it does suggest some important trends.

Thirdly, as noted above, the study was based on migrants' own perceived health status and healthcare access, which are not an objective measure. Nevertheless, in the absence of access to clinical data (which fell outside the scope and limitations of the study), self-perception is still a useful proxy indicator, and while survey participants may well exaggerate or not be entirely truthful in their assessments, there is nonetheless value in asking about their experiences.

Fourthly, while the research used SDH approaches to understanding migrants' health, one of the challenges inherent in the SDH framework is that it is very difficult to include, and control for, broader social determinants of migrants' health in a comprehensive way. As noted above, the SDH framework has been criticized for prioritizing socio-economic factors over others. This being the case, the research used a few limited variables (such as employment status, educational level, gender, and age) as proxy indicators of SDH.

FINDINGS

The following table describes the effects of the individual manifestations of the cohorts for the countries Kenya, Nigeria, and South Africa.

Table 1: Association of gender, residence status and occupation on self-rated access to health services

		Dependent variable:		
		Kenya	Nigeria	South Africa
		(1)	(2)	(3)
Gender				
	Male	0.019	0.340**	0.001
		(0.234)	(0.172)	(0.217)
Residence status				
	None	-0.370	-0.265	-1.928
		(0.750)	(0.362)	(1.323)
	Work	0.918	0.865***	-1.552
		(1.337)	(0.305)	(1.378)

		Dependent variable:		
		Kenya	Nigeria	South Africa
		(1)	(2)	(3)
Residence status				
	Prefer not to say	-0.402	-1.061**	-5.083***
		(1.123)	(0.436)	(1.857)
	Temporary (Asylum)	-0.940*	0.245	-0.930
		(0.528)	(0.344)	(1.337)
	Temporary (Refugee)	-0.233	0.482	-1.903
		(0.369)	(0.392)	(1.423)
	Temporary (Education)	0.724	0.976***	-0.382
		(1.082)	(0.333)	(1.504)
Occupation				
	Self-employed	-0.394	-0.383	1.231
		(0.673)	(0.311)	(1.084)
	Unemployed	-0.080	0.331	1.398
		(0.677)	(0.413)	(1.091)
	Full-time work	0.043	-0.091	2.049*
		(0.824)	(0.336)	(1.087)
	Part-time work	-0.212	-0.080	2.951***
		(0.733)	(0.323)	(1.099)
	Work without contract	1.107	-0.704	0.227
		(0.973)	(0.619)	(1.175)
	Other	0.436	0.853	
		(1.255)	(1.403)	
	Retired		0.853	
			(1.403)	
Constant		8.507***	8.073***	7.768***
		(0.642)	(0.356)	(1.714)
Observations		277	278	306
R2		0.052	0.193	0.204
Adjusted R2		0.005	0.150	0.172
Note: *p<0.1; **p<0.05; ***p<0.01				

Table 1 reveals how different the manifestations of the groups can be associated when we look at the different countries. We strongly recommend withholding comparisons between countries, as different groups were targeted. In general, one could say that the average access to health services is rated high, which is visible through high values for the constant of each country (ranging from 7.8 to 8.5). In Kenya, where most of the respondents were refugees, people who were asylum seekers rated their access to health services by 0.9 points lower on average. Potentially their residence status, with slightly fewer rights or more uncertainty for the migrants could affect their experience – and lower their rating – about access to health services. On the contrary, however, in South Africa where most of the respondents were irregular migrants without documentation, people who were able to work, rated their access to health services by 3 points (part-time work) and 2 points (full-time work) higher. Thus, managing the challenge to find work, despite the fact that they may not be allowed to, suggests that this enhances access to health services.

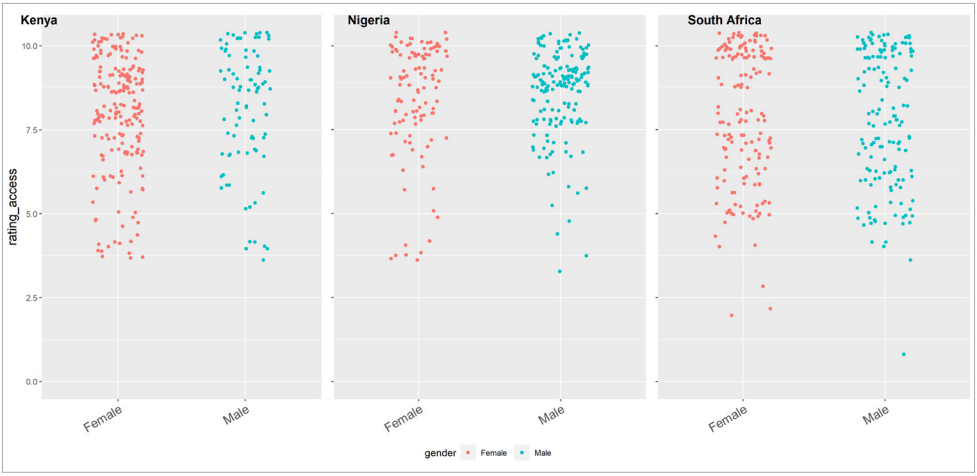
Gender

Table 2: Mean access to healthcare in Kenya, Nigeria, and South Africa, grouped by gender

	Kenya		**Nigeria**		**South Africa**	
	Female	Male	Female	Male	Female	Male
	A	B	A	B	A	B
rating_access						
Mean	8.0	8.1	8.4	8.6	7.9	7.8
Std. dev.	1.7	1.8	1.7	1.3	2.1	2.0
Unw. valid N	200.0	87.0	108.0	170.0	158.0	148.0

Table 2 above and Figure 1 below represent the self-assessed access to healthcare in different ways: Table 2 displays the overall average with its standard deviation and number of people for each cohort. Figure 1 represents one dot for each survey respondent's rating. Small vertical and horizontal shifts occur, so the same rated values do not overlap completely, hence Figure 1 is only an approximated representation of access to healthcare. However, the scatter plot aims to give an impression about distribution and sample size of each cohort. People who did not answer the question regarding their gender or responded, "prefer not to say" are excluded from both illustrations, to ensure clarity. While this could feasibly result in bias, the small numbers of respondents excluded on these grounds mean that the effect on our analysis is not likely to be significant.

Figure 2: Scatterplot of rating of access to healthcare in Kenya, Nigeria, and South Africa, grouped by gender cohorts



Gender has an ambiguous impact on the average access to healthcare. However, the differences are not particularly significant – in Kenya and Nigeria male respondents rated their access to healthcare by 0.1 and 0.2 points higher. To the contrary, in South Africa female respondents rated it by 0.1 points higher. It is likely that the effects are not clear, due to other underlying factors. When we control for occupation and residence status, male migrants in Nigeria rate their access significantly better than females by 0.34 points, while the two cohorts in Kenya and South Africa rated their health status quite similar.

In Nigeria, the focus was on labor migrants; thus, specific disadvantages faced by women within labor migration and within labor markets could be a reason for this effect. For example, they work in less secure jobs, often without health insurance. However, it could also be due to a country or context effect of the Nigerian sample that female migrants are particularly disadvantaged in accessing healthcare. If this effect of better access to healthcare in Nigeria for male migrants is a recurrent finding in other studies, further research is needed to explain it.

Apart from this, the data does not reveal many significant differences based on gender, contrary to expectations from the literature and also statements from the interviews. This could be because of sampling bias or survey design, but equally it could just be that the differences in perceptions of access to healthcare are smaller than expected. That does not mean that health services do not need to be more responsive to the needs of female migrants, as this relates to their experience of these services, which can be(come) a barrier; it means that the effect of gender differences is perhaps less pronounced in terms of access to healthcare or perceptions of health.

Occupation

Table 3 here (Tables 3.1, 3.2, 3.3)

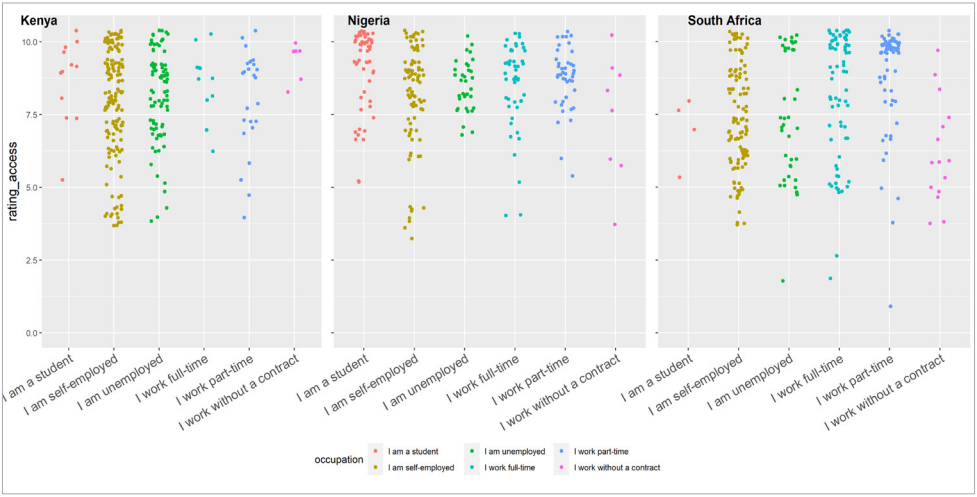
Table 3: Mean access to healthcare for Kenya (3.1), Nigeria (3.2) and South Africa (3.3), grouped by occupation

Table 3.1. Mean health status in Kenya, grouped by occupation								
	#Total							
	I am a student	I am self-employed	I am un-employed	I work full-time	I work part-time	I work without a contract	Other (please specify):	
	A	B	C	D	E	F	G	
rating_access								
Mean	8.6	7.8 < F	8.2 < F	8.5	8.0 < F	9.5 > B C E	8.8	
Std. dev.	1.6	1.9	1.6	1.2	1.7	0.8	1.3	
Unw. valid N	12.0	146.0	83.0	11.0	25.0	6.0	4.0	
Table 3.2. Mean health status in Nigeria, grouped by occupation								
	#Total							
	I am a student	I am self-employed	I am un-employed	I work full-time	I work part-time	I work without a contract	Other (please specify):	I am retired
	A	B	C	D	E	F	G	H
rating_access								
Mean	9.1 > B C	8.1 < A E	8.5 < A	8.5	8.8 > B	7.5	9.0	9.0
Std. dev.	1.3	1.7	0.8	1.5	1.1	2.0		
Unw. valid N	57.0	89.0	34.0	48.0	42.0	8.0	1.0	1.0
Table 3.3. Mean health status in South Africa, grouped by occupation								
	#Total							
	I am a student	I am self-employed	I am un-employed	I work full-time	I work part-time	I work without a contract		
	A	B	C	D	E	F		
rating_access								
Mean	7.0	7.3 > F < D E	7.4 < E	8.2 > B F < E	9.0 > B C D F	6.3 < B D E		
Std. dev.	1.4	1.8	2.2	2.1	1.8	1.8		
Unw. valid N	4.0	116.0	38.0	70.0	65.0	15.0		

Table 3 above and Figure 2 below represent the self-assessed access to healthcare in different ways: Table 3 displays the overall average with its standard deviation and number of people for each cohort. Figure 2 represents one dot for each survey respondent's rating. Small vertical and horizontal shifts occur, so the same rated values do not overlap completely; hence, Figure 2 is only an approximated

representation of access to healthcare. However, the scatter plot gives information about the distribution and sample size of each cohort. People who did not answer the question regarding their employment status or responded, "other" or "I am retired" are excluded from Figure 2, to ensure clarity.

Figure 3: Scatterplot of rating of access to healthcare in Kenya, Nigeria and South Africa, grouped by occupation cohorts



Employment status provides mixed effects on access to healthcare. Self-employment has a negative effect in all three countries and is significantly lower than in other groups. However, this is no longer the case in South Africa once gender and residence status are included into the calculation. It is possible that people are self-employed due to their residence status and therefore have reduced access to healthcare. In Kenya and Nigeria for example, unemployed people rate their access higher than self-employed ones. Thus, being unemployed does not necessarily mean having less access, which might have been expected due to fewer financial resources.

Part-time and full-time workers seem to position themselves in a higher-rated access. However, this effect only holds true for South Africa within the linear model. When people migrate for educational reasons, they rate their access to healthcare higher than most other groups of occupation.

This suggests that the effects of occupation are neither intuitive nor consistent, which is discussed further below. However, the Kruskal-Wallis test indicates that the groups do not rate their access to healthcare equally in Nigeria and South Africa. This result underlines the fact that different types of employment relationships correspond to different experiences of access to healthcare, and that this effect was not caused by the differently distributed covariates. This cannot be said for the Kenya dataset.

Documentation and residence status

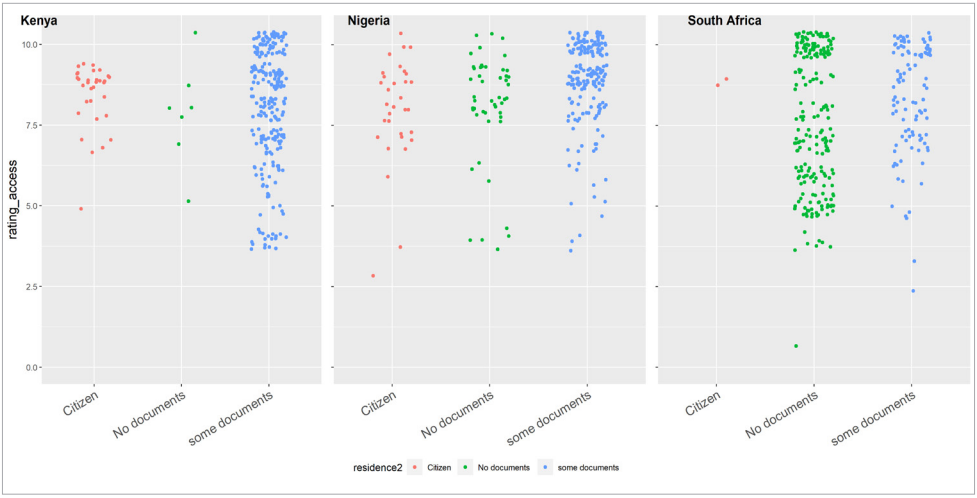
Table 4 here (Tables 4.1, 4.2, 4.3)

Table 4: Mean access to healthcare in Kenya (4.1), Nigeria (4.2) and South Africa (4.3), grouped by documentation status

Table 4.1. Mean health status in Kenya, grouped by documentation status				
	#Total			
	Citizen	No documents	Prefer not to say	some documents
	A	B	C	D
rating_access				
Mean	8.4 > D	7.9	8.0	8.0 < A
Std. dev.	0.9	1.6	1.0	1.8
Unw. valid N	32.0	7.0	3.0	239.0
Table 4.2. Mean health status in Nigeria, grouped by documentation status				
	#Total			
	Citizen	No documents	Prefer not to say	some documents
	A	B	C	D
rating_access				
Mean	8.0 > C < D	8.0 > C < D	7.0 < A B D	8.9 > A B C
Std. dev.	1.6	1.7	1.0	1.3
Unw. valid N	32.0	49.0	14.0	185.0
Table 4.3. Mean health status in South Africa, grouped by documentation status				
	#Total			
	Citizen	No documents	Prefer not to say	some documents
	A	B	C	D
rating_access				
Mean	9.0 > B D	7.6 < A D	4.0	8.3 > B < A
Std. dev.	0.0	2.1	2.8	1.7
Unw. valid N	2.0	202.0	2.0	102.0

Table 4 above and Figure 4 below represent self-assessed access to healthcare in different ways: Table 4 displays the overall average with its standard deviation and number of people for each cohort. Figure 3 represents one dot for each survey respondent's rating. Small vertical and horizontal shifts occur, so the same rated values do not overlap completely. Hence, Figure 3 is only an approximated representation of access to healthcare. However, the scatter plot aims to give an impression about distribution and sample size of each cohort. People who did not answer the question regarding their residence status or responded, "Prefer not to say" are excluded from Figure 3, to ensure clarity.

Figure 4: Scatterplot of rating of access to healthcare in Kenya, Nigeria, and South Africa, grouped by documentation cohorts



In general, documentation status can be associated with different access to health services. Therefore, aggregated data from respondents' answers about their residence status and three groups were considered: people with some kind of documentation (e.g. refugees, educational migrants), people without any kind of documentation, and citizens. Evidently, in South Africa and Nigeria, people with some documents rate their access to health services significantly higher by 0.7 and 0.9. The findings are consistent with the negative effect of the linear model.

As the undocumented sample in Kenya is below 10 people, the analysis of effects is not representative and is not included.

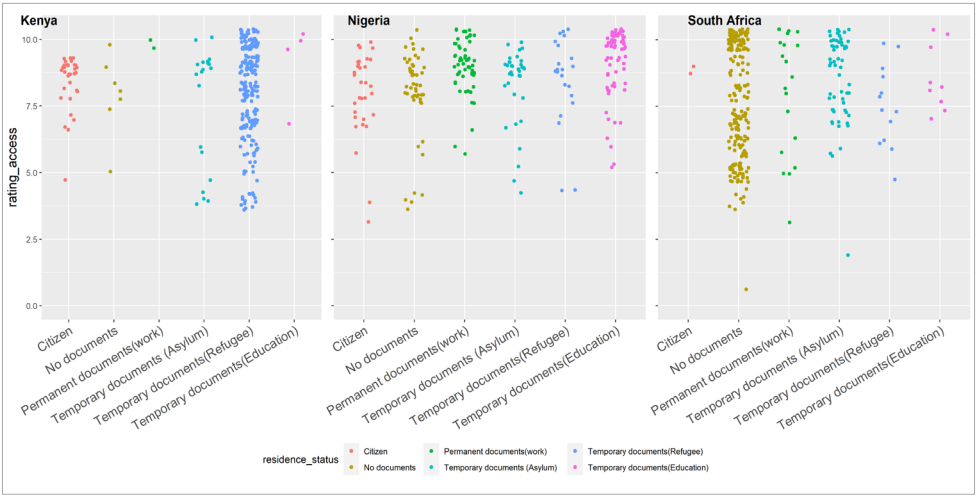
To allow for a more detailed interpretation, we disaggregate the documentation status into the categories of a working status, an asylum status, a refugee status, and an educational status – see Table 5 and Figure 5 below.

Table 5: Mean access to healthcare in Kenya (5.1), Nigeria (5.2), and South Africa (5.3), grouped by residence status

Table 5.1. Mean health status in Kenya, grouped by residence status							
	#Total						
	Citizen	No documents	Permanent documents (work)	Prefer not to say	Temporary documents (Asylum)	Temporary documents (Refugee)	Temporary documents (Education)
	A	B	C	D	E	F	G
rating_access							
Mean	8.4 < C	7.9 < C	10.0 > A B E F	8.0	7.6 < C	8.0 < C	9.2
Std. dev.	0.9	1.6	0.0	1.0	2.2	1.8	1.5
Unw. valid N	32.0	7.0	2.0	3.0	20.0	213.0	4.0
Table 5.2. Mean health status in Nigeria, grouped by residence status							
	#Total						
	Citizen	No documents	Permanent documents (work)	Prefer not to say	Temporary documents (Asylum)	Temporary documents (Refugee)	Temporary documents (Education)
	A	B	C	D	E	F	G
rating_access							
Mean	8.0 > D < C G	8.0 > D < C G	9.0 > A B D E	7.0 < A B C E F G	8.4 > D < C G	8.5 > D	9.1 > A B D E
Std. dev.	1.6	1.7	0.9	1.0	1.4	1.7	1.3
Unw. valid N	32.0	49.0	57.0	14.0	36.0	22.0	70.0
Table 5.3. Mean health status in South Africa, grouped by residence status							
	#Total						
	Citizen	No documents	Permanent documents (work)	Prefer not to say	Temporary documents (Asylum)	Temporary documents (Refugee)	Temporary documents (Education)
	A	B	C	D	E	F	
rating_access							
Mean	9.0 > B E F	7.6 < A E	8.0	4.0	8.6 > B F < A	7.5 < A E	8.4
Std. dev.	0.0	2.1	2.2	2.8	1.6	1.6	1.2
Unw. valid N	2.0	202.0	20.0	2.0	60.0	13.0	9.0

Table 5 above and Figure 5 below represent the self-assessed access to healthcare in different ways: Table 4 displays the overall average with its standard deviation and number of people for each cohort. Figure 3 represents one dot for each survey respondent's rating. Small vertical and horizontal shifts occur, so the same rated values do not overlap completely. Hence, Figure 3 is only an approximated representation of access to healthcare. However, the scatter plot aims to give an impression about distribution and sample size of each cohort. People who did not answer the question regarding their residence status or responded, "Prefer not to say" are excluded from Figure 3, to ensure clarity.

Figure 5: Scatterplot of rating of access to healthcare in Kenya, Nigeria, and South Africa, grouped by documentation cohorts



A consistent finding throughout the three sample countries is that self-assessed access for people without any documentation is lower than the other groups, not only by means but also within the linear models. In particular, the sample in South Africa, where undocumented migrants were targeted, the effects were almost 2 points in the linear model. In Kenya, refugees and asylum seekers rated their access lower than other groups by 0.4 and 0.8 points respectively. The effects remain similar in the linear model.

In Nigeria, refugees reported having greater access than citizens by 0.5 points and asylum seekers by 0.4 points more. Thus again, having refugee status seems to have a slightly more positive effect on perceived access to health services than for those in the process of seeking asylum.

This was not the case in South Africa, where refugees rated their access as one of the lowest and asylum seekers rated it quite high, with a 1.1 points difference in access to healthcare when refugees are compared to asylum seekers. This may appear counter-intuitive, as registered refugees typically enjoy greater social coverage than those seeking asylum by virtue of their registration status. However, one possible explanation for this could be linked to expectations of improved access to healthcare and the extent to which these are met once registration has been granted.

If respondents had work permits or the right to work, their access to healthcare was generally high. In Nigeria, the access to healthcare of this cohort was the second highest after educational migrants and significantly better than the four other groups. Although people with work visas in South Africa also described their access to healthcare as good, the effects here are not as strong and negative in the

multivariate model.

Interestingly, the analysis indicates that the groups do not rate their access to healthcare equally in Nigeria and South Africa. This result underlines the fact that having a certain residence status corresponds to a different access to healthcare, and that this effect was not caused by the differently distributed covariates. This cannot be said for Kenya, which did not show an effect for groups bigger than ten respondents for the tests on different averages.

DISCUSSION

Findings

The most consistent result across groups and models is that migrants without documentation have worse access than those with documents. This provides evidence for the disadvantage of this former group due to irregular or illegal residence status, which was anticipated in the literature, including in other world regions (Juárez et al., 2019, Spitzer et al., 2019). It also strongly suggests that extending regularization pathways in African states, even if on a temporary basis, would be an effective policy lever to improve migrants' access to healthcare, and by extension migrants' health.

Our findings in regards to occupation remained diverse. In South Africa, where our sample targeted irregular migrants, it was evident that a full-time or part-time occupation was associated with a higher access to health services. In Kenya, where our sample targeted refugees, the rating suggests that being self-employed is very common for refugees and seems to be associated with less access to health services. In Kenya, where our sample targeted labor migrants, once again, self-employed migrants rated their access to health services lower than those in regular employment (full- and part-time), but also being a student can be associated with higher rating in access to health services.

Apart from the clear trend in documentation, other effects, such as the ones through occupational differences, remain unclear across samples and models. There are many possible reasons for this, as discussed below.

Limitations to the findings

Firstly, the survey targeted different groups across countries, cohorts therefore resulted in different group sizes and may not be normally distributed covariates. Moreover, the data set used was not originally designed for this type of examination. Perhaps this is most evident in relation to employment and occupation status, because being self-employed or even unemployed can sometimes be the result of a conscious choice, which in turn has an impact, depending on residence status. This could explain the effects of the regression model. In South Africa, where we focused mostly on irregular migrants, for this group of people any form of employment has a positive effect on healthcare, because they become financially independent and would otherwise fall through the safety net. In Kenya and Nigeria, refugees and labor

migrants are already within the safety net, but employment conditions often include precarious working conditions and obligations that make accessing healthcare more difficult. This would be reflected in the negative coefficients, but further research is required to clarify the relationship between migrants' occupation and health status.

Secondly, the contexts of the countries and groups studied were diverse, which leads to variable overall healthcare access. Examples of this may be language differences in neighboring countries, nationality, traveling alone or in a group, network at the new location of residence, and many more. In order to mitigate this heterogeneity, we applied intra-country comparison only. However, responses like part-time work or full-time work may have different meanings and implications in different settings. For example, it is not known how safe the working environment is, and if people consciously choose a reduction of working time or this may be an indication of precarious employment conditions.

Thirdly, potential answers may not have been sufficiently distinct. Self-employment and full-time work are not exclusive from one another. Evidence that people did not always know where to categorize themselves is provided by the absolute numbers of answers to the question of occupation status, 'student' compared to the residence status, 'education': in Kenya the difference was 8 responses, in Nigeria 13 and South Africa 5. Potentially, people obtain educational residence status but work part-time, thus categorizing themselves differently. While this is a common issue with surveys, a clearer distinction or explanation could have mitigated the effects. Potentially, this also explains why documentation has the most consistent findings, as no documents vs some documents could be seen as very clear-cut.

Fourthly, it can be argued that self-rated access to healthcare is not adequate to identify actual access to healthcare. Waiting times to see the doctor were reported by some interviewees and survey respondents as worse for migrants, and this should be the subject of further research. Nevertheless, a rating scheme is normally easy to understand, and corresponds to the subjective feeling of migrants, thus taking into account their perception of integration. Furthermore, it allows for numeric comparisons within groups, for which the literature still lacks evidence in many regards.

Fifthly, data collection was affected by the social-distance measurements of the COVID-19 pandemic. This potentially also introduced some sample bias as a result. Consequently, the non-parametric Kruskal-Wallis test was used additionally to check for differences in the groups. Here the Kenyan sample, unlike in the other models, did not seem to differ. A possible explanation could be the data collection process: in Kenya, respondents mostly completed the surveys in the Eastleigh Health Centre in Nairobi. As this institution delivers health services irrespective of status, and does not charge money or require documentation, the sample may not be representative of the entire migrant population throughout the country, especially since most refugees live in the two camps of Dadaab and Kakuma, which are situated in rural border areas of the country.

Overall, in all three countries the data collection was conducted primarily in urban hubs, thus representativity may suffer because of this factor. This also limits the ability to generalize the findings. To overcome this issue, the sample size would have to be increased, or fewer groups regarded for this study. It will be useful for future research in this area to undertake larger-scale, and more longitudinal, studies on migrant health in the African context that include both clinical data and data on migrants' experiences and perceptions of healthcare access.

Finally, policy implementation and delivery of healthcare services may differ considerably. This means that perceived access to health services may differ based on the facility and the healthcare workers that migrants encounter in accessing treatment. This is difficult to control for statistically, for example, it may be the case that a clinic in Nigeria specializing in migrant health, and where staff are more used to treating migrants, makes treatment more accessible to migrants. Other factors might include the financial and time resources required to travel to a health facility. Such unobserved factors may bias our calculation.

Despite the named weaknesses and unclear effects within the groups, the data presented in this paper still provides evidence of existing differences between different cohorts. From this we can deduce that the groups would benefit from different measures to reduce, or ideally eliminate, barriers to accessing healthcare.

CONCLUSION AND RECOMMENDATIONS

Certain manifestations of gender, occupation, documentation, and residence status can result in higher or lower access to healthcare for migrants. Clear negative effects are evident for non-documented migrants, while impacts of other characteristics remain ambiguous. However, several tests verified that access to healthcare is different among the groups investigated in the survey.

There are various policy levers that African policy-makers can use to improve migrants' access to health, including national social coverage or health insurance schemes. However, most such schemes are restricted to documented migrants and refugees. Whilst it may be politically challenging for African states to provide long-term registration status to irregular migrants, there are various options for extending registration status on a temporary basis. These include temporary and short-term registration, for example on public health grounds, as well as time-limited amnesties for undocumented migrants.

Our findings suggest that the linkages between migrants' occupation and access to healthcare in African states are less clear, and require further research. However, there is also a strong case for increasing irregular migrants' economic participation – for example, by providing the right to work or own a business – in order to increase their ability to pay for healthcare and medicine, as well as to make contributions to government tax revenues and minimize inequalities.

In the African context, measures such as these will help to achieve delivery of the African Union Agenda 2063, which aims to increase regional and continental

integration to improve prosperity and livelihoods for African citizens. In global contexts, such steps are also important for achieving SDG targets but also for realizing the ambition of Article 25 of the Universal Declaration of Human Rights (UNGA, 1948), which defines adequate access to health and social determinants of well-being as a human right.

Finally, at a time of the global COVID-19 pandemic, it is worth stressing that enhanced access to healthcare for vulnerable groups of migrants, also promises to benefit the health of the broader population as a whole.

Based on these findings, we make the following recommendations for African Union Member States, Regional Economic Communities, and the AUC:

- AU Member States should introduce or extend pathways to regularization for migrants. Governments should consider implementing temporary registrations and amnesties during the current COVID-19 pandemic.
- Enabling greater economic participation for migrants in settlement countries promises to improve their access to healthcare and health outcomes.
- States should strengthen workplace protection for migrants, including ensuring that all staff, including migrants, have access to health insurance schemes.
- Healthcare authorities in AU MS should consider the benefits of more mixed, integrated healthcare provision for migrants and local citizens, instead of treating them as separate categories.
- The equitable access to healthcare services for refugees and migrants, in accordance with national and international laws and practice shall be acknowledged as a vital step to reduce inequalities and achieve the SDGs, for example, by considering them in health plans and policies.
- Policy-makers need to recognize different health needs for different genders and, respectively incorporate these in policy reforms.
- Researchers should improve data collection on migrants' health and occupations, and conduct more research, including longitudinal studies assessing migrants' health status pre-departure, upon arrival, and post-arrival, for which a forthcoming policy brief of the AUC will provide recommendations for action ("Multidimensional approaches towards migrants health").
- States should use existing guidelines to enhance migration and health governance, such as SDG 10.7, the Migration Policy Framework for Africa, African Health Strategy, and the AU's Agenda 2063.
- Beyond these recommendations, policy-makers should develop policies and

programs that address the broader SDH affecting peoples' access to, and experience of, healthcare, such as education, employment, and access to water, sanitation and hygiene (WASH).

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APPENDICES

Appendix 1: Categories of migrants

Table 6: Definitions of migrant categories

Migrant category	Definition
International migrants	Individuals who remain outside their usual country of residence for at least one year (UNDESA)
International labour migrants	Individuals engaged in remunerated activity in a state of which he/she is not a national, including persons legally admitted as a migrant for employment (ILO)
Irregular / undocumented migrants (sometimes also referred to as "illegal migrants")	Individuals who enter a country, often in search of employment or other opportunities, without the required documents or permits or who overstay the authorised length of stay in the country (UN Population Division)
	* There are few reliable data sources on numbers of irregular migrants
People in refugee-like situations	Similar to refugees below, but this category is broader as it includes people who have been forced to leave their country of origin but who lack legal status as refugees and who have not registered claims for asylum. Typically, this latter group are irregular migrants (UNHCR)
	In this report, 'people in refugee-like situations' is used as an umbrella term that includes registered/ legal refugees, asylum-seekers, and irregular migrants who have been forced to flee their country of origin.
	* There are few reliable data sources on this broader category
Refugees	Individuals who, owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, are outside of the country of their nationality, and are unable to, or owing to such fear are unwilling to, avail themselves of the protection of that country, or return because of fear of persecution (UNHCR)
	The term refugee is typically used in a precise legal sense – i.e. someone who has been granted legal status as a refugee – as well as in a broader, more abstract sense.
Asylum seekers	Individuals who have sought international protection and whose claims for refugee status have not been determined (UNHCR)

(Source: Adapted from Zimmerman et al., 2011)

Appendix 2: Multicollinearity

Multicollinearity within the independent variables is checked by variation inflation factor (vif) and describes how much the variables correlate. If it is detected, the linear model suffers large variances and its estimators shall be used cautiously only (Mansfield and Helms, 1982). A rule of thumb is that the variance inflation factor (vif) should be below 5, which is introduced by Hair et al. (2011). In our datasets, for all factors this is the case. However, in the Nigerian sample, residence status and occupational status are approximately 4, which suggests a moderate collinearity and consequently the results from the linear model created for Nigeria should be used more cautiously.

Table 7: Variance inflation factor

Variance inflation factor / degrees of freedom (df)			
	Kenya	**Nigeria**	**South Africa**
Gender	1.091133 / 1	1.083923 / 1	1.051230 / 1
Residence Status	2.641129 / 6	4.032341 / 6	1.452490 / 6
Occupation	2.538441 / 6	4.048248 / 7	1.499908 / 5

Appendix 3: Heteroskedasticity

The error terms of a linear model shall be distributed equally, to ensure a best unbiased efficient estimator. If heteroskedasticity is identified, hypothesis testing may be wrong, as the prediction relies on some high variance observations, which is not optimal. Nevertheless, the estimator remains unbiased. A Breusch-Pagan test can be used to check the hypothesis if the error terms are uncorrelated (Breusch and Pagan, 1979).

When we apply the Breusch-Pagan test to the error terms of our data sets, we have to reject our hypothesis of uncorrelated error terms for the Nigerian sample, as the p-value is 0.014. Consequently, results from the linear model created for Nigeria should be used more cautiously. This is not the case for the data in Kenya and South Africa with p-values of 0.077 and 0.359 respectively.

Table 8: Breusch-Pagan test

	Kenya	**Nigeria**	**South Africa**
Breusch Pagan	20.802	27.953	13.143
df	13	14	12
p-value	0.07694	0.01443	0.3587

Appendix 4: Kruskal-Wallis test

The Kruskal-Wallis test can be used to check if the medians of two or more groups are different from each other. As a non-parametric test, it can be implemented regardless of the distribution of the sample. This is important, as not fully random data collection and heteroskedastic error terms of the Nigerian sample. The hypothesis of the Kruskal-Wallis test is that the mean ranks of the different factors are equal ($p > 0,05$). If this is rejected ($p < 0,05$), the data provides evidence that outcome (access to healthcare) is unequal based on the factors (occupation and residence status).

Calculation of the Kruskal-Wallis test reveals differences in South Africa and Nigeria in both categories. This is not the case for the data in Kenya.

Table 9: Kruskal-Wallis test

	Kenya		**Nigeria**		**South Africa**	
	Occupation	Residence	Occupation	Residence	Occupation	Residence
Chi^2	9.4883	7.7864	21.92	56.948	47.602	16.334
df	6	6	7	6	5	6
p-value	0.1479	0.2542	0.002622	1.871e-10	4.282e-09	0.01207

Appendix 5: Questionnaire

The data was generated by respondents who answered the questions captured in Figure 6, which were part of a bigger health and migration study.

Figure 6: Survey questions used for this article

1. What is your gender?

- ○ Female
- ○ Male
- ○ Other
- ○ Prefer not to say

2. What is your residence status in this country?

- ○ Citizen
- ○ Permanent documents (e.g. unlimited working permit, etc.)
- ○ Temporary documents (Asylum seeker, e.g. asylum seeker certificate)
- ○ Temporary documents (Recognized refugee, e.g. alien card)
- ○ Temporary documents (Educational stay)
- ○ No documents/ without legal documents (e.g. working permit or refugee status denied)
- ○ Other (please specify):
- ○ Prefer not to say

3. What is your current occupational situation?

- ○ I work full-time
- ○ I work part-time
- ○ I am self-employed
- ○ I work without a contract
- ○ I am a student
- ○ I am unemployed
- ○ I am retired
- ○ Other (please specify):