BMJ Open

Taking stock of vaccine hesitancy among migrants: a scoping review protocol

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ABSTRACT

Introduction At the 72nd World Health Assembly of May 2019, WHO member states prioritised a global action plan to promote migrant and refugee health. Five months earlier, WHO had declared vaccine hesitancy—the reluctance to vaccinate despite the availability of vaccination services—as one of the top 10 threats to global health. Although vaccination is often a requirement for immigration, repeated outbreaks of vaccine-preventable diseases within certain immigrant communities in some host nations suggest that vaccine hesitancy could be a factor in their susceptibility to vaccine-preventable diseases. Studies of the prevalence and determinants of vaccine hesitancy among migrants globally seem to be lacking. This scoping review will (1) identify articles on vaccine hesitancy among migrants; (2) examine the extent and nature of the extant evidence; and (3) determine the value of undertaking a full systematic review.

Methods and analysis The framework for the scoping review proposed by the Joanna Briggs Institute will be used. The reporting will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews checklist. Studies published in English or French between January 1999 and December 2019 will be drawn from most or all of the following multidisciplinary databases: Africa-Wide Information, Allied and Complementary Medicine, Cochrane Library, Cumulative Index of Nursing and Allied Health Literature, Embase, Index Medicus for the Eastern Mediterranean Region, International Bibliography of Social Sciences, Literature in the Health Sciences in Latin America and the Caribbean, Medline, Proquest Theses/Dissertations, PsycInfo and Web of Science. The search will include an extensive list of keywords to capture multiple dimensions of confidence and hesitancy vis-à-vis vaccines among migrants. Findings will be reported through summary narratives, tables, flowcharts and evidence maps.

Ethics and dissemination This review is exempted from ethical approval and will be published in a peer-reviewed open-access journal to ensure wide dissemination.

Migrants are driven by many factors including the prospects of improving their access to work, civil, political and religious rights, security and healthcare. One important aspect of healthcare that may affect migration is immunisation. People are often required to vaccinate in order to immigrate. In contrast, access to vaccination and continuity of care are more challenging for people on the move such as migrants, refugees or nomadic populations. Long after they have settled in the host country, vaccination coverage among migrants may still be suboptimal when compared with that of the general population. Vaccine sceptics and populist politicians in some host countries openly challenge the scientific consensus about the effectiveness and safety of vaccination. As a result, some migrants with pre-established concerns about vaccination may see their concerns reinforced, whereas others may succumb to anti-immunisation messaging and begin to question the benefits of some vaccines. The repeated measles outbreaks among Somali-Americans are instructive.

INTRODUCTION

Disparities in opportunity structures often compel people to move, internally or internationally. Therefore, migration is a universal phenomenon that affects most countries.
vaccine-preventable infant mortality worldwide, was declared eliminated in the USA in 2000. Since the elimination, however, several outbreaks have occurred in various US states with index cases often linked to overseas travels. In 2011 and 2017, two measles outbreaks with a total number of 100 cases, 72% of which were members of the Somali community of Hennepin County, Minnesota, occurred in the USA. Prior to the 2011 outbreak, measles-mumps-rubella (MMR) vaccine coverage among 2-year-old Somali children in Minnesota had declined significantly from >91% in 2004 to 54% in 2010, as Somali parents began refusing MMR vaccine for their children owing to concerns of high autism rate in their community. By 2014, MMR vaccine uptake was down to 42% among 2-year-old Somali Minnesotan children. Many of these vaccine concerns and fears were also fuelled by local antivaccine activists and the author of a currently discredited Lancet study, now retracted, which associated the MMR vaccine with the development of autism.

Likewise, during a 2011 measles outbreak in Norway, 8 of 10 cases (80%) identified were from the Somali community of Oslo. Although there is evidence of low measles vaccine uptake among Somali migrants in the USA and Norway, we do not currently know how prevalent this issue is among Somalis living in other Western nations or non-Western host countries with a much larger Somali diaspora (eg, Ethiopia, Kenya and Yemen). It is also unclear whether, and if so why, Somali migrants might be more represented among non-vaccinators than other African migrants. Emerging evidence from England reveals that human papillomavirus (HPV) vaccine acceptance could be very low among UK-based immigrant parents from Eastern, Southern and Western Africa due to fears that their young daughters might become promiscuous and even infertile after HPV vaccination.

When vaccination services are available yet underutilised and barriers to access are reduced, then psychosocial processes more so than structural factors may better explain low vaccination uptake. One such factor that conspires against universal vaccination coverage and is gaining currency in the literature is 'vaccine hesitancy'. Broadly defined as the reluctance to vaccinate despite the availability of vaccination services, vaccine hesitancy entails a continuum of complex and context-specific attitudes and behaviours, ranging from total acceptance to complete refusal, and varying across time, place and vaccines. Underlying factors of hesitancy are issues of confidence, complacency and convenience. The authoritative working group on vaccine hesitancy appointed by the WHO’s Strategic Advisory Group of Experts on Immunization (SAGE) has developed a multilevel explanatory model of vaccine hesitancy encompassing contextual influences (eg, religion, communication and media environment, politics and so on), individual/group factors (eg, beliefs, attitudes and motivation about health, trust in health system, past experience with vaccination, peer influence and so on), and vaccine-specific and vaccination-specific determinants (eg, cost, vaccination schedule, mode of administration and so on). Vaccine hesitancy theories and models may help to explain why some vaccine-hesitant individuals may accept all vaccines but remain concerned or unsure about vaccines, may shun or delay some vaccines yet accept others, or may refuse all vaccines.

As a core topic, vaccine hesitancy is relatively new, with only six articles using the phrase in either the title or abstract between 2009 and 2011. Even its definition is still evolving while its qualification as a behaviour has been called into question. Yet, the resurgence and repeated outbreaks of vaccine-preventable diseases like measles that were considered eliminated in some Western countries have prompted WHO to declare vaccine hesitancy as one of the world’s top 10 threats to global health in 2019. If vaccine hesitancy is indeed a global threat to health and if migrant communities are potential ‘hotspots’ for vaccine hesitancy, then its prevalence and determinants within these communities must be examined. The overall aim of this scoping review is to take stock of the current evidence of vaccine hesitancy among migrants. Toward this end, the proposed review will address the following objectives: 1. Identify evidence of vaccine hesitancy among migrant individuals and communities. 2. Examine the extent and nature of the extant evidence. 3. Determine the value of undertaking a full systematic review.

Given the relative recency of vaccine hesitancy as a research area and given that we are not aware of any comprehensive evidence of vaccine hesitancy among migrant populations, the previously mentioned objectives are suitable and consistent with the ‘reconnaissance’ purpose of the scoping review. Scoping will also allow us to identify and define crucial concepts, gaps in the literature, and types and sources of evidence to inform practice, policy and research. In choosing to focus on vaccine hesitancy, neither do we imply nor believe that

| Table 1 | PICO elements for study selection criteria |
|---------|-------------------------------------------|
| Participant population | Intervention | Comparators | Outcomes |
| Diaspora, émigrés, emigrants, migrants, immigrants, refugees, foreigners, foreign-born, newcomers | Immunization, vaccination, vaccine-related communication | General population, non-migrant population, local, native population, no comparator | Vaccine confidence, vaccine uptake, vaccine refusal, vaccine hesitancy, vaccine delay, missed schedule of vaccine, non-medical vaccination exemption |

PICO, Participants, Intervention, Comparators and Outcome.
the main determinant of underimmunisation in migrant populations is their reluctance to vaccinate. Political discourses that fuel prejudice and exclusion of the other, restrictive policies that deny good quality healthcare to the poor and access to universal health coverage to migrant populations, especially undocumented migrants, may represent far greater barriers to immunisation than vaccine hesitancy. However, we also believe that it is important to know the magnitude and nature of vaccine hesitancy in subpopulations like migrant communities because even very ‘small clusters of non-vaccinators can have disproportionately adverse effects on herd immunity and epidemic spread.  

**METHODS**

A methodological framework for scoping review was first outlined by Arksey and O’Malley, subsequently clarified by Levac and colleagues, and further elaborated by the Joanna Briggs Institute (JBI). JBI’s elaboration of the framework contains 11 items: (1) title; (2) background; (3) review question/objective; (4) inclusion criteria; (5) types of participants; (6) concept; (7) context; (8) searching; (9) extracting and charting the results; (10) discussion; and (11) conclusions and implications for research and practice. We will apply this framework to organise our scoping review, supplementing it with recommendations from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist. This Methods section describes how we will address items 3–9 of the framework.

**Review question/objective**

Instead of review questions, we have stated three main review objectives at the end of the introduction section: (1) identifying evidence of vaccine hesitancy among migrant individuals and communities; (2) examining the extent and nature of the existing evidence; (3) determining the value of undertaking a full systematic review.

**Inclusion criteria**

Articles will be included if they focus on the theme of vaccine hesitancy and its variations (eg, vaccine acceptance, vaccine confidence, vaccine attitudes and behaviours, trust, distrust, concerns, perceptions and beliefs about vaccines and vaccination programmes). Articles will be included if published in the last two decades (January 1999–December 2019) and if the full text is available in either French or English. Articles will be excluded if written in any language other than the above-mentioned languages and for which open-access automated translation programmes such as Google Translate are not suitable. Articles that do not focus on the human vaccine and that do not involve migrants will be excluded. Articles that focus on vaccine hesitancy in the wider population but whose results are disaggregated by immigration status will be included. Given that this is a scoping review, all evidence will be included, from single-case reports to

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**Table 2:** Keywords and draft PMC search strategy for literature review on vaccine hesitancy

| Intervention | Population | Outcome | PMC search details | Items (n) found in MEDLINE |
|--------------|------------|---------|---------------------|---------------------------|
| Vaccination, vaccine, Immunisation, immunization | Diaspora, émigré, emigrant, foreigner, immigrant, migrant, refugee | Acceptance, uptake, confidence, trust, anxiety, doubt, mistrust, anti-vaccination, anti-vax, concern, distrust, misinformation, resistance, compulsory, dropout, MMR, skeptic, critic, exemption, objector, attitude, choice, fear, opposition, autism, controversy, hesitancy, perception, rumor, rumour, avoidance, decision, hesitation, phobia, awareness, delay, intention, refusal, belief, barrier, denial, knowledge, rejection, dilemma, behavior, behavior, misconception, mandatory, reluctance | 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OR vaccine) OR immunization) AND ((((((emigre) OR emigrant) OR immigrante OR migrant OR refugee) OR diaspora) OR foreigner) OR migrant) OR diaspora) OR foreigner) AND ((((((((((((acceptance) OR anxiety) OR anti-vaccination) OR anti-vaxx) OR attitude) OR autism) OR avoidance) OR awareness) OR barrier) OR behavior) OR behaviour) OR concern) OR confidence) OR compulsory) OR controversy) OR choice) OR critical) OR delay) OR denial) OR decision) OR dilemma) OR distrust) OR doubt) OR dropout) OR exemption) OR fear) OR hesitancy) OR hesitation) OR intention) OR knowledge) OR mandatory) OR misconception) OR misinformation) OR mistrust) OR MMR) OR objector) OR opposition) OR perception) OR phobia) OR refusal) OR rejection) OR reluctance) OR resistance) OR rumor) OR rumour) OR skeptic) OR trust) OR uptake) AND ("1999/01/01"[PDat]: "2019/12/31"[PDat]) | 6887 |

MMR, measles-mumps-rubella; PMC, PubMed Central.
Table 3  Data charting template

| Data           | Data description                                                                 |
|----------------|-----------------------------------------------------------------------------------|
| Study reference| Name and surname of authors, publication year                                       |
| Article type   | Quantitative, qualitative, mixed methods, research, review, policy, perspective, comment, letter, unpublished report, media article |
| Region of origin| WHO region where country of study is located                                       |
| Purpose        | Overall aim and objectives of the study                                            |
| Population     | Main characteristics of populations, communities and individuals participating in the study |
| Country of immigration | Host country where migrant participants reside                                   |
| Country of national origin | Foreign country where migrants or parents of second-generation immigrants came from |
| Country of transit | Country where migrants may have resided as refugee before relocating in current host country |
| Place of residence | Neighbourhood, city or state where migrant participants reside                   |
| Location of immunisation centre | Neighbourhood, city or state where vaccination service is provided             |
| Religion       | Main religion of migrants                                                          |
| Native language | First language primarily spoken by migrants                                         |
| Ethnic/racial identity | Ethnic or racial group of migrants                                                |
| Comparator     | Outgroup members with whom migrants are compared                                   |
| Concept        | Underlying determinants of vaccine hesitancy explored by study                    |
| Intervention   | Types of intervention attempted or evaluated by study (eg, vaccine administration, health communication, policy, etc) |
| Outcome        | Outcomes from intervention (eg, increase, decrease or steady state in vaccination rate) |
| Vaccine        | Specific vaccine that is accepted, delayed or rejected                            |
| Findings       | Relevant key findings from study                                                   |

population-level studies and from primary research to review articles, policy reports and commentaries.

Types of participants
Target participants for this review are migrant populations, migrant communities and migrant individuals, including parents, expecting parents, childfree adults and children. We define migrants as including all individuals whose country of national origin (or whose parents’ country of origin) is different from their country of residence, irrespective of the manner of entry and legal/documented status in the host country. Further details on participants are provided in tables 1 and 2.

Concept
The concept or principal focus explored by this scoping review is vaccine hesitancy. As described in the previous section of this protocol, vaccine hesitancy is an inclusive concept that encompasses varying degrees of indecision about vaccination in general or certain vaccines in particular. Underlying factors of hesitancy include issues of confidence (do not trust vaccine or provider), complacency (do not perceive a need for a vaccine) and convenience (access). The final report from the SAGE Working Group on Vaccine Hesitancy states: ‘Vaccine-hesitant individuals may accept all vaccines but remain concerned about vaccines, some may refuse or delay some vaccines, but accept others; some individuals may refuse all vaccines’.

Context
The context in this review could include the WHO regions of the studies, migrants’ host country, their home or origin country, their cultural heritage (eg, religion, language and health-seeking traditions), their residential neighbourhood and the location/place where vaccination services are provided.

Searching
One of the most comprehensive systematic reviews of published literature on vaccine hesitancy to date was published in 2014 by members of the SAGE Working Group on Vaccine Hesitancy which includes one of the senior coauthors of this protocol. We will build on that 2014 publication, identifying relevant studies for our scoping review through several of the same databases included in that systematic review. All or most of the following databases will be searched from 1 January 1999 to 31 December 2019: Africa-Wide Information, Allied and Complementary Medicine, Cochrane Library, Cumulative Index of Nursing and Allied Health Literature, Embase, Index Medicus for the Eastern Mediterranean Region, International Bibliography of Social Sciences, Literature in the Health Sciences in Latin America and the Caribbean, Medline, Proquest Theses/Dissertations, PsycInfo and Web of Science. Given that we aim at examining both the scientific and grey literature, we will also search Google and Google Scholar in addition to the multidisciplinary mainstream and regional databases listed earlier. Last, we will contact the authors of all studies included in our synthesis to identify potential additional sources. We anticipate that the search for articles will be run across all databases between May and June 2020.

To the extent possible, we will abide by the PRISMA-ScR checklist to select relevant studies. Studies will be selected according to elements of the PICO (Participants, Intervention, Comparators and Outcome) model as outlined in table 1. To capture multiple dimensions of
vaccine hesitancy among migrants, the search strategy will include the non-exhaustive list of keywords and medical subject headings in table 2. Once retrieved, all articles will first be screened by title and abstract by at least two reviewers to ascertain their relevance. When in doubt, the full article will be scanned to further determine its relevance or decide on its exclusion. Reference lists of relevant articles will also be perused to ensure literature saturation.

Extracting and charting the results
It is standard in scoping reviews to illustrate the numerical outputs from the search and the inclusion decision process by means of a PRISMA flowchart. Our flowchart will clearly describe the review decision process, results from the search, removal of duplicate citations, study selection, full retrieval, any additions from reference list scanning and final summary presentation. In scoping review, ‘charting the results’ is an iterative process which involves the extraction of relevant data from all the studies included in the review.33 To enable consistency in data extraction among reviewers, we have developed a data charting template (table 3) to record characteristics of articles included and key data pertinent to the objectives of our review. We anticipate refinement (or consolidation) of this form after data from a small sample of studies (two to three) have been charted independently by two or more reviewers. We anticipate that results of the review will include both quantitative and qualitative data. We will present these results through summary narratives and visuals such as evidence ‘maps’ and tabular presentations.

Protocol registration
This protocol is not registered in the International Prospective Register of Systematic Reviews (PROSPERO) because this registry does not accept scoping reviews.41

Patient and public involvement
This review will be based solely on published articles and will not involve any patients or the public.

ETHICS AND DISSEMINATION
This review will be based on published works, and thus is exempted from formal ethical approval. It will be published in a peer-reviewed open-access journal to ensure wide dissemination.

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Funding AJ and CSW are supported by the South African Medical Research Council. SHV is supported, in part, by a grant from the National Institutes of Health (P30MH062294).

Disclosure The funders had no role in the design and writing of the protocol or the decision to submit it for publication.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

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