Migration and health in the WHO-AFRO Region:
A scoping review

Undertaken by the African Centre for Migration & Society (ACMS), WITS University, Johannesburg
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African Region

“Without considering migrants and refugees, we cannot achieve universal health coverage. We must mainstream their health needs in all programmes. It is a core part of protecting and promoting migrants’ human rights.”

Dr Matshidiso Moeti
WHO Regional Director for Africa World Health Organization (WHO) AFRO at the 2nd Tri-Regional High Level Meeting in Sharm El Sheikh, March 2023

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1. About this scoping review

This scoping review has been undertaken in order to improve understanding of the state of knowledge in the field of migration and health in the WHO-AFRO region. The objective is to identify literature on migration and health in the WHO-AFRO region that has been published since 2016. Given that the WHO-AFRO region includes three official languages – English (ENG), Portuguese (PT) and French (FR) - the review covers published literature in each of these three languages. Two existing, unpublished WHO-AFRO reports – both dated 2018 – were provided by the WHO-AFRO office and included in the review. Given the date of these reports, the majority of documents included precede the timeframe that this review focuses on.

Due to the parameters of this review, the report does not incorporate global discussions (e.g. 1,2) or the existing body of migration and health research and resultant frameworks/concepts that (a) were developed and published prior to 2016 and/or (b) do not focus on the WHO-AFRO region. At some points during the report, select literature is drawn on in the general discussion, such as previous work that suggests approaches to conceptualising the relationship between different forms of migration, health status, and the social and structural determinants of health (e.g. 3–12). This encompasses work exploring the role of health systems and approaches to global health and immigration governance as key determinants of the health of migrants(13–15), including in the context of Universal Healthcare Coverage (UHC) (16–22) and the Global Compacts for (1) Refugees and (2) Safe, Orderly and Regular Migration (23–27,27,28,28). Other known documents/reports published by various International Organizations across the region prior to 2016 are not included in the review (29–41).

2. Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method (42) for was used, ensuring a systematic approach to undertaking this scoping review and in documenting the methodology.

Key aspects of the methodology include:

- Identifying the eligibility criteria to determine exclusion and inclusion of literature/documents. These are presented below.

- Deciding on information sources.

  – To identify published literature, three databases were used – PubMed, Web of Science (WoS), SCOPUS.

  – Other sources searched included google and google scholar; SABINET African Journals[1] ; the websites of international organisations; and, screening of systematic reviews/scoping studies identified during the database searches. In addition, targeted searches of key websites and known resources was undertaken.

- Generating a search strategy, selection process and data collection process. This includes screening and removing duplicates; determining eligibility; assessing publications for eligibility; and, finally, undertaking analysis and synthesis.

[1] "Sabinet African Journals encompasses the breadth and depth of African research content by offering the most comprehensive, searchable collection of full-text African electronic journals available on one platform. This service, which is easy to use and accessible anytime and anywhere, is a growing service — over 500 journal titles in 10 collections are available for individuals, corporates, universities, government departments, research institutions and law firms. Sabinet African Journals offers a user-friendly platform and encourages research efficacy. All international journal standards and statistics are adhered to and various business models are available" - https://journals.co.za/

2.1. Eligibility criteria

The exclusion/inclusion criteria are as follows:

Exclusion	Inclusion
– Receiving/host country is outside of WHO-AFRO Region – Internal migration, including Internally Displaced Persons (IDPs) – Trial protocols – Digital migration – Cell migration – Published before 2016	– About a migrant population in the from, and in, the WHO-AFRO Region – Reports on empirical data – Is about health and wellbeing, including health systems research – In English, Portuguese or French (the 3 official WHO-AFRO languages) – Published since 2016 – Systematic reviews and scoping reviews were not included in analysis but reviewed to identify additional papers for inclusion (via 'Other Sources'

2.2. Information Sources

The PRISMA flowchart is presented below, providing an overview of the key information sources utilised and the documents identified, screened, and included in the review.

Searches of PubMed, Web of Science and SCOPUS databases identified a total of 3676 records, from which 988 duplicates were removed. The remaining records were screened, retrieved, and assessed for eligibility. A total of 286 published studies were included in the study.

The searches of other sources identified a total of 359 documents from which 220 were excluded. Exclusions were mainly due to a lack of empirical data in the documents identified or, in the case of published literature identified there was a duplication of what had been identified in the database searches. A total of 122 documents were included from the searches of other sources: 51 reports; 4 book chapters; 7 theses; 2 documents provided by WHO-AFRO (43,44); and 58 published studies that had not been identified in the database searches.[2]

2.3. Search strategy

All search terms, parameters and filters used in PubMed, Web of Science and SCOPUS can be found in Appendix 1, including the ENG, FR and PT variations. For SABINET and the google and google scholar searches, search terms are also presented.

2.4. Selection Process

2.4.1. Published literature: PubMed, Web of Science and SCOPUS

A clear protocol was designed for assessing the records identified. This included verification checks and opportunities for collectively discussing studies that were difficult to screen and/or different opinions were held within the project team. No automation tools were used. Records were managed in ZOTERO and with Excel. Whilst 3676 articles were identified in ENG, none were identified in PT or FR. At the end of the process, 286 published studies, out of the 3676 initially identified, were included in the final synthesis.

A total of 3289 articles were excluded. Excluded studies were about internal migrants (n=208), including Internally Displaced Persons (IDPs); about migrants from the WHO-AFRO region who are outside of the WHO-AFRO region (n=342)[3]; and for other reasons as outlined in the exclusion criteria (n=1852), including 11 review articles. From these review articles, 12 papers were identified and screened (45–56) and after removing duplicates of articles identified from the initial database search and determining eligibility, four were included in the analysis (counted under 'other source' as these were not identified in the database searches) (45,49,54,55).

During the inclusion/exclusion process, a decision was made to include one article that synthesises 4 published articles from a single research study (57) and two review papers - both published in 2016 – that provide (a) a regional synthesis of literature about migrant populations in urban areas of South And East Africa (58) and (b) an overview of HIV interventions amongst refugee and pastoralists communities in North-East Africa (59).

[2] These studies were not identified in the searches of PubMed, Web of Science or Scopus because they are not in indexed journals; have been recently published; have not yet been allocated a journal issue/are 'online first'; or are an 'accepted manuscript' pre-print version.
[3] The majority of studies were located in Europe.

2.5. Grey Literature

A total of 359 documents were identified (ENG:319; PT:22; FR:18), including two unpublished documents from 2018 that were provided by the WHO-AFRO office (43,44). These documents are not available online and report on knowledge and interventions in the field of migration and health, within the WHO-AFRO region. After being assessed for eligibility, 237 were excluded. Out of the remaining 122 documents, a total of 58 (ENG:55; PT:1; FR:2) were categorised as "published studies" – including those identified through google scholar and SABINET. These were included in the analysis of the published literature identified in PubMed, Web of Science and SCOPUS. The remaining 64 documents (ENG:44; PT:12; FR:8) were analysed separately. This 'grey literature' consists of 51 reports; 4 book chapters; 7 theses; 2 documents provided by WHO-AFRO (43,44).

2.6. Data Collection Process

The 286 published studies identified in PubMed, WoS and SCOPUS plus the 58 published studies identified from other sources were retrieved and read in full (total of 344). Four researchers undertook this stage of the review. The Synthesis Spreadsheet was used by each researcher and where any queries were raised, these were flagged and discussed with other team members. JV was responsible for consolidating the reviews; all data was managed in Excel, allowing for data cleaning and double checking of entries.

The remaining 64 documents identified through other sources were retrieved, stored in ZOTERO and read. In the case of large reports, the executive summary and/or introduction and conclusion was read first and if this provided the information needed to complete the database, the report was not read in further detail.

2.7. Data Items

Appendix 4 (the Excel Synthesis Spreadsheet) outlines the variables for which data was collected. These variables capture the country of study; migrant group; study type; key health concern investigated (where applicable); key health system focus (where applicable); and the main determinant of health identified (again, where applicable). To assist in the data collection/extraction, additional fields were added to the spreadsheet, allowing researchers to include multiple entries where necessary. For example, if more than one health system issue had been included in the study.

2.8. Study risk of bias assessment

The research team developed an approach that aimed to address bias as best of possible. Researchers worked independently, then assessed a sample of each other's work. No automation tools were used but a simple Excel search was conducted periodically by the Lead Researcher - including during the final assessment phase - to ensure that no key exclusion criteria were missed. The largest risk of bias is through the identification of studies through other sources as this involves a subjective approach to searching resources that may be known to the researcher. A rigorous search strategy was applied and five researchers were involved in the analysis of these publications (3 x ENG; 1x PT; 1x FR).

2.9. Synthesis methods

The final list of eligible published studies (n=344)[4] can be found in Appendix 4. The lead researcher (JV) was responsible for checking for any missed duplicates; ensuring all included papers were appropriately entered into a shared Zotero library; and cross-checking the included studies with those added to the synthesis. The Lead Researcher used simple tabulation and basic visualisation functions in Excel to explore the key variables of interest across the full database. The ENG documents were analysed by two researchers, whilst the PT and FR documents were analysed by a Lusophone ad Francophone researcher respectively. This literature was reviewed and assessed independently using the same Excel template. The Lead Researcher responsible for the

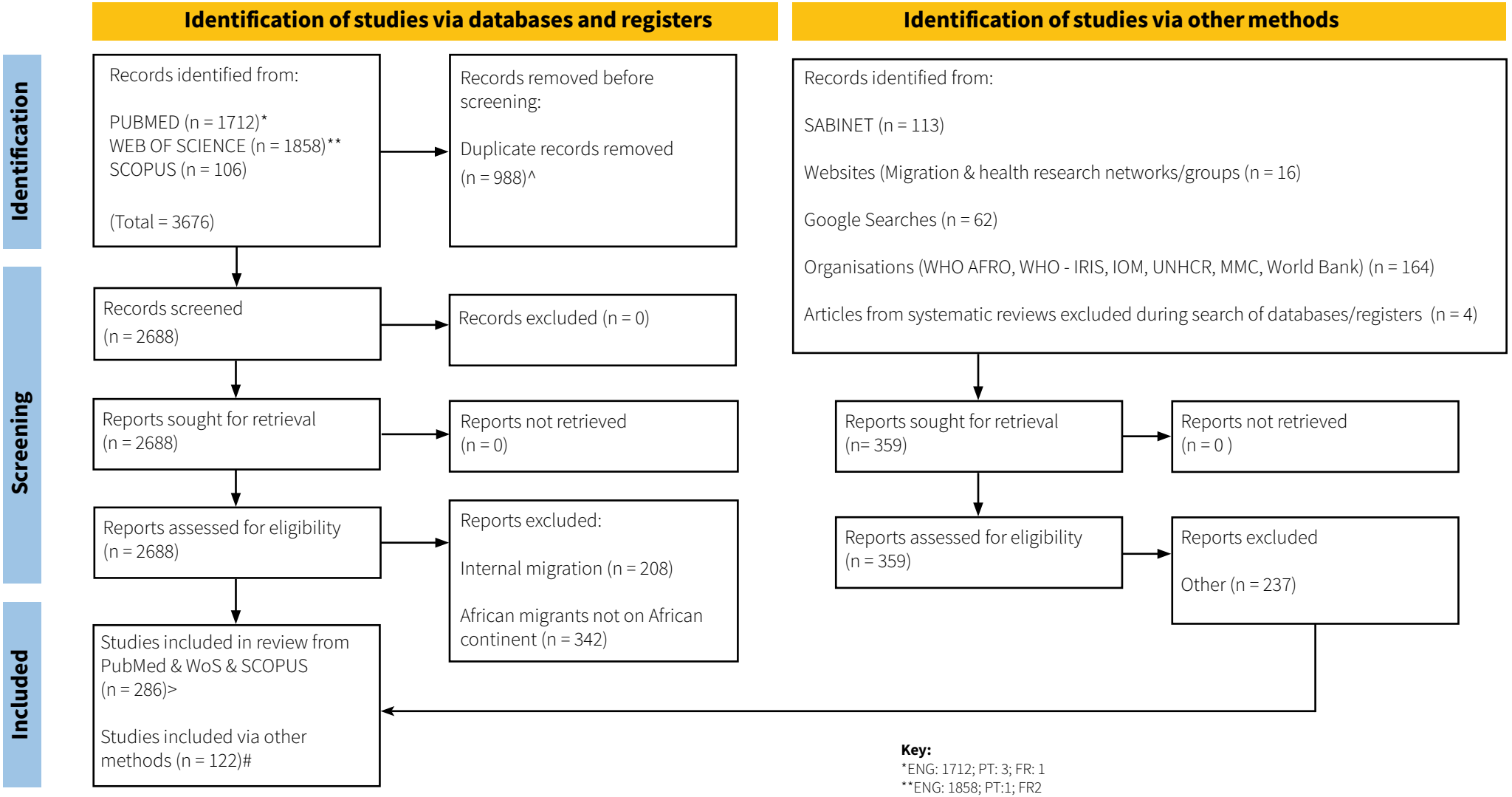
3. Results

As shown in the PRIMSA flow chart in section 3.1 below a total of 408 documents were included in the review (access Zotero library here)

The Excel Analysis Synthesis Table (Appendix) presents the results from the review. An overview of key findings is presented below, after the PRIMSA flow-chart, followed by a discussion in section 4.

[3] The majority of studies were located in Europe.
[4] This combines the 286 published studies identified in PubMed, WoS and SCOPUS, PLUS the 58 published studies identified from other sources

3.1. Prisma Flow Chart



Key:
*ENG: 1712; PT: 3; FR: 1
**ENG: 1858; PT:1; FR2
^No duplicates identified in PT or FR
>ALL ENG
includes 58 published studies (ENG:55; PT:1; FR:2), inclusive of 4 ENG articles identified from the review of systematic reviews and one systematic review AND 64 other docs (ENG:44; PT:12; FR:8)

Total Included = 408
Total published studies/journal articles = 344 (including 58 from 'other sources')

Total other = 64

4. Key Findings: Health Topics

This section presents a synthesis of the documents included in the review, organised by the health topic of focus. The information presented concentrates either on (1) specific health outcomes or (2) wider engagement with social and structural determinants of health (SDH) in the context of health equity associated with the topic of focus, including healthcare systems. Separate sections follow that focus on health systems (Section 5) and the SDH and health equity (Section 6).

4.1. Communicable diseases

4.1.1. HIV

Migration dynamics and HIV

Geolocated survey data from the United States Agency for International Development (USAID) demographic and health surveys (DHSs) and AIDS indicator surveys (AISs) from 7 countries in Eastern and Southern Africa - Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia, and Zimbabwe - were analysed to explore associations between HIV prevalence and a range of socioeconomic, behavioural and environmental factors (60). Whilst DHS does not collect data about nationality – therefore making it impossible to determine between internal (domestic) migration and that of international migrants – these surveys are designed to include anyone within any given country, including international migrants. The results highlight the importance of border areas – suggesting the movement of international migrants is captured in these areas.[5] Through multilevel logistic regression models and geospatial analysis, high prevalence areas were identified. Findings show that indicators of economic activity explained the location of micro-epidemics of high-prevalence areas, including those associated with seasonal and economic migration, highlighting the need for local-level, context-specific interventions. The authors outline the need for fine-scale geospatial mapping of key populations, including migrants – to determine the drivers of high transmission. They emphasise that this should include an exploration of the associations between migration and sex work in these areas.

DHSs[6] were used in a second study, this time making use of data from five southern African countries (Angola, Malawi, South Africa, Zambia, and Zimbabwe) to investigate the association between HIV serostatus and population mobility, whilst adjusting for socio-demographic, sexual behaviour and spatial covariates (61). Results include identifying a spatial link between HIV prevalence and movement in Angola, South Africa, Zambia and Zimbabwe, with areas found to have a high mobility and high HIV prevalence were located at national borders, suggesting that international migration/movement across borders contributes to the high HIV prevalence. The results indicate that mobility was associated with HIV positive status in Zimbabwe only where females had a higher odds of mobility than males. Mobile individuals had higher odds of establishing in areas close to national borders in Angola and Zambia, and near to main cities in Zambia and Zimbabwe.

A study using population-based data was used to characterize the relationship between HIV and migratory patterns in Rakai, Uganda where HIV prevalence ranges from 9-43% (62). This longitudinal data was collected between 2011 and 2015 from approximately 22,000 people aged 15-49 of known HIV status who reside in 38 communities in Rakai – including on the shores of Lake Victoria. Participants included 233 international migrants (5% of all in-migrants) with 92% arriving from the neighbouring Kagera District in Tanzania. The study results highlight four key findings: (1) cross-community migration is pervasive; (2) those who migrate are more likely to have HIV and less likely to be on ART than those who do not migrate; (3) migrants account for the majority of newly detected HIV cases in the area of study; and, (4) a higher HIV prevalence is found amongst people who have moved to HIV 'hotspots' from more diverse locations. Migration was most common among women compared to men. Female migrants in fishing communities had a higher HIV prevalence than in other areas, with prevalence among in-migrants peaking at 63% among women 40 years of age and older at 74% among out-migrant women 35–39 years. HIV-positive women were 1.33 times more likely to migrate compared to HIV negative women after adjustment for age and community-type. HIV-positive men, however, were no more likely to migrate than HIV-negative men. Analysis explored if length of stay in fishing communities was associated with an increased likelihood of acquiring HIV. Amongst women, this was not found to be the case but HIV prevalence among male in-migrants, prevalence

[5] For these reasons, despite no clarification of the inclusion of international migrants, it was decided to include this study in the review.
[6] Whilst DHS does not collect data about nationality – therefore making it impossible to determine between internal (domestic) migration and that of international migrants – these surveys are designed to include anyone within any given country, including international migrants. Additionally, the data strongly suggests that cross-border movement contributes to the high prevalence of HIV found in border areas, spaces that are associated with high levels of population mobilty. For these reasons, the decision was made to include this study in the review.

did increase with length of time residing in these communities – from 18-39% over 2 years. Overall, the authors conclude that in order to reduce the incidence of new infections, special efforts are required to engage with migrant populations.

A spatial analysis of HIV-TB co-clustering in Uganda was undertaken using data on TB and HIV cases obtained from the Ugandan District Health Information Software 2 system that is maintained by the Ministry of Health (63). Results show that high clusters of TB were mostly around Lake Victoria and in the central north, and one cluster in the northeast. HIV high clusters were concentrated in the south, around Lake Victoria and the central parts of Uganda. Across Uganda, TB has a generally positive association with HIV. There are two high-high TB/HIV occurrence and co-clusters, one around Lake Victoria and the other in the north-central area of the country. The authors indicate that the results of the study suggest that the TB/HIV hotspot cluster around Lake Victoria is associated with fishing communities – known to be associated with high levels of migration and HIV (64,65) - and the northern area of Uganda may be associated with the presence of refugees, mostly from South Sudan.

In the city of Durban, South Africa, a qualitative study involving in-depth interviews with 12 refugee women was undertaken to explore HIV risk factors (66). Thematic analysis was used with results showing that the women reported a range of issues that increases vulnerability to acquire HIV, including partner infidelity, forced sex, the inability to negotiate condom use and financial difficulties leading to dependence on their husbands as well as transactional sex. Whilst women reported testing regularly for HIV, male partners were reportedly reluctant to do the same.

Migrant labour, work and HIV

Papers identified and included in the review – detailed below - go on to explore the relationship between migrant labour and HIV risk for specific categories of migrant workers, including migrant sex workers and migrants who sell sex (67–70), long-distance truck drivers whose work involves crossing national-borders (71,72), migrant mine workers (73,74) and their partners (75), farm workers (76–79), and circular migration of women who are informal traders (80), and women in the fishing communities of Lake Victoria (64).

Migrant sex workers and migrants who sell sex

A 2019 study undertaken in Lomé, Togo explored whether migration affected the stigma experienced by sex workers when accessing healthcare services (67). Respondent-driven sampling – a peer referral method used to recruit hard-to-reach populations - was used. A total of 354 female sex workers (FSW) participated in the study which involved HIV testing and completion of an administered questionnaire. Results – generated through multivariable logistic regression – identified factors associated with stigma experienced by FSWs when accessing healthcare. Overall, findings indicate that being a migrant sex worker was consistently associated with decreased odds of experiencing stigma in both the bivariate and multivariate analyses. The authors suggest that migration could be a strategy to avoid stigma while engaging in healthcare services. Findings show that 76.3% (270/354) were migrants, including 33.3% (118/354) who were international migrants. Of the international migrants, most reported migrating for economic reasons (61.9% (73/118). Data indicated that migrant sex workers were older (almost 70% of migrant sex workers with 25 years or older compared to just over 50% of non-migrants sex workers). Migrant sex workers entered sex work at older ages –with 55% entering sex work at 22 years or older compared to 38.1% of non-migrant sex workers. It was significantly more likely that migrant sex workers would never have friends to visit their homes compared to non-migrants (39.% compared to 19% respectively). Migrant women were more likely to test for STIs and HIV (40.4% v's 35.4%) and had higher STI testing in the past year compared to non-migrants 50.2% v's 41.7%). However, migrant sex workers reported lower HIV testing (73.5%) than non-migrants (76.8%). Self-reported HIV prevalence was higher among migrant sex workers (9.7% compared to 1.7% amongst non-migrants) but prevalence in the survey data did not significantly differ between the two groups. Non-migrant sex workers were significantly more likely to report never having been pregnant than migrant sex workers (40.5% v's 30.7%) and were significantly more likely to report having had an abortion that migrant sex workers (62.8% v's 50%). In terms of fear or avoidance of seeking healthcare, migrant women were more likely to report being afraid to access healthcare (5.9%), or avoid seeking care (4.8%) compared to non-migrant women (4.8% of non-migrant sex workers reported being afraid to access care whilst 3.6% avoided accessing care). Migrant sex workers were less likely to report experiencing stigma

(20%) than non-migrant sex workers (41.7%). Gossiping by healthcare workers was reported to have been experienced by 0.7% of migrant sex workers compared to 3.6% of non-migrant sex workers. Overall, migrant women had reduced odds of experiencing challenges when accessing health services compared to non-migrant women (18.9% v's 39.3% respectively).

A study undertaken in Zimbabwe in 2019 explored the association between mobility and access to HIV services among female sex workers in Zimbabwe (68). Whilst most participants reported movement within the country, 17% (497/2839) reported traveling outside the country for sex work. The authors make use of the term mobility to refer to movement within and outside the country and data is not presented to indicate the length of time spent outside the country. Results indicated that women who reported traveling for sex work more likely to have attended a clinic two times or more than women who did not report travelling (58% v's 48%), with the number of days away when traveling for sex work being associated with clinic attendance. Mobility was found to be associated with increased probability of being part of community mobilisation activities but no associations with HIV testing, PrEP use, ART initiation or viral suppression were identified. The authors report that their data does not support the hypothesis that mobility is associated with lower healthcare use amongst sex workers.

A qualitative study undertaken in Johannesburg, South Africa, used ethnographic research and semi-structured interviews with undocumented migrant women from the Democratic Republic of Congo (DRC), Zimbabwe and Mozambique to explore their daily experiences of selling sex (69,70). A group of 15 women participated in the study – with ten interviewed regularly - that took the form of group and individual place over a 24-month period. Results indicate that the intersecting experiences of being a woman who sells sex, being a foreign migrant and – in several cases - being a single mother result in experiences of structural violence and a complex range of vulnerabilities, including in relation HIV (69,70). This structural violence is shown to take various forms, including in relation to being criminalised by existing policy, poor treatment and violence by the police, and the ways in which 'othering' and 'not-belonging' result in discrimination and abuse when accessing healthcare – especially maternal healthcare (69). Findings from this ethnographic study indicate that sex work advocacy groups and sex worker-specific programmes can assist in mobilising access to HIV services through the provision of tailored approaches (69).

Long-distance truck drivers

A qualitative study was undertaken with 15 long-distance truck drivers in Zambia (71,72). The authors classify long-distance truck drivers as a highly mobile population, whose work regularly means they cross national borders. Findings – based on 15 semi-structured interviews and subsequent template analysis, identified HIV sexual risk behaviours commonly practiced by truck drivers in Zambia and the relationship between stressful life events/psychosocial problems and HIV risk behaviour (71). This included how time away from family and main partners resulted in feelings of loneliness and associated stressors related to marital conflict, financial stressors, depression and anxiety-like symptoms related to HIV sexual risk behaviour and witnessing friends go through HIV-related deaths. Reports of increased sexual risk behaviour were associated with feelings of loneliness and included having sex with migrant women – cross-border traders and fish traders – and sex workers where low condom use is reported. Alcohol use was associated with low condom use.

Mine workers and their partners

As will be described below, three papers focus on HIV and associations with the mining industry, exploring: (a) how changes in employment practice affect health outcomes, including HIV (73); (b) the use of Pre-Exposure Prophylaxis (PreP) by female partners of Mozambican migrant mine workers who have migrated to work in South African mines (75); and (c) exploring knowledge, testing and screening practices of HIV and tuberculosis (TB) in mining communities that originate in Mozambique (74).

Analysis of the South African mining recruitment database for the period 1973 – 2021 identified trends in employment practice relevant to health (73). Results indicate a decline in employment in gold mines – which is the major source of silicosis; an increase in the employment of female miners; and changes in recruitment from foreign to South African mine workers, and from employees of mining companies to contractors (73). The study authors indicate that there is a need to improve understanding of where mine workers are recruited from and where they return in order to respond to HIV, tuberculosis and silicosis in

miners and ex-miners in the region.

A descriptive cross-sectional survey was conducted with 1012 participants in two communities of origin of migrant mineworkers - who work in South Africa - in the Gaza Province of Mozambique (74). The sample was mostly female (75.2%), with a median age of 34. The overall prevalence of HIV found in the two communities was 24.2% and was higher in the rural community. The prevalence of HIV was higher in participants aged 40–49 years (32.7%) and tended to decline with increasing levels of education of participants. HIV prevalence does not differ in those who currently live with a miner or ever lived with a miner. A considerable proportion of participants had not been aware of their HIV positive serostatus (31.1% female and 25.0% male). About 1/3 of the participants had had a history of STIs.

A qualitative study involving in-depth interviews was undertaken in Mozambique with 25 female partners in a stable relationship with a migrant male mineworker who was working in South Africa at the time of the study (75). Participants were part of a prospective cohort assessing the feasibility, acceptability, and adherence to daily oral short-term pre-exposure prophylaxis (PrEP) as an HIV prevention intervention. Results fond that most women were 36-49 years of age and the mean time in a relationship with a migrant miner was 19 years. Participants reported never or rarely using condoms with their partners and approximately one-third reported that they had never tested for HIV prior to participating in the study. Less than half of participants reported knowing the HIV status of their partner. Participants were taking a daily oral PreP for a 6-week period to prevent HIV acquisition during the return of their partners during the Easter holidays. The women who participated started PrEP 2 weeks in advance of their partner's arrival, for the 2 weeks whilst they were home, and for 2 weeks after they had returned to South Africa. The study results indicated that participants felt participating in the study was a positive experience as PreP provided additional protection against HIV – this included three participants who knew their husbands were on ART as they felt PrEP provided increased protection. The study also provided opportunities to be tested for HIV, something reported as positive by participants. Study results show that participants found that – contrary to the initial fears of half of the participating women – PreP did not negatively affect their daily routines, they found it easy to take, and that they did not experience side-effects. A key result was that the majority of participants did not disclose that they were taking PreP to their partners as they were afraid their partners would not understand, or may think that they were trying to prevent acquiring HIV from other sexual partners, or they were hiding the fact that they were HIV positive and the pills were in fact ART. Some of the participants did however disclose to their partners that they were taking PreP and reactions were positive. One participant also disclosed to a family member (mother). The participants reported difficulties faced in discussing sensitive topics – including HIV testing – with their partners. Sexual behaviour was reported to remain almost the same; one woman reported using condoms less often due to less fear of being infected with HIV and two indicated that whilst they continued to use condoms, they felt less anxious during sex. All of the women who participated in the study reported that they would be willing to take PreP again.

Farm workers

A qualitative study was undertaken with migrant farm workers at two farms located in a region of South Africa that borders Zimbabwe (77–79). The research explored the role of HIV services provided through government systems and through non-governmental organisations, specifically the International Organization for Migration (IOM) and Médecins Sans Frontières, (MSF) (77–79). The study involved 79 in-depth interviews with key informants, including farm workers, community health workers, civil servants, healthcare providers and employees of international and local non-governmental organisations; participant observation of in a local migrant health forum; and non-participant observation of the government mobile clinic service. Thematic analysis was applied to the data collected. Results highlight the importance of engaging with and understanding the key structural determinants of health, including HIV (77). This includes the role of global markets and associated standards for commercial farms that guide occupational health requirements; tensions between the state and the agricultural sector, particularly in relation to the cost of employing migrant workers; international migration management; and the social value of health. Results indicate that farm workers experience the intersections of poorly implemented labour legislation and an anti-foreigner/xenophobic content that does not value their health or wellbeing; this means that migrant farm workers are vulnerable to poor health outcomes, including increased risk of HIV acquisition. At the level of intermediate determinants

of health, two key concerns were identified. Firstly, the material circumstances of migrant farm workers were identified as a determinant of health. This included the poor quality of housing provided by farms – including poor water and management - that are located in geographically isolated areas, and a 'no work no pay' policy which makes it difficult for farm workers to take time off to access healthcare services, including for HIV. Secondly, the psychosocial and behavioural determinants that affect health and wellbeing including the relationship between alcohol consumption, violence, risky sexual behaviour and the resultant increased risk of acquiring HIV. The health system was identified as a key determinant of health and results highlight how challenges in access to healthcare services affect the ability of farm workers to test for HIV and access ART, including negative implications for continuity of care. The importance of health and HIV interventions that mobilise community members through the activities of non-governmental organisations where state programmes are absent was identified but results from the study highlight that these programmes are unsustainable (78,79).

A qualitative study was undertaken at a 'See and Treat' cervical cancer screening programme at a HIV screening and treatment clinic that serves HIV positive female migrant[7] farm workers in South Africa (76). This involves visual inspec¬tion with acetic acid (VIA) for diagnosis whereby results are available immediately and cryotherapy treatment can be offered at the same time. The WHO has recommended this approach for low-resource settings and in contexts where women may be lost to follow-up. The clinic involved in this study serves a large population of migrants/ Results from observation of healthcare workers, a review of charts and patient logs, and 18 in-depth interviews with healthcare providers and patients show the successful integration of this intervention into current services. The results do, however, identify privacy concerns and negative perceptions of medical care as barriers to screening. Observations showed clinical competency of healthcare providers who had received training and review of charts found a positive correlation between VIA and Pap smear results. Results showed the successful integration of 'See and Treat' in an existing clinical setting and improved awareness of cervical cancer amongst both patients and healthcare workers. However, given the migrant nature of patients – who were migrant farm workers, loss to follow-up was around 60%.

Circular migration of women

A formative, cross-sectional qualitative study involving focus group discussions and in-depth interviews with key informants was undertaken in six purposively selected fishing communities in Kenya, Tanzania and Uganda (64). The study explored the movement[8] of women between fishing communities along Lake Victoria. Results indicate high levels of movement over both long and short distances amongst women associated with work. Women were reported to travel often to places that are new and unfamiliar, far from healthcare and away from familiar contacts. In this context, it was reported that some women engage in risky sexual behaviour and do not continue to access HIV care. This migration was seasonal – circular – facilitating contact with healthcare systems periodically. Women in Mozambique who work as cross-border traders, experience challenges in accessing HIV prevention services as a result of their mobility (80).

Refugee experiences

HIV risk

A behavioural risk-factor survey was administered using respondent-driven sampling to explore the relationship between social support, HIV status and perceived likelihood of being HIV positive with self-settled female migrants in the city of Cape Town, South Africa (81). Multivariable regression models assessed the relationships between social support and two HIV outcomes: HIV serostatus and perceived HIV status. Low social support was not significantly associated with HIV status, but was significantly related to a perception of being HIV positive. Age, marital status, and education level were significantly associated with HIV serostatus. Illegal border-crossing, length of time in South Africa, anal sex, and transactional sex were significantly associated with a perception of being HIV positive.

Co-infection with TB

A retrospective cohort study of all TB cases registered in 25 refugee camps in Ethiopia collected between January 2014 and December 2017 were extracted to explore factors associated with unsuccessful TB treatment outcomes (82). As part of the data collected included information about HIV status, results from this

[7] This study is an example of where the migrant population is not defined. However, given the population included (migrant farm workers in a region of South Africa that borders Zimbabwe and Mozambique) and the existing literature on the topic, it can be assumed that this migrant population includes international migrants from neighbouring countries.

[8] This study is an example of where the migrants population is not defined. However, based on other studies (e.g. Grabowski et al, 2020 included in this review) that focus on the same population, it can be assumed that this migrant population includes women who move between countries along Lake Victoria.

study showed that HIV testing was performed in most (5.6%) of the notified TB cases, of which 12.4% were HIV positive. Between 2014 and 2017m a higher percentage of TB patents were tested for HIV (from 84.1-88.6%) and the percentage testing positive reduced from 15.3% to 10.9%. At the same time, ART coverage increased from 40% to 84.2%. Multivariate analysis showed that HIV infection was associated with unsuccessful TB treatment outcome.

Access to HIV services

Interviews with healthcare providers and a cross-sectional survey with migrants living with HIV in Lesotho was used to assess needs, preferences and barriers to HIV care and treatment, with migrant defined as 'a Lesotho national who is currently living or has been living in South Africa for at least three consecutive weeks in the past six months' (83). Out of 524 migrants living with HIV who were enrolled in the study, 315 (60.1%) were from urban and 209 (39.9%) from rural sites. Of these, 344 (65.6%) were women, 375 (71.6%) were aged between 26 and 45 years and 240 (45.8%) were domestic workers. Out of the 524 HIV infected migrants, the barriers to getting ART while in South Africa included the following: 35.7% (n = 187) did not afford transport costs; 23.7% (n = 124) did not know where to get ARV's, 19.3% (n =101) were afraid because of not being legally registered in South Africa; 15.8% (n = 83) felt discriminated as a foreigner, 8.6% (n = 45) were refused health service; 8.4% (n = 44) were afraid that the ARV's would be confiscated at the border; 6.1% (n = 32) had their ARV's regimen not available at facility; and 5.9% (n = 31) had to pay for health services. A total of 486 (92.7%) preferred to collect their medications primarily in Lesotho compared to South Africa. From 506 who responded to the question on preferred dispensing intervals, 63.1% (n = 319) preferred 5–6 month ARV refills, 30.2% (n = 153) chose 3–4 month refills and only 6.7% (n = 34) opted for the standard-of-care 1–2 month refills. A total of 126 (24.4%) defaulted on their treatment and the primary reason for defaulting was failure to get to Lesotho to collect medication (59.5%, 75/126). Treatment default rates were higher in urban than rural areas (28.3% versus 18.4%, p = 0.011). Service providers indicated a lack of transfer letters as the major drawback in facilitating care and treatment for migrants, followed by discrimination based on nationality or language. Service providers indicated that most patients preferred all treatment services to be rendered in Lesotho, as they perceive the treatment provided in South Africa to be different often less strong or with more serious side effects.

Qualitative interviews with Malawian migrants in South Africa – many of whom were reported to be undocumented – identified the ways in which they access ART whilst in South Africa (84). The importance of support from 'guardians' – family or friends – in Malawi was emphasised, with healthcare workers dispensing 6 months of ART refills on behalf of the migrant. These guardians would then send the drugs via bus or truck drivers who charge for this service.

Through a review of case studies developed from a review of the work of non-governmental organisations in refugee camps in Tanzania and Kenya, an overview of the ways in which HIV interventions are guided by international human rights frameworks was developed (85). These case studies show that upholding the standards enshrined in human rights declarations are difficult to implement in practice and services should rather focus on developing tailored approaches to ensure they are relevant to local cultural, political and economic contexts.

A qualitative study exploring HIV clinic attendance was undertaken in the Nakivale Refugee Settlement in Uganda (86). Semi-structured interviews – followed by thematic analysis - were undertaken with 47 clients in HIV care and 8 clinic staff. Results indicate that participants were motivated to attend the clinic due to the belief that ART improves health and perceived quality of care that would be provided. Barriers to access included distance, cost, unemployment, and climate; seasonal changes mean that extreme rain or heat prohibit walking long distances – 6 hours in some cases – to the clinic. Climate also affects the ability to successful grow vegetables and in times where crops failed due to weather, the little available money that may have been used to cover the costs of transport to the clinic were redirected to purchasing food. The data indicates that disclosing HIV status assisted in overcoming barriers to care. Stigma and non-disclosure presented challenges, particularly in relation to accessing community support to overcome access challenges.

Also in Nakivale, a prospective HIV screening study was undertaken to explore predictors of HIV (87). Between March 2013 and November 2014, free HIV screening was

offered to all clients using the Nakivale Health Centre. Of the 7766 people tested, 330 (4%) were found to be HIV positive. Refugees were one quarter as likely as Ugandan nationals to be HIV-infected. Additionally, being female and traveling more than 1 hour to the clinic increased the likelihood of being HIV-infected. Compared to individuals who were married or in a stable relationship, being divorced/separated/widowed increased the risk of being HIV-infected, while being single reduced the risk. Having been previously tested for HIV also lowered the likelihood of being HIV-infected.

Remaining in Nakivale, a pilot study was undertaken to explore the feasibility and acceptability of home-based HIV testing among refugees (88). In February and March 2014, homes were visited in 3 villages up to 3 times and were offered HIV testing, some were refugees, and some were Ugandan citizens. Of the 566 adults living in 319 homes, we encountered 507 (feasibility = 90%): 353 (62%) were present at visit one, 127 (22%) additional people at visit two, and 27 (5%) additional people at visit three. Home-based HIV testing participants totalled 378 (acceptability = 75%). Of the 378 who tested for HIV, 7 (1.9%) were diagnosed HIV-positive. Compared to clinic-based testers, home-based testers were older, more likely refugee than Ugandan national (93% vs 79%), and more likely to live ≥1 h from clinic (74% vs 52%). The HIV prevalence was lower, but not significantly, in home-based compared to clinic-based testing participants (1.9 vs 3.4%). Testing was not associated with time of visit or sex, but for each additional person at home, the odds of accepting HIV testing increased by over 50%. Home-based HIV testers had a higher proportion that scored ≥75% correct on the 4 question HIV knowledge test (70% vs. 60%) but no significant difference in the proportion with previous HIV tests (78% vs. 74%) or in the proportion with HIV tests within the past year (40% vs. 36%).

A retrospective cohort study was undertaken to evaluate the HIV treatment cascade and mortality in migrants and citizens living with HIV in Botswana (89). The study included 768 records for migrants - the majority of whom were Zimbabwean (79%) - and 3274 for citizens, making up 20% and 80% of the study respectively. Ninety percent (n=3642) of all PLHIV received ART during the study; 77% (n=593) of migrants and 65% (n=2385) initiated ART at the clinic. Migrants initiated ART more rapidly than citizens; median times to ART initiation from first clinic visit were 11 days and 91 days respectively. Seventy-six percent of migrants and 58% of citizens were initiated ART within 6 months of first clinic visit. At the end of the study, 44% of migrants and 27% of citizens were retained in care. Viral suppression was found to be lower among migrants than citizens (82% and 95% respectively). Results indicated that citizens on ART had a median 157-unit greater increase in CD4+ T-cell count than migrants. At 92%, five-year survival was lower for migrants than the 96% recorded for citizens and migrants had higher mortality than citizens after entry into care and ART initiation. Ultimately, results show that the HIV treatment cascade for citizens was superior to that of migrants.

Workshops with 29 refugee women and 46 refugee men from Ethiopia, Somalia, Burundi and the Democratic Republic of Congo were undertaken in the Eastern Cape of South Africa to explore challenges faced in accessing HIV and wider healthcare services (90). Dissatisfaction with services was prevalent and results indicate that language barriers were major obstacles. Refugees reported that discussion of sensitive topics within their community is difficult, and disclosure of a positive HIV status will likely lead to stigma and discrimination. Participants indicated that they were uncomfortable testing for HIV for fear that this could be considered to be the result of 'promiscuity'. Attitudes of healthcare workers were also reported to be a challenge, along with their lack of knowledge about refugee and asylum seeker documents and their right to health. Participants reported being turned away from healthcare services and feeling discriminated against by healthcare workers.

A study comparing four livelihood programmes for refugee women in the city of Durban, South Africa included approaches to support improved access to HIV prevention services which had been identified as a key need (91). Results from the study outlines the role that peer educators play in raising awareness about HIV, including where to access services and in the provision of condoms, and highlights the importance of supporting refugee women in addressing the structural barriers associated with self-settling in an urban context.

A cross-sectional survey with refugee and displaced adolescent girls and young women (AGYW) and adolescent boys and young men (ABYM) aged 16-24 in the city of Kampala, Uganda was undertaken to explore adolescent sexual and reproductive health stigma and HIV testing awareness and uptake (92,92).

Among participants (n=445), two-thirds were aware of HIV testing services in their community and over half (56.0%) had received a lifetime HIV test. In adjusted multivariable regression analysis findings with AGYW: (a) higher sexual activity & pregnancy stigma and modern family planning & abortion stigma were associated with reduced odds of HIV testing services awareness, and (b) modern family planning & abortion stigma was associated with reduced lifetime HIV testing odds. Stigma was not associated with HIV testing awareness/ uptake among ABYM. HIV testing services awareness among AGYW was lower than among ABYM, yet AGYW were more likely to have been tested and to experience adolescent SRH stigma as a testing barrier. A second paper(93) using the same data found that less than half (43.8%) were aware of community STI services. One-quarter (26.1%) reported lifetime STI testing. Of these, 39.5% reported a lifetime STI diagnosis. In multivariable analyses among young women, age, lifetime sex partners, and lower adolescent sexual and reproductive health (SRH)-related stigma were associated with STI services awareness; and age, lower adolescent SRH-related stigma, and food security were associated with STI testing. Among young men, time in Uganda and lower HIV-related stigma were associated with STI services awareness; and age, condom self-efficacy, and increased adolescent SRH-related stigma were associated with testing. Lifetime sex partners, lower condom self-efficacy, and lower adolescent SRH-related stigma.

A qualitative study involving five focus group discussions with urban refugee and displaced youth – including young women, young men and sex workers - living in informal settlements and 4 key informant interviews were undertaken in the city of Kampala, Uganda (94,95). Participant narratives (94) reflected material and symbolic contexts that shaped HIV testing awareness, preferences and uptake. Material contextual factors that presented barriers to HIV testing and prevention engagement included transportation costs to clinics, overcrowded living conditions that limited access to private spaces, low literacy, and language barriers. Symbolic contexts that constrained HIV testing engagement included medical mistrust of HIV testing and inequitable gender norms. Religion emerged as an opportunity to connect with refugee communities and to address conservative religious positions on HIV and sexual health. Intersections between stigma and HIV testing were also explored (95) with participant narratives revealing stigma drivers included fear of HIV infection; misinformation that HIV is a "Ugandan disease"; and blame and shame for sexual activity. Stigma facilitators included legal precarity regarding sex work, same-sex practices and immigration status, alongside healthcare mistreatment and confidentiality concerns. Stigma experiences were attributed to the social devaluation of intersecting identities (sex work, youth, refugees, sexual minorities, people living with HIV, women). Participants expressed high interest in HIV self-testing. They recommended HIV self-testing implementation strategies to be peer supported and expressed concerns regarding sexual- and gender-based violence with partner testing.

Assisted Partner Notification for HIV

A study in West Nile, Uganda, explored the perspectives of healthcare workers, who provide services to refugees and Ugandan citizens, about assisted partner notification (APN) - an approach, recommended by the WHO for notifying sexual partners of HIV exposure (96). Index client and partner data was extracted from APN registers at 11 health centres and qualitative interviews were conducted with health workers (N = 32). Since APN started, 882 index clients participated in APN identifying 1126 sexual partners. Index clients were predominantly female (58%) and had an average age of 35 years. Of the index clients participating in APN, 418 index clients (47%) were refugees and 360 index clients (41%) were Ugandan nationals; for 104 index clients (12%), no information was recorded regarding refugee or Ugandan national status. Each index client identified an average of 1.3 sexual partners (modal number 1, range 1–6), corresponding with a total of 1126 listed sexual partners. The median number of sexual partners identified by Ugandan national index clients was 1 and the median number of sexual partners identified by refugee index clients was 1. Most sexual partners were male (54%) and had an average age of 34 years. Of the 1025 partners who were tested, 22% (230/1025) were diagnosed with HIV. Following notification, 95% (1025/1126) of partners tested for HIV; 22% (230/1025) were diagnosed with HIV. Of these sexual partners diagnosed with HIV, 60% (139/230) were newly identified index clients and 36% (83/230) were index clients who were already enrolled in care. Overall, 14% (139/1025) of tested partners were newly diagnosed with HIV.

A second study draws on the same data, to explore the role of interpersonal violence in this APN programme

(97). Results show that for 8% (75/958) of partners, index clients reported a histo¬ry of intimate partner violence (IPV). For 20% (226/1126) of partners, index clients were screened for post-APN IPV; 8 cases were reported of which 88% (7/8) concerned partners with whom index clients reported prior history of IPV. In qualitative interviews (N = 32), health workers reported HIV disclosure-related physical, sexual, and psychological vi¬olence and deprivation or neglect. Incidents of disclosure-related vio¬lence against health workers and dependents of index clients were also reported. Fear of disclosure-related violence was identified as a major barrier to APN that prevents index clients from listing sexual partners.

HIV stigma

A descriptive phenomenological study was undertaken to explore and describe the healthcare needs of women residing in the Osire refugee camp in Namibia (98). A key finding was the women reporting the need to be protected against stigma associated with living with HIV. Results from interviews indicate that this is especially challenging due to the lack of confidentiality within the camp and participants reported being traumatised as a result.

Ethnographic research – including 41 semi-structured life history interviews - was undertaken in the city of Johannesburg, South Africa, to explore the perceptions of HIV in Mozambican immigrants (99). Results indicate that whilst access to HIV treatment is increasing, social stigma remains widespread. Some Mozambicans living with HIV preferred to return 'home' for treatment rather than risk being seen by people they know in Johannesburg. Stigma creates challenges for Mozambicans living with HIV who remain concerned about members of their social networks in Johannesburg discovering their status. In a second paper, 21 of the life history interviews – those undertaken with Mozambican migrants who are living with HIV and receiving ART - are analysed to explore the relationship between loneliness, secrecy and HIV disclosure (100). Results highlight the complexities associated with living with HIV and with disclosure of status: participants indicated that they chose not to disclose their status for fear of negative ramifications within their social networks, resulting in loneliness and anxiety.

Attitudes and beliefs

A study was undertaken with 200 immigrants - including 86 Mozambicans and 55 Zimbabweans - in a district of the Limpopo Province of South Africa that borders Zimbabwe to explore their attitudes and beliefs regarding HIV (101). A non-probability sampling method was used to purposively elect one informal settlement that is home to a large population of immigrants who receive healthcare at a local clinic. Convenience sampling was then used to select 200 immigrants to participate in a survey through an administered questionnaire. Results indicate that respondents expressed discriminatory attitudes towards individuals living with HIV, with many perceiving casual sexual relationships and the disease called Makhume (meaning illness caused by the omission of purification rites following the death of a family member) as causes of HIV. The majority of participants (174/200) reported that having a shower or bath after sexual intercourse will prevent HIV and that a person who appears healthy could not have HIV (133/200).

Pre-marital sex

A community-based cross-sectional study was undertaken in four refugee camps located in the North Tigray region of Ethiopia was in order to explore experiences of premarital sex amongst adolescents (102). Out of the 536 adolescents who participated, the prevalence of premarital sex was 47.6%– most of whom were in the age group 14-19 years -and the majority reported having girl/boyfriends (54.7%). Of those who reported having premarital sex, 39.6% reported not using any form of contraception. Whilst the study did not focus on HIV, the study results have implications for the risk of acquiring HIV through unprotected sex.

Baseline data from a cluster-randomised controlled trial in three refugee camps in Ethiopia was used to examine the association between HIV risk factors, attitudes on gender inequality, IPV acceptability, and self-esteem for female adolescent refugees primarily from Sudan and South Sudan (n = 919) (103). In multivariate models, adjusting for age and education, results showed girls who were more accepting of gender inequitable norms and IPV had greater odds of ever experiencing forced or transactional sex compared to girls who demonstrated less approval. Higher self-esteem was associated with increased odds of condom use as well as decreased odds of adolescent marriage, age-disparate sex, and transactional sex.

HIV among pastoralists in north-east Africa

A review of literature[9] on pastoralists and refugees in the Intergovernmental Authority for Development (IGAD) – Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda) included 78 documents (59). Sero-prevalence among various pastoral populations ranged from 1% to 21% in Ethiopia, Kenya, Somalia, and Uganda and from 1% to 5% among refugees in Sudan, Kenya, and Uganda. Socioeconomic, cultural, logistic, infrastructure and programmatic factors were found to contribute to continuing vulnerability to HIV. Access to HIV preventive and treatment services remain difficult for pastoral communities due to a lack of mobile health services in large and hard-to-reach areas. As illustrated in figure X below, results from the review indicate that whilst the spread of HIV amongst pastoralists is driven by socio-cultural factors influencing sexual behaviour, few studies explore HIV risk and tailored HIV prevention programmes are lacking.

Figure X: HIV-related concerns amongst pastoralists in the IGAD region (taken from(59))

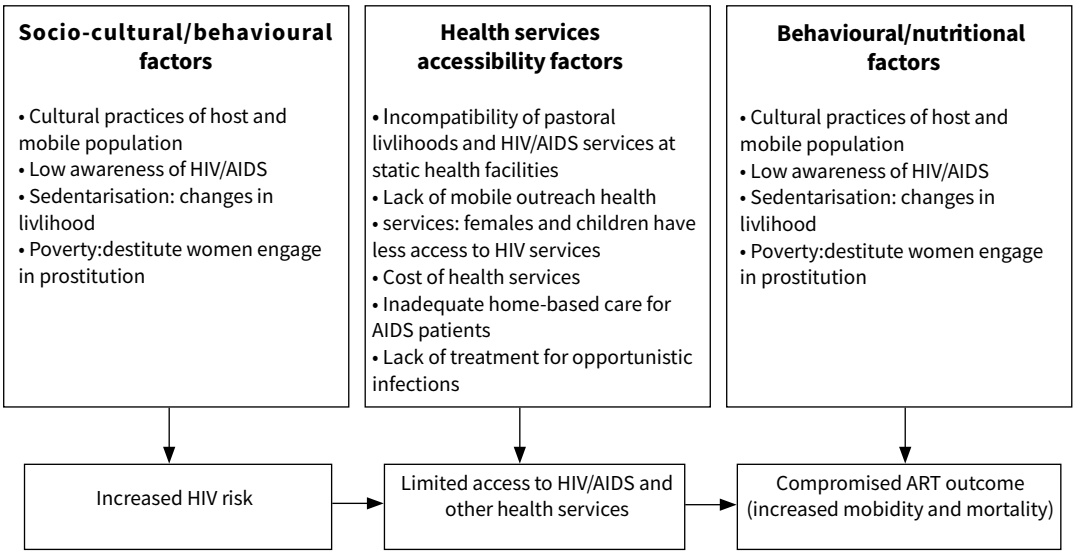


Figure 1: Facttors in high HIV risk, access to HIV/AIDS services and ART outcomes among pastoralist. Sources: Morton (2008), Franklin et al. (2006), IRN (2011), ITGD (2005), Southwell (2008), Soikani 2009, Stanke et al. (2013), Spiegel et al. (2014), Schelling et al. (2008)

Sexual and gender minority migrants and HIV

A qualitative study was undertaken to explore HIV prevalence among sexual and gender minority (SGM) migrants in Cape Town was undertaken (104). A short demographic survey and six focus groups were held with 30 participants who were identified through purposive sampling of migrants through an organisation that provides services to LGBTQ refugees, and who included men who have sex with men, women who have sex with women, and transgender women. Participants were between 21 and 42 years of age and originated from Zimbabwe, Malawi, the Democratic Republic of Congo, Burundi, Uganda, Lesotho and Tanzania. Transcripts from the focus groups were analysed using grounded theory. Results form the analysis indicate that multiple intersecting issues contribute to HIV risk, including a lack of social support, insecure immigration status, unreliable income, instability in housing conditions, food insecurity, and stigma and discrimination. Some reported engaging in sex work to secure an income. Participants were aware of the risks associated with HIV acquisition when engaging in sex work. Results from the study suggest that these structural barriers, along with a range of psychosocial concerns also identified, may negatively affect adherence to PrEP and ART.

A paper published in 2021 reports on three exploratory field visits that took place in Nouakchott, the capital city of Mauritania that involved exploring LGBT resettlement from West Africa (105). The qualitative study included several components, including semi-directed interviews with Senegalese men who identified as gay and who were living in Nouakchott as refugees, asylum seekers or rejected asylum seekers; interviews with employees of UNHCR and members of civil society organisations; healthcare professionals; and the person responsible for Mauritania's national HIV programme. In addition, members of a Senegalese LGBT organisation based in Dakar were interviewed. Results from these interviews indicate that gay Senegalese men living with HIV and receiving HIV in Nouakchott face multiple challenges associated with the asylum system. This includes challenges in safely accessing HIV services and treatment, including difficulties in navigating their desire to keep their HIV positive status private within communal living conditions. Ultimately, the challenges identified contribute to what the authors refer to as the 'slow death' that gay asylum seekers and refugees experience in their time in Nouakchott.

[9] This is one of two review papers included in the review.

4.1.2. Tuberculosis

TB amongst migrant mine workers

A historical and contemporary lens are applied to a review of the contextual factors that have contributed to the risks faced by former migrant miners (106). The analysis undertaken indicates that former mine workers are a much higher lifetime risk of developing – and possibly disseminating – TB after returning to their home communities. The authors argue for "independent, methodologically rigorous evaluations to ensure the implementation of sustained and evidence based programmes and interventions that truly achieve their goal of reducing TB among former miner" (106). A review of compensable disease claims in South Africa indicated that multiple systemic barriers persist that prevent migrant mine workers with lung disease, who have returned to neighbouring countries, accessing their compensation (107).

A descriptive cross-sectional survey was conducted with 1012 participants in two communities of origin of migrant mineworkers - who work in South Africa - in the Gaza Province of Mozambique (74). The sample was mostly female (75.2%), with a median age of 34. The prevalence of active TB was found to be 0.3% (n = 3) while 7.5% of the participants self-reported to have been previously diagnosed with TB at some point in their life. Only 2.8% of participants had knowledge of the basic principles of TB transmission. Condom use at last sexual intercourse with a regular partner was low among both sexes (17.3% male and 12.6% female).

Associations between TB and HIV

Sub-Saharan Africa has the largest burden of TB and HIV globally: over 70% of the population living with HIV globally and 95% of global TB deaths are found in the region (108). A spatial analysis of HIV-TB co-clustering in Uganda was undertaken using data on TB and HIV cases obtained from the Ugandan District Health Information Software 2 system that is maintained by the Ministry of Health (63). In 2016, approximately 1.3 million people were estimated to be infected with HIV in Uganda (109). TB-HIV coinfection is the leading cause of preventable death among people living with HIV in Uganda, responsible for over 30% of deaths (110). Results show that high clusters of TB were mostly around Lake Victoria and in the central north, and one cluster in the northeast. HIV high clusters were concentrated in the south, around Lake Victoria and the central parts of Uganda. Across Uganda, TB has a generally positive association with HIV. There are two high-high TB/HIV occurrence and co-clusters, one around Lake Victoria and the other in the north-central area of the country. The authors indicate that the results of the study suggest that the TB/HIV hotspot cluster around Lake Victoria is associated with fishing communities – known to be associated with high levels of migration and HIV (82) - and the northern area of Uganda may be associated with the presence of refugees, mostly from South Sudan.

Unsuccessful treatment outcomes

A retrospective cohort study of all TB cases registered in 25 refugee camps in Ethiopia collected between January 2014 and December 2017 were extracted to explore factors associated with unsuccessful TB treatment outcomes (82). As part of the data collected included information about HIV status, results from this study showed that HIV testing was performed in most (5.6%) of the notified TB cases, of which 12.4% were HIV positive. Between 2014 and 2017 a higher percentage of TB patents were tested for HIV (from 84.1-88.6%) and the percentage testing positive reduced from 15.3% to 10.9%. At the same time, ART coverage increased from 40% to 84.2%. Multivariate analysis showed that HIV infection was associated with unsuccessful TB treatment outcomes.

A retrospective study was undertaken in the Gambella Regional State of Ethiopia in health facilities used by refugees and surrounding communities to explore factors associated with unsuccessful treatment outcomes for TB (111). A total of 886 refugees and 3284 SCs TB patients, registered for anti TB treatment in the last eight years, were evaluated in the study. The trend of all forms of TB is progressively increasing among refugees contrary to the SCs in the course of the study period. Smear positive pulmonary TB (PTB+) was found to be predominant (57.6%) TB form in refugees while smear negative pulmonary TB (PTB-) (44.8%) is in the SCs. There was also significant difference in the treatment outcome. Mean treatment success rate was 74.2% and 88.1% for refugees and the SCs, respectively. The study also revealed that the risk of unsuccessful TB treatment outcome was significantly higher among refugee, retreated cases, patients aged between 35–44, and greater than 44 years old , and patients with

extra pulmonary TB (EPTB) form compared to their counterparts. Patient coming from rural area, who are female and TB/HIV non-infected were more likely to be successfully
treated.

Risk factors for active TB among migrants moving from low-income to high-income contexts

A population-based cross-sectional study of applicants for long-term visas who were screened for tuberculosis before entry to the UK in a pilot programme between Oct 1, 2005, and Dec 31, 2013 was used to explore the prevalence of bacteriologically confirmed tuberculosis (112). Poisson regression was used to estimate crude prevalence and created a multivariable logistic regression model to identify risk factors for the primary outcome. A total of 476 455 visa applicants were screened, and the crude prevalence of bacteriologically confirmed tuberculosis was 92 per 100 000 individuals. After adjustment for age and sex, factors that were strongly associated with an increased risk of bacteriologically confirmed disease at pre-entry screening were self-report of close or household contact with an individual with tuberculosis and being an applicant for settlement and dependant visas.

A study cohort of 519 955 migrants who were screened for tuberculosis before entry to the UK between Jan 1, 2006, and Dec 31, 2012 were found to have an estimated incidence of all forms of tuberculosis in migrants screened before entry of 147 per 100 000 person (113). The estimated incidence of bacteriologically confirmed pulmonary tuberculosis in migrants screened before entry was 49 per 100 000 person-years. Migrants whose chest radiographs were compatible with active tuberculosis but with negative pre-entry microbiological results were at increased risk of tuberculosis compared with those with no radiographic abnormalities. Incidence of tuberculosis after migration increased significantly with increasing WHO-estimated prevalence of tuberculosis in migrants' countries of origin. 35 of 318 983 pre-entry screened migrants included in a secondary analysis with typing data were assumed index cases. Estimates of the rate of assumed reactivation tuberculosis ranged from 46 to 91 per 100 000 population.

4.1.3. Parasitic infections

4.1.3.1. Malaria and Visceral Leishmaniasis

Malaria is reported to be the main cause or morbidity amongst refugees in Uganda (114). An institution-based cross-sectional survey was conducted among under-five children in the Sherkole refugee camp, Ethiopia, in October and November 2019 to explore the factors influencing the prevalence of malaria (115). A total of 356 participants were included in the study. The overall prevalence of malaria among under-five children in Sherkole refugee camp was 3.9% (14/356). The proportion of plasmodium species was 85.7% and 14.3% for Plasmodium falciparum and Plasmodium vivax respectively. In terms of gender, the prevalence was 6/172 (3.5%) and 8/184 (4.3%) for male and female respectively. Outdoor stay at night, stagnant water near to house, and the number of under-five children per household were found to increase the odds of getting malaria. Whereas, insecticide treated net (ITN) utilization and Health information about malaria reduce the odds of getting malaria.

A multifaced evaluation was implemented to explore the impact of intermittent preventative treatment for malaria among children in a refugee camp in Northern Uganda (116). The programme consisted of administering a 3-day course of dihydroartemisinin–piperaquine (DP), to all children aged between 6 months and 15 years every 8 weeks. A total of three rounds were given. Evaluation included coverage surveys, malaria prevalence surveys, reinforced surveillance and pharmacovigilance. Programme coverage exceeded 90% during all three distributions with a total of 40,611 participants. Compared to same period during the previous year (only available data), the incidence of malaria in the target populations was reduced among children under 5 years old. Among those not targeted for intervention, the incidence between the 2 years increased. Cross-sectional surveys showed a prevalence of parasitaemia (microscopy or PCR) of 12.9–16.4% during the intervention, with the highest prevalence among children aged 5–14 years, but with a large increase 8 weeks after the final distribution. A total of 57 adverse events were reported during the intervention period, including one severe adverse event (death from varicella). Adverse events were of mild to moderate severity and were mainly dermatologic and

gastrointestinal.

A study was undertaken in the Kiziba refugee camps in Rwanda to assess the diagnosis, treat-ment, and burden of highland malaria (117). It appears that the burden of malaria is increasing in this region, despite the high altitude. Results show that in patients suffering from highland malaria (371/4777), the levels of C-reactive protein (CRP) are significantly elevated. Among the 371 malaria positive patients, an average CRP value of 70.6 was found. The study found that the higher the altitude of the health centre, the more significant the observed increase of malaria. Results indicate a positive correla¬tion between number of distributed mosquito nets and number of malaria positive cases.

Congolese refugees in Uganda who are bound for the US are required to take presumptive treatment for malaria[10] but results from pre-screening processes show that breakthrough cases have been identified (118). It is thought that these breakthrough cases result from the refugees being infected with a higher prevalence of Plasmodium ovale and Plasmodium vivax than expected amongst Congolese refugees who are typically more likely to be infected with Plasmodium falciparum disease, indicating the need to change the presumptive treatment regimen. In Canada, the arrival of refugees and immigrants from Malaria-endemic areas was seen as a threat but, ultimately, this experience led to improved knowledge and resulted improved health surveillance systems (119).

Malaria and visceral leishmaniasis among migrant labourers in Northwest Ethiopia

A community-based cross-sectional study with 385 migrant labourers in Northwest Ethiopia found a malaria prevalence of 18.4% (n=71) (120). Migrant laborers coming from highland areas were 2.34 times more likely to develop malaria than those coming from lowland area, and those who slept in outdoor sites were 2.76 times more likely to develop malaria than those who sleep inside formal house. Migrant laborers who do not utilize bed net were 2.57 times more likely to develop malaria than those who use a bed net.

A community based cross-sectional survey was conducted with rural agricultural migrant labourers in North-West Ethiopia to explore malaria-visceral leishmaniasis co-infection and their associated factors among migrant labourers (121)[11]. A total of 178 migrant laborers were included in the study. Of these, 74.2% belong to the age group 15–29; 61.2% come from lowland areas and 51.6% visit the area more than four times. Seroprevalence of visceral leishmaniasis was 9.6% (17/178); and 22.4% (40/178) of tested migrant laborers were found malaria infected. The overall prevalence of malaria-visceral leishmaniasis co-infection was 2.8%. Of the total migrant labourers, 47.8% used bed nets, of them 1.2% were malaria-visceral leishmaniasis co-infected; 72.5% used outdoor sites as usual sleeping site, among them 3.1% were malaria-visceral leishmaniasis co-infected; 60.1% were migrants, of which 2.8% were malaria-visceral leishmaniasis co-infected. All variables were not significantly associated with malaria-visceral leishmaniasis co-infection.

4.1.3.2. Lice

Lice found in Algeria from Niger refugees demonstrates how migration can lead to the spread of parasites and the resultant spread transmission of bacteria (122). A total of 37 head lice samples were collected from 31 Nigerien refugees, as well as 45 head lice from 27 schoolchildren. The collection was established in three localities of eastern Algiers, north Algeria. Quantitative real-time PCR screening of pathogens bacteria and the genetic characterisation of the head lice were performed. Through amplification and sequencing of the cytb gene, results showed that all head lice of Nigerien refugees 37/82 (45.12%) belonged to clade E with the presence of four new haplotypes, while, of the 45 head lice of schoolchildren, 34/82 lice (41.46%) belonged to clade A and 11/82 (13.41%) belonged to clade B. This study is the first to report the existence of clade E haplogroup in Nigerien head lice. DNA of Coxiella burnetii was detected in 3/37 (8.10%) of the head lice collected from 3 of the 31 (9.67%) migrant population. This also revealed the presence of Acinetobacter DNA in 20/37 (54.05%) of head lice collected from 25/31 (80.64%) of the Nigerien refugees, and in 25/45 (55.55%) head lice collected from 15/27 (55.55%) schoolchildren. All positive Nigerien-head lice for Acinetobacter spp. were identified as A. baumannii, while positive schoolchildren-head lice were identified as A. johnsonii 15/25 (60%), A. variabilis 8/25 (32%) and A. baumannii 2/25 (8%).

[10]Nothing is mentioned about the need to support preventative measures amongst refugees in Uganda, only the need to presumptively treat those bound for the USA.
[11] Mostly Ethiopian internal migrant workers but small number of Sudanese migrant workers

4.1.3.3. Waterborne diseases

As described in detail below, waterborne diseases are found across the WHO-AFRO region that impact the health of migrant groups include cholera (123–126); diarrhoea amongst children (127–129); typhoid fever (130); and polio (131–134)[12] . Improving access to (a) safe water and sanitation facilities is key (135–138,138,139) (see later section) and (b) childhood vaccinations (see later section).

Cholera

Waterborne diseases are common health problems in refugee camp settings, including cholera. A descriptive cross-sectional study exploring cholera in two refugee camps in Kenya (125) found 125 clinically suspected and confirmed cholera cases and one related death. The cumulative incidence of all cases was 0.67 cases/1000 persons. Incidence of cholera was higher in children under the age of five 0.94 cases/1000 persons. Children aged <5 years showed 51% increased risk of cholera compared to those aged ≥5 years. Individuals from the Democratic Republic of Congo had nearly 9-fold risk of reporting cholera while individuals from South Sudan reported 7 times risk of cholera case compared to those from Somalia.

A case-control study was undertaken in the context of a prolonged cholera outbreak in the Kyangwali refugee settlement in the Hoima District of Western Uganda to compare exposure factors among case- and control-households (126). A total of 2122 case-patients and 44 deaths were identified. Case-patients originating from Demographic Republic of Congo were the most affected. The overall attack rate in Hoima District was 3.2/1000, with Kyangwali sub-county being the most affected. The outbreak lasted 4 months, which was a multiple point-source. Environmental assessment showed that a stream separating two villages in Kyangwali Refugee Settlement was a site of open defecation for refugees. Among three water sources tested, only stream water was feacally-contaminated, yielding > 100 CFU/100 ml. Of 130 stool samples tested, 124 (95%) yielded V. cholerae by culture. Stream water was most strongly associated with illness, although tank water also appeared to be independently associated with illness. Persons who drank tank and stream water had a 17-fold higher odds of illness compared with persons who drank from other sources.

Childhood diarrhoea

A cross-sectional study comparing refugee camps and host regions in the Gambella Region of Ethiopia was conducted to assess acute diarrhoea and associated risk factors among under-five children (127). A total of 1667 under-five children was included in this study, and prevalence of diarrhoea differed between the refugee (38%) and host (33%). Children in households in which the water containers were not covered had significantly higher prevalence of diarrhoea than children in households in which the water containers were covered. Similarly, children from households that consumed less than 15 l of water per capita per day were more likely to develop diarrhoea than children from households using 15 l or more of water per capita per day. Moreover, children in households with no hand washing setup had significantly higher prevalence of diarrhoea than children in households with comprehensive hand washing facilities. Children under 11months were more likely to have diarrhoea than children older than 36 months. The study results also showed that children whose caregivers did not have formal education or primary education certainly had a higher risk of diarrhoea compared to children of caregivers who graduated with at least a diploma. Within host communities, households were more likely to report acute childhood diarrhoea if they consumed surface water or did not have a latrine.

A institution-based matched case control study was undertaken using a questionnaire-based interview in two refugee camps in the Gambella Region of Ethiopia to explore aetiologies of diarrhoea and drug susceptibility patters of bacterial isolates mong children under 5 (129). The overall prevalence of enteric pathogens were 55 (41.0%) in diarrhoea cases and 18 (13.4%) in healthy controls. The detected aetiologies include Giardia lambia (28), Shigella spp. (16), E. hystolyotica/ dispar (13), Ascaris lumbricoides (10), Salmonella spp. (6), Cryptosporidium parvum (6), Hymenolepis nana (4) and Isospora belli (3). All isolates were sensitive to kanamycine and ceftazidime. The high resistance rate was observed against ampicillin (100%), amoxicillin (100%), erythromycin (52%), chloramphenicol (47.5%), tetracycline (40.5%), cotrimoxazole (34.8%) and amoxicillin-clavulanic acid (33%). The majorities of the isolates had a low rate of resistance to ciprofloxacin (8.7%), naldxic acid (8.7%) and amikacin (13%).

[12] Literature on polio is presented in a later section - Outbreak response: polio

4.1.4. Respiratory infections

The analysis of specimens taken from residents of two refugee camps in Kenya - areas associated with overcrowded housing, poor sanitation and hygiene and high levels of population mixing - shows a high prevalence of Human Adenovirus (HAdV) (140). However, as these detections are mostly of species/types not commonly associated with acute respiratory infections (ARIs), there is a need to further explore HAdV detections amongst refugee populations to assist in determining a more accurate disease burden estimate.

A study reports on testing for Histoplasmosis among USA-bound Somali refugees residing in Kenya as part of pre-departure screening (141). Seroprevalence was found to be zero – this shows that Histoplasmosis is rare in this context but raises concerns for refugees who are relocating to the USA – or elsewhere where histoplasmosis is endemic as lack of previous exposure can lead to poorer health outcomes should they become infected. Whilst this doesn't have direct implications for the health of refugees remaining within the WHO-Afro region, it does raise questions about pre-departure health education needs for refugees being resettled in other regions.

4.1.5. Hepatitis

A cross-sectional study involving 453 refugees in the Gambella region of Ethiopia was undertaken to determine the prevalence and associated risk factors for hepatitis B and C viruses (142). The overall prevalence of HBsAg and anti-HCV among refugees was 7.3% (33/453) and 2.0% (9/453) respectively. Of these, 6.8% (25/370) and 1.4% (5/370) of females were positive for HBsAg and anti-HCV, whereas 9.6% (8/83) and 4.8% (4/83) of males were positive for HBsAg and anti-HCV. The age group of 18–29 and 30–41 years old were related to HCV infection. However, proposed risk factors were not related to HBV and HCV infections. Knowledge assessment showed that 86.5% (392/453) did not know how HBV and HCV infections are transmitted, and 86.8% (393/453) had no information about the availability of HBV vaccine.

4.1.6. Leprosy

Leprosy remains a concern in the WHO-AFRO Region (143). Evidence demonstrates that the island of Reunion has a low prevalence of Leprosy but this is challenged by immigration from endemic neighbouring countries (Comoros, Madagascar and the Mayotte archipelago, a French territory between Mozambique and Madagascar) (144). Results of an observational study show that incident cases of leprosy between 2005 and 2010 come from a retrospective study conducted in 2010 by the regional Office of French Institute for Public Health Surveillance (CIRE of Indian Ocean), when no surveillance system exist. Cases between 2011 and 2013 come from a prospective collection of all new cases, following the implementation of systematic notification of all new cases. All patient data were anonymized. Among the 25 new cases, 12 are Reunion Island residents who never lived outside Reunion Island, and hence are considered to be confirmed autochthonous patients. Registered prevalence in 2014 was 0.05 /10 000 habitants, less than the WHO's eradication goal (1/10 000).

4.1.7. Rift Valley Fever

A cross-sectional study, combining qualitative and quantitative methods, was conducted with Somali pastoralists in Kenya to explore their knowledge about Rift Valley Fever (RVF) (145). A total of 204 individuals participated in the survey, and 15 key informants were interviewed. Four focus group discussions were conducted. Results show that Somali pastoralists have excellent knowledge of RVF, including signs, symptoms, risk factors and risk pathways. However, results also indicate that this knowledge is not translated into safer practices, due to socio-cultural practices and religious beliefs.

4.1.8. Trachoma

In South Sudanese refugee camps in the White Nile State of Sudan, surveys were conducted to determine the prevalence of trachoma (146). Trachoma prevalence was above the 5% elimination threshold. Knowledge of trachoma was low and, whilst water, sanitation and hygiene indicators were good, programme interventions are required that apply the SAFE strategy – Surgery, Antibiotics, Facial cleanliness and Environmental improvement.

4.1.9. Covid-19

The Covid-19 pandemic hit the WHO-AFRO region in the first quarter of 2020. Since then, a growing body of research has emerged. This has – to date – mostly focused on the acute/emergency phase, involving numerous situational reports from International Organisations, non-governmental organisations, and civil society (given the parameters of the review, these are excluded). Simultaneously, research on the links between migration and Covid-19 in the region has

grown with many existing research entities – notably the Mixed Migration Centre (MMC) and their 4Mi programme in Nairobi, Kenya (147–159) – pivoting their existing research on migration and/or migration and health to incorporate Covid-19. The result has been various strands of research, including – as elaborated below - a focus on: (1) emergency medical/humanitarian responses – including learning from experiences of responding to Ebola, migration and health governance responses and inclusive health responses – including in the context of vaccination programmes (160–171); (2) how Covid-19 has amplified existing challenges (169,172–177); (3) impacts on children (178,179); (4) immigration governance and impacts of Covid-19 (177,180); and (5) global health security (180,181).

A review of the Covid-19 experiences of six African countries associated with high levels of migration, including forced displacement, suggests that previous experience of Ebola outbreaks may have benefited the response to Covid-19 (160). In Guinea, for example, health authorities were able to train healthcare workers from the epidemiological treatment centres that were already in existence across the country as a result of Ebola (160). While the countries of the East African Community (EAC) were in many ways well prepared to address the pandemic due to their experience of managing the Ebola Virus, a failure to strengthen migration and health approaches both before and during the pandemic was reported to have exacerbated risks for people on the move with research suggesting that the emphasis on the securitisation of borders and control of movement may have undermined and eroded efforts to address migration-related challenges at a regional level (180).. Lessons learned from the Ebola response, including the pivoting of current responses to address Covid-19, placed countries such as South Sudan in a stronger position to respond. However, these lessons did not appear to result in improved responses to Covid-19 at the regional level due to a failure to understand and engage with the realities of migration (180).

Research has been undertaken that is documenting responses to migration and health in South Africa, suggesting that the challenges faced by migrant groups have been amplified in the context of Covid-19, with non-citizen groups being left-behind in the national response to Covid (161–163). In South Africa, this includes additional challenges faced in accessing preventative and curative healthcare services, including continuity of treatment for chronic conditions, as a result of lockdown measures with effects of interruptions to often-precarious livelihood strategies further restricting expenditure on food and housing (161).Exacerbated inequalities and vulnerabilities faced by asylum seekers, refugees and undocumented migrants in SA, including in the ways that this population group was left out of the responses to address economic, poverty and hunger, raising concerns about negative coping strategies, increased mental health challenges and secondary health concerns (172). Struggles in accessing documentation, legal insecurities and gender-based violence impact women's mental and physical health (175) and national lockdown measures led to refugee women's care roles being increased and made paid work even more precarious (176).

Anecdotal data suggests that in South Africa although migrants with disabilities face similar challenges as migrants without disabilities in the context of Covid-19, having a disability further amplifies these challenges, including access to primary health services, fear of deportation, stereotyping, negative attitudes towards immigrants, disability stigma, and denial of services based on the documentation held or a lack of documentation (163). Migrants with disabilities – in the absence of any social protection scheme - are often reliant on others for support, as well as on non-governmental organisations and street begging for social and food assistance. The lockdown measures implemented in South Africa meant that these survival strategies were interrupted as networks and safety nets were broken, with impacts on food security and prohibitive transport costs to access healthcare or disability-support services.

The dangers of leaving migrants behind in Covid-19 response has been highlighted (164) – particularly in relation to vaccination programmes (171) - as has the importance of engaging with refugee-led initiatives (165). Existing health interventions for migrant populations -including TB interventions - need to be maintained during the pandemic (166). Concerns relating to the ways in which Covid-19 impacts migrant and refugee children have been raised (178,179); notably in relation to violence, food insecurity and malnutrition (178), and the neglect of existing health conditions have been raised, including malaria (179).

Among adolescent refugees from South Sudan and DRC in Bidi Bidi refugee settlement in Uganda, wellbeing is mediated by a complex interplay between material, symbolic and relational contexts. Economic insecurities exacerbated inequitable gender norms, increasing early marriage and transactional sex amongst young women and adolescent girls. Gendered tasks including collecting water and firewood increased SGBV exposure for these women and girls, exacerbated by deforestation. – Covid-19 is amplifying these problems, negatively impacting this community through fear and panic, increased social isolation due to the closure of churches, school and business. (167).

Increased home deliveries among Somali women in Nairobi have been reported, alongside reduced utilisation of services and delayed care (168). Challenges in food security, for example a reduction in food rations for refugees in camps in Rwanda due to declining in donations to the World Food Programme (169). Additional pressure on already struggling and under-resourced healthcare systems that South Sudanese refugees in Uganda rely on, and expectations that poor mental health will be exacerbated due to higher levels of stress, anxiety and depression (170). In Ethiopia, refugees have reported a loss of income, increasing food insecurity; challenges in accessing school; job losses; assistance has reduced, including food support, food or cash in exchange for work, and direct cash transfers (170,173,174,182).

Governance responses to Covid-19 and migration at a regional level – including in East Africa and the Horn of Africa (183); the Economic Community of West African States (ECOWAS) and the West African Economic and Monetary Union (UEMOA) (184,185) - have been explored – including in relation to global health security (185). In the SADC region, concerns have been raised about the ways in which a public health response may be being appropriated to justify increasingly restrictive immigration management systems in the region (180,181).

4.2. Non-communicable diseases

Based on the literature included in this review, the non-communicable diseases associated with migrant and refugee populations in the WHO-AFRO region include hypertension, type II diabetes, cervical cancer, skin diseases, eye health and nutrition-associated problems of anaemia and scurvy.

Hypertension and Type II Diabetes

In a study amongst Sahrwawi refugee adults (186), almost half of all study participants were categorised as insufficiently physically active. Male participants, people aged 60 years and over and those with higher education levels were more likely to be in the low PA level. There was no significant association between PA and BMI status. However, study participants expressed a positive attitude to PA. Whilst there is no clear indication of the prevalence of type II diabetes amongst Sanarawi refugees, surveys suggest 7-27% for diabetes and 10-15% for pre-diabetes (studies presented in 176). A cross-sectional study was undertaken with 72 Sanarawi women with type II diabetes in Algerian refugee camps to explore their dietary habits. Findings indicated that women who adhered to an 'unhealthy' dietary pattern had a higher homeostatic model assessment for insulin resistance (HOMA) index and circulating insulin, highlighting the importance of supporting these women to improve their diets. (187)

A Quality of Life Survey conducted in the Gauteng province of South Africa shows that migrant status is associated with a lower prevalence of two non-communicable conditions - type II diabetes and hypertension – compared to non-migrants. (188).

Cervical cancer

Whilst there are large numbers of refugee women and girls in the WHO-AFRO region, little is known about the burden of cervical cancer and levels of knowledge and awareness of symptoms amongst the population. Research in the Palabek refugee settlement in northern Uganda found that knowledge and awareness is lacking, emphasising the need for interventions to support both prevention, risk reduction and early detection (189). High levels of precancerous cervical lesions were identified amongst refugee women aged 25-49 in camps in Northern Ethiopia, indicating an urgent need for early screening of Sexually Transmitted Infections (STIs) in order to prevent precancerous cervical lesions (190). Amongst HIV-positive migrant farm workers in South Africa, a 'see and treat' approach to cervical cancer has been piloted and shown to have benefits due to the high levels of loss to follow-up due to the migrant nature of population (76). Whilst the intervention is itself effective, challenges remain in terms of service delivery, particularly in relation to the high turnover of staff.

Skin diseases

A study in rural Nyala in Sudan, which included 2 refugee camps, identified an unexpectedly high prevalence of skin diseases – including infectious skin diseases - that are undiagnosed and untreated, highlighting the need to develop interventions to identify and treat skin diseases amongst refugee populations (191).

Eye health

Research in the Dzaleka refugee camp in Malawi indicates the need for upgraded eye care services: in spite of the prevalence and causes of blindness and vision impairment being the same in both the camp setting and the general population, service access is worse for people residing in Dzaleka (192).

Scurvy

An outbreak of scurvy – that results from Vitamin C deficiency – occurred amongst adolescents and young men living in the Kakuma refugee camp in Kenya between 2017 and 2018 (193). Upon investigation, it became clear that food aid provisions do not meet the calorific needs of these refugees. Therefore, decisions were made to purchase calorie-dense cereal and pulses to meet calorific needs rather than fresh foods that are rich in Vitamin C but are lower in calories. Whilst this Vitamin C deficiency was resolved with Vitamin C treatment, these findings highlight the urgent need to reconsider the way sin which food and/or financial assistance can be provided to ensure consumption of both adequate calories and Vitamin C.

Anaemia

In the Sudan, being a camp-based refugee was found to be a determinant of anaemia amongst women of a reproductive age (194). Over one-third of pregnant South Sudanese refugee women in Pugnido, Ethiopia, were found to be anaemic; being in the third trimester, eating meat no more than once per week; drinking tea straight after a meal at least once a day, having a mid-upper arm circumference below 21cm and having an internal parasitic infection were independent factors of anaemia (195). With a prevalence of 22%, anaemia among adolescent refugee girls in the Aw-Barre refugee camp in Southeast Ethiopia were found be a moderate public health problem (196). Late adolescents were twice as likely to have anaemia compared to younger adolescents; those who had lived in the camp for 8 or more years were three times more likely to have anaemia and those who ate heme iron food sources less than once per month were 11 times more likely to develop anaemia compared to those who ate hjeme food sources more than twice per week. Refugee preschool children in a camp setting in Ethiopia experience high levels of anaemia, linked to inadequate food rations, insufficient micronutrients, lack of non-food items, selling and sharing of food rations, poor sanitation and housing conditions, lack of nutrition information and disease – notably diarrhoea (197). Evaluation of a lipid-based nutrient supplement showed that while it did significantly reduce anaemia, it was found that (1) it did not affect stunting and (2) anaemia remained a public health concern amongst refugee children in the Horn of Africa (56). Together, these studies indicate that anaemia remains a public health concern amongst refugees in the region.

4.2.1. Mental health

Daily stressors

An exploratory, qualitative study involving eight young refugee camp residents in Molé, in the DRC, describes the daily stressors facing refugees that are associated with their living conditions (198). Three key issues were identified. Firstly, life in the camp results in a shared identity amongst all residents as helpless refugees, described through suffering, sadness and despair. Secondly, residents continued to fight for their rights and actively challenged the idea of the 'helpless victim' through various initiatives, including income generation and agricultural initiatives. Finally, daily stressors result in negative mental health and wellbeing and these issues – associated with improving conditions to meet their basic needs – must be addressed. Without doing so, refugees will continue to experience 'secondary victimisation' as a result of the camp context.

Research with Somali refugee youth in Nairobi, Kenya involved focus group discussions (199,200), the measurement of trauma (n=86) (201) and a cross-sectional survey (n=250) (202) identified a high prevalence of comorbid common mental disorders (CMDs) – with levels higher than found in studies with Somali refugees in Western countries (202). Community stakeholders identified a range of challenges contributing to high risk of psychological distress and mental health burdens at both the individual and interposal level, and at the collective and societal issues – those that create structural barriers to the community as a whole (199). It is this dual source of violence – from both within and

outside the refugee community – that creates the largest challenges. Seen as a temporary/transitory community, who are a burden on the host population, Somali refugees face hostility from local community residents who believe that they are financially advantaged through foreign aid. In reality, however, these urban refugees are deprioritised by humanitarian agencies who focus on refugee camp settings. As a result, daily stressors associated with living as an urban refugee persist and - with post-migration stress, discrimination and family disruption - are strongly linked to mental health risks (199). Symptoms of individual and comorbid (CMDs) were predicted by levels of exposure to trauma (201,202). Education and gender also predicted mental health symptoms based on the type of trauma and type of symptoms (202). A willingness to share problems was a stronger predictor of depression and PTSD symptoms than anxiety symptoms, suggesting that interventions to facilitate problem sharing may not assist in reducing CMDs and other factors may affect sharing practices, such as gender roles and mental health stigma (202). This also supports including anxiety as a separate mental health measure rather than combining it with depression as psychosocial factors may not affect depression and anxiety in the same way (202). Endorsement of violence appears to contribute to anxiety-depression symptoms and awareness of symptoms – related to help-seeking - predicted individual and comorbid PTSD-depression symptoms (202). The importance of ensuring that local experiences and expressions of mental health are recognised, and the need for more relevant and responsive interventions to support this community were outlined (201,202). For some urban refugee youth, substance use has formed a survival tool to cope with prolonged situations of adversity (200).

Through focus group discussions, male and female adult West African refugees in the Oru Refugee Camp in Nigeria report that quality of life – poverty, unemployment, physical health, housing and environment, discrimination, stigmatisation, insecurity -is a key determinant of mental health status (203). Most rated their mental health and quality of life as poor, and believed that women were more predisposed to mental ill health.

Semi-structured interviews with 18 adult refugees from Zimbabwe in the city of Durban, South Africa, identified the key problems they face, the effects these have on mental health and their coping strategies (204). Major problems were reported with work, xenophobia/racism, mental health, physical safety, housing, healthcare, and quality of life. Participants discussed feelings of worry, fear, emotional pain, anger, powerlessness, hopelessness, worthlessness, and passive suicidal ideation. Coping mechanisms consisted of friendships, church, praying, work, physical activities, family, learning the local language, and avoidance of thoughts. Many interviewees expressed a strong desire to either return to their homeland or move elsewhere. Refugees in South Africa face considerable hardships including xenophobia, physical abuse, and work/ legal obstructions.

Post-resettlement adaptation and mental health challenges of African refugees and migrants in Durban, South Africa was explored through interviewing 335 African help-seeking refugees/migrants for anxiety, depression (25-item Hopkins Symptom Checklist) and post-traumatic stress symptoms (30-item Harvard Trauma Questionnaire) (205) models. Prevalence of mental distress was high: 49.4% anxiety, 54.6% depression and 24.9% post-traumatic stress symptoms. After adjustment for family separation since migration, recent arrival in South Africa was associated with increased risk for depression and post-traumatic stress, while in unadjusted models, older age on arrival was associated with anxiety and depression. History of family separation since migration was independently associated with depression and post-traumatic stress in all models. Discriminatory experiences since migration was also an independent risk factor for all three mental health outcomes. Finally, being divorced/ widowed was associated with an increased risk for post-traumatic stress, while higher income earners were protected against post-traumatic symptoms, even after adjustment.

An exploratory qualitative study involving 18 asylum seekers and 8 key informants was undertaken in Tshwane, South Africa to explore experiences of protracted asylum processes (206). Results, generated through thematic content analysis, indicate that the protracted asylum process – that leads to prolonged periods of unfulfilled expectations - causes psychological distress to those seeking asylum.

Research involving semi-structured interviews and participant observation with urban Congolese refugees in Nairobi, Kenya identifies the primary stressors

faced in the city (207). These relate to the scarcity of material resources, political and personal insecurity, and emotional stress. Congolese refugees mitigated stressors by (a) relying on faith in God's plan and trust in religious community, (b) establishing borrowing networks, and (c) compartmentalizing the past and present. A second paper explores community resilience of this population during a period of political violence in Nairobi, with results demonstrating how refugees used social capital across different contexts to access and distribute resilience-promoting resources (208). Women primarily relied on informal bonding forms of capital while men exhibited greater degrees of access to formal bridging and linking networks.

Conducted with 88 Somali youth and their caregivers in three refugee camps in Ethiopia, a study explore reactions to assessments of trauma exposure and psychological symptoms, including traumatic stress (209). Results obtained from quantitative and qualitative approaches to exploring participants' levels of distress prior to, immediately after, and approximately two weeks after the interview indicated that – on average - children and caregivers became more relaxed over the course of the interview. Whilst the majority reported positive experiences completing the assessments, some indicated that some assessment questions were upsetting and participants indicated that feeling upset interfered with other activities. The most commonly reported possible traumatic events (PTEs) reported were the need to flee suddenly from home country due to security concerns (68.6%), being in a conflict area (62.5%), experiencing genital cutting (50.8%) and hearing about the violent death or serious injury of a loved one (48.9%). At baseline, trauma was positively skewed with 75% of children indicating infrequent or no trauma symptoms ad 15% of children reported feeling very upset prior to the assessment. This was reported to be associated with PTEs and concerns about their current situation (e.g. being insulted by other children), or the future (e.g. worrying about the death of their mother). Almost ¼ of caregivers reported being very upset at baseline. They cited PTEs and current challenges – such as interpersonal problems or illness – as why they were upset, and reported feeling concerned about their child's problems and exposure to violence.

Congolese refugees in Rwanda have a relatively high incidence of suicidal ideation; a qualitative study with refugees who reported suicidal ideations indicate that pathways to suicidal ideation are often triggered by circumstances related to their current situation. Family conflicts were a key driver of this and these sometimes resulted from the cultural and legal changes experienced after fleeing their home country and differing understandings of Rwandan gender equality policies and disagreements about the management of family income (210). For young women, poor interpersonal and family relations due to unwanted pregnancies were reported as triggers and, whilst support mechanisms were available, these were not considered to be culturally sensitive.

Somali refugees living in Nairobi, Kenya, who use Khat were found to have high rates of psychopathology, with high rates of multimorbidity (51%), depression (22%), PTSD (23%) and khat-psychotic symptoms (23%) (211).

PTSD

A significant negative association between PTSD symptom severity, working memory and executive functioning (212), and high levels of exposure to war-related traumatic events – particularly dangerous flight - (213) was identified amongst Congolese refugees residing in the Ugandan Nakivale refugee settlement Impairment of psychosocial functioning was associated with PTSD symptom severity and negatively with executive functioning, indicating that trauma survivors also experience impaired cognitive functioning, indicating that trauma-related mental health problems will have consequences for quality of life (access to work, for example), further aggravating the impacts of war and conflict on mental health (212). Women were found to have significantly higher PTSD symptom severity compared to men (93.8% vs 83.7% respectively) (213).

A cross-sectional survey with refugees (n=387) from nine different countries in the Nakivale camp in southwestern Uganda identified a high prevalence of psychiatric disorders: generalised anxiety disorders (73%), PTSD (67%), major depressive disorder (58%) and substance use disorders (30%) (214). Comorbidity was highest between PTSD and substance use disorder, major depressive disorder and generalised anxiety disorder. PTSD was positively associated with perceiving stress as a serious problem, being concerned about safety and protection for women in the community, care for the wider community and in need of a place to place to live (215).

Structured clinical interviews with 217 Burundian refugee children and their mothers living in refugee camps in Tanzania identified exposure to violence – war and within families and communities - and engagement coping (such as seeking support) were risk factors for symptoms of PTSD and internalising problems (such as depression or anxiety) (216). However, higher exposure to violence was not associated with externalising problems (such as aggression) or higher levels of prosocial behaviour, contradicting previous research suggests that experiences of violence are associated with aggressive and antisocial tendences and reduce prosocial behaviours. Higher-quality friendships protected children from PTSD symptoms, externalising problems and promoted prosocial behaviour – as did Mothers' social support networks. Morbidity of PTSD and other mental health problems were explored among Burundian refugee children (n=230) and their parents (n=460) in Tanzanian refugee camps (217). High levels of trauma were identified with children and parents reporting having been expose to multiple traumatic event types. PTSD prevalence was higher among mothers (33%) than fathers (29%). Familial accumulation of PTSD symptoms was identified: children with high symptom levels and impairment were likely to live with two traumatised parents.

A cross-sectional survey with 562 adult Eritrean refugees was undertaken in the Mai Aini refugee camp in Ethiopia to screen for PTSD symptoms and examine associated factors (218). Pre-migration living difficulties were directly associated with symptoms of PTSD, and indirectly with duration of stay in the camp, sense of coherence, postmigration living difficulties, task-oriented coping style, and depressive symptoms. Premigration and postmigration living difficulties were associated directly with depressive symptoms Postmigration living difficulties were associated indirectly with PTSD through paths of sense of coherence, task-oriented coping style and depressive symptoms. Social support moderated the effect of postmigration living difficulties on depressive symptoms. Emotion-oriented coping style moderated the effect of premigration threat for abuse on PTSD and depressive symptoms, as well as moderating threat to life on PTSD symptoms. This study was undertaken to validate the Center for Epidemiologic Studies Depression (CES-D) Scale and the 16 items defining depressive affect were internally consistent and internal consistency of the 4 items defining positive affect was relatively weak. These two latent factors have a weaker standardised covariance estimate of 33% (24% for women and 40% for men), demonstrating evidence of discriminant validity. CES-D is significantly associated with measures of adversities, specifically premigration living difficulties and postmigration living difficulties, PCPTSD, FAST and emotion-oriented coping providing evidence of its convergent validity. It also demonstrated inverse association with measures of resilience factors, specifically, SoC-13 and OSS-3. The two correlated factors model of CES-D demonstrated configural, metric, scalar, error variance and structural covariance invariances for both men and women. The study authors suggest that the second-order two factors structure of CES-D best fits the data for Eritrean refugees in Ethiopia, indicating that culture must be addressed in both the assessment and intervention of depression.

A direct, positive and significant effect of war exposure on social capital, higher post-traumatic stress symptoms and general psychological distress was identified amongst Burundian refugees living in three camps in Tanzania (219). Generalised structural equation models (GESM) of data generated through surveys with 460 refugees found that war exposure results in higher levels of social capital but was mediated by mental ill health whereby higher levels of post-traumatic stress symptoms and distress were associated with lower levels of social capital. Amongst adolescent refugees from DRC from South Sudan in camps in Rwanda and Uganda respectively, a higher levels of exposure to violence was associated with increased odds of high anxiety symptoms in Rwanda, and increased depression and anxiety symptoms in Uganda (220).

In Durban, South Africa, 157 non-South African adults participated in a sociodemographic questionnaire, a Life Events Checklist and the Harvard Trauma Questionnaire. Results found that greater numbers of traumatic life events or exposure to sexual trauma experienced by women were associated with increased odds of PTSD (221). Also in Durban, a study explored the use of short messaging services (SMS) as a tool for screening for depression amongst refugees (n=153) and compared its reliability and acceptability with face-to-face consultation (222). Depression symptomatology was assessed using the 16-item Quick Inventory of Depressive Symptomatology (QIDS) instrument and reliability between the two approaches was found. No significant differences in preference between the two were identified. At baseline, the study identified that

approximately half of participants reported moderate or higher levels of symptomology (n=79; 51.7%); being female, low-income, divorced or widowed, of low educational attainment and a history of homelessness were significantly associated with higher depression scores. In the follow-up assessment – median time was 33 days later - , nearly a third reported moderate or high depressive symptomology, and the mean depression score showed a significant difference with the baseline assessment. The majority discussed mental health concerns with family or friends during the year preceding the assessment whilst consultations with social workers or other providers were few.

Children and adolescents

Child labour amongst South Sudanese adolescent refugees in two settlements in Uganda was found to be associated with a higher odds of depression (223). When controlling for exposure to labour, adolescent refugee women were found to be more likely to have higher levels of symptoms of depression or anxiety than adolescent men.

Attachment and maltreatment were found to be associated with psychopathology amongst Burundian refugee children in camps in Western Tanzania (224). Research identified a vicious cycle was identified whereby insecure attachment to a mother suffering from psychopathology may be linked to a child's risk of recurrent maltreatment, which may negatively affect child adjustment by reinforcing insecurity and perpetuating the pathogenic relationship between child and mother (224).

Unaccompanied Eritrean refugee minors living with Eritrean refugee foster families in Ethiopia were found to display high prevalence of anxiety, depression, and resilience (225). Anxiety was determined by duration of adoption and unaccompanied minors who were related to their foster parents had higher resilience levels. Those residing in informal/unplanned areas had higher levels of depression. However, high levels of resilience did not buffer perceived daily stressors – sexual harassment, financial difficulties, racism, acculturation distress and restricted freedoms, including the impact of challenges in accessing documents/refugee status - or reported mental health symptoms (225).

From a survey with 384 Eritrean unaccompanied refugee minors, a large proportion (68%) reported experiencing traumatic events – including separation from family against their will (63%), a stressful life event in which they were in danger (52%), and important changes in family life (51%) (226). Just under 40% met the criteria for probably PTSD diagnosis. Girls and the oldest age (15-17 years) were at greatest risk of PTSD.

Research with South Sudanese adolescent refugees (n=183) and their caregivers (n=142) in two refugee settlements in Uganda found that adolescents and caregivers both perceived the influx of refugees from South Sudan as negatively impacting their access to basic needs (227). This had an indirect result on the psychosocial wellbeing of adolescent refugees – educational attainment was impact due to hunger while attending school. Food insecurity was describe as being associated with caregiver violence against adolescents, which increased due to stress and resulted in a deterioration of household well-being. Caregiver depression, gender and exposure to violence were associated with higher symptoms of depression amongst adolescents, and caregiver depression was found to be consistently and significantly associated with adverse mental health outcomes for adolescents (228).

A descriptive study that draws on baseline data collected as part of a monitoring evaluation process at the Centre for the Study of Violence and Reconciliation in the city of Johannesburg, South Africa, in order to explore the complexity of providing psychosocial services to survivors of torture in contexts of continuous traumatic stress and daily stressors (229). The study draws on multiple measures, including: measures of psychiatric conditions and functioning include Posttraumatic Stress Disorder and Self-Perception of Functioning, as measured in the Harvard Trauma Questionnaire (HTQ); anxiety and depression using the Hospital Anxiety and Depression Scale; three questions regarding locus of control, five questions adjusted from the International Classification of Functioning and Disability (ICF) including how the survivor fees that s/he is able to cope with family connections, external stressors, psychological difficulties, situations that made him/her angry and pain. The measures also include six questions based on the DeJong Versveld Connection to Others Scale, and lastly focuses on areas of pain. Through this, it is felt that a reasonable picture of the client's psychological wellbeing may be measured over time. The average PTSD score for the sample is 2.76 with 222

(69%) being checklist positive for PTSD. Clients indicated an average self-perception of functioning score of 2.60 and a total trauma score of 2.67. The Hospital Anxiety and Depression Scale (HADS) provides a score for anxiety and depression, with a score of between 0 and 7 indicating normal levels of anxiety and depression, 8 to 10 indicating borderline levels of anxiety and depression, and 11 and above indicating clinical levels of anxiety and depression. There is a maximum score of 21 for both anxiety and depression using the HADS. Clients indicated an average of 12.13 for anxiety and an average of 11.48 for depression. Largely clients feel an overwhelming lack of locus of control, however, the majority of clients (81%) indicate that they work hard for things they want. Clients indicated feeling both emotionally and socially lonely. Out of a maximum of 3, they scored an average of 2. for emotional loneliness, and 2.6 for social loneliness. Out of a maximum of 6, clients scored an average of 5.16 in terms of their total loneliness score.

A cross-sectional survey was conducted with 86 Somali refugee youth in Eastleigh, Nairobi, to explore exposure to trauma and factors that may predict mental health symptoms (201). In this study, trauma was measured using a total traumas experienced variable as well as four trauma types categories (pre-migration/migration trauma, post-migration trauma, family trauma, and individual trauma). We measured anxiety and depression symptoms using the Hopkins Symptom Checklist-25 (HSCL-25) and PTSD using the PTSD Check List – Civilian Version (PCL-C). We ran descriptive statistics followed by multiple linear regression models with trauma exposure, education, gender, and willingness to share problems as predictors of mental health symptoms. Out of 12 possible traumatic events, most participants (83.7%) reported experiencing at least one trauma, and participants reported experiencing an average of 3.76 total traumas. The regression models predicted between 11.5% and 35.5% of the variance of the mental health symptoms. Willingness to share problems was a significant predictor of decreased mental health symptoms in most models.

A snowball sampling approach was used to recruit 250 Somali youth in a study exploring 16 common types of trauma exposure and three psychosocial factors (endorsing violence, willingness to share problems, and symptom awareness) (201). The Hopkins Symptom Checklist-25 (HSCL-25) and PTSD Checklist-Civilian Version (PCL-C) were used to capture individual and comorbid CMD symptoms, using guided cut-off points and/or algorithms. The 16 types of trauma assessed were: war trauma, living in a refugee camp, forced displacement, injury from violence, observance of community violence, police harassment, loss of family, separation from family, domestic violence, child abuse, kidnapping, sexual abuse, serious accident, harsh physical punishment at school/madrasa, natural disaster, and female genital mutilation/cutting (FGM/C). Three types of CMD Symptoms were also assessed: depression, anxiety, and PTSD. Of the 250 participants, 40.8% (n = 102) met criteria for depression symptoms, 44.0% (n = 110) met criteria for anxiety symptoms, and 34.8% (n = 87) and 24.8% (n = 62) met criteria for PTSD symptoms using the PTSD cut-off and PTSD formula criteria, respectively. In terms of comorbid CMD symptoms, 33.6% (n = 84) of participants met criteria for comorbid depression-anxiety symptoms, 28.8% (n = 72) met criteria for comorbid depression-PTSD symptoms using the PTSD cut-off variable, and 21.6% (n = 54) met criteria for comorbid depression-PTSD symptoms using the PTSD formula variable. Findings showed that increased trauma exposure predicted symptoms of individual and comorbid CMDs. Increased symptom awareness and endorsement of violence predicted comorbid depression-PTSD and comorbid anxiety-depression symptoms, respectively. Willingness to share problems buffered depressive symptoms but did not predict comorbidity.

A study undertaken with urban Somali refugees in Nairobi, Kenya employed thematic analysis to explore community functioning (230). Multiple beliefs, needs and barriers relating to communal and individual functioning were identified. These challenges resulted from the intersection of community competence, engagement and capacity which act as both a cause and potential solution to mental health problems, psychosocial dysfunction, and impeded development of community structures.

Substance use

Interviews with 105 refugees (the majority of whom were male (61%), single (76%), and unemployed (35%) Liberian – 75%) at the Oru camp in Nigeria explored the relationship between the use of alcohol, tobacco and cannabis with probable psychiatric morbidity. In this study, the use of alcohol, tobacco and cannabis was associated with psychiatric morbidity, which was

estimated at 83.9% amongst the study population (231).

Refugee camp settings

Liberian women who are former child soldiers, now residing in the Buduburam refugee settlement in Ghana identified the importance of engaging with both trauma and experiences of adversity, as well as resilience and coping resources (232). Their experiences both before and during the war resulted in the development of survival tactic and courage (for example) which assisted their lives as refugees. Complemented with resources available in the camp, these women were able to practice their religious and cultural beliefs which they drew from to make sense of their experiences, support spiritual growth and release pain. Spiritual practices and informal counselling and social support from trusted individuals – such as their pastor – supported resilience and coping (232).

Also in a refugee camp in central Ghana, the war experiences of young Liberian refugees shaped their meanings, readiness and preconditions for forgiving perpetrators (233) and expressions of their future outlooks (234). The most vivid and traumatic memories were related to cruelty towards family members (233). Religious belief, apology, the importance of justice, personal choice and influence of revered leaders were reported as the key aspects of a process of forgiving and their readiness to forgive 203. Some took a positive outlook of the future – indicating optimism and ambitions to improve their lives, contribute to peacebuilding and flourishing nation (234). For others, trauma and experiences during war were associated with a pessimistic outlook of the future, linked to struggles to reconstruct war-shattered lives, including the lack of opportunities in a refugee camp setting, including to education (234).

A repeat cross-sectional survey with Tuareg refugees living in the Subgandé refugee camp, Burkina Faso identified how when physical conditions improve, psychological symptoms can also improve (235). As conditions improved – including a reduction in reports of 'severe problems with food' and 'poor housing', a decrease in psychopathological symptoms was observed over time, and the frequency of people with stress symptoms reduced. Significant differences in people reporting feeling 'nervous', 'hopeless', 'that everything is an effort', and 'restless or fidgety' were observed. The level of people who screened positive for PTSD had also decreased but only minimally (235).

Interviews with Congolese refugees living in two refugee settings in Uganda and Rwanda and key informant interviews identified priority problems relating to mental and psychosocial health, including discrimination and inequity, alcohol and substance abuse, and violence and gender-based violence (236). Structural conditions of refugees' lives – including the camp itself and associated policies – are key determinants of mental health and psychosocial wellbeing. The structural environment itself can disrupt social networks, and lead to discrimination, inequity, and gendered violence (236).

Social capital, resilience and acculturation

In South Africa, adolescents aged 10-17, migrants were found to reported more traumatic events in the past year than non-migrants. Migrant youth had a better resilience score but also reported more behavioural problems and lower prosocial behaviours. Compared to non-migrants, migrant youth had a more resilient response to adversity, especially in the presence of trauma (237,238). Acculturation was found to have no direct effect on mental health but did support resilience therefore contributing to good mental health (238). Refugees in Cameroon and Nigeria in the Lake Chad region were found to experience poor psychological health and experience challenges in accessing income generating activities (239). In this context, host communities providing support them, and making efforts to integrate refugees into their communities.

Research with refugees in the Tongogara camp in Zimbabwe highlighted the high levels of social capital – notably through membership of religious groups – and the role that this can play in buffering mental ill health. Those with high scores for social capital were more likely to also report positive health-seeking behaviour and improved quality of life. (240). Also within the Tongorogara camp, research highlighted the dangers of medicalising distress and human suffering, with the result of pathologizing the experiences of refugees (241). This approach is suggested to have overlooked the importance of spiritual processes in mediating coping with, and recovery from, distress.

Data was purposively collected from 66 African immigrants in the city of Cape Town, South Africa using the PROMIS Global Health v1.2 and the PROMIS Item

Bank v2.0 (informational support) instruments which assess an individual's general physical, mental and social health (242). Participants were selected based on their country of origin and immigration status. Results indicate that immigrants perceive their health status as below average whilst also indicating evidence of possible social interactions and social capital that contribute to a support network.

Forgiveness and hope

Exploration of religious coping, forgiveness and post-traumatic outcomes was undertaken with survivors of the Liberian civil war in a refugee camp in Ghana and in a faith community in Liberia (243). Women reported lower levels of positive religious coping, forgiveness and post-traumatic growth but there were no sex differences in negative religious coping or post-traumatic stress. Those who had directly experienced or witnessed war reported lower forgiveness, lower perceived post traumatic growth and high levels of post traumatic stress compared to those who were indirectly exposed (for example family members witnessed war). Forgiveness partially explained the relationship between positive religious coping and perceived post traumatic growth.

Amongst female Congolese refugees and asylum seekers in Johannesburg, South Africa, forgiveness of state forces and rebels was found to support mental health, by improving mental wellbeing due to reduced anger, anxiety, depression, stress, and rumination. A willingness to forgive was mediated by various factors including religious beliefs, socio-economic status, availability of support and the level of trauma experienced. Those who are struggling to meet their basic needs find it more difficult to forgive than those who are more financially secure (244,245). In the city of Cape Town, Johannesburg, suggests the importance of 'development as hope in action' amongst refugees and asylum seekers who describe the importance of moving beyond survival and looking towards a better future for supporting their own wellbeing (246).

A study undertaken with urban, Rwandan-born refugees in Yaoundé, Cameroon explored aspirations (hope) and risk (247), and the intersections of humanitarian policy with physical and mental wellbeing (248). Results from participant observation, focus groups and unstructured and in-depth interviews with Rwandan refugee households in Yaoundé between 2016-2018 highlight that whilst there was convergence within households about aspirations and hope for the future, risky practices undertaken to achieve them were gendered with risk falling upon women (247). Anxiety was associated with uncertainty about the future (248). The ways that humanitarian policies are designed to respond to acute needs for a finite period of time means that only the short-term needs of people affected by conflict are addressed; this failure to engage with protracted contexts of displacement and associated needs, including future aspirations, risks erasing hope amongst refugee communities (247,248).

PTSD and idioms of distress

Whilst diagnoses of post-traumatic stress disorder (PTSD) are common (202,212,215,218,235), evidence clearly indicates the importance of alternative understandings of distress – idioms (249,250) – amongst refugee populations. Linked to this, concerns have been raised about a cognitive behaviour therapy (CBT) intervention with South Sudanese women in a Ugandan refugee camp about the ways in which the programme fails to address the structural issues – especially income generation - faced when living in a context of protracted displacement with the author warning that "[b]y establishing a straightforward connection between mental health and the achievement of economic independence, they run the risk of medicalising conditions of poverty. And by focusing solely on individual responsibility (both through teaching self-help psychological techniques and through their emphasis on entrepreneurship), they fundamentally ignore the structural and wider issues faced by people living in protracted displacement" (251). A culturally sensitive group based trauma-focused cognitive behaviour therapy (TF-CBT) programme was delivered to Congolese refugees in a Ugandan refugee settlement and – drawing on a quasi-experimental research design with 174 participants - was found to lead to significant reductions in self-reported post-traumatic stress symptoms (252).

A two-phase qualitative study undertaken with Somali refugees in Kenya explored mental health needs within a cultural context (250). Results from the analysis of interviews and focus group discussions outline how Somali lay beliefs on how trauma and daily stressors are experienced and discussed in the form of cultural idioms of distress (CIDs). The study outlines how each term is utilized and understood in attributing symptoms to specified causes and highlights the importance of

ensuring colloquial terms are identified, understood and incorporated in mental health assessment tools.

Results generated from a study exploring the narratives generated through repeat interviews with a group of 60 Somali refugees and asylum seekers over a 3-year period in Johannesburg, South Africa, indicate how a range of social, economic, and political factors interact and produce triggers of distress (249). Buufis is a concept used by Somalis in Johannesburg to describe multiple forms of distress, unhappiness and a desire to escape their current situation. Distress is associated with the ways in which the various social, economic and physical spaces where Somalis live and work create emotional and physical uncertainty and distress. Buffis – a cultural form of expression – is used to make sense of their experiences, a language adopted to assist in navigating new spaces and experiences.

Developing and delivering counselling services to urban refugees in Kampala, Uganda, is associated with many challenges, including the need to develop ethical and culturally competent practices (253). The need for a holistic approach for healing and wellbeing is highlighted, indicating the need for legal, shelter, food, educational and economic support. Combined with conseling sessions to address trauma-related issues – such as shame and isolation - this would support refugees in addressing their daily stressors and provide opportunities to move forward from trauma.

Self-esteem and gender norms

Research with Sudanese and South Sudanese refugee adolescents (n=919) in three refugee camps in Ethiopia found that whilst personal attitudes toward gender inequitable norms were not predictive of self-esteem, collective peer norms were (254). Exposure to peers who adhere to norms that devalue women/girls result in lower self-esteem. At the same time, family and community attitudes towards survivors of forced sex led to a decline in self-esteem.

4.3. Sexual and reproductive health

Experiences and knowledge

Sexual and Reproductive Health (SRH) experiences of different migrant groups are explored in different contexts including asylum seeking and refugee women in South Africa (255) - and the specific challenges associated with accessing reproductive health services in the Durban (256)- and of Congolese refugees in Rwanda (257). Research with adolescent female refugees in Ghana from Liberia, Sierra Leone and the Ivory Coast shows that awareness of modern contraceptives is, simultaneously, low – and disparities in contraceptive use between refugee and non-refugee female adolescents in Ghana has been demonstrated (258). There is a need to improve awareness and access to contraceptives; and to ensure STIs are identified and treated. There is a need for sex education in schools and support for young refugee women to negotiate contraceptive and sexual decision making. Amongst adolescents residing in Ethiopian refugee camps, it was found that premarital sexual practice was most prevalent amongst those who are aged 14-19, live away from their parents and with friends or relatives, have divorced or widowed parents, receive pocket money, and consume alcohol (102). Refugee adolescent girls in the Nakivale refugee settlement in Uganda3 lack information about SRH and experience poor health outcomes8. School absence is common, due to menstruation, FGM and sexual violence. Barrier free access to services is needed, along with sexuality education. Seasonal mobility associated with livelihood activities can be associated with increases in risky sexual behaviour, as demonstrated among women from fishing communities of Lake Victoria (64). These women move across contexts – including between countries - that can result in losing contact with healthcare providers and, for those receiving ART, becoming disconnected from HIV programmes.

Research with truck drivers highlights a relationship between HIV sexual risk behaviour and psychosocial outcomes, where time away from their main partners and family resulted in loneliness and an increased likelihood of engaging in transactional sex (71,72). In this research, condom use with sex workers was reported by the participants to reduce when excessive alcohol use consumed, affecting HIV sexual risk behaviour. Social support from fellow truck drivers reportedly helped truck drivers to feel less lonely and assisted in reducing their work-related stress which appears to have a positive impact on HIV sexual risk behaviours.

In the Nakivale refugee settlement in Uganda, a convenience sample of 260 refugee adolescent girls were enrolled in a quantitative study to explore sexual and reproductive health knowledge, experiences and access to services (259). Of the group included in the

survey, 28 were purposively selected to participate in qualitative interviews that were analysed using thematic content analysis. A total of 11.7% of survey participants were not aware of how HIV is prevented and 30% reported ever having visited a SRH service centre, mostly to test for HIV and to seek medical aid for menstrual problems. Among the 36.6% of participants who reported being sexually active at the time of the study, only 18% reported using condoms in the past 3 months and nearly 64% did not know the HIV status of their partners; the remainder reported being confident that their partner was HIV negative. Also in Nakivale, Burundian adolescents participating in qualitative research explained how the 'freedom' they describe as associated with living in a refugee camp as being linked to their sexual experiences and practices (260). This includes experimental sex, sex to relieve stress and transactional sex. Some, however, indicated that too much freedom results from 'parental neglect' – a lack of parental involvement and care in their lives.

A 3- month implementation study and a screening tool were used to undertake a study that set out to validate the Assessment Screen to Identify Survivors Toolkit for Gender Based Violence (ASISTGBV) with refugees in Ethiopia and Colombia (261). Results indicated that high proportions of women screened positive for past-year GBV according to the ASIST-GBV: 50.6% in Ethiopia and 63.4 % in Colombia. The factor analysis identified a single dimension, meaning that all items loaded on the single factor. Item difficulty varied across the continuum of GBV experiences in the following order (lowest to highest): threats of violence (0.690), physical violence (1.28), forced sex (2.49), coercive sex for survival (2.25), forced marriage (3.51), and forced pregnancy (6.33). Discrimination results showed that forced pregnancy was the item with the strongest ability to discriminate between different levels of GBV. Physical violence and forced sex also have higher levels of discrimination with threats of violence discriminating among women at the low end of the GBV continuum and coercive sex for survival among women at the mid-range of the continuum.

Stigma

Concerns about the role of SRH stigma amongst young urban refugees in an informal areas of Kampala highlights multilevel factors that are associated with lower awareness of STI services, testing and diagnosis if STIs (93). Condom use was protective. Addressing these factors should be cornerstone of STI testing interventions, including the development of community-level interventions and youth-tailored strategies, including peer educators and social media influencers. Gender-appropriate structural interventions are needed to make longer-term change to address financial insecurity and food insecurity. Research with adolescent and young women and men urban refugees in Kampala, Uganda highlights high levels of stigma as a barrier for accessing HIV testing, especially amongst young refugee women (92).

Cervical Cancer

Whilst there are large numbers of refugee women and girls in the WHO-AFRO region, little is known about the burden of cervical cancer and levels of knowledge and awareness of symptoms amongst the population. Research in the Palabek refugee settlement in northern Uganda found that knowledge and awareness is lacking, emphasising the need for interventions to support both prevention, risk reduction and early detection (189). High levels of precancerous cervical lesions were identified amongst refugee women aged 25-49 in camps in Northern Ethiopia, indicating an urgent need for early screening of Sexually Transmitted Infections (STIs) in order to prevent precancerous cervical lesions (190). Amongst HIV-positive migrant farm workers in South Africa, a 'see and treat' approach to cervical cancer has been piloted and shown to have benefits due to the high levels of loss to follow-up due to the migrant nature of population (262). Whilst the intervention is itself effective, challenges remain in terms of service delivery, particularly in relation to the high turnover of staff.

Contraception

Somali and Eritrean refugee women in camps in Ethiopia are unlikely to take up long acting reversible contraception (LARC) (52). A 2016 paper outlines that refugee women are more likely to have an implant rather than a longer-acting IUD due to their own reproductive plans. There is a need to support refugee women in making informed choices about whether to use modern contraception and to improve access to contraception in refugee settings (263). Access to emergency contraceptive pills is a component of standards of care for SHR in humanitarian settings but a study with Congolese refugees in Uganda highlights that inconsistent availability of emergency contraception negatively affects the ability for Congolese women to make choices about their own reproductive health (264). There is a need to strengthen supply chain management, and to improve awareness

of the effectiveness of emergency contraception.

Healthy puberty and sexual development

Research with young adolescent Somali women aged 10-14 in the Kobe refugee camp in Ethiopia (265–267) and with adolescent girls living in the Nakivale refugee settlement in Uganda (268) indicates the need for early SRH interventions that include both information and menstrual hygiene product supplies to support a healthy transition through puberty and sexual development. For young Somali girls in Kobe, Ethiopia, gender divisions and risk of child marriage and early pregnancy significantly limited their ability to access education (266,267). Factors to be incorporated into interventions include approaches to improve parent-adolescent communication and developing tailored approaches through partnerships between health sector and NGOs (268).

Fertility

Data from a socio-demographic surveillance system in a rural area of South Africa that neighbours Mozambique was used to explore fertility patterns in the context of HIV(269). Discrete time event history analysis was used to explore patterns in the probability of any birth. Overall fertility declined in 2001–2003, increased in 2004–2011, and then declined in 2012–2013. South Africans showed a similar pattern. In 2001– 2003, there was an overall decline in the probability of birth compared to 1993–1997. The probability of birth then increased in 2004–2007 relative to 2001–2003 but remained lower than the earliest time period. The probability of birth decreased in the latest time period relative to 2008–201. The peak age also shifted in the last time period from ages 25–29 to ages 20–24. For South Africans, fertility declined significantly across all age groups in 2001–2003 relative to 1993–1996. Fertility increased in 2004–2007 to similar levels as in 1993–1996 for ages 15–34 and remained high in 2008–2011. In the latest time period, fertility declined amongst ages 25–and ages 40–49. For Mozambicans, fertility declined significantly across all age groups for each time period from 1997–2003. Fertility remained relatively stable from 2004–2007 relative to 2001–2003 and then declined in 2008–2011 among ages 15–39. Fertility continued to decline in 2012–2013 for ages 25–29 and 40–49. Interactions between nationality and socio-economic status were not significant.

4.4. Maternal and child health

Accessing antenatal care

Research shows that attendance for antenatal care (ANC) in inner-city Johannesburg , South Africa is low, with the authors suggesting that this is likely to be due to the predominantly migrant population in the city, emphasising the need for interventions to support ANC attendance by migrant women (270). Multiple factors determine the maternal health experiences of Zimbabwean women in inner-city Johannesburg, including the role of religious and social networks that are drawn on to inform help-seeking decisions during pregnancy and delivery (271). A study in Durban, South Africa, showed that whilst there were no significant disparities in antenatal care between South African and refugee women, refugee women faced challenges in languages which at times resulted in challenges in accessing prenatal services (272). When accessing child healthcare, refugee caregivers face challenges due to the attitudes of healthcare providers, highlighting need for interventions that can work to improve the relationship between providers and refugee healthcare users (273). A study in Cape Town, South Africa, focused on geophagia – the act of eating soil during pregnancy – and found that there is widespread consumption of clay soil by Congolese and Zimbabwean migrants, possibly offering a mechanism for identity to be claimed in a foreign country (274).

Refugee women from the DRC living in both camps and urban areas of Burundi were found to face challenges in trying to access healthcare services, with variation in availability across different camp settings (275). Whilst these challenges were reported as being problematic, the women indicated that their greatest concerns were in relation to access to food and to a secure income generating strategy, not healthcare access. Access to documentation to facilitate access to work was voiced as a particular concern for urban refugee women. This highlights that whilst particular health needs – such as MCH – do require focused interventions, basic needs must be addressed. In Uganda, Congolese women in Nakivale and in Kampala were found to experience challenges accessing delivery services in both camp and urban settings; corruption, discrimination, language barriers and a lack of privacy were reported as the biggest barriers to access (276).

Research on MCH among Somali refugees in camps in Kenya highlights – as is the case with other health issues – the importance of sociocultural context as practices and perceptions of care influence engagement with services in camp-based settings (277). Research in Togo explored MCH indicators of households with and without migrants – defined as household members who have travelled internationally in order to provide remittances - found that migrant households result in higher ANC attendance, an increased likelihood of the birth being attended by a skilled health personnel, and ore postnatal checks, including vaccinations (278). The researchers suggest that a household with an international migrant can result in an increase in utilisation of MCH services due to exposure to new ideas and practices, and to access to financial resources acquired through remittances.

In Rwanda, low maternal healthcare coverage has been identified in border areas close to Uganda and Tanzania that are associated with a large population of mobile and migrant populations from elsewhere in Rwanda and neighbouring countries (279). Many of these migrants are not enrolled in health insurance schemes and, as a result, have limited access to care. This is further compounded by difficulties in follow-up due to the high mobility of women.

A record review was undertaken of routine health service data extracted from birth registers in a primary, secondary and tertiary level facility in the inner-city of Johannesburg, South Africa (270). The city has an almost 5% lower ANC rate than at a national level. Results showed that of 31,179 women who delivered, 88.7% (27,651) had attended ANC. Attendance was only 77% at primary care (5813/7543), compared to 89% at secondary (3661/4113) and 93% at tertiary level (18,177/19,523). Adolescents had lower ANC attendance than adults (85%, 1951/2295 versus 89%, 22,039/24,771). Only 37% of women not attending ANC had an HIV test (1308/3528), compared with 93% of ANC attenders (25,756/27,651). Caesarean section rates were considerably higher in women who had attended ANC (40%, 10,866/27,344) than non-attenders (13%, 422/3360). Compared to those who had attended ANC, non-attenders were 1.6 fold more likely to have a preterm delivery (and 1.4 fold more likely to have a stillbirth. The authors suggest that these results reflect the need to improve ANC among vulnerable groups, including immigrants – a population known to be prevalent in the inner-city of Johannesburg. To this end, the authors indicate the need to include migration measures in birth registers as this, they argue, would allow improved understanding of migration dynamics to strengthen local-level responses to improve ANC attendance.

Anaemia

Anaemia amongst pregnant women is recognised as a global public health problem. An intervention with pregnant Eritrean refugee women in northern Ethiopia involved providing supplements of Iron-folic acid to address this. Findings from its evaluation indicated that adherence to taking the supplement was low, highlighting the need to ensure appropriate health promotion – including encouraging early and frequent ANC visits (280).

Teen mothers

Also in Rwanda, a study undertaken in the Mahama refugee camp found that Burundian refugee teenage pregnant girls and teen mothers are not in school, despite policies in Rwanda encouraging continuation of schooling (281). Stigma appears to drive this, highlighting the need to improve understanding of, and responses to, contextual barriers faced by pregnant teenagers and teen mothers from accessing their right to school.

Child health

An assessment of the experiences of children admitted to hospital in the Gauteng Province of South Africa found fewer health-related differences between immigrant and South African children than expected (282). The main differences found were parental education, income, housing environment, English language proficiency and childhood malnutrition., Access to MCH services was similar between immigrant and SA children. However, the researcher indicate that immigrant children should be seen as potentially high-risk group and health workers are called on to advocate for equitable access to healthcare for all children. Also in South Africa, migrants from outside of southern Africa were found to be the least likely to experience child deaths, compared to South African internal migrants and migrants from Southern Africa (283)

Under-five mortality was explored in the Meheba refugee camp in Zambia (284). This retrospective cross-sectional study found that 75% of mortalities where in children less than one year; malaria and respiratory infections accounted for 81% of under-5 deaths and diarrhoea was responsible for 10%. An increased frequency of visits to the healthcare facility significantly reduced mortalities in children.

Newborn Care

The essential new-born care practices and determinants amongst refugee mothers in Uganda with children aged 6 months or younger were explored, highlighting that community-based interventions are needed to support mothers in cleaning umbilical cords, keeping newborns warm, delaying bathing and ensuring ideal infant feeding (285). Studies exploring infant feeding highlight the challenges associated with a lack of resources to purchase food(286) and the need for improved support to encourage exclusive breastfeeding (EBF) (287) – with some success demonstrated following an EBF intervention, amongst Liberian refugees in the Buduburam camp in Ghana, being reported (288).

Baby and Child Friendly Spaces

The Baby Friendly Spaces (BFS) programme – piloted with South Sudanese refugee women in Ethiopia - offers support to improve the health and wellbeing of pregnant and lactating women and their children under two years of age (289). Key lessons from a process evaluation of the programme indicates the need to find ways for both the programme itself and any evaluation research, to respond to the changing and unpredictable nature of a humanitarian context, including the impact of sporadic violence, staff capacity and turnover, and appropriate data monitoring systems. Child Friendly Spaces (CFSs) is an intervention that aims to support displaced children in humanitarian contexts and the short and longer-term impacts of CFS has been evaluated in the Rwamagana refugee settlement in Uganda, showing positive impacts on children's well-being and development whilst participating in the programme but these impacts do not last beyond active involvement (290). This highlights the need to develop approaches to connect children to other opportunities for development in refugee camp settings.

4.5. Disability

A cross-sectional study (n=209) undertaken with refugee women accessing GBV services in the Dadaab refugee camps in Kenya showed that 44% reported a disability (291). A higher proportion of women with a disability reported physical intimate partner violence and/or physical or sexual non-partner violence in the past year compared to women without a disability. Before arriving in the camp, a higher proportion of women with a disability reported experiencing non-partner physical or sexual violence compared to women without a disability. Disability was associated with higher scores for depression and anxiety.

In Gauteng, the odds for disability of health-limiting work/social activities was significantly lower amongst migrants than non-migrants (292). Findings from a household survey (n=27,490 respondents) indicate that migrants are less likely to be disabled, tend to be younger and have higher educational attainment and better employment status than residents. However, this group was more likely to be living in households with fewer

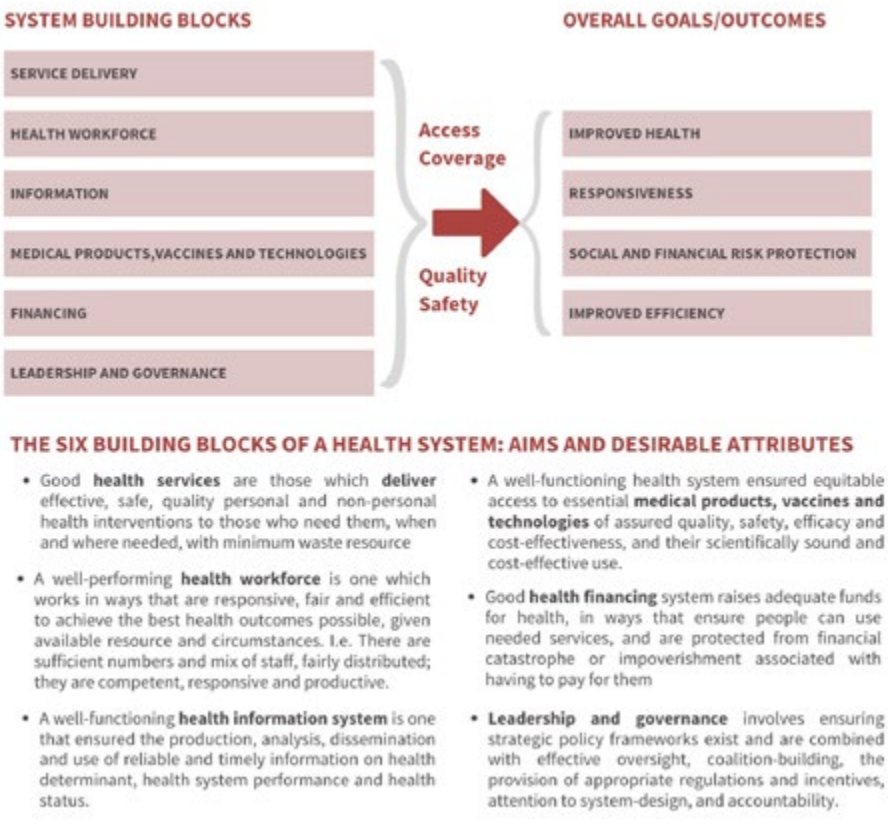
Margret - Margret Maushe, 35, originally came from Zimbabwe to Johannesburg for a better life. Born with physical disabilities, her leg was amputated after she got cancer as a teenager. Margret earns a living by begging on the streets of Johannesburg near the trendy inner-city Maboneng precinct.

Photo credit: James Oatway

5. The Health System as a Central Determinant of the Health of Migrant Populations in the WHO-AFRO Region

Using the WHO framework (295), literature was synthesised across the six system building blocks of a health system, as outlined in Figure X below. Most of the literature identified in this review focuses on health outcomes rather than on health systems and governance and has, therefore, been presented in the preceding sections. Where possible, however, evidence from the review relating to the health system building blocks are presented. It is important to note that out of all the literature identified and included, only one focused on alternative forms of help seeking, focusing on the role of traditional healers in the provision of care to refugee populations (296).

Figure X: The WHO Health System Framework[13]



5.1. Service delivery

Good health services are those which deliver effective, safe, quality personal and non-personal health interventions to those who need them, when and where needed, with minimum waste of resources.

Policies across the WHO-AFRO region provide differential access to healthcare for migrant groups (297) and, as outlined below, access to healthcare remains a challenge. This includes within urban, border, transit, workplace and refugee camp settings (68,90,271,276,for example 298,299,299–306), and includes bureaucratic barriers – such as the need for documentation - and resultant fear of engaging by those who may hold an irregular documentation status (299,304,307–312). Concerns that where protective policies that support access to healthcare exist are not being implemented (90,299,307,310); in Nairobi, for example, fear of deportation due to challenges with documentation and a lack of trust in healthcare providers makes some urban refugees and Chinese migrants fear accessing services (305,308). Assumptions persist that the presence of refugees and migrants will place pressure on host country resources; a study undertaken in Cameroon to explore whether this is the case found that MCH service indicators did not deteriorate in the presence of refugees (313). For refugees in Ghana, the importance of being able to attain wellbeing – with an emphasis on the importance of access to healthcare services – was identified as being a necessary precursor for encouraging access to other solutions (311). Research in Rwanda highlights that access to palliative care services remains extremely limited in humanitarian settings (314). In Kenya, telemedicine has been suggested as an option for reaching marginalised groups, including refugees (315). The project 'Mashavu: Networked Health' system allows healthcare workers to diagnose and prescribe treatment. However there are many challenges that need to be addressed such as

[13]Fernando Wolff et al., "Positive Impact of Improved Cookstove Usage on Respiratory Health in Congolese Refugees: A Prospective Cohort Study," Environmental Science and Pollution Research 27, no. 4 (February 2020): 4509–12, https://doi.org/10.1007/s11356-019-06816-1.

improving the system to be able to assess blood tests which would help in diagnosis and control of both communicable and non-communicable diseases, such as malaria, HIV, and diabetes.

Health system responsiveness (HSR)

A cross-sectional study with 251 migrant patients in the Gauteng Province of South Africa found that there is a need to incorporate migrants' perceptions of HSR in the development of interventions to support Universal Health Coverage (UHC) (316). Patient satisfaction with nurses could be predicted by being given information about their condition; polite treatment, time spent in facility, whether they received prescribed medicines; and stating that they would refer the health facility to family/friends.

Language barriers

In South Africa, language barriers were listed as a major obstacle as most refugees originate from non-English speaking countries, making it difficult to express themselves when attempting to access healthcare services, including for HIV (90,310,317). For migrants from Lesotho working in South Africa, they reported preferring to return to Lesotho to access HIV medication due to the discrimination they reported experiencing in South Africa associated with their nationality and/or language spoken (83). In Kenya, providers of SGBV services struggled to communicate with refugees, negatively affecting service provision, highlighting the need for improving language skills, employing sign languages and other interpreters (305,308,318).

Responding to hypertension and diabetes

An assessment of whether health facilities were ready to manage hypertension and diabetes at PHC in the Bidibidi refugee settlement in Uganda suggested that HCWs required training and supervision to be able to ensure adequate quality of care (303). Associated with the need to develop appropriate interventions, an assessment of the readiness of healthcare facilities and healthcare workers to manage hypertension and type II diabetes in the Bidibidi refugee settlement in Uganda showed that whilst the facilities were physically prepared, problems existed with access to essential drugs, a lack of trained staff and inadequate supervision visits (303). This highlights the need for both community-level programmes to address the determinants of hypertension and type II diabetes and interventions to address health system limitations, including human resource challenges.

Inclusive responses

Refugees with disabilities are often left behind in research as standard approaches to data collection can present challenges prohibiting their participation (319). A participatory design that provided necessary tools to address the needs of the refugees, including personal assistants, vehicles for movement, sign language interpretation, braille documents and creation of a 'supporter' role in the facilitation process. Through daily debriefings, opportunities to reflect and improve the intervention were offered, providing insights for ways to operationalise a rights-based, inclusive and empowering approach to qualitative research.

Exclusionary responses to Sleeping Sickness (Human African Trypanosomiasis – HAT)

Whilst Uganda has an integrated refugee policy that should ensure refugees are included in public health interventions, ethnographic research undertaken in Western Uganda, highlights the realities – and resultant impacts – of exclusionary public health programming and the negative consequences of excluding refugee populations from disease surveillance programmes (320). Results presented suggest that this was not deliberate – and was rather a result of political challenges which meant that the programme failed to adequately engage with the needs of refugees. These determinants involved: donor pressure to reduce the scope of the programme; challenges in building local supervision capacity – including a reluctance for staff to work in an area associated with extreme heat and poor accommodation; barriers to using rapid diagnostic tests (RDTs) during a crisis – associated with turnover of staff, communication between patients and providers (language, translators scarce) and negative characterisation of refugees from South Sudan by healthcare workers (often the result of miscommunication); and, a lack of political will amongst humanitarian organisations as sleeping sickness fell outwith vertical programmes and fell aside in approaches to refugee health integration. For example, interviews with humanitarian actors and local government staff suggests that there was a lack of awareness of continued elimination efforts and there was no awareness of responsibilities of facilities to refer suspected cases to sentential detection sites.

Responding to HIV

Two publications highlighted the need to develop 'migration-aware' governance responses to HIV (321,322): "For responses to HIV to be more successful in the Sub-Saharan African (SSA) region, they must become migration-aware: population mobility, and the diversity of such movements, must be embedded as a core component of any research or response that aims to address HIV in SSA" (321). Five key issues were identified as potential focus areas for future research and intervention: (1) movement in search of improved livelihood opportunities; (2) the role of mobility in urbanisation and urban HIV epidemics; (3) movement to access treatment and care; (4) limited governance and capacity of health systems to respond to both HIV and migration; and (5) movement associated with conflict and post-conflict situations. (321)An exploration of migration and HIV in sub-Saharan Africa(321) finds "limited consideration of the complexity and diversity of population movements that, in turn, limits research, evidence and practice; non-standardised ways in which migration and mobility are defined and measured, leading to an inability to compare findings between different contexts; and, ongoing – and in some contexts, increasing – anti-(im)migrant rhetoric that overshadows evidence-informed, rational public health discussions and decision-making."

A lack of cross-border referral mechanisms between South Africa and Lesotho presents challenges for Basotho migrants receiving HIV treatment as healthcare providers struggle to ensure continuity of care and treatment, with healthcare providers reporting this presented problems for ensuring care and treatment, for example by not knowing what treatment regimen an individual was on or what their latest CD4 counts/viral loads were (83).

Intervention mapping (IM) – a method for developing health promotion programmes - was used to design an HIV linkage intervention in a Ugandan refugee camp – once again this was the Nakivale Refugee Settlement (323). The study reports on the application of IM to address the health problem of untreated HIV. A diverse group of stakeholders (N = 14) including community members and humanitarian actors, participated in an interactive workshop focusing on the first four steps (out of six) involved in IM. A chronic care program was designed that would integrate HIV care with services for hypertension and diabetes at accessible community sites, thereby decreasing stigma around HIV treatment and improving access to care. IM was shown to provide an inclusive, efficient method for integrating community members and program implementers in the intervention planning process and can be used as a method-driven approach to intervention design in humanitarian settings.

An innovative approach to providing HIV services to migrant farmworkers in South Africa involved a partnership between the local department of health, an international non-governmental organisation, and the private sector – in this case, commercial farm management (77–79). Whilst initially successful, once the international organisation withdrew, the local government struggled to maintain the mobile model, highlighting the importance of continued investment and support.

Responding to sexual and gender-based violence

A review of literature, policies and regulating documents explored SGBV among refugees in DRC found that there is a lack of effective responses, especially in the context of the sexual and reproductive health needs of survivors (324). This includes inadequate responses to address HIV, sterility and fistula, mental health and long-term disabilities.

Interventions to address mental health

Interventions to address mental health in camp settings include group cognitive behaviour (252) and a common elements treatment approach (CETA) involving lay providers to support Somali youth in Kenyan refugee camp (252). Programmes to address IPV and distress amongst Congolese women in Tanzanian camp (325); a self-help approach to support South Sudanese female refugees in Uganda (326–328), and mainstreaming mental health support into camp management (329) are examples of interventions that have been evaluated in different contexts. Community support for refugees in Cameroon and Nigeria has shown to be effective in supporting good mental health (239), as have of counselling services provided to refugees by the Refugee Law Project in Kampala (253). The importance of school and the role of teachers in providing support to children has been demonstrated (330) and interventions to support improving self-esteem amongst Sudanese and South Sudanese adolescent girls in Ethiopian refugee camps has shown positive impacts . Barriers to accessing mental healthcare services among Somali refugees in

Nairobi include cultural and religious beliefs, a lack of quality healthcare services, culture-insensitive mental health services, poverty, language barriers, stigma and discrimination (331). Also in Nairobi, a trauma-informed psychoeducation (TIPE) intervention that is culturally relevant for urban Somali refugee youth was found to significantly decrease PTSD symptoms and increase perceived social support amongst those who had high baseline PTSD scores (332).

To explore the mental health needs of refugees from the Central African Republic in Cameroon, an audit of eight health districts was undertaken including visits to sites and focus group and interviews with key informants (333). In addition to the challenges experienced when trying to access primary healthcare by refugees from CAR in Cameroon (334), and in spite of the prevalence of mental health disorders reported to be high, no health infrastructure or referral mechanisms to support mental wellbeing were found (329). Key recommendations for practice include: targeting training interventions to decision makers and to camp actors involved in the delivery of services; trainings should be practical and involve Training of Trainers, and be and opened up to key representatives of camp populations as this creates trust and allows for any challenges to emerge within a safe space where they can be resolved. Mobile teams should be trained and deployed, involving camp residents and host populations. Key concerns relate to camps existing beyond the emergency phase, and where minimum humanitarian standards are not met. In these cases, the proposed interventions will ultimately become ineffective.

A mental health and psychosocial support (MHPSS) needs and resource assessment was undertaken in the Northern Ugandan Rhino Camp settlement that is home to refugees from South Sudan. Visits to health centres in refugee settlements for the purpose of psychotic disorders, severe emotional disorders and other psychosocial issues increased following the influx of refugees from South Sudan in 2013 and 2014. However, overall help-seeking from the health centres was low comparted to estimates. South Sudanese refugees ranked 'overthinking', ethnic conflict and child abuse as the three highest mental health and psychosocial concerns. Others included unaccompanied minors, family separation, poverty and drug abuse (335). In this context, a self-help intervention was developed, based on community consultations, cognitive interviewing, facilitator training, pilot implication and a process evaluation (326). An uncontrolled pilot study identified positive changes in psychosocial distress functional impairment, depression, wellbeing and psychological flexibility suggesting that this adaptable intervention could be scalable.

A common elements treatment approach (CETA) was developed and evaluated to address depression, anxiety, traumatic stress and/or externalising symptoms among children in three Somali refugee camps on the border between Ethiopia and Somalia (336). Children who participated were found to report significant decreases in symptoms of internalising, externalising and posttraumatic stress. Improvements in wellbeing were reported as were high levels of acceptability and satisfaction by participating children and caregivers. Delivered through a task-sharing approach, this model supports WHO recommendations for task-sharing to deliver psychosocial interventions.

Teachers, parents, counsellors, and NGO staff involved in providing education or psychosocial support for refugee children in Sudan and South Sudan were interviewed in a study exploring the role of emergency education in supporting the wellbeing of children (330). In the absence of formal interventions, teachers and schools were seen as having important roles in terms of providing support to material, practical and emotional needs.

Abortion

In urban and camp settings in Uganda, Congolese refugees are placed at risk of unsafe abortion practices due to their challenges navigating a complicated legal framework and its inconsistent application associated with access to safe abortion (337).

5.2. Health workforce

A well-performing health workforce is one which works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances. I.e. There are sufficient numbers and mix of staff, fairly distributed; they are competent, responsive and productive.

Community workers

Refugee community workers (RCWs) in the Dadaad refugee camp in Kenya work under the supervision of professional GBV service providers provide support

to GBV survivors, including linking survivors to care programmes (338). Evidence highlights the difficulties involved in programming responses within complex contexts and indicates that RCWs experience challenges associated with tense relationships with professional GBV service providers; insecurity; low pay; opposition from community members; and being underprepared for the task ahead. However, some refugee community healthcare workers were stigmatised by the refugee community due to being from a different cultural and religious background (338). Linked to this, research in Uganda has indicated the importance of supporting community healthcare workers to develop income-generating activities(339) Research exploring the attitudes of medical trainees towards refugees in Uganda suggests that – through piloting an attitude scale that has demonstrated promising validity and reliability - whilst attitudes are positive, there is a need for further education in refugee care (340).

Social workers

A case study exploring the role of social work in supporting Congolese refugees and asylum seekers in South Africa found that the need to prioritise mental wellbeing through psychosocial support – that can be provided by social workers - is required (341). Congolese refugees and asylum seekers reported that they do not know where to access support. Social work services are currently limited and integrating social work services in mental wellbeing services was identified as an opportunity to provide appropriate support to Congolese refugees and migrants.

Innovative responses

In Rwanda, healthcare workers have demonstrated innovation in developing approaches to address a range of contextual challenges, including the use of SMS and Whatsapp group messages to connect local leaders and health facility mangers in hard-to-reach areas, including areas bordering Uganda and Tanzania that are associated with poor migrants without medical insurance and result in challenges with follow-up (279).

Contrary to much published literature that positions healthcare workers in South Africa as being xenophobic and discriminating against migrant healthcare users, findings from a qualitative study in a town on the border with Zimbabwe shows that some providers are engaged in actions to support the provision of inclusive healthcare – something legislated but often not enacted (342). Undertaken in the same area, a different study provides contrary results, suggesting that nurses were incorrectly categorising asylum seekers and refugees as economic migrants with impacts for health and wellbeing; awareness raising and capacity-building activities are recommended (343). Also in South Africa, research with healthcare providers in the Gauteng Province indicates high levels of exclusionary views and practice but with providers from other countries demonstrating significantly more inclusionary views. There is a need for these exclusionary views and practices to be addressed to ensure that providers uphold their professional duties, including through training in ethics and human rights; health policies that enable the right to health (344).

Medical trainees

Migration and HIV was explored from the perspective of medical trainees providing services to refugee patients in a hospital in Uganda (340). Results – based on analysis of a cross-sectional questionnaire administered to a convenience sample of 81 medical trainees – indicated, through use of an attitude scale, positive attitudes towards refugees with a mean score of 2.8. On average, respondents reported caring for 30 refugee patients per month, with no significant difference identified between gender, year of study, or country of origin. Results indicated many participants reported the need for training in the use of translators, support personnel and behaviour health.

The Ahmed Abdel-Fatah School of Nursing in the Sahrawi refugee camp of the Hamada Desert of Algeria is the only nursing and midwifery training delivered in a refugee camp setting (345,346). The reviews of the training approaches delivered indicate the transformative potential associated with training and job opportunities. Critically, without these training interventions, there would be a lack of trained healthcare professionals to care for women during pregnancy, delivery and in the postpartum period.

Returning healthcare workers

The emigration of skilled healthcare workers from the Sub-Saharan African region to high resource countries further exacerbates poor health outcomes in the region (347). Through exploring the experiences of Botswanan healthcare workers who returned to the country after working in the diaspora, family ties and missing home were found to be the main reasons for returning to the

country. Difficulties reintegrating were highlighted, potentially leading to further emigration.

5.3. Health information systems

A well-functioning health information system is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance and health status

Health data management

Management of health data in refugee-hosting districts of Uganda presents multiple challenges, including in the collection, analysis and reporting of data, highlighting the need for an improved and integrated system including harmonising refugee stakeholder data requirements at the national level (348). A model was developed to bring together the UNHCR Refugee Health Information System (RHIS) with the Ugandan National Health Management Information System (UHMIS) with the hope of improving and streamlining data to provide evidence to inform policy and programming in the field of refugee health. In Ghana, Mozambique and Nigeria, an approach to collecting and using health evidence for improving public health responses was piloted with findings highlighting the importance of ensuring migrants are involved in the evaluation process, particularly in the context of migrant mine workers (349).

Surveillance: cholera

A study reviewing surveillance data on cholera in Uganda was undertaken and identified seven cholera outbreaks in five refugee settlements and one refugee reception centre involving 1495 cases and 30 deaths (124). Most deaths occurred early in the outbreak, often in the settlements or before arrival at a treatment centre rather than after arrival at a treatment centre. During the different years, these outbreaks occurred during different times of the year but simultaneously in settlements that were geographically separated and affected all ages and genders. Some outbreaks spread to the local populations within Uganda.

Surveillance: measles strains

A study was undertaken to explore the molecular characteristics of measles virus strains among refugees from Central Africa Republic (CAR) in two camps in Cameroon (350). Urine samples from 30 suspected measles cases from were collected and MeV RNA was detected in 83% (25/30) samples, indicating the need for improved surveillance systems amongst refugees to ensure early detection of measles outbreaks and rapid responses to contain spread.

Surveillance: respiratory syncytial virus (RSV)

Drawing on RSV surveillance among children under 5 years of age and climate data from the Dadaab refugee camp in Kenya, a model was built to predict the increasing RSV incidence associated with changing climate (351). This model will assist public health officials prepare for and respond to RSV (351).

Surveillance: Ebola

A spatiotemporal analysis of the 2014 Ebola epidemic in West Africa has found that of newly infected cases, only a small percentage, between 4% and 10%, migrates to another district, and a minority of these migrants, between 0% and 23%, leave their country (352). The epidemics in the three countries are found to be similar in estimated effective reproduction numbers, and in the probability of importing infection into a district. The countries might have played different roles in cross-border transmissions, although a sensitivity analysis suggests that this could also be related to underreporting. The spatiotemporal analysis method can exploit available longitudinal incidence data at different geographical locations to monitor local epidemics, determine the extent of spatial spread, reveal the contribution of local and imported cases, and identify sources of introductions in uninfected areas.

An assessment of the effectiveness of airport entry and exit screening processes to manage Ebola – as recommended by the WHO – was undertaken with evidence suggesting that screening at airports is not effective (353). A review of entry and exit screening outcomes on all persons passing through Freetown International Airport (FNA) in Sierra Leone during the period 1st September 2014 to 4th February 2016 was undertaken. A total of 166,242 persons underwent entry (82,162) and exit (84,080) screening at FNA. Of those screened, ten cases (0.006%) were identified as being symptomatic or febrile during primary screening. All such cases were captured through exit screening protocols. Of these, five were denied travel and referred for further clinical evaluation following secondary screening by a medical doctor at airport. All (3 foreign and 2 Sierra Leone nationals) were confirmed to be positive for Malaria Falciparum via smear microscopy,

and two were co-infected with Typhoid. The remaining five were diagnosed as having mild upper respiratory tract disease. None of the ten were health care workers nor had any history of contact with EVD cases, their known contacts or ETCs. Entry screening did not detect any case for secondary screening. All 10 persons referred for secondary screening were detected by the hand-held NCIT at health screening posts. No referrals were made from the fixed thermal scanners that were set up at entry and exit points of airport. Two persons (a British and an Italian) that acquired EVD in Sierra Leone and diagnosed with EVD after developing symptoms at destination country passed through exit screening at FNA. The health screening forms for both cases were traced. Both travellers were health workers who had declared their clinical work with EVD patients. Temperature measurement and symptomology at time of screening had not warranted travel restriction.

A review of the West African experience in dealing with Ebola identifies key lessons learned that may be helpful for countries developing responses to Covid-19, including epidemiology, clinical aspects, case definition, laboratory confirmation of diagnosis, case management and disease prevention (160). Other research raises concerns about irregular border crossings – including transiting in trucks – in undermining Ebola control mechanisms (354), and the ways in which xenophobia emerged during recent Ebola outbreaks, showing how responding to migration and communicable disease outbreaks requires careful consideration and expanded intervention to prevent (further) violence against foreign nationals (355,356).

Outbreak response: polio

Polio remains a challenge among migrants in the WHO-AFRO region and highlights that States should map hard-to-access border areas and seasonal migration routes with population estimates (134). Every effort should be made to increase access to immunizations and surveillance using local innovations such as geographic mapping and micro-planning, which can be combined with other health interventions to increase acceptability and adherence to polio vaccines. Cross-border vaccination, including permanent vaccination at transit points and vaccination on market day, and surveillance of migrant/nomadic populations should also be strengthened. With a focus on the Horn of Africa and Kenya where polio outbreaks occur, outbreak responses have been evaluated and successful strategies presented – notably vaccination and the establishment of permanent vaccination points coupled with timely intervention and coordination to manage an outbreak (133).

In order to develop an effective polio vaccination campaign targeting Somalis living in or traveling in Kenya, a study involving focus group discussions and participatory mapping was undertaken to improve understanding of their migration patterns and health seeking behaviours (131). Qualitative and geospatial data indicated movement patterns that followed partially definable routes and temporary settlement patterns with an influx of ethnic Somali migrants into Kenya at the start of the long rainy season (April–June). Community members also reported concerns about receiving healthcare services in regional health facilities. Using these data, an 8-week vaccination campaign was planned and implemented: 2196 children aged 0–59 months received polio vaccine (9% had not previously received polio vaccine), 2524 children aged 9–59 months received measles vaccine (27% had not previously received measles vaccine), 113 were referred for the treatment of severe acute malnourishment, 150 were referred to a supplementary feeding program due to moderate acute malnourishment, 1636 children aged 12–59 months were provided albendazole and 2008 children aged 6–59 months were provided with vitamin A. The study demonstrates the importance of collecting local-level data and to effectively adapt interventions to the local context.

A study was undertaken to document the response to polio virus outbreak in the Horn of Africa (133). The paper explores the lessons learnt in relation to the interregional and inter-agency collaboration on the response which was reported to have had a positive impact on efforts to address the outbreak. Results indicate the importance of collaborative planning and implementation of activities to improve both immunity levels and surveillance measures. Key lessons identified include the importance of collaboration for coordination of efforts.

Polio outbreak simulation exercises were shown to assist in developing responses in the Horn of Africa (132). Seven simulation exercises, delivered between 2016 and 2017 revealed that participating countries were generally prepared for poliovirus introduction, but the level of preparedness needed improvement. The area in particular need of strengthening were national

preparedness plans, initial response, plans for securing vaccine supply, and communications. Limited direct involvement of UNHCR in the planning process was noticed. Communications were expected through NGOs working closely with UNHCR but this did not come out clearly in the plans.

Modelling: RSV

Modelling can assist public health officials plan more effective responses to respiratory syncytial virus (RSV) in refugee camp settings. In the Dadaab refugee camp in Kenya, statistical models exploring the relationship between the weather and RSV show that it is possible to predict the relationship between weather and RSV in order to assist public health officials prepare for and respond to RSV in low-resource settings or communities (357).

Measuring mental health

One study assessed the reliability of using the 'Psychological Factors Scale' and no data on mental health status was provided (358). This involved convenience sample of 170 immigrant, francophone adolescent learners from high schools in a school district in the Western Cape, South Africa to explore the psychometric properties of a possible measure of psychological wellbeing (358). Results indicated that the 'Psychological Factors Scale' is reliable for use with this population group.

5.4. Medical products, vaccines and technologies

A well-functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use.

Vaccines

Issues exist around inequity in access and uptake of vaccine-preventable diseases amongst migrants in the WHO-AFRO region (359), including amongst the Somali population in Kenya – including measles, rubella, polio, tuberculosis, diphtheria, tetanus, pertussis, influenza, hepatitis B, pneumococcal viruses and rotaviruses (360). It is essential to improve understanding of these differences in uptake in order to develop contextually appropriate programme responses. In Cabo Verde, it is reported that migrants have access to vaccines (361), whilst in Kenya, work has been undertaken towards developing a mobility-competent polio vaccination programme (131). In the Yida camp of South Sudan, it has been shown to be both feasible and cost-effective to deliver Haemophilus influenzae type b (Hib)-containing (pentavalent vaccine, also with diphtheria pertussis and tetanus [DPT] and hepatitis B) and pneumococcal conjugate (PCV) vaccines to children under two-years of age, evidence that is relevant to similar settings in the region (362). The recognised need for improved and accessible systems for serological immunoassays in remote settings is being addressed (363). A cost-effectiveness analysis of hepatitis B vaccination strategies for camp-based refugee populations in the African region – undertaken in Djibouti, Algeria and Mauritania - found that the addition of universal hepatitis B birth dose vaccination during the first 24 hours of life, in addition to routine immunisation schedules, is cost-effective (364). Results from the examination of the spatial heterogeneity of measles vaccination coverage in ten sub-Saharan African countries identified 477 spatial cluster of low rates of measles vaccination coverage (365). Clusters were found in in border areas associated with highly mobile transborder populations. Clustering of low vaccination rates was related to low health education levels and limited access to healthcare. More recently, a focus on ensuring inclusive responses to Covid-19 vaccination programming has emerged and research highlights that a central concern facing the WHO-AFRO region today relates to ensuring the inclusion of migrant groups in Covid-19 vaccination programmes (171).

Antibiotic Prescribing

Concerns around inappropriate antibiotic prescribing practices amongst healthcare workers in a rural refugee settlement district in Uganda have been raised, including excessive use of antibiotics and a failure to diagnose and prescribe in line with treatment guidelines (27% and 42% of records reviewed respectively) (366).

Access to medicines

In the Western Sahara camps that are home to Sahrawi refugees, a drug utilisation study was undertaken, showing the potential misuse, logistic problems and public health concerns that need to be considered in these contexts (367). A key finding was that family members and volunteers visit the camps during holiday periods and often bring medicines with them – most of which are non-prescription – contributing to the

number of medicines stored in households. However, antimicrobials were commonly found in households, with misuse (e.g. using them for non-infectious diseases) or health conditions that had uncertain origins (such as toothache).

5.5. Financing

A good health financing system raises adequate funds for health, in ways that ensure people can use needed services, and are protected from financial catastrophe or impoverishment associated with having to pay for them

In the Yida camp of South Sudan, analysis of existing data shows that among children under 2 years of age, compared with no vaccination, one- and two-doses of combined Hib-containing and PCV would avert an estimated 118 and 125 pneumonia cases, and 8.5 and 9.1 deaths, respectively. The cost per Disability-Adjusted-Life-Year averted for administering combined one- and two-doses was US$125 and US$209, respectively. MSF demonstrated that it was possible to administer these vaccines during an emergency and our analysis found it was both feasible and cost-effective to deliver Haemophilus influenzae type b (Hib)-containing (pentavalent vaccine, also with diphtheria pertussis and tetanus [DPT] and hepatitis B) and pneumococcal conjugate (PCV) vaccines to children under two-years of age, evidence that is relevant to similar settings in the region (362).

A lack of resources can act as a barrier to accessing HIV services for different migrant groups, notably in relation to the financial costs associated with travel to facilities (307,308), This is discussed under the section on HIV – section 4.1.1.

5.6. Leadership/governance

Leadership and governance involves ensuring strategic policy frameworks exist and are combined with effective oversight, coalition building, the provision of appropriate regulations and incentives, attention to system-design, and accountability

A multisectoral approach

In South Africa, a case study undertaken with Congolese refugees in Pietermaritzburg in the Kwa-Zulu Natal Province, shows how a multisectoral approach has supported collaboration between refugees, government and civil society, and demonstrated opportunities for improved bureaucratic efficiency (368). This included information sharing, co-hosting and co-organising workshops and social cohesion events. Engagements with state structures were challenging, presenting further strains to partnership building.

Local-level responses

Research exploring local-level migration and health challenges in South Africa shows the need for local-level responses (302,369). The Johannesburg Migrant Health Forum was designed to bring together key actors involved in migration and health together at the city level to develop coordinated responses and tackle challenges collectively (369); the Forum displayed some success with lessons for other contexts. For primary healthcare settings, understanding local population dynamics – particularly the movement of healthcare users across borders – was found to be needed to improve service delivery (302). This is in response to research findings that show high levels of migratory status – including nationality - amongst PHC users. The study found that new arrivals and long-term residents were the most likely to have valid documents and found no evidence of people migrating in order to seek healthcare.

Integrating interventions and national policies

In South Sudan, research in refugee camps indicates that there is a clear and urgent need to integrate neonatal interventions into national policies, including within humanitarian and refugee camp settings (370). The importance of mainstreaming responses to mental health and psychosocial wellbeing within camp coordination and management has been highlighted (329), including considering the role of social work as a key opportunity for strengthening responses (371). One of few studies to engage with the role of traditional medical providers calls for recognition of the role that they can play in delivering responses (296). At the national level in South Africa, a policy review exploring provisions for migrant access to healthcare found that the key needs of refugees are not adequately addressed, including a lack of interpreters at facilities and lack of access to free ART and mental healthcare (372)

Regional responses to migration and health

Suggestions for action include at the continental level (373) and at a regional level – in the case the Southern African Development Community – have also been made (374), and calls for improving health system

Photo credit: Madelene Cronjé

6. The Social and Structural Determinants of the Health of Migrant Populations in the WHO-AFRO Region

The social and structural determinants of health refer to the factors that influence equity in health. Migration is recognised as a determinant of health (4,5,5–9,61,252,377–380) and various structural and social determinants of health have been identified in the WHO-AFRO region, which have been discussed across the proceeding sections of this report. Based on this review, key determinants of the health of migrant groups in the WHO-AFRO region include: violence, both structural (such as attitudes, stigma and the political and policy terrain) and direct, including Sexual and Gender Based Violence (SGBV); meeting basic needs, including food security, housing, safe work and a sustainable income; and, access to social welfare services and support, including healthcare – itself a central determinant of health. The gendered experiences of migration also affect health (381). Whilst the importance of quality research for developing appropriate interventions to improve the health and wellbeing of refugee populations is recognised, concerns around the ways in which international research partnerships are implemented in crisis settings (314).

6.1. Violence

6.1.1. Sexual and Gender Based Violence (SGBV)

Literature from the region addresses Sexual and Gender Based Violence (SGBV), against both men and women, including the experiences of male refugee survivors of sexual violence from eastern DRC, Somalia and South Sudan in Kenya (382); from central Africa (383); and from DRC, Burundi and Rwanda in Uganda (384). Research exploring intimate partner violence (IPV) against Somali refugees in Ethiopia (385) found how displacement-related changes in marital practices took place. This included reported reductions in forced marriage, polygamy and dowry, factors that contribute to physical and sexual IPV. However, these changes did not result in any perceived decline in IPV. A focus on the experiences of violence of urban and camp-based women in Uganda was found with evidence was presented on the experiences of violence against urban refugee adolescent girls and young women in Kampala (386); and camp-based women (387), including Sudanese and South Sudanese women (388,388,389). IPV in the context of assisted partner notification for HIV among refugees in Uganda was discussed (97) and help-seeking strategies for SGBV amongst refugee populations in Uganda were also considered (390). Other research focused on the experiences of Congolese refugee women in Tanzania (325), migrant women in South Africa (391); refugee adolescents in Rwanda (392,393) and adolescent refugee girls in Ethiopia (103,394,395). Some work had evaluated screening tools and interventions to address SGBV, including IPV (261,325,396–398) and approaches for addressing disclosure bias in the reporting of SGBV (392,395). Other topics considered include Female Genital Mutilation (FGM) (399), the role of Khat use in IPV (400) , gang-involved violence (401), and violence against adolescent girls (386) and children (402,403).

A cross-sectional study (n=209) undertaken with refugee women accessing GBV services in the Dadaab refugee camps in Kenya showed that 44% reported a disability (291). A higher proportion of women with a disability reported physical intimate partner violence and/or physical or sexual non-partner violence in the past year compared to women without a disability. Before arriving in the camp, a higher proportion of women with a disability reported experiencing non-partner physical or sexual violence compared to women without a disability. Disability was associated with higher scores for depression and anxiety (291).

Research undertaken with Congolese refugees aged 12-17, parents and caregivers in two refugee camps in Rwanda, found that whilst refugee camps are designed for security, the practice of containment produced new threats and vulnerability (404). Specifically, the ways in which material deprivation and a lack of economic opportunity converge can lead to transactional sex and exploitation.

6.1.2. Structural violence

Various forms of structural violence are apparent in the literature that has been reviewed.

Stigma and xenophobia

Foreign nationals may experience poor treatment from local services providers both within and beyond the healthcare system, for example; pregnant teenagers and teen mothers in refugee camp settings (281); and LGBT people seeking asylum (405). This form of violence – that involves anti-foreigner sentiments and xenophobia from healthcare providers (300,310) and homophobia (105) – was also seen during recent Ebola outbreaks in West Africa (355,356) and in the development of policies and programmes (374) that, too often, exclude non-citizen groups, contributing to inequality and inequities in health (299,343,406).

However, this has been challenged in the context of a border area of South Africa where good practice identified whereby healthcare workers ensured access to medical facilities were assured for black African migrants (342). This was achieved through healthcare providers bypassing institutional and policy-related difficulties related to registering and treating three categories of 'indigent' migrant patients: undocumented migrants, non-native speaking migrants and migrants without referral letters('self referrals') (342).

Policy exclusions

A jurisprudential analysis was undertaken of a Botswana High Court case where non-citizens incarcerated in Botswana were excluded from HIV treatment programme (407). The analysis highlights the importance of the idea of human dignity and pro-person interpretation of human rights provisions in the Botswanan constitution. The study also highlights how civil, political and socioeconomic rights intersect and concludes that human dignity is inherent in human rights; that it is essential to apply a pro-person principle when interpreting the constitution and legislative provisions in order to protect human rights; and that this interpretation is crucial to the global fight against the HIV pandemic.

For Sahrawi refugees living in camps in the Algerian Hamada region, occupational apartheid – being deprived of participating in social, health and economic systems – is associated with poor levels of functioning, particularly in their daily occupation and social participation, emphasising the importance of the socio-political context as a driver of health (408).

6.2. Living conditions

In Ghana, the centrality of ensuring access to positive determinants of health within a refugee camp setting was identified as a pre-requisite for engaging with various solutions for refugees in protracted situations (311). Eritrean refugees in Ethiopia reported how living conditions within the camp affected their psychosocial health, particularly due to feelings of isolation, the strictness of the structure within the camp and a fear of health-related problems associated with the limited healthcare facilities available (409). Violence and vigilantism within refugee camp settings have been identified as threatening residents (354). Malian refugees in northern Burkina Faso reported concerns associated with their living conditions - notably the lack of classroom facilities for pre-school children and a lack of healthcare services – and their limited involvement in planning and implementing programmes aiming to address their wellbeing (410).

In Northern Ethiopia, it was found that Eritrean refugees negatively impact the host community, creating social and health treats (411). As also discussed in the context of Zimbabwe (354), the presence of refugee communities was reported to have introduced health-related challenges, including sexually transmitted infections and other reproductive health problems, including reproductive and sexual harassment (411).

For Ethiopian and Somali women refugees in the Kakuma camp in Kenya reported feeling insecure in almost every area of the camp, and there was no place where they felt safe, with impacts on their experiences of stress (412).

In South Africa, the households of Mozambican refugees were found to have a lower SES than those of South Africans with implications for health and wellbeing, particularly in relation to ability to access water, sanitation and housing (413).

6.3. Access to education

Refugee students in the Kakuma refugee camp in Kenya reported assistance from UNHCR and local NGO partners as critical; this support built schools, hired teaches and provided scholarships for higher education (414). These support structures build

wider, virtual networks to connect refugee students to 'traveling resources', connecting students to a range of social capital resources. These opportunities were associated with a range of subsequent benefits, notably lessening domestic work for girls in school. Ultimatelty, improved social capital is a positive determinant of health, emphasising the importance of effective and appropriate high-school programmes in refugee settings. Also in Kakuma, an evaluation of a two-module blended-learning programme on 'One Health' was undertaken with findings identifying successes – notably the demand for access to University-level training courses - and highlights the opportunities for upscaling the approach in other camps across the continent and further afield (415).

6.4. Food and nutrition

Malnutrition

Malnutrition – and associated poor health - resulting from a lack of food following forced migration was identified amongst the children of refugees in the northern part of Cameroon from Nigeria (416) and amongst refugees from CAR and Sudan in Chad (417). A scientific letter[14] in the South African Journal of Clinical Nutrition (416) outlines that breastfeeding and nursing mothers have insufficient food, resulting in poor milk-production and children under 5 years of age are reported as suffering from life-threatening severe acute malnutrition (SAM) as a result. For those in refugee camps, food distribution is not always equal and for those living in host communities and with families, a shortage of food is common.

In the West Nile Region of Uganda, a study was undertaken to assess capacity in providing quality of care (QOC) to malnourished children (418). Thirty randomly selected facilities (out of 148) and the records of all children with severe acute malnutrition in the past year (n=1467) were assessed using the national Nutrition Service Delivery Assessment (NSDA) tool. Across the 305 NSDA scores allocated to the facilities, 65.9% (201) were 'good' or 'excellent' but 20 (66.7%) of the included facilities had 'poor' quality improvement mechanisms and 13 (43.4%) had 'poor human resources'. Data quality was poor overall, and the average cure rate was significantly lower than the international Sphere standards (50.4% v's 75%), and a higher default rate was observed (23.2% v's 15%). In refugee-hosting facilities, transfer rates were higher than in non-refugee-hosting facilities despite better equipment and supplies. Better cure rates in outpatient centres were associated with 'good/excellent' equipment and store management. The findings indicate that health outcomes of children in the West Nile Region are significantly below international standards, pointing to the need for improved and sustainable approaches to improved malnourished child health.

A cross-sectional study with 423 adolescent Somali refugee adolescent girls residing in camps in Southeast Ethiopia discovered a stunting prevalence of 9.7% and a thinness prevalence of 15.2% indicating a moderate public health problem (196). For the development of stunting, age was the key factor whilst for stunting, it was menarcheal status. Pre-menarchael adolescent girls were 64% less likely to be thin compared to those post-menarche and older adolescent girls were 2 times more likely to develop stunting compared to younger adolescents. Rice, spaghetti and macaroni were staple foods and the main source of food was from the rations distributed in the camps. Most of the households reported selling donated food – mostly wheat - to buy their staple foods.

Food practices, appropriate food availability, dietary diversity and dietary acculturation

Interviews, focus groups and in-depth case study explored the food practices of Congolese men and women in Johannesburg, South Africa (419). Participants reported challenges accessing food from the DRC, outlining that they missed eating them and emphasising the importance of sharing food with relatives. Where similar foods were available in South Africa, participants raised concerns about quality and price including when foods from DRC can be purchased due to the length of time it takes to arrive, reporting that this affects the taste, spoiling the food. The study reveals that participants perceive South African foods as causing diseases due to animals not being bred properly and being full of chemical substances, resulting in health problems. Developing diabetes was blamed on South African foods containing too much sugar. The participants also raised concerns that the food available in South Africa not only weakens their physical well-being but also affects their abilities to practice various rituals and ceremonies that are performed to acquire knowledge, blessing and protection. Congolese foods imported from DRC were reported to assist in curing certain health problems. Food sent by family members

[14] Meaning that no primary data is presented

linked the sick person to their country and family, supporting the maintenance of ethnic identity.
Food insecurity was assessed among 200 women asylum seekers and refuges in Durban, South Africa (420). The majority of women were living in poverty (96.2% living on less than USD 1.9 per person per day) and only 8% were found to be food secure. Indicators of food insecurity were found to be larger household size, household spending between ZAR 700-900 on food per month, and purchasing food from street vendors or informal community shops. The number of coping strategies – including reduced food intakes, changes in types of food served, and adjusting the food budget - were significantly higher in the food-insecure group.

The importance of the availability of appropriate food – in this case halal - for migrants was explored in South Africa (421). A theory of planned behaviour (TPB) was applied to data from a self-administered survey involving (n=230) and determined that respondents held positive awareness of the availability of halal food and a positive association with consumer purchase intention, and a positive correlation between attitude and purchase intention. This indicates a significant relationship between awareness and buying behaviour, and between attitude and intention to purchase which, the study's authors argue, is a benefit to supporting the production and offering of halal foods in South African markets.

A pilot survey involving immigrant households (n=34) (422) and a larger survey of migrant women from West, Central, and East Africa (n=194) – the majority of whom were found to fall into a low-income bracket - in an urban area of South Africa found that, whilst wishing to maintain traditional food cultures, dietary acculturation does take place (422,423). A key reason identified for adopting South African food was their lower cost. This dietary acculturation resulted in poor eating habits – similar to South Africans - involving a high intake of energy-dense, high-fat and low-micronutrient foods. The study authors recommend culturally appropriate nutrition education interventions.

A cross-sectional study was undertaken in two refugee camps in the Western Region of Ghana– one hosting Liberians, Sudanese and Togolese refugees, the other hosting refugees from the Ivory Coast – to explore the role of food baskets in assisting refugees with chronic illness (424). In-depth interviews (n=10) and a survey (n=40) identified factors influencing management of chronic illness, food insecurity, coping mechanisms and dietary intake. Findings indicate that refugees living with chronic illnesses, including non-communicable diseases (diabetes, hypertension, cardiovascular disease) and communicable diseases (Hepatitis B, HIV, TB), struggle to provide food for themselves and their families – even while receiving food assistance. All households experienced extreme food insecurity and half experienced very extreme insecurity. Those experiencing very extreme food security were more likely to have a chronic non-communicable disease, than those with a chronic communicable disease. This resulted in meal skipping, and was associated with stress and worry, and led to the borrowing of food and/or money for food. Participants indicated that job insecurity – linked to the declining camp population and more competition for jobs - and inability to farm were key factors explaining food insecurity. Those experiencing extreme food insecurity consumed significantly more sugar sweetened beverages; this was the only significant food consumption difference identified across food insecurity status. Healthcare providers advised participants to increase consumption of fruit and vegetables to support management of their chronic condition.

Lower socioeconomic status Saharawi refugees living in the Western Sahara in Algeria were found to be at risk of low dietary adequance (54). A cross-sectional survey was completed with 180 women and 175 men and the mean dietary diversity score (DDS) was 3.8+/-1.4 and two-thirds were at risk of low dietary adequacy – only 32% had consumed foods from the minimum dietary diversity (MDD) threshold of five or more food groups during the day of the interview. A positive association was found between DDS and the WAMI index which assesses sanitation, assets, education and income. A negative association was found between DDS and age. Five-percent of men and 32% of women were obese and only 10% were cultivating vegetables. 67% had livestock. The main food groups consumed were starchy staple foods, flesh foods and dairy with vitamin A-rich foods the least consumed (green leafy vegetables, nuts, seeds, eggs).

Compared to local Ghanaian women, Liberian women residing in the Buduburam refugee settlement in Ghana were significantly less likely to adhere to a healthy eating pattern and more likely to consume sweets and fats,

indicating that the Liberian refugees had a propensity towards a poor diet (55). It is not known if this existed prior to their arrival in Buduburam but it is known that dietary changes often accompany changes in country of living.

Malian refugees – who fled as a result of the 2012 violence in northern Mali – in Mauritania and Niger participated in a face-to-face survey and follow-up telephone interviews to assess the socioeconomic impacts of their forced movements (425).. The welfare of the participating refugees was found to be negatively impacted, with a decrease reported in the quality and number of meals consumed (425).

A Nutrition Income Generation Intervention (NIGI) involving home gardens and increased vegetable production for income generation that was implemented in Northern Uganda found that the refugee community participating in the project were twice as likely to consume vegetables compared to the refugee comparison group (426).

Maternal and infant nutrition

Research involving in-depth interviews with Somali, Congolese and Zimbabwean women (n=23) and focus group discussions with women (N=6) and men (N=3) from the same nationalities (n=48) in Cape Town, South Africa, explored individual and collective meanings attributed to foods amongst migrants (427,428). Food scarcity was found to be little discussed, but the food environment suggests that there is limited dietary diversity available with recommendations made for improving the accessibility and affordability of appropriate (desirable), nutrient dense foods. Key was the discourses related to food in South Africa being described as inferior, unnatural and unvaried compared to home; that food access is dependent on money rather than from a farm, garden or neighbour; and that meat consumption is inevitable due to perceptions of a lack of food variety. Women identified their pregnancy cravings for fast food and junk food (428). Discussing food invoked 'romanticised' memories of life back home and a longing for food from home. For Somali women, exclusive use of small, community-based stores, street vendors and spaza shops (small, informal stores) appeared to be associated with a lack of ability in local languages, the desire to support Somali-owned stores, and fears of xenophobic violence elsewhere. Importantly, these shops would sometimes provide smaller amounts of food and provide credit. Somali women were often supporting large numbers of young children and had little space – and, importantly, funds – to 'stock up' on foods from supermarkets. Participants from all nationalities described accessing foods in larger, South African supermarkets was avoided due to financial insecurity, fear of xenophobic encounters, and language barriers.

A national Nutrition Service Delivery Assessment (NSDA) tool was used to assess the quality of care of services provide to malnourished refugee children in the West Nile Region in Uganda with findings indicating that 66.7% of the 30 participating centres had 'poor' 'quality improvement mechanisms' and 43.3% had 'poor' 'human resources' (429). The quality of data in official records was poor and the quality of case management was fair. However the average cure rate was significantly lower than the international Sphere standards – and similar in both refugee-hosting and non-refugee hosting facilities - with a higher default rate. Having 'good/excellent' 'equipment' and 'store management' were significantly associated with higher cure rates in outpatient facilities.

Food insecurity and poor mental health

The relationship between food insecurity and mental illness is explored among African refugees in the city of Durban South Africa using a self-report of food insecurity and the Hopkins Symptom Checklist-25 (430). Results show that the proportion of those who responded 'often true' to not having enough food and eating less was 23.1 and 54.3 %, respectively. The proportion of individuals with a significant level of anxiety and depressive symptomatology was 49.4 and 54.6 %, respectively. The adjusted logistic regression indicated that not eating enough was significantly associated with anxiety and depression. Similarly, eating less was significantly associated with anxiety and depression.

A cross-sectional survey with refugee and displaced adolescent girls and young women and adolescent boys and young men living in Kampala's informal settlements (n=445) found high levels of depression associated with food insecurity and violence (431). Young women reported significantly higher depression symptoms than young men and lifetime sexual and physical violence were shown to have direct effects on depression and social support. For young men, food insecurity was associated with depression due to

reduced social support.

6.5. Air

Solid fuels

Burning solid fuels has implications for poor respiratory health, including amongst refugees in Rwanda (432) and Tanzania. (433). The use of solid biomass for fuels affects respiratory health; a study with Congolese refugees in the Kibziba refugee camp in Rwanda offers insights for the region by demonstrating that use of improved, energy-efficient, wood-fuelled cookstoves has a positive impact on respiratory health and can lead to relevant improvement in lung function resulting from Chronic obstructive pulmonary disease (COPD). With results showing that usage of improved cookstoves has a positive impact on respiratory health especially in individuals with pre-existing airway obstruction. A COPD Assessment Test (CAT)-score in a well characterized population including a subgroup of this population with pre-existing airway obstruction. particularly important for people with pre-existing health conditions (432). Interviews and spirometry were performed in Congolese women living in an UNHCR (United Nations High Commissioner for Refugees) refugee camp in Rwanda before (baseline, BL) and 9 months after (follow-up, F9) they received an energy-efficient cookstove (Save80) and were trained how to use it. Two hundred sixty-two women completed both spirometry and interview appropriately at BL and F9 and were included in per protocol (pp) analysis, which showed no change in mean FEV1. The predefined subgroup of this population with airway obstruction at baseline (N = 31) showed a significant FEV1 increase (FEV1F9= 1.70 L vs FEV1BL =1.58 L). Median CAT-scores were significantly lower in the F9 assessment.

6.6. Water

Access to safe water and sanitation is key for addressing various infectious diseases; a retrospective review of UNHCR data (2009-2017) highlights the importance of addressing water, sanitation and hygiene to reduce the risk for water-borne diseases in the region (123). See the earlier section on waterborne diseases.

Water quality

Research was undertaken in refugee camps and host communities in the Gambella Region, Ethiopia, in order to investigate the determinants of poor water quality through microbiological assessment (434). The cross-sectional study involved structured questionnaire-based interviews and testing household water. Results showed that stored water was contaminated in many households in both the refugee and host communities, and that there were significant differences in faecal coliform count and free residual chlorine concentration between the source and stored water samples. Households with caregivers who had no formal education were significantly more associated with faecal coliform contamination of water than households with caregivers who had completed secondary. This study also revealed that households which suffered from drinking water shortage within the previous month had significantly higher faecal contamination than their counterparts. Moreover, household drinking water lacking free residual chlorine was significantly more contaminated with faecal coliforms than drinking water which had free residual. Storage water faecal coliform contamination status had no significant relationship with availability of latrines, type of water container: wide-mouthed containers, dipping water from containers, and household water treatment. Chlorination of water has raised concerns about possible health risks and research conducted in a refugee settlement in Northern Uganda found that disinfection by-product (DBP) levels in an emergency water supply system were not problematic for the general population but particularly vulnerable populations may face risks as a result of sub-chronic exposure (435).

A multi-site study in refugee camps in South Sudan, Jordan and Rwanda explored the development of evidence-based chlorination targets for household water safety intervention (436). In each of four field studies the change in water between distribution and point of consumption was observed. Site-specific free residual chlorine (FRC) targets developed through in this study improved the proportion of households having sufficient chlorine residual (i.e., ≥0.2 mg/L FRC) at the point of consumption in three out of four field studies (South Sudan 2013, Jordan 2014, and Rwanda 2015). These sites tended to be hotter (average mid-afternoon air temperatures > 30 °C) and/or had poorer water, sanitation, and hygiene (WASH) conditions, contributing to considerable chlorine decay between distribution and consumption.

Water, sanitation and hygiene (WASH) interventions

A study exploring adherence to safe water chain

practices in the Pagirinya refugee settlement in Northern Uganda was undertaken, involving interviews with 400 household heads and assessment of adherence to safe water chain practice.(135) Most (371, 92.7%) households obtained drinking water from hand pump boreholes. Most (325, 81.3%) of the water sources were within 500 metres of the dwelling unit. Jerry cans were the most popular containers for collection (373, 93.3%) and storage (237, 59.3%). All respondents (400, 100%) had access to an improved water source. The majority of the households had clean water collection containers (286, 71.5%), adequately treated their drinking water (250, 62.5%) and used methods of drawing drinking water from a storage container that could prevent contamination (325, 81.3%). All households utilized improved water sources and 74.0% had high adherence to safe water chain. participants with secondary education and tertiary education were, respectively, 1.35 times and 1.33 times more likely to observe safe water chain as compared to those with no formal education. Households where it took more than 1 hour to collect water from the water source were 30% less likely to observe the safe water chain as compared to those who could collect it in less than 30 minutes. Participants who had high knowledge on the safe water chain were 1.2 times more likely to adhere to safe water chain practices.

Access to functional handwashing facilities in a refugee camp setting was explored with South Sudanese refugees in the Rhino Camp Settlement in Northwestern Uganda (137). A cross-sectional household survey was undertaken to improve understanding of access to functional handwashing facilities. Of the 312 households included in the study, 123 (39.4%) had access to a handwashing facility, but only 72 (23.1%) of households had handwashing facilities that were functional. Duration of stay in the camp exceeding 3 years and history of receiving home-based education on hand hygiene were independent predictors of access to a functional handwashing facility.

A study was undertaken in an Eritrean refugee camp in the Tigray state in Ethiopia to explore the acceptability and feasibility of the Supertowel - a micro-fibre towel with an anti-microbial treatment - for crisis-affected populations (138). Baseline observations, behaviour trials and interviews, and focus group discussions were conducted and thematic analysis applied to the data. Findings indicate that the Supertowel was convenient, easy to use and saved them water and money. All households participating in the behaviour trials had at least one Supertowel in use at the end of the trials (follow-up visit two). In discussions participants reported that the Supertowel was more desirable than comparable hand cleaning products. In interviews, trial participants explained that the product enabled them to clean their hands at times when they might not normally bother. The research also identified some issues with the smell of the Supertowel and its intuitive use.

In South Sudan, a survey in a refugee camp setting found that WASH indicators tended to be lower the further away from the main camp amenities (437). However, for sanitation indicators, this was not the case – these were found to be high across all settings.

Sanitation

A study exploring new approaches to pit latrines was undertaken in the Kakuma refugee camp in Kenya (351). Qualitative and quantitative methods were applied to design, implement and pilot a novel sanitation system. A system was developed that made use of a urine and liquid-diversion toilet and a service-based system that included weekly waste collection. This was piloted for 6 weeks. Those who piloted the new sanitation system reported high levels of user satisfaction. Reported benefits included odour reduction, insect/pest reduction, the sitting design, the appropriateness for special populations, and waste collection. However, urine and liquid diversion presented a challenge for users who perform anal washing and for women who had experienced female genital mutilation.

A study – incorporating two cross-sectional surveys conducted 18 months apart - was undertaken to explore the acceptability of urine-diversion dry toilets in the Dollo Ado refugee camp in Ethiopia(139). The proportion who reported to use their UDDT consistently was 88.8% the first survey and 93.4% in the second survey. Reported satisfaction levels were significantly higher among respondents in the second survey where 97.0% of respondents stated either that they were mostly or very satisfied with their UDDT. There was no significant difference detected in satisfaction between UDDT and latrine users. Using a multivariable logistic regression model, several factors associated with a higher level of satisfaction with UDDTs were identified. Those who had previously (before coming to the camp) used a pit latrine or had no sanitation system relative to

a pour-flush toilet, had a clean UDDT, had been in the camp for a longer time period, did not share their UDDT and had used their UDDT for a longer time period had higher odds of satisfaction.

Involving marginalised women in sanitation initiatives
A study involving Somali women in northern Kenya explored their experiences of, and involvement in, sanitation initiatives (438). A series of focus group discussions were conducted with 16 women and 4 men. Thematic analysis was undertaken. Results indicate that the women who participated report a range of issues associated with sanitation and their daily lives. Key concerns raised are associated with a lack of personal safety in defecating in the bush, and gudninta fironiga (female genital practices) problems. Yet, despite the well-articulated and significant needs of the women, they describe a lack of involvement in design and implementation of sanitation initiatives.

6.7. Environment, climate change and natural disasters

The relationship between climate change, migration and adverse health effects is increasingly acknowledged by the international community (439). Climate change – resulting in increased temperatures, erratic rainfall and prolonged drought - determines health status and healthcare needs of migrants in the Horn of Africa (440). A scoping review and in-depth interviews highlighted key health challenges that result, including malnutrition and a lack of vaccination amongst refugee and forcibly displaced populations. Mental health problems and gender-based violence are less known to stakeholders and the treatments/support interventions available are inadequate. Where they do exist, tensions were reported between refugees and the local, host community. Chronic food insecurity and poor population health are intersecting with forced displacement across the region and sustainable interventions to build long-term resilience are called for by the authors (440), including intersectoral action to address the adverse health effects of climate change and migration (439).

6.8. Housing

Overcrowding can affect health in various ways, including skin diseases (191); head lice and the associated spread of bacterial diseases (122); exposure to mosquitoes and sandflies, leading to malaria (115,116,120,121) and filarial leishmaniasis (121,441) respectively. Housing type is also associated with access to safe water and sanitation, as outlined above.

6.9. Employment status, income and occupational health

Access to a sustainable and safe livelihood strategy and a reliable income is key to determining positive health outcomes (442). In South Africa, the socioeconomic and demographic characteristics of sub-Saharan African migrant women play a significant role in their coping and adaptation mechanisms (442). For example, having an education – that results from being able to navigate the immigration system to obtain a study permit - and good health is a requirement for human capital which was shown to rank the highest for supporting women to survive day-to-day. Over 80% of respondents indicated the centrality of health with some reporting the challenges of accessing healthcare due to the treatment received, for example being blamed by healthcare workers for overcrowding. Economic capital requires sustainable income to pay for rent and food, and to communicate with family and assist them as economic capital. Social, cultural and political capital takes the form of needing to adapt, respect and live with the culture of the host nation, including speaking English on arrival and learning local languages.

In Zimbwabwe's Tongogara refugee camp, the importance of centring an ethics of care and radical-democratic practices that can support the development of sustainable livelihood strategies was identified (443). Through a critique of existing policies and practice, the authors argue that without reconsidering approaches to how income generation activities are built, the wellbeing of refugees cannot be improved.

However, many migrant groups experience negative health outcomes due to the context in which they work. Earlier sections present the relationship between migration, work and HIV here, and migration, work and TB here.

Sex work

Migrant sex workers face a range of abuses that result from the intersection of gender, citizenship and legal status, and working in a criminalised industry (68–70,444–446) , including challenges in accessing appropriate healthcare services (67,68,444–446). A

rights-based approach to support improved access to healthcare and support services for refugee women selling sex in Kampala was undertaken in 2016 (446). Based on a peer-education approach, the intervention was designed to address stigma around sex work which creates barriers to accessing and developing dialogue, research and programming. The pilot suggests that this approach supports refugee access to information and services, including to contraceptives, HIV testing and treatment, peer counselling and protective peer networks.

Long-distance truck drivers

Long-distance truck drivers in Zambia were found to experience labour migrant-stressors, including delays and long waiting hours at borders, exposure to crime and violence, and job-related safety concerns (71,72). Associated risky sexual behaviours were addressed in earlier sections. Financial stressors were associated with long waiting times at border areas as they often could not afford food and other basic needs whilst waiting for necessary paperwork to be completed. Safety and environmental stressors included a lack of sanitary conditions – forcing them to use the bush as toilets. Night driving – resulting from pressures to deliver goods on time – often resulted in circumventing night-time driving restrictions. Fatigue and unsafe roads increased the likelihood of experiencing or witnessing serious accidents, associated with a lack of support from employers should they find themselves injured. Crime was a concern, especially the distress and worry associated with being exposed to victimisation from local communities when, as foreign drivers, they had to park their trucks in local villages overnight. In addition, risk of being robbed when having a break down, for example, was a key stressor. In the context of truck drivers, research findings suggest exploring mobile technologies as a possible tool to assist in reducing HIV sexual risk behaviours (outlined in earlier sections); adjusting policies to enforce night-time driving restrictions; and developing safe truck stops that may facilitate increased opportunities for social support between truck drivers thus reducing HIV risk behaviours (71).

Returning migrant workers and poor mental health

Differences have been identified among different groups of Ethiopian labour migrants returning from the Middle East (447,448) – with specific factors identified amongst younger workers (449) and women (450). Amongst a sample of 517 Ethiopian returnees, the prevalence of common mental disorders was 29.2%, and found to be significantly associated with education, physical abuse, not receiving salary properly and timely, a history of mental illness in the family, detention, feeling guilty for not fulfilling role and a denial of access to healthcare (447). A cross-sectional survey with 1036 Ethiopian returnees identified that migrants experience adversities at different stages of their migration, associated with distress and in some cases long-term mental illness (226). The study found the prevalence of common mental disorders to be 27.6%, including headaches, poor appetite, fatigue, sleeping problems and feeling unhappy or nervous. Key risk factors including coming from Amhara and Oromia regions, being Christian, being divorced, not receiving salary on time, not being able to contact family, unable to prepare for domestic labour abroad, lack of cross-cultural awareness and a lack of knowledge and skills for work (448). Younger returning Ethiopian workers were found to be vulnerable to exploitation and abuse and may want to return – including after violent outbreaks in their homes. However, returning home raises a range of challenges, including returning home without having achieved their goals (449). For some who return, their families may be disappointed and angry, and financially disadvantaged due to the return of the young family member. As a result, the young returnee may be rejected and leave their home and travel to the capital to seek employment (449).

Ethiopian women who returned after working in Arabian Gulf countries experienced various forms of racialised, gendered and economic exploitation from their employers and agents (450). Interviews with 48 returnees found that those who lived with their employer, as well as those who ran away/escaped, are both exposed to these forms of exploitation. Emotion-focused coping included trying to reduce distress by crying or praying. Once back in Ethiopia, the women reported trying to cope by making downward comparisons with migrants in worse situations and comparing their own experiences with worst case scenarios. They reported finding benefit in their experiences due to their ability to provide for their families or framing this as 'learning the hard way' (450). Returnee women described how they associated confidence and assertiveness with better treatment and respect by their employers, and emphasised the importance of external communication opportunities – such as a mobile phone – for help in an

emergency and indicated their interest in engaging with other women who are planning to travel to the Gulf in order to share their experiences (451).

6.10. Health literacy

Typhoid Fever

To explore knowledge, attitudes and practice (KAP) in relation to Salmonella typhi – that results in typhoid fever, a cross-sectional survey was conducted in Mahama Refugee Camp of Kirehe District, Rwanda from January to February 2016 (130). Data were obtained through administration of a structured KAP questionnaire. A comparison of hand washing practices before and after institution of prevention and control measures showed a 37% increase in the proportion of respondents who washed their hands before eating and after using the toilet. About 52.8% of participants reported having heard about typhoid fever, however 25.9% had received health education. Only 34.6% and 38.6% of the respondents respectively knew how typhoid fever spreads and is prevented. Most respondents (98.2%) used pit latrines for disposal of faeces. Long duration of stay in the camp, age over 35 years and being unemployed were statistically associated with poor hand washing practices.

Childhood diarrhoea

Another cross-sectional study conducted among refugee and host communities in Gambella Region, Ethiopia, explored caregivers' knowledge and attitudes about childhood diarrhoea (128). Results indicate that 633 (28.0%) of the caregivers had poor knowledge, while 393 (23.6%) of them had unfavourable attitudes towards childhood diarrhoea. Knowledge of the caregivers was significantly associated with formal education and health information obtained from a health care institution. Caregivers' knowledge is a single predictor of their attitude and a significant positive correlation identified between knowledge and attitude scores.

6.10.2 Family members who 'remain behind', transnational families and pa rental migration

Parental migration

Research exploring the impact of parental migration from Nigeria and Ghana to other country contexts to access work – notably Europe – suggests that children with divorced or separated international migrant parents are less likely to have good health compared to children from non-migrant families (452). In another study exploring the life satisfaction of children who have experienced migration in Ghana, it was found that children who had previously migrated but returned – and now live with both parents – and children who stay behind when parent/s migrate and generally less satisfied with life (50). This again highlights how experiences of migration and interactions with parents affect the wellbeing of children.

Transnational families

Work has explored the impact of being part of a transnational family on the health of children left-behind in Ghana (453,454) and Ethiopia (51). In Ghana (453), evidence shows that living in a family where one or more parent is living transnationally is not necessarily associated with poorer well-being. However, transnational families take various forms which influence the experiences of the child, including marital situation/relationship status between parents and the stability of care provided in their absence; children in transnational families where parents are divorced or separated experienced lower levels of child psychological wellbeing (454). Also in Ghana, caregivers – those who care for migrants' children – were found to have small networks from which they can draw when they require additional material support or if remittances are inadequate to meet the needs of the children they are caring for (455). In Ethiopia, evidence suggests that health can worsen due to having a parent or parents live transnationally, and this is associated with the length of parental absence (51). In the Sudan, transnational living can negatively impact the wellbeing of families left behind in Sudan (456), for example, the pressure felt by female relatives to still meet the demands of their male relatives living in another country can result in stress and anxiety.

Through a qualitative case study approach in the rural Zimbabwean district of Gweru, the often-assumed socioeconomic advantages for households where an individual has migrated internationally - mostly to South Africa - did not emerge (457). Rather, more negative social effects were experienced by families left-behind. Remittances were reported to be insufficient to meet basic needs and students left-behind did not pay school fees in full. Children left-behind were reported to be performing at a lower standards than children living with their parents. Concerns around health and wellbeing were raised in the context of children and

elderly members of left-behind families attending healthcare facilities unaccompanied, with concerns for taking prescribed drugs ineffectively, resulting in further negative health impacts.

An ethnographic study with elderly Ghanaian family members who are living in a household where a female family member had migrated found that care-work was now undertaken by elderly family members with a range of negative physical, emotional and spiritual health impacts (458).

'Left-behind' wives

Data from a longitudinal survey conducted in a rural area of Mozambique was analysed to explore the association between men's labour out-migration and their non-migrating wives' mortality (459). Descriptive results indicate that whilst the differences in mortality between the wives of migrants and non-migrants is modest (non-migrants have a slightly higher mortality), mortality amongst the wives of migrants who receive remittances frequently experience the lowest mortality. Mortality was highest among those who were not receiving any remittances from their migrant husband. In the multivariate analysis, using a subjective assessment of the 'success' of their husbands' migration on the wellbeing of their household, findings mirrored the bivariate analysis and were statistically significant. For women who reported that their husbands' migration had improved household wellbeing, they had almost half the odds of dying within the following 12 months compared to women who did not report such an improvement. Whilst the result is not presented, the authors indicate that their multivariate models point in the predicated direction, with the wives of more successful migrants having an advantage over the wives of less successful migrants (the authors indicate that these differences are only marginally significant). Just over 40% of deaths were reported to be due to HIV/AIDS over the study period, with similar patterns reported for the wives of migrants and of non-migrants. There is a noticeable difference, however, in the likelihood of death amongst wives being attributable to HIV/AIDS when explored by the migration success of husbands: the death of the wives of more successful migrants are more likely to be related to HIV compared to the wives of

7. Conclusion

Drawing on available literature, this scoping review has identified the key migration and health concerns that have been researched and published in the WHO-AFRO region between 2016 and 2021. The main gap in available evidence appears to be around health systems – including plural health systems; policy development; financing; and the governance of migration and health. The field of migration and health in the region remains focused on health outcomes, on refugee camp settings and on refugees. Whilst research and evidence on refugees in urban settings is increasing, it is framed around forced migration. Mental health and maternal and child health feature most often. Insufficient work has been published that explores how to respond to the challenges identified, including a lack of engagement with the politics associated with the field of migration and health.

Disciplines: The literature identified is almost exclusively from the health sciences and public health fields, with some studies drawing on the social sciences, including medical sociology and medical anthropology. There remains little to no engagement with immigration governance/management approaches and their intersections with health. For example, research into the broader structural (political) determinants of migrant health are needed, including the role immigration policies, their implementation, and the impacts of approaches to the management of national borders.

Definitions: The papers reviewed were scant on detail in terms of (1) the migration context – including legal frameworks relating to (e.g.) the right to access healthcare and (2) definitions for the categories of migrant indicated. Definitions are challenging and "[a]n awareness of this complexity underlies the need to document multiple migrant voices and migration experiences along the diverse trajectories when exploring associations between migration and health."(12) Without clearly indicating who a study is about, and what the context of this study is, it is difficult to draw insights for other contexts and to assess the quality of the research. The term 'refugee' for example, is often used as short-hand for 'foreign national seeking protection', and the many ways in which this can manifest.

Languages: The search strategy did not identify literature published in Portuguese or French between 2016 and 2021. Whilst some grey literature was identified, the lack of published work in two out of three of the region's official languages needs to be addressed.

Authors: Whilst it was not the aim of this scoping review to undertake analysis of who is publishing the work identified, it is clear from exploration of the location of the research and the location of the authors involved that there remains a mismatch between researchers affiliated with institutions local to the research and those who are affiliated with institutions located outside the continent, mostly Europe and North America. This has wider implications – beyond the scope of this review – that relates to knowledge production, epistemic injustice and, critically, conversations about what is needed to support and ensure that an African-driven research agenda can be developed and implemented.

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Appendix 1: Information sources and search strategy – PubMed, Web of Science, SCOPUS, SABINET, google scholar and google.

1. PubMed

ENG

((“asylum”[Title/Abstract] OR “refugee”[Title/Abstract] OR “migrant”[Title/Abstract] OR “emigrant”[Title/Abstract] OR “immigrant”[Title/Abstract] OR “nomad”[Title/Abstract] OR “foreigner”[Title/Abstract] OR “irregular migrant”[Title/Abstract] OR “undocumented migrant”[Title/Abstract] OR “deportee”[Title/Abstract] OR “illegal migrant”[Title/Abstract] OR “foreign-born”[Title/Abstract] OR “foreign born”[Title/Abstract] OR “transient”[Title/Abstract] OR “displaced”[Title/Abstract] OR “stateless”[Title/Abstract] OR “state-less”[Title/Abstract] OR “noncitizen”[Title/Abstract] OR “non-citizen”[Title/Abstract] OR “outsider”[Title/Abstract] OR “newcomer”[Title/Abstract] OR “newly arrived”[Title/Abstract] OR “new arrival”[Title/Abstract] OR “recent entrant”[Title/Abstract] OR “non national”[Title/Abstract] OR “non-national”[Title/Abstract] OR “ethnic”[Title/Abstract]) AND (health[Title/Abstract] OR wellbeing[Title/Abstract] OR illness[Title/Abstract] OR disease[Title/Abstract])) AND (Algeria*[Title/Abstract] OR Angola*[Title/Abstract] OR Benin*[Title/Abstract] OR Botswana*[Title/Abstract] OR “Burkina Faso”*[Title/Abstract] OR Burundi*[Title/Abstract] OR Cameroon*[Title/Abstract] OR “Cabo Verde”*[Title/Abstract] OR “Central African Republic”*[Title/Abstract] OR CAR*[Title/Abstract] OR Chad*[Title/Abstract] OR Comoros*[Title/Abstract] OR Congo*[Title/Abstract] OR “Côte d’Ivoire”*[Title/Abstract] OR “Democratic Republic of the Congo”*[Title/Abstract] OR DRC*[Title/Abstract] OR “Equatorial Guinea”*[Title/Abstract] OR Eritrea*[Title/Abstract] OR Ethiopia*[Title/Abstract] OR Gabon*[Title/Abstract] OR Gambia*[Title/Abstract] OR Ghana*[Title/Abstract] OR Guinea*[Title/Abstract] OR “Guinea-Bissau”*[Title/Abstract] OR Kenya*[Title/Abstract] OR Lesotho*[Title/Abstract] OR Liberia*[Title/Abstract] OR Madagascar*[Title/Abstract] OR Malawi*[Title/Abstract] OR Mali*[Title/Abstract] OR Mauritania*[Title/Abstract] OR Mauritius*[Title/Abstract] OR Mozambique*[Title/Abstract] OR Namibia*[Title/Abstract] OR Niger*[Title/Abstract] OR Nigeria*[Title/Abstract] OR Rwanda*[Title/Abstract] OR “Sao Tome AND Principe”*[Title/Abstract] OR Senegal*[Title/Abstract] OR Seychelles*[Title/Abstract] OR “Sierra Leone”*[Title/Abstract] OR “South Africa”*[Title/Abstract] OR “South Sudan”*[Title/Abstract] OR Sudan*[Title/Abstract] OR Swaziland*[Title/Abstract] OR Togo*[Title/Abstract] OR Uganda*[Title/Abstract] OR United Republic of Tanzania*[Title/Abstract] OR Zambia*[Title/Abstract] OR Zimbabwe*[Title/Abstract])

Queries in Portuguese and countries in English

((“asilo”[Title/Abstract] OR refugiad*[Title/Abstract] OR migrante*[Title/Abstract] OR emigrante*[Title/Abstract] OR imigrante*[Title/Abstract] OR nomad*[Title/Abstract] OR estrangeir*[Title/Abstract] OR “migrante irregular” [Title/Abstract] OR “migrante sem documentos”[Title/Abstract] OR deportad*[Title/Abstract] OR “migrante ilegal”[Title/Abstract] OR “nascido no estrangeiro”[Title/Abstract] OR “não cidadão”[Title/Abstract] OR “transitório”[Title/Abstract] OR deslocad*[Title/Abstract] OR “apátrida”[Title/Abstract] OR “apatridia de facto” [Title/Abstract] OR “ não cidadão “[Title/Abstract] OR estranh*[Title/Abstract] OR “recém-chegad*[Title/Abstract] OR “nova chegada”[Title/Abstract] OR “nova entrada”[Title/Abstract] OR “etnia”[Title/Abstract]) AND (saúde*[Title/Abstract] OR bem-estar*[Title/Abstract] OR doença*[Title/Abstract] OR doenças*[Title/Abstract])) AND (Algeria*[Title/Abstract] OR Angola*[Title/Abstract] OR Benin*[Title/Abstract] OR Botswana*[Title/Abstract] OR “Burkina Faso”*[Title/Abstract] OR Burundi*[Title/Abstract] OR Cameroon*[Title/Abstract] OR “Cabo Verde”*[Title/Abstract] OR “Central African Republic”*[Title/Abstract] OR CAR*[Title/Abstract] OR Chad*[Title/Abstract] OR Comoros*[Title/Abstract] OR Congo*[Title/Abstract] OR “Côte d’Ivoire”*[Title/Abstract] OR “Democratic Republic of the Congo”*[Title/Abstract] OR DRC*[Title/Abstract] OR “Equatorial Guinea”*[Title/Abstract] OR Eritrea*[Title/Abstract] OR Ethiopia*[Title/Abstract] OR Gabon*[Title/Abstract] OR Gambia*[Title/Abstract] OR Ghana*[Title/Abstract] OR Guinea*[Title/Abstract] OR “Guinea-Bissau”*[Title/Abstract] OR Kenya*[Title/Abstract] OR Lesotho*[Title/Abstract] OR Liberia*[Title/Abstract] OR Madagascar*[Title/Abstract] OR Malawi*[Title/Abstract] OR Mali*[Title/Abstract] OR Mauritania*[Title/Abstract] OR Mauritius*[Title/Abstract] OR Mozambique*[Title/Abstract] OR Namibia*[Title/Abstract] OR Niger*[Title/Abstract] OR Nigeria*[Title/Abstract] OR Rwanda*[Title/Abstract] OR “Sao Tome AND Principe”*[Title/Abstract] OR Senegal*[Title/Abstract] OR Seychelles*[Title/Abstract] OR “Sierra Leone”*[Title/Abstract] OR “South Africa”*[Title/Abstract] OR “South Sudan”*[Title/Abstract] OR Sudan*[Title/Abstract] OR Swaziland*[Title/Abstract] OR Togo*[Title/Abstract] OR Uganda*[Title/Abstract] OR United Republic of Tanzania*[Title/Abstract] OR Zambia*[Title/Abstract] OR Zimbabwe*[Title/Abstract])

All in Portuguese

((“asilo”[Title/Abstract] OR refugiad*[Title/Abstract] OR migrante*[Title/Abstract] OR emigrante*[Title/Abstract] OR imigrante*[Title/Abstract] OR nomad*[Title/Abstract] OR estrangeir*[Title/Abstract] OR “migrante irregular” [Title/Abstract] OR “migrante sem documentos”[Title/Abstract] OR deportad*[Title/Abstract] OR “migrante ilegal”[Title/Abstract] OR “nascido no estrangeiro”[Title/Abstract] OR “não cidadão”[Title/Abstract] OR “transitório”[Title/Abstract] OR deslocad*[Title/Abstract] OR “apátrida”[Title/Abstract] OR “apatridia de facto” [Title/Abstract] OR “ não cidadão “[Title/Abstract] OR estranh*[Title/Abstract] OR “recém-chegad*[Title/Abstract] OR “nova chegada”[Title/Abstract] OR “nova entrada”[Title/Abstract] OR “etnia”[Title/Abstract]) AND (saúde*[Title/Abstract] OR bem-estar*[Title/Abstract] OR doença*[Title/Abstract] OR doenças*[Title/Abstract]))AND (Algeria*[Title/Abstract] OR Angola*[Title/Abstract] OR Benin*[Title/Abstract] OR Botsuana*[Title/Abstract] OR “Burkina Faso”*[Title/Abstract] OR Burundi*[Title/Abstract] OR Camarões*[Title/Abstract] OR “Cabo Verde”*[Title/Abstract] OR “República Centro-Africana”*[Title/Abstract] OR RCA*[Title/Abstract] OR Chade*[Title/Abstract] OR Comores*[Title/Abstract] OR Congo*[Title/Abstract] OR “Costa de Ivoire”*[Title/Abstract] OR “República Democrática do Congo”*[Title/Abstract] OR RDC*[Title/Abstract] OR “Guiné Equatorial”*[Title/Abstract] OR Eritrea*[Title/Abstract] OR Etiópia*[Title/Abstract] OR Gabão*[Title/Abstract] OR Gâmbia*[Title/Abstract] OR Gana*[Title/Abstract] OR Guiné*[Title/Abstract] OR “Guiné-Bissau”*[Title/Abstract] OR Quénia*[Title/Abstract] OR Lesoto*[Title/Abstract] OR Libéria*[Title/Abstract] OR Madagáscar*[Title/Abstract] OR Malawi*[Title/Abstract] OR Mali*[Title/Abstract] OR Mauritânia*[Title/Abstract] OR Maurícia*[Title/Abstract] OR Moçambique*[Title/Abstract] OR Namíbia*[Title/Abstract] OR Níger*[Title/Abstract] OR Nigéria*[Title/Abstract] OR Ruanda*[Title/Abstract] OR “São Tomé e Príncipe”*[Title/Abstract] OR Senegal*[Title/Abstract] OR Seychelles*[Title/Abstract] OR Seischeles*[Title/Abstract] OR “Serra Leoa”*[Title/Abstract] OR “África do Sul”*[Title/Abstract] OR “Sudão do Sul”*[Title/Abstract] OR Sudão*[Title/Abstract] OR Suazilând*[Title/Abstract] OR Togo*[Title/Abstract] OR Uganda*[Title/Abstract] OR Tanzania*[Title/Abstract] OR Zambia*[Title/Abstract] OR Zimbábue*[Title/Abstract])

QUERIES IN FR AND COUNTRIES IN ENGLISH

((“asile” or “réfugié “ OR “migrant” OR “émigrant” OR “immigrant” OR “nomade” OR “étranger” OR “migrant irregulier” OR “migrant sans papiers” OR “deporté” OR “migrant illegal” OR “nés à l’étranger” OR “éphémère” OR “deplacé” OR “apatride” OR “étranger” OR “nouveau venu” OR “Nouvelles arrivées” or “ OR “ressortissants étranger” OR “ethnie”) AND (santé OR bien-être OR maladie OR pathologie)) AND (Algeria*[Title/Abstract] OR Angola*[Title/Abstract] OR Benin*[Title/Abstract] OR Botswana*[Title/Abstract] OR “Burkina Faso”*[Title/Abstract] OR Burundi*[Title/Abstract] OR Cameroon*[Title/Abstract] OR “Cabo Verde”*[Title/Abstract] OR “Central African Republic”*[Title/Abstract] OR CAR*[Title/Abstract] OR Chad*[Title/Abstract] OR Comoros*[Title/Abstract] OR Congo*[Title/Abstract] OR “Côte d’Ivoire”*[Title/Abstract] OR “Democratic Republic of the Congo”*[Title/Abstract] OR DRC*[Title/Abstract] OR “Equatorial Guinea”*[Title/Abstract] OR Eritrea*[Title/Abstract] OR Ethiopia*[Title/Abstract] OR Gabon*[Title/Abstract] OR Gambia*[Title/Abstract] OR Ghana*[Title/Abstract] OR Guinea*[Title/Abstract] OR “Guinea-Bissau”*[Title/Abstract] OR Kenya*[Title/Abstract] OR Lesotho*[Title/Abstract] OR Liberia*[Title/Abstract] OR Madagascar*[Title/Abstract] OR Malawi*[Title/Abstract] OR Mali*[Title/Abstract] OR Mauritania*[Title/Abstract] OR Mauritius*[Title/Abstract] OR Mozambique*[Title/Abstract] OR Namibia*[Title/Abstract] OR Niger*[Title/Abstract] OR Nigeria*[Title/Abstract] OR Rwanda*[Title/Abstract] OR “Sao Tome AND Principe”*[Title/Abstract] OR Senegal*[Title/Abstract] OR Seychelles*[Title/Abstract] OR “Sierra Leone”*[Title/Abstract] OR “South Africa”*[Title/Abstract] OR “South Sudan”*[Title/Abstract] OR Sudan*[Title/Abstract] OR Swaziland*[Title/Abstract] OR Togo*[Title/Abstract] OR Uganda*[Title/Abstract] OR United Republic of Tanzania*[Title/Abstract] OR Zambia*[Title/Abstract] OR Zimbabwe*[Title/Abstract])

All in FR and search language in FR

((“asile” or “réfugié “ OR “migrant” OR “émigrant” OR “immigrant” OR “nomade” OR “étranger” OR “migrant irregulier” OR “migrant sans papiers” OR “deporté” OR “migrant illegal” OR “nés à l’étranger” OR “éphémère” OR “deplacé” OR “apatride” OR “étranger” OR “nouveau venu” OR “Nouvelles arrivées” or “ OR “ressortissants étranger” OR “ethnie”) AND (santé OR bien-être OR maladie OR pathologie)) AND (Algerie* OR Angola* OR Benin* OR Botswana* OR “Burkina Faso”* OR Burundi* OR Cameroune* OR “Cap-Vert”* OR “republique centrafricaine”* OR RCA* OR Tchad* OR Comores* OR Congo* OR “Côte d’Ivoire”* OR “République démocratique du Congo”* OR RDC* OR “guinée equatoriale”* OR Érythrée* OR Ethiopie* OR Gabon* OR Gambie* OR Ghana* OR guinée * OR “Guinée-Bissau”* OR Kenya* OR Lesotho* OR Liberia* OR Madagascar* OR Malawi* OR Mali* OR Mauritanie* OR île maurice* OR Mozambique* OR Namibie* OR Niger* OR Nigéria* OR Rwanda* OR “Sao Tomé-et-Principe” OR Sénégal OR les seychelles* OR “Sierra Leone” OR “Afrique du Sud” OR “Soudan du Sud” OR Soudan OR Eswatini OR Togo OR Ouganda OR république unie de Tanzanie OR Zambie OR République du Zimbabwe)

2. Web of Science

ENG

TS=(asylum OR refugee OR migrant OR emigrant OR immigrant OR nomad OR foreigner OR “irregular migrant” OR “undocumented migrant” OR deportee OR “illegal migrant” OR foreign-born OR “foreign born” OR transient OR displaced OR stateless OR state-less OR noncitizen OR non-citizen OR outsider OR newcomer OR “newly arrived” OR “new arrival” OR “recent entrant” OR “non national” OR “non-national” OR ethnic) AND TS= (health OR wellbeing OR illness OR disease) AND TS=(Algeria * OR Angola * OR Benin * OR Botswana * OR “Burkina Faso” * OR Burundi * OR Cameroon * OR “Cabo Verde” * OR “Central African Republic” * OR CAR * OR Chad * OR Comoros * OR Congo * OR “Côte d’Ivoire” * OR “Democratic Republic of the Congo” OR DRC * OR “Equatorial Guinea” * OR Eritrea * OR Ethiopia * OR Gabon * OR Gambia * OR Ghana * OR Guinea * OR “Guinea-Bissau” * OR Kenya * OR Lesotho * OR Liberia * OR Madagascar * OR Malawi * OR Mali * OR Mauritania * OR Mauritius * OR Mozambique * OR Namibia * OR Niger * OR Nigeria * OR Rwanda * OR “Sao Tome and Principe” * OR Senegal * OR Seychelles * OR “Sierra Leone” * OR “South Africa” * OR “South Sudan” * OR Sudan * OR Swaziland * OR Togo * OR Uganda * OR United Republic of Tanzania * OR Zambia * OR Zimbabwe *)

Queries in Portuguese and countries in English

TS=(asilo OR refugiad* OR migrante* OR emigrante* OR imigrante* OR nómada* OR estrangeir* OR “migrante irregular” OR “migrante indocumentado” OR deportad* OR “migrante ilegal” OR “nascido no estrangeiro” OR transitório OR deslocad* OR apátrida OR apatridia OR “não cidadão” OR estranh* OR “recém-chegado” OR “nova chegada” OR “entrada recente” OR “não nacional” OR etnía OR étnica) AND TS= (saúde OR bem-estar OR doença OR doenças) AND TS=(Algeria * OR Angola * OR Benin * OR Botswana * OR “Burkina Faso” * OR Burundi * OR Cameroon * OR “Cabo Verde” * OR “Central African Republic” * OR CAR * OR Chad * OR Comoros * OR Congo * OR “Côte d’Ivoire” * OR “Democratic Republic of the Congo” OR DRC * OR “Equatorial Guinea” * OR Eritrea * OR Ethiopia * OR Gabon * OR Gambia * OR Ghana * OR Guinea * OR “Guinea-Bissau” * OR Kenya * OR Lesotho * OR Liberia * OR Madagascar * OR Malawi * OR Mali * OR Mauritania * OR Mauritius * OR Mozambique * OR Namibia * OR Niger * OR Nigeria * OR Rwanda * OR “Sao Tome and Principe” * OR Senegal * OR Seychelles * OR “Sierra Leone” * OR “South Africa” * OR “South Sudan” * OR Sudan * OR Swaziland * OR Togo * OR Uganda * OR United Republic of Tanzania * OR Zambia * OR Zimbabwe *)

Queries in Portuguese and countries in Portuguese

TS=(asilo OR refugiad* OR migrante* OR emigrante* OR imigrante* OR nómada* OR estrangeir* OR “migrante irregular” OR “migrante indocumentado” OR deportad* OR “migrante ilegal” OR “nascido no estrangeiro” OR transitório OR deslocad* OR apátrida OR apatridia OR “não cidadão” OR estranh* OR “recém-chegado” OR “nova chegada” OR “entrada recente” OR “não nacional” OR etnía OR étnica) AND TS= (saúde OR bem-estar OR doença OR doenças) AND TS=(Algeria * OR Angola * OR Benin * OR Botsuana * OR “Burkina Faso” * OR Burundi * OR Cameroes * OR “Cabo Verde” * OR “República Central Africana” * OR RCA * OR Chade * OR Comores * OR Congo * OR “Costa de Ivoire” * OR “Republica Democratica do Congo” OR RDC * OR “Guiné Equatorial” * OR Eritreia * OR Ethipia * OR Gabão * OR Gambia * OR Ghana * OR Guiné * OR “Guiné-Bissau” * OR Quénia * OR Lesoto * OR Libéria * OR Madagáscar * OR Malawi * OR Mali * OR Mauritânia * OR Mauricia* OR Moçambique * OR Namibia * OR Niger * OR Nigéria * OR Ruanda * OR “São Tome e Príncipe” * OR Senegal * OR Seychelles * OR “Serra Leoa” * OR “África do Sul” * OR “Sudão do Sul” * OR Sudão * OR Suaziland * OR Togo * OR Uganda * OR Tanzânia* OR Tanzania*OR Zambia* OR Zimbábue*)

Queries in French and countries in English

TS=(asile OR réfugié OR migrant OR émigrant OR émigré OR immigré OR immigrant OR immigré OR nomade OR étranger OR “migrant irrégulier” OR “migrant sans papiers” OR deporté OR “migrant illégal” OR “migrants illégaux” OR nés à l’étranger “ OR transitoire OR deplacé OR deplacés OR apatride OR non citoyen OR ressortissants étrangers OR nouveau venu OR “ Nouvelles arrivées” OR “ non-ressortissants OR “non-nationaux” OR ethnie) AND TS= (santé OR bien-être OR maladie OR pathologie) AND TS=(Algeria * OR Angola * OR Benin * OR Botswana * OR “Burkina Faso” * OR Burundi * OR Cameroon * OR “Cabo Verde” * OR “Central African Republic” * OR CAR * OR Chad * OR Comoros * OR Congo * OR “Côte d’Ivoire” * OR “Democratic Republic of the Congo” OR DRC * OR “Equatorial Guinea” * OR Eritrea * OR Ethiopia * OR Gabon * OR Gambia * OR Ghana * OR Guinea * OR “Guinea-Bissau” * OR Kenya * OR Lesotho * OR Liberia * OR Madagascar * OR Malawi * OR Mali * OR Mauritania * OR Mauritius * OR Mozambique * OR Namibia * OR Niger * OR Nigeria * OR Rwanda * OR “Sao Tome and Principe” * OR Senegal * OR Seychelles * OR “Sierra Leone” * OR “South Africa” * OR “South Sudan” * OR Sudan * OR Swaziland * OR Togo * OR Uganda * OR United Republic of Tanzania * OR Zambia * OR Zimbabwe *)

Queries in French and countries in FR

TS=(asile OR réfugié OR migrant OR émigrant OR émigré OR immigré OR immigrant OR immigré OR nomade OR étranger OR "migrants irrégulier" OR "migrant sans papiers" OR deporté OR "migrant illégal" OR "migrants illégaux" OR nés à l'étranger " OR transitoire OR deplacé OR deplacés OR apatride OR non citoyen OR ressortissants étranger OR nouveau venu OR " Nouvelles arrivées" OR " on-ressortissants OR "non-nationaux" OR ethnie) AND TS= (santé OR bien-être OR maladie OR pathologie) AND TS=(Algerie* OR Angola* OR Benin* OR Botswana* OR "Burkina Faso"* OR Burundi* OR Cameroune* OR "Cap-Vert"* OR "republique centrafricaine"* OR RCA* OR Tchad* OR Comores* OR Congo* OR "Côte d'Ivoire"* OR "République démocratique du Congo"* OR RDC* OR "guinée equatoriale"* OR Érythrée* OR Ethiopie* OR Gabon* OR Gambie* OR Ghana* OR guinée * OR "Guinée-Bissau"* OR Kenya* OR Lesotho* OR Liberia* OR Madagascar* OR Malawi* OR Mali* OR Mauritanie* OR île maurice* OR Mozambique* OR Namibie* OR Niger* OR Nigéria* OR Rwanda* OR "Sao Tomé-et-Principe" OR Sénégal OR les seychelles* OR "Sierra Leone" OR "Afrique du Sud" OR "Soudan du Sud" OR Soudan OR Eswatini OR Togo OR Ouganda OR république unie de Tanzanie OR Zambie OR République du Zimbabwe)

3. SCOPUS

TITLE-ABS(asylum OR refugee OR migrant OR emigrant OR immigrant OR nomad OR foreigner OR "irregular migrant" OR "undocumented migrant" OR deportee OR "illegal migrant" OR foreign-born OR "foreign born" OR transient OR displaced OR stateless OR state-less OR noncitizen OR non-citizen OR outsider OR newcomer OR "newly arrived" OR "new arrival" OR "recent entrant" OR "non national" OR "non-national" OR ethnic) AND TITLE-ABS(health OR wellbeing OR illness OR disease) AND TITLE-ABS(Algeria* OR Angola* OR Benin* OR Botswana* OR "Burkina* Faso*" OR Burundi* OR Cameroon* OR "Cabo* Verde*" OR "Central African Republic"* OR CAR* OR Chad* OR Comoros* OR Congo* OR "Côte d'Ivoire*" OR "Democratic Republic of the Congo*" OR DRC* OR "Equatorial Guinea*" OR Eritrea* OR Ethiopia* OR Gabon* OR Gambia* OR Ghana* OR Guinea* OR "Guinea-Bissau*" OR Kenya* OR Lesotho* OR Liberia* OR Madagascar* OR Malawi* OR Mali* OR Mauritania* OR Mauritius* OR Mozambique* OR Namibia* OR Niger* OR Nigeria* OR Rwanda* OR "Sao Tome and Principe*" OR Senegal* OR Seychelles* OR "Sierra Leone*" OR "South Africa*" OR "South Sudan*" OR Sudan* OR Swaziland* OR Togo* OR Uganda* OR "United Republic of Tanzania*" OR Zambia* OR Zimbabwe*)

4. SABINET

(asylum OR refugee OR migrant OR emigrant OR immigrant OR nomad OR foreigner OR "irregular migrant" OR "undocumented migrant" OR deportee OR "illegal migrant" OR foreign-born OR "foreign born" OR transient OR displaced OR stateless OR state-less OR noncitizen OR non-citizen OR outsider OR newcomer OR "newly arrived" OR "new arrival" OR "recent entrant" OR "non national" OR "non-national" OR ethnic) AND TITLE-ABS(health OR wellbeing OR illness OR disease) AND TITLE-ABS(Algeria* OR Angola* OR Benin* OR Botswana* OR "Burkina* Faso*" OR Burundi* OR Cameroon* OR "Cabo* Verde*" OR "Central African Republic"* OR CAR* OR Chad* OR Comoros* OR Congo* OR "Côte d'Ivoire"* OR "Democratic Republic of the Congo" OR DRC* OR "Equatorial Guinea"* OR Eritrea* OR Ethiopia* OR Gabon* OR Gambia* OR Ghana* OR Guinea* OR "Guinea-Bissau"* OR Kenya* OR Lesotho* OR Liberia* OR Madagascar* OR Malawi* OR Mali* OR Mauritania* OR Mauritius* OR Mozambique* OR Namibia* OR Niger* OR Nigeria* OR Rwanda* OR "Sao Tome and Principe"* OR Senegal* OR Seychelles* OR "Sierra Leone"* OR "South Africa"* OR "South Sudan"* OR Sudan* OR Swaziland* OR Togo* OR Uganda* OR United Republic of Tanzania* OR Zambia* OR Zimbabwe*)

5. google scholar & google SEARCHES

google scholar (first 10 pages; parameter from 2016; most relevant first)
Migration AND health AND Africa
Refugee AND health AND Africa
"Asylum seeker" AND health AND Africa
UNHCR and health AND Africa
google scholar (from 2021, first 10 pages; most relevant first)
Migration AND health AND Africa
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Africa AND "asylum seeker" AND health
UNHCR AND health AND migration AND Africa

Appendix 2: Published Literature Included

Published Literature (PubMed, Web of Science and SCOPUS): 286 documents (all ENG)

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Appendix 5: Description of the 342 studies excluded – about migrants from AFRO but studies located outside of the AFRO region

As shown in Table X below, the majority of these studies are located in Europe. The details of these studies can be found in the corresponding spreadsheet. They are organised in a way that can be utilised by others working in these regions.

Table X: Location of studies with WHO-AFRO region migrants that were excluded as the study location is outside the WHO-AFRO Region

Region where study is located	Count
EUROPE	182
USA	60
AUSTRALIA	36
ISRAEL	31
CANADA	11
AFRICA (NOT WHO-AFRO REGION)	10
MENA REGION	5
OTHER HIGH INCOME	4
CHINA	2
BRASIL	1
Total	**342**

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