HIV prevalence ratio of international migrants compared to their native-born counterparts: A systematic review and meta-analysis

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Summary

Background People on the move, including international migrants, may face health inequities that expose them to a higher risk for HIV than native-born populations. We conducted a systematic review to calculate the HIV prevalence ratio of international migrants compared with native-born populations.

Methods We searched five databases between January 2010 and March 2022. Using random-effects meta-analysis, we calculated the pooled HIV prevalence ratios (PR) by comparing the HIV prevalence of migrants with native-born populations. Our research protocol is registered in the International prospective register of systematic reviews (PROSPERO, CRD42021250867).

Findings In total, 5,121 studies were screened, and 38 were included in the final analysis: 7,121,699 migrants and more than 270 million natives were included in the analysis. The pooled PR for any foreign-born migrants was 1·70 (95% CI 1·11 − 2·61, I^2=99·67%, n = 33 studies), refugees was 2·37 (95% CI 0·33−16·99, I^2=99·5%, n = 5), undocumented people was 3·98 (95% CI 0·11−143·01, I^2=94·6%, n = 3), whilst asylum seekers was 54·79 (95% CI 17·23 −174·23, I^2=90·2%, n = 2). Meta-regression revealed that population type (adjusted R-squared 11.5%), region of origin (11.3%) and migrant type (10.8%) accounted for heterogeneity more than country-income (2.4%) and study setting (2.3%).

Interpretation Although it was not possible to assess if HIV infection occurred in the country of origin or destination, the HIV prevalence ratio was higher among migrants than in native-born populations. Inclusive health policies and strategies for delivering HIV testing, prevention and treatment services for migrant populations tailored to their needs are urgently needed.

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Keywords: HIV; migrants; prevalence; native-born; people on the move; refugees; asylum seekers

Introduction

In 2014, the Joint United Nations Programme on HIV and AIDS (UNAIDS) released a Fast-Track strategy, including the 90-90-90 targets, which aimed to accelerate global efforts to end the AIDS epidemic by 2030.[1] Among its ambitious targets were to have 90% of people with HIV know their serostatus, 90% of people with HIV aware of their status to receive treatment, and 90% of people with HIV on treatment have a suppressed viral load meaning they were successfully controlling the virus and unlikely to transmit the virus to others

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Research in context

Evidence before this study

International migrants could be a vulnerable group for acquiring HIV but there is limited literature regarding HIV prevalence among different types of international migrants compared with native-born populations. We searched PubMed up to 26 February, 2021 for any systematic reviews on the difference in HIV prevalence between international migrants and the native-born population using key terms related to "HIV" and "international migrants". We found reviews on HIV infection amongst migrants but no systematic reviews that compared their prevalence to the native-born populations.

Added value of this study

Our systematic review brings together the limited data for HIV prevalence among international migrants compared with the native-born population. Overall, we found that international migrants have a significantly high HIV prevalence ratio. Several factors were associated with higher HIV prevalence ratios: (1) migrants' country of origin (arriving from African nations); (2) type of migrant (asylum seekers, undocumented migrants, refugees); and (3) population types (pregnant women).

Implications of all the available evidence

International migrants must not be left behind in our efforts to end the HIV pandemic. The social determinants that influence the health outcomes of international migrants can be different to those of the native-born population, contributing to health inequities that fuel the HIV pandemic. Inclusive health policies and targeted strategies for delivering HIV testing, prevention and treatment services for migrant populations are urgently needed.

(90-90-90 targets), as well as fewer than 500,000 new infections by 2020.[1] Unfortunately, none of these targets were achieved. In 2020, 84% of people living with HIV knew their infection status, 87% of people living with HIV were receiving treatment, and 90% of people on treatment were virally suppressed.[2] On the other hand, the number of new infections has declined from 2·1 million in 2010 to 1·5 million in 2020.[2] Despite considerable improvements since the peak of infections in 1998, there is still much to be done as the world renews its commitment for the next targets by 2030, i.e. fewer than 200,000 new infections and 95-95-95 targets.[3]

Many countries with low HIV prevalence and incidence (low burden countries) receive international migrants (in this paper, migrants are defined as residents who were born overseas), some of whom come from high HIV prevalence countries or have endured long journeys through multiple places before settling in the new countries. Arriving in a new country, many migrants face social, financial, and political challenges in accessing healthcare services—more so if they are undocumented or refugees.[4] Specifically, they may have poorer treatment access, adherence and HIV prevention opportunities, such as regular testing, pre-exposure prophylaxis (PrEP), and post-exposure anaphylaxis (PEP).[5–7] Indeed, recent studies from high-income countries found that migrants were less likely to use effective HIV prevention methods (such as early diagnosis through testing), were less likely to be on treatment, and had worse treatment outcomes than their native-born counterparts.[5,8,9] More needs to be done to improve pathways to treatment for migrants, especially those who are also part of key population groups (men who have sex with men [MSM], transgender people, sex workers, people who inject drugs and incarcerated people) that compound their risk for acquiring HIV.

The new UNAIDS Global AIDS Strategy focuses on addressing inequalities that drive the HIV pandemic.[10] This includes people on the move as a vulnerable population, such as migrants overall and migrant key populations, who may suffer even greater and synergistic disparities.[11,12] Like a country's citizens, international migrants should have the right to enjoy the highest attainable standard of physical and mental health,[13] and to access universal healthcare.[14] Despite multiple studies reporting a high prevalence of HIV among some international migrants, fewer studies directly compare the increased risk of HIV among international migrants with native-born populations. Further, there have not been any systematic reviews to quantify the HIV prevalence ratio of international migrants compared with their native-born counterparts. Therefore, this systematic review aimed to synthesise evidence on the HIV prevalence in international migrants compared to the native-born populations, which can potentially be utilised to raise awareness of health inequities faced by migrants. We hypothesise that there is a significantly higher HIV prevalence among international migrants compared to their native-born counterparts, as measured using an HIV prevalence ratio.

Methods

We conducted a systematic review and meta-analysis and reported our findings following the PRISMA guidelines.[15] We searched five databases (OvidSP EMBASE, OvidSP Medline, Web of Science, Global Health, and Scopus) to identify articles, reports, and abstracts with HIV prevalence estimates among migrants and native-born populations. All articles searched were in English.

Search strategy

Using the PICO framework, we were interested in: Population (international migrants), Intervention (not

applicable), Comparator (native-born), and Outcome (HIV prevalence). We used Medical Subject Headings (MeSH) terms, keywords and similar words for our search strategy. Our search criteria included the following concepts: migrant population (migrant* or migrat* or immigrat* or foreign or immigrant* or refuge* or "asylum seeker*") AND HIV disease, risk and transmission: "HIV/AIDS" or "Human Immunodeficiency Virus" or "HIV infection*" or "HIV cases" or "HIV transmission*" or HIV-positive or "HIV acquisition" or "HIV risk" AND HIV incidence and prevalence (incidence or prevalence or epidemiology or rate*) AND Country (ALL) and Year (2010-2021). The approximately 10-year cut-off was used to reflect 'current' trends of global migration profoundly influenced by socioeconomic and geopolitical circumstances. A detailed search strategy of each database is detailed in Appendix 1. We conducted a search on March 2021, updated on 31 January 2022, to identify any additional eligible studies. Our research protocol is registered in the International prospective register of systematic reviews (PROSPERO, CRD42021250867).

Eligibility criteria

We included studies written in English that provided primary data of an estimate of HIV prevalence comparing international migrant and native-born populations. Although HIV prevalence is a commonly used outcome of interest in many studies and global reports on the progress towards HIV/AIDS elimination, studies reporting a population-based seroprevalence may underestimate the true HIV prevalence. Conversely, studies that recruit from clinics or outreach may overestimate true HIV prevalence (Supplementary Table 1). To account for this effect, we also collected data on the study setting in our meta-regression to evaluate if this impacted our pooled estimates (Supplementary Table 2).

We defined a migrant population as people born outside their country of residence; we excluded studies related to internal migrants. To ensure comparability in outcomes, we used the crude HIV prevalence from the studies which clearly distinguished HIV prevalence in international migrants and native-born populations. Studies were excluded if they did not clearly distinguish HIV prevalence in the two populations of interest, were qualitative studies, duplicates, or studies with mathematical modelling that did not contain primary data. We also excluded studies which were testing symptomatic patients.

Data extraction

Two reviewers (DS and SA) independently screened the titles and abstracts according to the eligibility criteria using Covidence. A third reviewer (JO) resolved any disagreements. Full texts were independently read and their data extracted by DS and SA using a data extraction form in Excel, which included authors' names, publication year, year of research, study location, residential status (native versus migrant populations), population type (MSM, female sex workers [FSW], and pregnant women), and country of origin. A third reviewer (JO) resolved any discrepancies in the data extraction. We did not contact the authors for further data.

Risk of bias

The studies' risk of bias was assessed using the Joanna Briggs Institute critical appraisal tools for prevalence studies.[16] One reviewer (SA) assessed the risk of bias which was verified by a second reviewer (JO). Given the absence of clearly defined cut-offs for low or high risk of bias, we presented the raw scores in Supplementary Table 3 and did not conduct further analyses using these scores.

Data analysis

We used descriptive statistics to summarise the characteristics of included studies. A random-effects meta-analysis was conducted to calculate the pooled HIV prevalence ratios by comparing the HIV prevalence of migrants with native-born populations. We present the data using Forest plots according to the type of migrant (international/'foreign-born', asylum seekers, refugee, undocumented), the migrant's region of origin (Africa, Asia, Caribbean, East Europe, Latin America, Middle East, North America, West Europe) using UNAIDS classification, country income level using The World Bank classification[17,18] and subpopulation (MSM, FSW, and pregnant women). Between-study heterogeneity was assessed using the I^2 statistic, and the presence of small-study effects was evaluated using Egger's test and visualised using a funnel plot when there were more than ten studies. We used STATA (version 17·0; College Station, TX: StataCorp LLC) for all statistical analyses.

Role of funding source

The funders did not have any role in the study design, collection, analysis or interpretation of the data, writing of the report or decision to submit the paper for publication. J.J.O., D.S. and S.A. had access to the dataset and, together with all authors, made the decision to submit it for publication.

Results

The final search resulted in 10,564 records (10,123 initial records; 441 additional records) (Figure 1). After removing duplicates, 5,121 (4,681 initial records; 440 additional records) studies were screened by titles and abstracts against the eligibility criteria by three

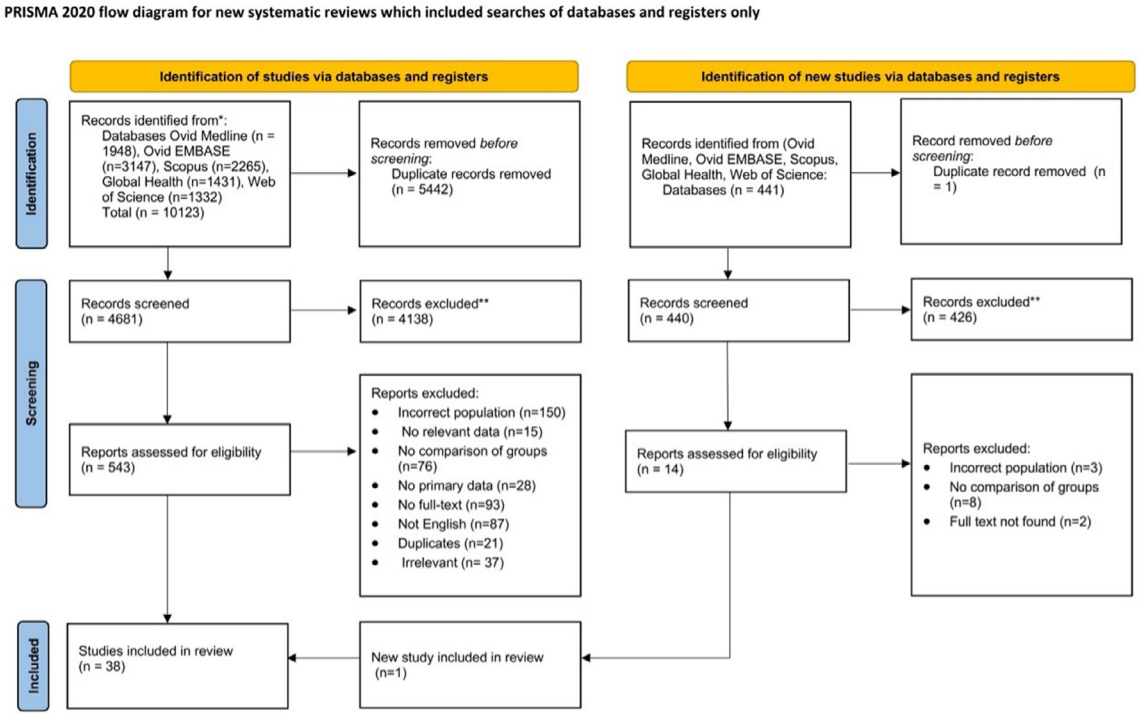

Figure 1. PRISMA flowchart of the search strategy used in this meta-analysis. The right-hand side indicates the results from the updated search (2022).

reviewers (DS, SA, and JO). Thirty-eight studies were included in the final analysis, which comprised 7,121,699 migrants and 272,523,820 native-born.

Migrant populations were categorised as international migrants (n = 29), asylum seekers (n = 1), refugees (n = 3), undocumented people (n = 1) and mixed population of different types of migrants (n = 4; Table 1). Most studies were conducted in Europe (n = 15; Figure 2), and most were from high-income countries (n = 31). We identified studies that included MSM (n = 7), FSW (n = 4) and pregnant women (n = 5), and others (n = 22) who were not specified. Further details of the studies are provided in Supplementary Table 1.

HIV prevalence ratios by migrant type (Figure 3)

Amongst migrant types, asylum seekers had the highest HIV prevalence ratio (PR) (54·79, 95% CI 17·23 – 174·23, I^2=90·15%), but this was only based on two studies, whilst any foreign-born migrants had the lowest (1·70, 95% CI 1·11 – 2·61, I^2=99·67%). Refugees and undocumented migrants had higher OR (2·37, 95% CI 0·33 – 16·99, I^2=99·53% and 3·98, 95% CI 0·11 – 143·01, I^2=94·60%, respectively) than any foreign-born migrants, but still far lower than asylum seekers. We did not detect publication bias (Egger's test, p = 0·891, Supplementary Figure 1).

HIV prevalence ratios by region of origin (Figure 4)

The places of origin of international migrants were recoded into eight regions: (1) Africa, (2) Asia, (3) the Caribbean, (4) East Europe, (5) Latin America, (6) the Middle East, (7) North America, and (8) West Europe. Those who originated from African countries had the highest PR (3·81, 95% CI 1·41 – 10·29), whilst those who came from countries in the Middle East, West and Eastern Europe had lower PR than the native-born populations (0·56, 0·67, and 0·64, respectively). Those from Asian and North American countries had approximately the same HIV prevalence as the native populations. We did not detect publication bias (Egger's test, p = 0·171, Supplementary Figure 2).

HIV prevalence ratios by country income level (Figure 5)

The vast majority of studies were conducted in high-income countries; five were in middle-income countries, and two were in low-income countries. Compared to native-born populations, international migrants living in high-income countries had a significantly higher HIV prevalence ratio (PR 2·25, 95% CI 1·27 – 3·98). International migrants living in low-income countries had a lower HIV prevalence ratio (PR 0·23, 95% CI 0·20 – 0·28). We did not detect publication bias (Egger's test, p = 0·771, Supplementary Figure 3).

	Number of studies	(%)
Migrant type		
Asylum seekers	2	(5·3)
Refugees	3	(7·9)
Undocumented[a]	1	(2·6)
Any international migrants	32	(84·2)
Region of origin		
Asia	2	(5·3)
Caribbean	1	(2·6)
Eastern Europe	2	(5·3)
Latin America	1	(2·6)
South Asia	1	(2·6)
Mixed	31	(81·6)
Recruitment setting		
Hospital	4	(10·5)
Clinic or testing centre	10	(26·3)
Outreach	4	(10·5)
Any setting	20	(52·6)
Income level of the resident country		
High	31	(81·6)
Upper-middle	4	(10·5)
Lower-middle	1	(2·6)
Low	2	(5·3)
Population type		
FSW[b]	4	(10·5)
MSM[c]	7	(18·4)
Pregnant women	5	(13·2)
Other population types	22	(57·9)

***Table 1*: Characteristics of included studies (*n* = 38).**
[a] Undocumented: migrants residing in a country without legal documents.
[b] FSW: female sex workers.
[c] MSM: men who have sex with men.

HIV prevalence ratios by population type (Figure 6)

Migrants could be grouped into three population subgroups: (1) female sex workers, (2) MSM, and (3) pregnant women. Pregnant migrant women had the highest HIV prevalence ratio (PR 15·15, 95% CI 3·62 – 63·45), whilst migrant female sex workers had a lower HIV prevalence ratio (PR 0·27, 95% CI 0·07 – 0·97). MSM migrants had approximately the same HIV prevalence as the native-born MSM. We did not detect publication bias (Egger's test, $p = 0·426$, Supplementary Figure 5).

The meta-regression analysis is provided in Supplementary Table 2. Population type (adjusted R-squared 11.5%), region of origin (11.3%) and migrant type (10.8%) accounted for heterogeneity more than country-income (2.4%) and study setting (2.3%). The proportion of variance explained by including all covariates was 35.1%. The risk of bias assessment is provided in Supplementary Table 3. Four out of thirty-eight articles scored nine out of nine, according to the Joanna Briggs Institute critical appraisal tool for prevalence studies. Twenty-one studies scored between seven to eight out of nine, and 11 studies scored between five to six out of nine. O'Laughlin (2016)[19] reported a potential sampling bias for the selection of clinical setting where people living closer to the clinic would be more likely to attend the clinic. One study had the lowest score (four out of nine).[20] Reasons for low scores include no sample size calculation to determine adequate sample size, uncertainty about coverage bias for subgroups, and no confidence interval included during statistical analysis.[20] The highest risk of bias was for appropriate management of response rate (seven studies were categorised as not applicable; 12 studies were categorised as unsure). Seven studies' score for response rate was "Not applicable" with one study reporting that primary data was acquired from a national reporting system[21] and another study with no response rate due to the survey being conducted online.[22]

Discussion

The United Nations High Commissioner for Refugees (UNHCR) estimated that the number of refugees, asylum seekers, and internally displaced people has increased by two- to four-fold from 2009 to 2019.[23] Our systematic review adds to the literature by confirming higher HIV prevalence ratios for international migrants compared with native-born populations. Although most studies reported international migrants had higher HIV prevalence than native-born populations, we found significant heterogeneity according to the migrants' region of origin, migrant type and population type. This high heterogeneity was mainly explained by region of origin, migrant type, and population type.

Region of origin was a significant factor in explaining the higher HIV prevalence amongst migrants than native-born. Unsurprisingly, migrants from African countries had the highest HIV prevalence ratio (PR 4·12, 95% CI 1·44 – 11·78) compared to native-born populations. This result aligns with the most recent UNAIDS report that found 60% of new infections were diagnosed in sub-Saharan Africa.[2] Based on pooled data from 13 studies, Asian migrants had a similar HIV prevalence to the native-born population (PR 0·75, 95% CI 0·34 – 1·65). However, there is considerable heterogeneity in this observation. For instance, studies of Asian migrants with three of the lowest HIV prevalence in our study included Asians who lived in the United States, Canada, and Hong Kong and came from East Asia, mainly China.[24–26] On the other hand, the study with the highest HIV prevalence examined South East Asian migrants, who were at higher risk than East Asians.[27] A broad diversity among the Asian population cannot be ignored when scrutinising data and designing policies related to an 'Asian population'. Similarly, although the Caribbean and Latin America have some of the highest HIV prevalence at 0·1-3%, HIV infections were concentrated in key populations, namely MSM, FSW, and

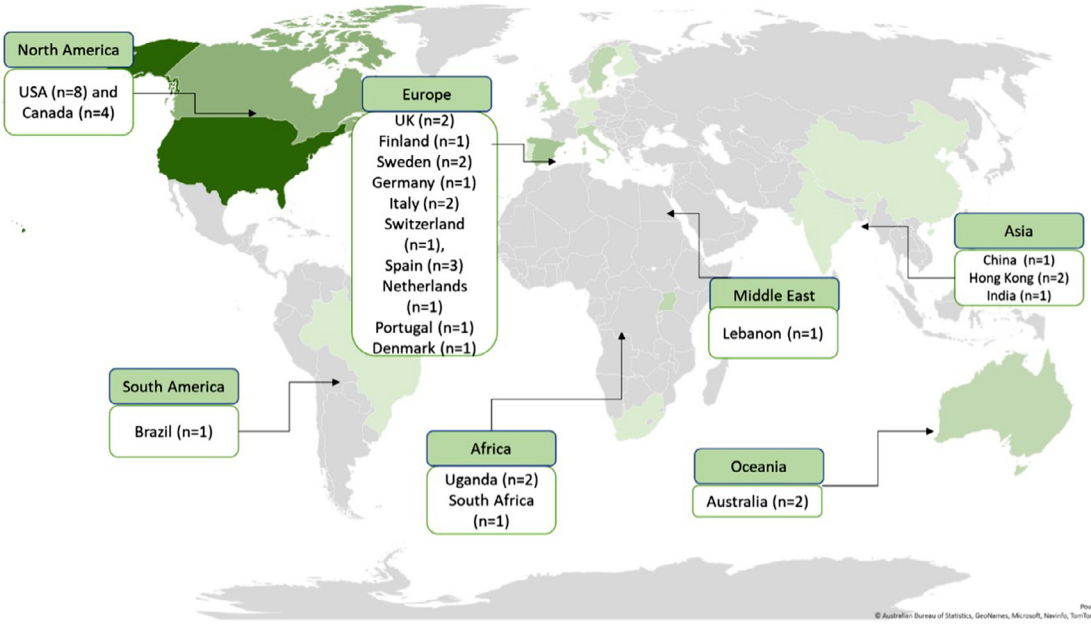

Figure 2. Countries and regions of studies (*n* = 38).

transgender women.[28,29] The high prevalence in the native populations within these regions might have explained the relatively low PR of migrants (PR 1·96, 95% CI 1·06 – 3·63) compared to the native populations. Altogether, these findings reiterate the need to consider targeted approaches to reduce HIV acquisition in the countries where these migrants reside. Unlike the others, migrants from the East and West European regions showed lower HIV prevalence than the native populations (PR 0·64 for both), which corresponds to the low HIV prevalence observed from the European Surveillance System of 31 countries in the European Union (EU) and its economic area.[30]

We found an association between the type of migrants and HIV prevalence ratios. Overall, any foreign-born had a significantly high HIV prevalence ratio. The prevalence ratios for asylum seekers, refugees, and undocumented migrants had an even higher HIV prevalence ratio, but these should be interpreted with caution, given the small number of studies. However, the prevalence ratios for migrant subgroups should be interpreted cautiously, given the small number of studies. These migrant subgroups may be at higher risk for HIV because of pre-migration factors (e.g. a high burden of HIV in their country of origin), during migration (e.g. sexual assault during migration), or post-migration (e.g. the need to sell sex to survive, starting a new life with new partners in their destination country).[31] In addition to the physical and mental stress they must endure, they may also face bureaucratic roadblocks, perceived discrimination by healthcare staff, language barriers, and financial insecurity.[32–34] All these factors consequently can lead to underutilisation of healthcare services and subsequently, an increase in infectious diseases that may result in mortality.[35,36] Moreover, the high mobility faced by some migrants adds to the challenges of providing continuous care.[6] Whilst many countries have implemented universal health coverage for their citizens and permanent residents, few offered the same services to migrants who arrived illegally or were forced to flee their homelands. Even if they could access health coverage, they were entitled to fewer services and often paid higher fees.[37] These collective issues need to be addressed by these destination countries to reach the 95-95-95 targets by 2030.

Our findings indicate that population type was also significantly associated with HIV prevalence. Pregnant migrant women had a much higher HIV prevalence than their native counterparts (PR 15·15, 95% CI 3·62 – 63·45). However, it is important to note that three out of five studies that recruited pregnant migrant women included refugees or undocumented migrants, which are also factors that increase the risk for HIV.[38–40] Two of these three studies reported high HIV prevalence ratios by a large margin (OR of 95·52 and 62·28), likely due to the types of migrants they included, i.e. refugees and undocumented migrants. One potential reason for the high HIV prevalence in this subpopulation was the routine screening for HIV as part of standard antenatal care in their destination countries.[41,42] Despite being one of the key populations and therefore perceived to be more vulnerable to HIV, we found that MSM migrants had similar HIV prevalence to their native counterparts (OR 1·12, 95% CI 0·73 – 1·72). One possible reason for

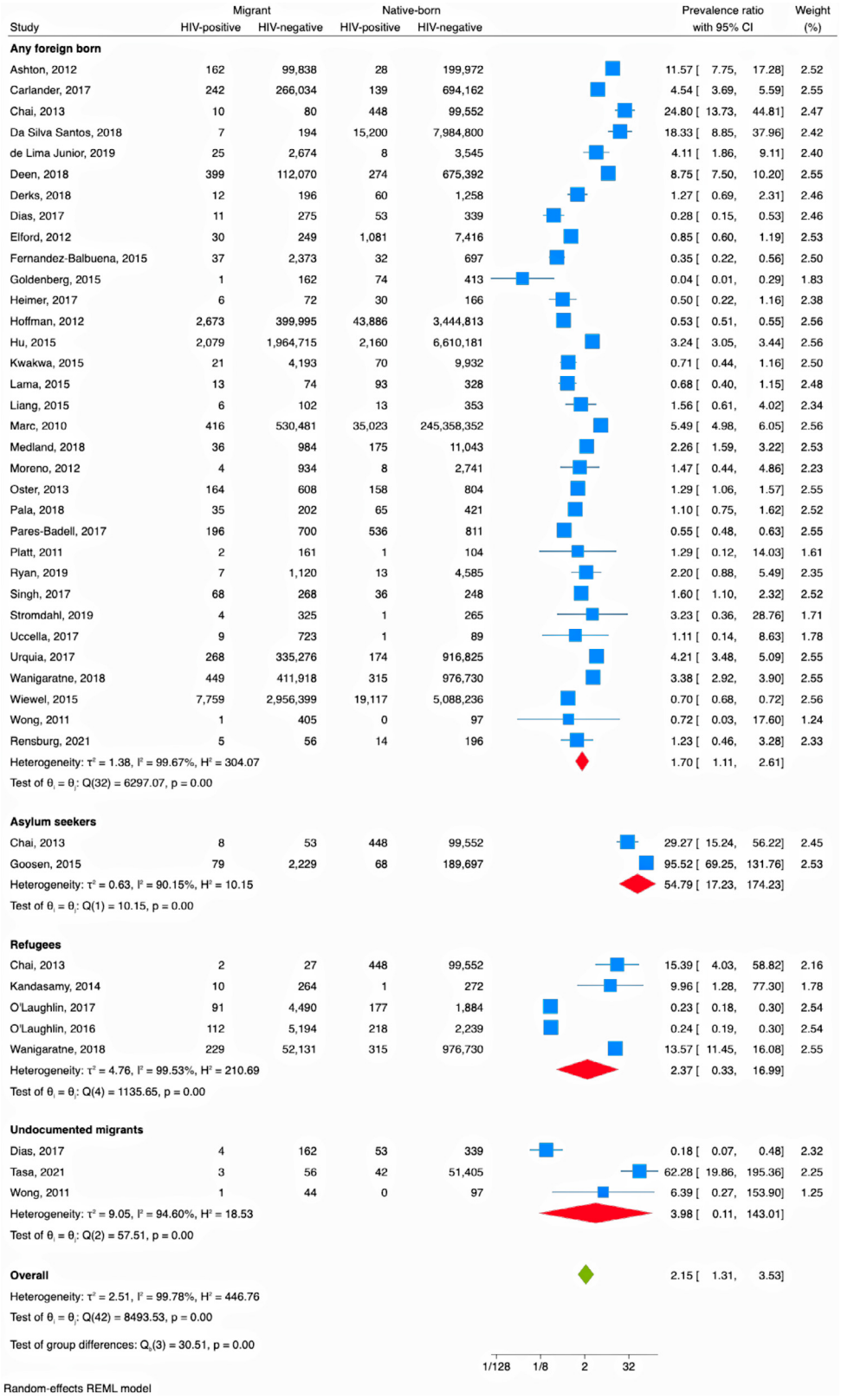

Figure 3. Forest plot of prevalence ratios comparing HIV prevalence among migrants compared with native-born populations, by migrant type.

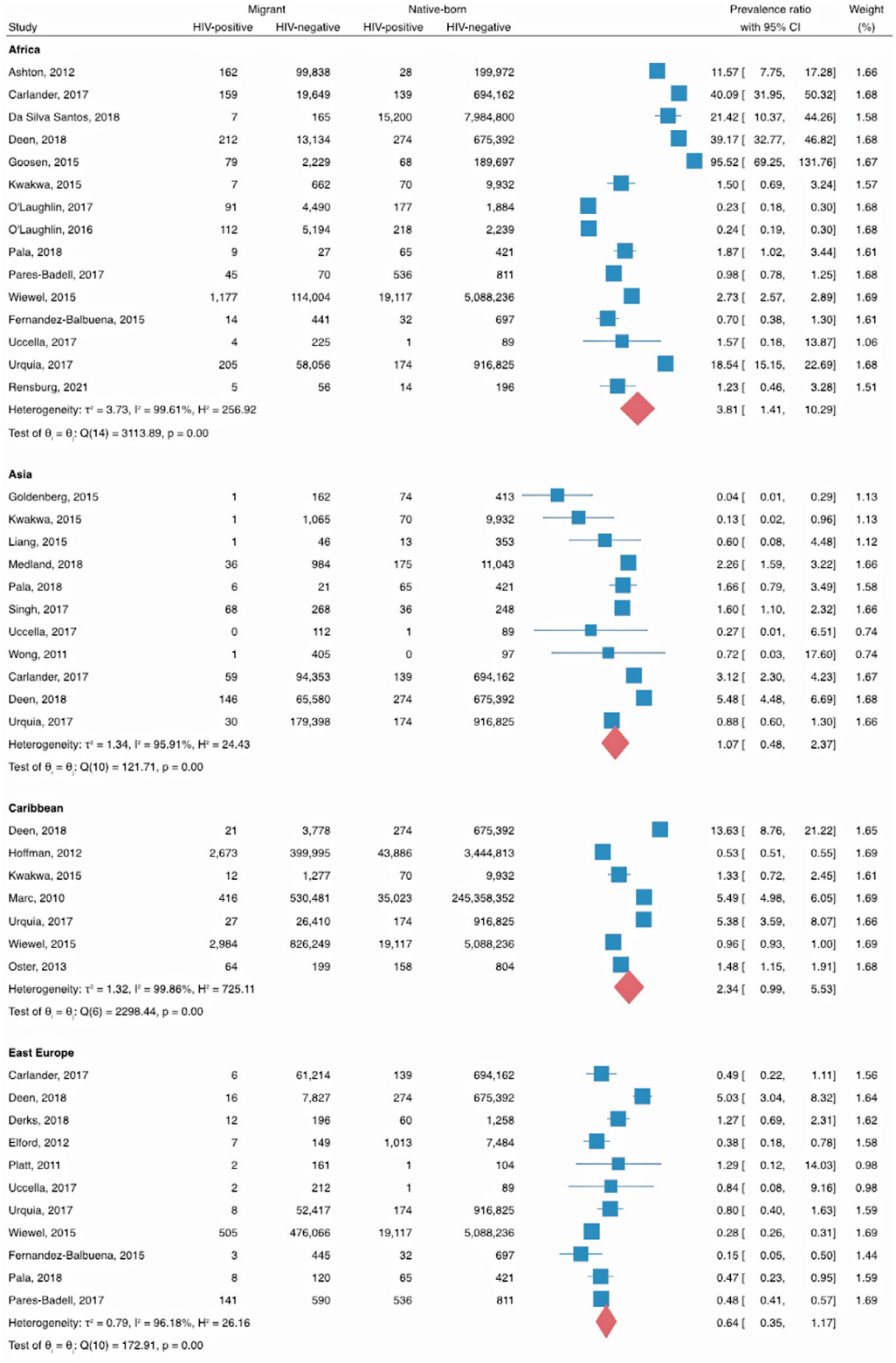

Figure 4. Forest plot of prevalence ratios comparing HIV prevalence among migrants compared with native-born populations, by migrants' region of birth.

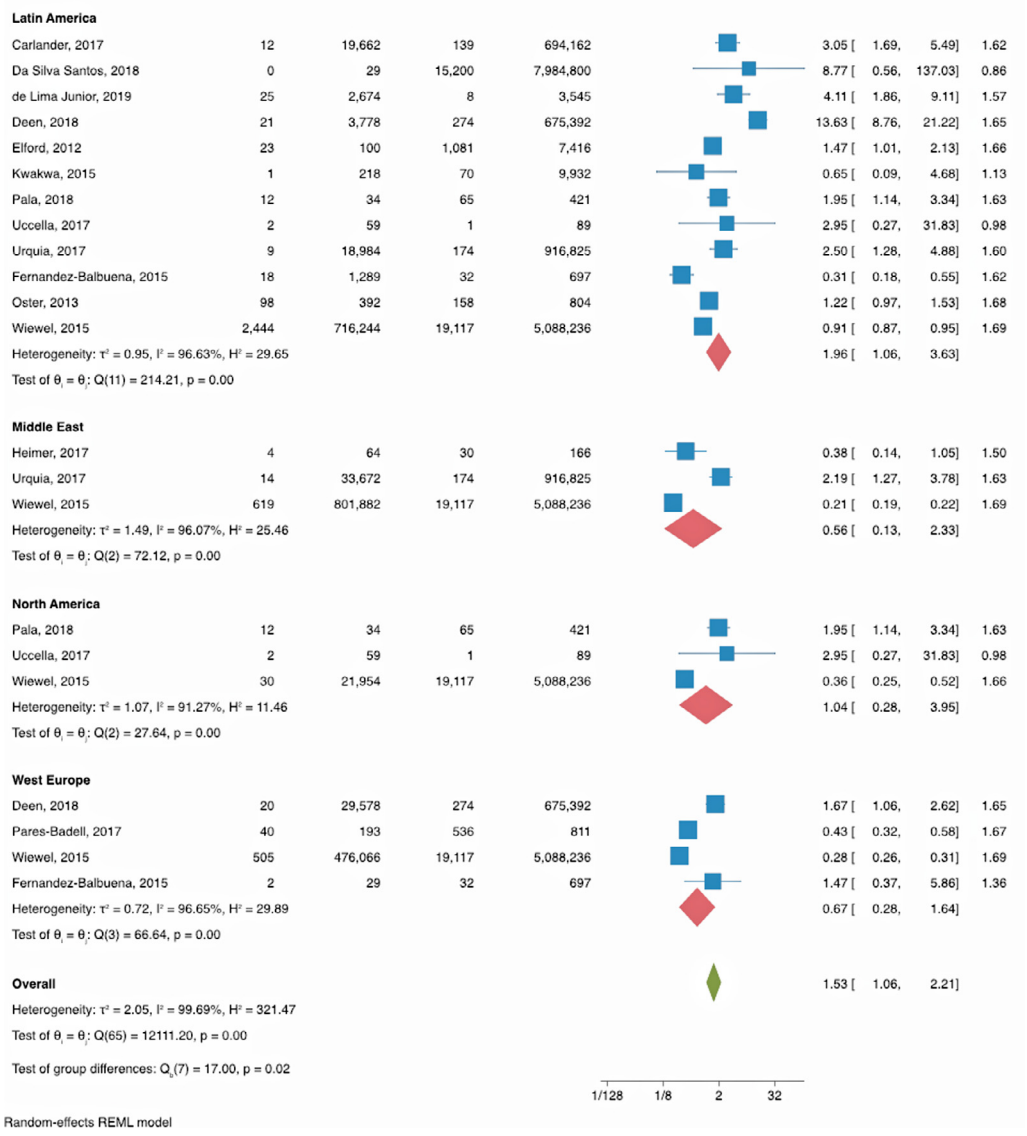

Figure 4. Continued

the similar prevalence was that the risks of HIV infection between the two groups were comparable regardless of their countries of origin. Another factor that might have been associated with lower HIV prevalence was the length of residency. A study of MSM migrants in the United States found that those who stayed for more than five years were at higher risk for HIV infection than the newly arrived. One hypothesis for the increased infection with the length of residency was the opportunity for greater sexual freedom and adoption of local socio-cultural norms that were more tolerant of homosexuality.[43] Similarly, a study in Portugal by Dias and colleagues[44] investigating HIV prevalence amongst female sex workers found that FSW migrants had lower HIV prevalence than their native counterparts. Even though migrant female sex workers were less likely to be tested for HIV, they were younger and had higher education attainment, which might have offset the risk for HIV infection. Previous studies have shown that low educational attainment was associated with a lack of knowledge about HIV/AIDS and other health topics. Together with other health inequities associated with lower socioeconomic status, they may increase their risk of HIV and lower their treatment adherence.[45–47]

Past studies have shown promising evidence on some approaches to mitigate the disadvantages faced by migrants. From the 'supply' side, improving the intercultural competence of healthcare providers, such as providing interpreter services and coordinating a seamless network that enables accessibility of healthcare

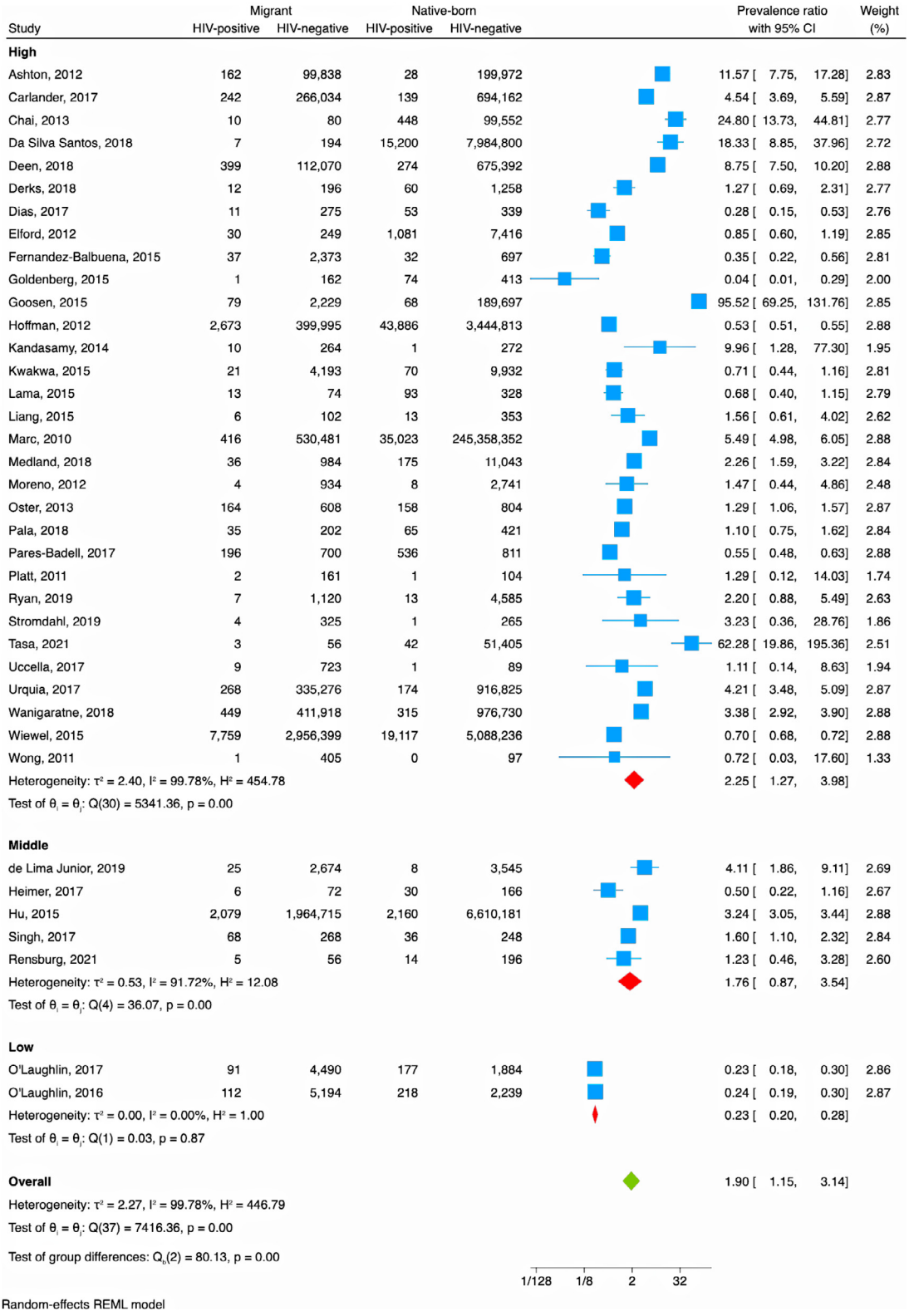

Figure 5. Forest plot of prevalence ratios comparing HIV prevalence of migrants compared with native-born populations, by country income level of the destination country.

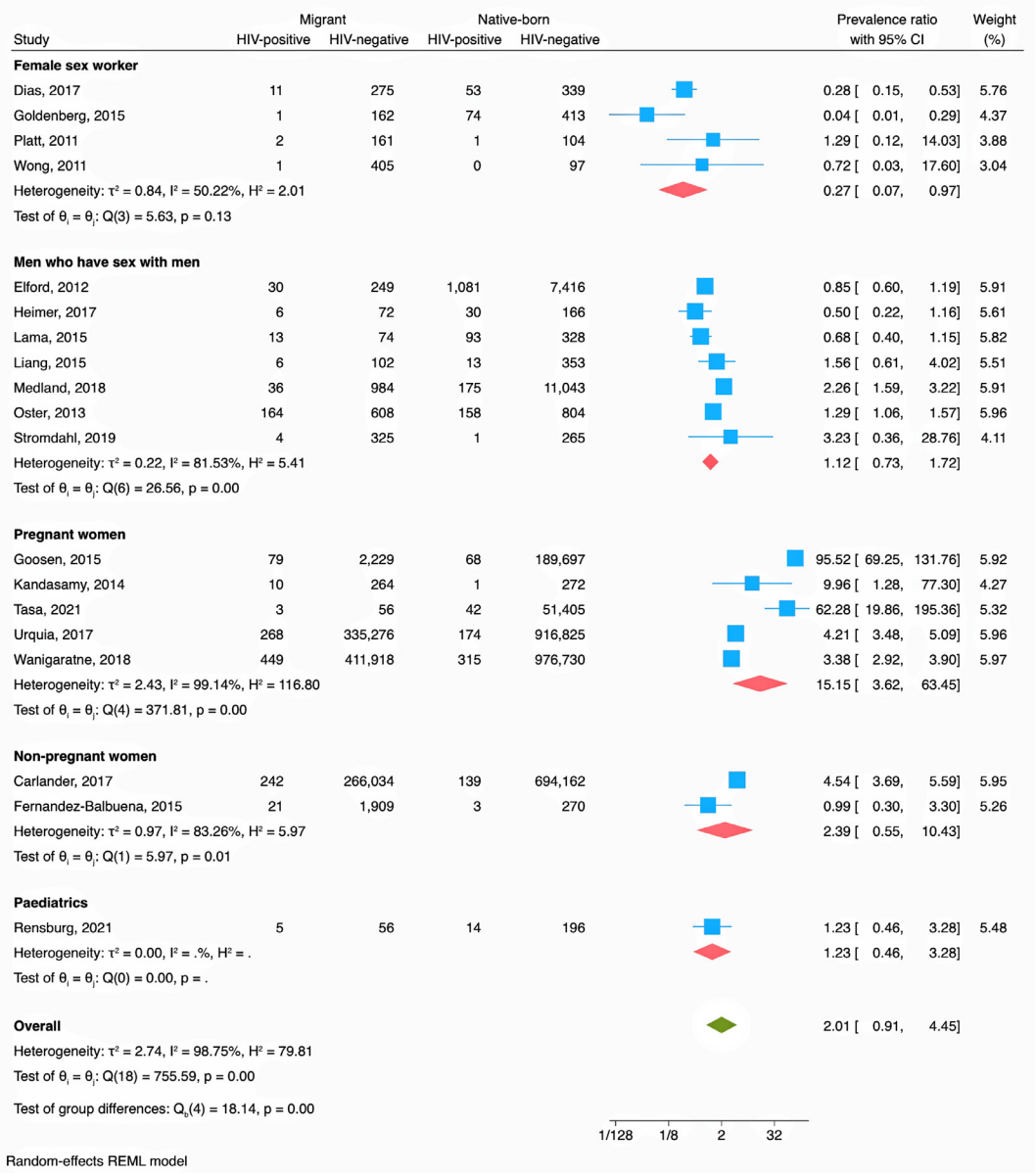

Figure 6. Forest plot of prevalence ratios comparing HIV prevalence of migrants compared with native-born populations, by population type.

services, has been trialled.[48,49] On the other hand, the 'demand' side can be reinforced by providing information through media campaigns, health education classes, and peer-led outreach interventions.[50,51] Nevertheless, these approaches have substantial challenges, such as sustainability, scaling up, limited resources, and uncertain political climate.[49,52] Our study provides the evidence to advocate for greater attention and more resources directed toward international migrants. In addition, identifying subgroups of international migrants with higher risks for HIV can also aid in prioritising limited resources. Each country could review their health policies to be more inclusive in addressing the health needs of international migrants, for example, allowing them to access essential health services (such as HIV prevention and treatment) regardless of their residence status.

A strength of our study is the use of a systematic review and meta-analysis to synthesise data from studies that compared the HIV prevalence of migrants with native-born populations. To our best knowledge, this is the first attempt to provide these pooled HIV prevalence ratios. We found a diversity of studies, including intersecting sub-populations, such as MSM, FSW, and

undocumented migrants from different parts of the world and settled in countries with varying income levels. This diversity allowed us to conduct subgroup analyses, to support existing studies on why certain sub-populations of migrants showed higher HIV prevalence than others. For example, a recent review by McBride and colleagues suggests that precarious immigration status was associated with poorer HIV outcomes.[53] This data will be helpful in advocacy and policymaking to ensure migrant populations have equal access to healthcare overall, including HIV prevention and treatment, as their native-born counterparts.

Our study should be read in light of some limitations. First, of 38 studies, 31 were conducted in high-income countries. This might be explained by our inclusion of studies published in English; thus, we might have excluded relevant non-English studies. The lack of studies in middle- and low-income countries need to be addressed as many migrants move from one lower-income country to another, such as refugees and asylum seekers who escape persecution or conflicts and neither have the means nor are allowed to travel to wealthy countries. In this meta-analysis, only 10 of 38 studies examined this sub-population of migrants. Second, we had no access to grey literature such as refugee databases of aid organisations that might have valuable information related to HIV status amongst vulnerable migrants. This data would have provided deeper insights into their health, accessibility to the healthcare system, and countermeasures to mitigate challenges in HIV prevention and treatment. Third, we cannot suggest causality between migrant status and HIV prevalence, and we acknowledge the complexity of HIV risk related to intersectionality and the social determinants of health. Our study highlights the importance of further exploring the circumstances surrounding the migrant subgroups and their risk of acquiring HIV. Fourth, this review did not investigate HIV infection status before, during, and after migration in the analyses. It also did not account for the time since arrival in the country of residence. Therefore, the 'when' and 'how' of infection among migrants remains to be determined. Lastly, and not unexpectedly, there was relatively high between-study heterogeneity. Our meta-regression, which included population type, region of origin of international migrants, migrant type, country-income level, and study setting, only accounted for 35.1% of the variance. This suggests that other factors, such as differences in recruitment strategy, sexual behaviours and other risk factors for HIV, healthcare systems or insurance schemes, could contribute to the variance we observed.

This systematic review and meta-analysis highlight the increased prevalence of HIV in migrant populations compared to the native-born. Nevertheless, the risks are not evenly distributed amongst migrant subgroups. Certain subgroups of migrants, namely refugees, asylum seekers, and the undocumented, appeared to have a higher prevalence than other migrants. With hundreds of millions of international migrants and a large influx of refugees or asylum seekers from conflict areas, there has not been a better time for these high-income countries to review existing resources to support the new arrivals. Focused approaches that address high mobility, cultural differences, or social stigmas, could be employed to facilitate increased HIV testing and access to HIV management when needed. The high HIV prevalence amongst pregnant migrant women suggests that routine HIV testing conducted as part of antenatal care has succeeded in detecting infections in mothers, therefore mitigating the risk of mother-to-child transmission. Perhaps most importantly, there needs to be a concerted effort by governments to have policies that are more inclusive of migrant populations to ensure better access to HIV prevention and treatment services and therefore give the countries a higher chance to achieve the 95-95-95 targets.

Contributors

D.S. and S.A.: identification of papers and data extraction, formal analysis, validation, visualisation, writing – original draft, and writing – review & editing, contributed equally. J.J.O.: conceptualisation, identification of papers and data extraction, formal analysis, investigation, resources, software, supervision, validation, writing – original draft, and writing – review & editing. All other authors: writing – review & editing. All authors decided to submit it for publication.

Data sharing statement

J.J.O., D.S. and S.A. had access to the data. Datasets of this study are available upon reasonable request to the corresponding author (J.J.O.).

Editor note

The Lancet Group takes a neutral position with respect to territorial claims in published maps and institutional affiliations.

Declaration of interests

We declare no competing interests.

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Supplementary materials

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