


# BMJ Open Influence of social media and the digital environment on international migration of health workforce from low- and middle-income countries post COVID-19 pandemic: a scoping review protocol

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## ABSTRACT

**Introduction** Migration of the health workforce from low- and middle-income countries (LMICs) is increasingly becoming a phenomenon of interest within migration governance systems. The COVID-19 pandemic aggravated health workforce shortages that have created job opportunities in high-income countries such as the USA, UK, Canada and Germany among others. Conditions of service in LMICs are unattractive, leading to the search for better opportunities. The digital environment is becoming one of the facilitators of migration intentions due to the activities of recruitment agencies and the search for job opportunities on the World Wide Web. The digital environment creates opportunities for migration but also poses a security threat, economic loss and a brain drain to departure countries. However, there is a paucity of evidence on how the proliferation of advertisements on health workforce recruitment within social media, unsolicited emails and activities of recruitment agencies in the digital environment influence the migration of the health workforce and the implications of migration governance.

**Method and analysis** This scoping review protocol describes a comprehensive systematic extraction and examination of existing literature to map key concepts and identify previous literature, noting the gaps in how social media and the digital environment are influencing the migration of the health workforce. We lean on Arksey and O'Malley's scoping framework in developing this protocol. This involves the following: identifying research questions, searching for the literature, selecting articles or studies, charting the data and organising and reporting the outcome of the review. The review question is informed by the population, concept and context framework, which details the population as the health workforce (doctors, nurses, midwives and pharmacists), the key concepts as migration, social media and digital environment, and the context as LMICs. The search strategy was developed with the assistance of an experienced librarian who will work with the team to conduct a Peer Review of Electronic Search Strategies to evaluate titles, abstracts and full-text

## STRENGTHS AND LIMITATIONS OF THE STUDY

- ⇒ To the best of our knowledge, there is no existing scoping or systematic review that specifically explores this phenomenon.
- ⇒ No power calculations or methodological appraisal of studies will be applied because they are not required.
- ⇒ Scoping this review to include social media expands the breadth of information that may not be accessible or verifiable.

articles for inclusion from databases such as Scopus, PubMed, MEDLINE and Google Scholar. Additionally, we will search grey literature sources including online news media, social media platforms (Facebook, Instagram and Twitter), web pages of WHO, UN and migration-related agencies, and interfaces like EBSCO host. Two members of the team will screen titles and abstracts, and all team members will screen full text for data extraction. Data from grey sources will be converted to transcripts, coded and grouped into themes and subthemes consistent with thematic analysis strategies. All authors will be involved in the synthesis of the data. We intend to follow Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guidelines in reporting the outcome of peer-review sources.

**Ethics and dissemination** This is a scoping review protocol that addresses a subject of interest that poses no risk to individuals or groups. All the information will be retrieved from open sources only. The protocol was registered with the Open Science Framework registry ([osf.io/zan3q](https://osf.io/zan3q)) to serve as an audit trail. Reports from the review will be published in peer-reviewed journals and presented at conferences.

## INTRODUCTION

Migration is a global phenomenon that is characterised by the temporal or permanent movement of people from one geographical



location to another for different reasons.<sup>1</sup> Most people prefer to live in the countries where they were born; however, there is a geographical movement across borders. Migration is marginally occasioned by crises, leading to displacement because of conflicts, trauma or climate change.<sup>2</sup> The functional migration theorist de Haas argues that people move to explore better economic opportunities, better living conditions and security assurance.<sup>3</sup> In 2020, 281 million (3.6%) of the world's population were estimated to be migrated internationally. The trend is linked to economic, geographical, political, social and environmental triggers and technology.<sup>4</sup> Most of the international mobilities are workforce-driven, particularly in the case of health workers. The shortages and demand for health workers after the COVID-19 pandemic have increased<sup>5,6</sup> but worsened in high-income countries (HICs). To the best of the authors' knowledge, the interplay of technology deployment has deepened the complexity of health workforce migration governance, but this has not been sufficiently explored in low- and medium-income countries (LMICs).

Health systems strengthening the capacity of nations are linked to their ability to recruit and retain the labour force and address inequalities within the system.<sup>7</sup> However, the forces of migration favour 'reverse magnetic diffusion' principles. This means that countries with the resources and opportunities will attract health workers from countries where there is a lack of resources. For instance, UK health workforce shortages saw an increase in skilled visa applicants from 73 000 in 2022 to 99 880 in March 2023. Notably, out of the 25 947 nurses who received visas, 26% were granted visas for healthcare roles and 15% were granted visas via the skilled worker route.<sup>8</sup> The nurse migration report of CGFNS 2023<sup>9</sup> also revealed increases in the volume of applications received and processed from nurses seeking to work in the USA. A total of 26 972 VisaScreen certificates were issued in 2023. Most of the certified applicants (60%) were from the Philippines, while Kenya, Nigeria and Ghana were among the top source countries of VisaScreen applications.<sup>9</sup>

The deployment of technology in leveraging migration opportunities has been simplified within the digital space.<sup>10</sup> People receive unsolicited information on recruitment within social media and other digital platforms, including emails. Health workers with migration intentions also search for job opportunities on the World Wide Web. The integration of artificial intelligence in some of these search engines facilitates signing up for alerts and emails; alternatively, the system generates information based on previous searches and provides updates on new opportunities. The navigation and utilisation of migration information within the digital environment seems unregulated and unsafe and may create room for a breach of the principles of the migration governance framework that posits 'adherence to international standards and fulfilment of migrants' rights, formulation of policy using evidence, whole government approach and engagement with partners.<sup>11</sup> Additionally, there is an

increase in migration networks with more active recruitments of skilled, semiskilled and unskilled labour.<sup>12</sup> Some of the migration networks fail to put ethical strategies in the recruitment process due to their mode of operation while others pose cyber fraud threats to prospective immigrants. It is unclear whether these agencies are legal entities authorised to act or if they are just taking advantage of the loopholes in the migration and mobility systems. The regulation, tax contributions and safety of the recruitment process are of interest to migration governance systems. More so, concerns regarding monitoring these agencies against breaches of privacy, exaggeration of opportunities, misleading communications and disappointments are worth exploring. Migration that is poorly managed poses security threats and endangers world peace and safety. Health workforce migration transcends the economic gains or losses but threatens global security and bilateral relations between departure and destination countries, sometimes leading to diplomatic rows.

The migration of the health workforce intensified after the COVID-19 pandemic; several nurses have migrated, and this phenomenon is expected to continue.<sup>6,13</sup> Digital technologies have been deployed by irregular migrants, including refugees in navigating migration,<sup>14</sup> while digital migration studies have also explored how governments use technology for border control and monitoring of migration activities.<sup>15,16</sup> However, for regular health workforce migration, it is unclear how digitalisation influences migration decisions. Some of these migrations have been facilitated by sharing the information on social media pages and unsolicited emails. This review therefore seeks to understand how health workforce migration is influenced by activities within the digital environment, examine the implications for migration governance and then explore strategies that could be implemented to strengthen ethical migration within the context of the WHO code of practice on international recruitment of health personnel. The WHO published the 2023 list of countries placed on the Health Workforce Support and Safeguard list.<sup>17</sup> The implementation of codes and guidelines is threatened by irregular approaches and virtual recruitment networks. Examining the influence of digitalisation in health workforce migration is a step towards identifying the gaps and highlighting the opportunities for improving migration governance systems by giving attention to regulating the digital environment. The authors anticipate that digitalisation will serve as a medium and positive driver of migration of the health workforce in LMICs while increasing unethical recruitment practices.

## METHOD

A scoping review involving a comprehensive systematic extraction and examination of existing literature to map key concepts and identify previous literature gaps will be conducted.<sup>18</sup> The scoping review aims to map rapidly the key concepts underpinning a research area and the

**Table 1** Framework for study eligibility

Criteria	Determinant
Population	Health workforce, nurses, nurse midwives, physicians, doctors, pharmacists
Concept	Migration, digitalisation, social media, migrant networks
Context	Low- and middle-income countries

main sources and types of evidence available and can be undertaken as stand-alone projects, especially where an area is complex or has not been reviewed comprehensively before.<sup>19</sup> The paucity of evidence on the influence of digitalisation on the migration of the health workforce justifies the adoption of this approach.

### Scoping review protocol

A scoping review will be conducted to explore the influence of social media and digital platforms on the migration of the health workforce. Arksey and O'Malley's<sup>19</sup> scoping review framework will be used. This involves the following: (1) identifying research questions, (2) searching for the literature, (3) selecting articles or studies, (4) charting the data and (5) organising and reporting the outcome of the review. The report will follow Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guidelines.<sup>20</sup>

#### Step 1: identifying the research question

The main question for the review is 'How social media and related digital platforms have influenced the migration of the health workforce from LMICs to HICs?'

The specific questions are:

1. What are the recruitment strategies deployed within the social media and the digital space to influence the migration intentions of health workers in LMICs?
2. How is social media driving the migration of the health workforce post-COVID-19?
3. What are the sociopolitical consequences of digital environment-driven migration of the health workforce?

We adopted the population, concept and context (PCC) principle as recommended by the Joana Briggs

Institute (JBI) guideline (Pollock et al., 2021) as shown in table 1 for this review.

#### Step 2: identifying relevant studies

Keywords will be identified from the research questions. Databases such as PubMed, MEDLINE and Scopus and university library resources will be searched. A Boolean search strategy will be employed to search for keywords independently and interdependently and in multilevel concept combinations to retrieve articles as shown in table 2 and online supplemental file A. The web pages of the WHO, UN and other migration-related agencies will be searched to retrieve the most recent report on migration of nurses and other health professionals. The approach to search will follow the 'heart structure approach' that involves searching from the broader perspective (base) to a narrow scope (apex). Search terms will be retrieved from all fields, then to title and abstract, abstract only and title only. A snowball strategy, which is the search for articles from a reference list of already retrieved articles, will also be applied. Newspaper articles, documentaries and panel discussions on the impact of the COVID-19 pandemic will also be included to ensure that the issues are well understood. Additionally, social media pages such as Facebook, Twitter and Instagram will be searched to track recruitment advertisement trends.

#### Step 3: selecting studies

We will select studies that meet the following eligibility criteria<sup>1</sup>: studies published on health workforce migration from 2020 to 2024<sup>2</sup> articles related to the use of social media and digital environments in facilitating the migration of doctors, nurses, midwives and pharmacists<sup>3</sup>; publications on migrant networks and international health workforce recruitment agencies<sup>4</sup>; full-text articles published in English<sup>5</sup> and studies conducted in LMICs (according to the World Bank definition). We will include social media posts from Twitter, Facebook and Instagram on health workforce recruitment. We will exclude studies focusing on the digitalisation of healthcare, editorial comments, reviews and protocols.

#### Step 4: charting of data

Title and abstract screening will be done using the PCC framework shown in table 1. Abstracts will be read

**Table 2** Search strings

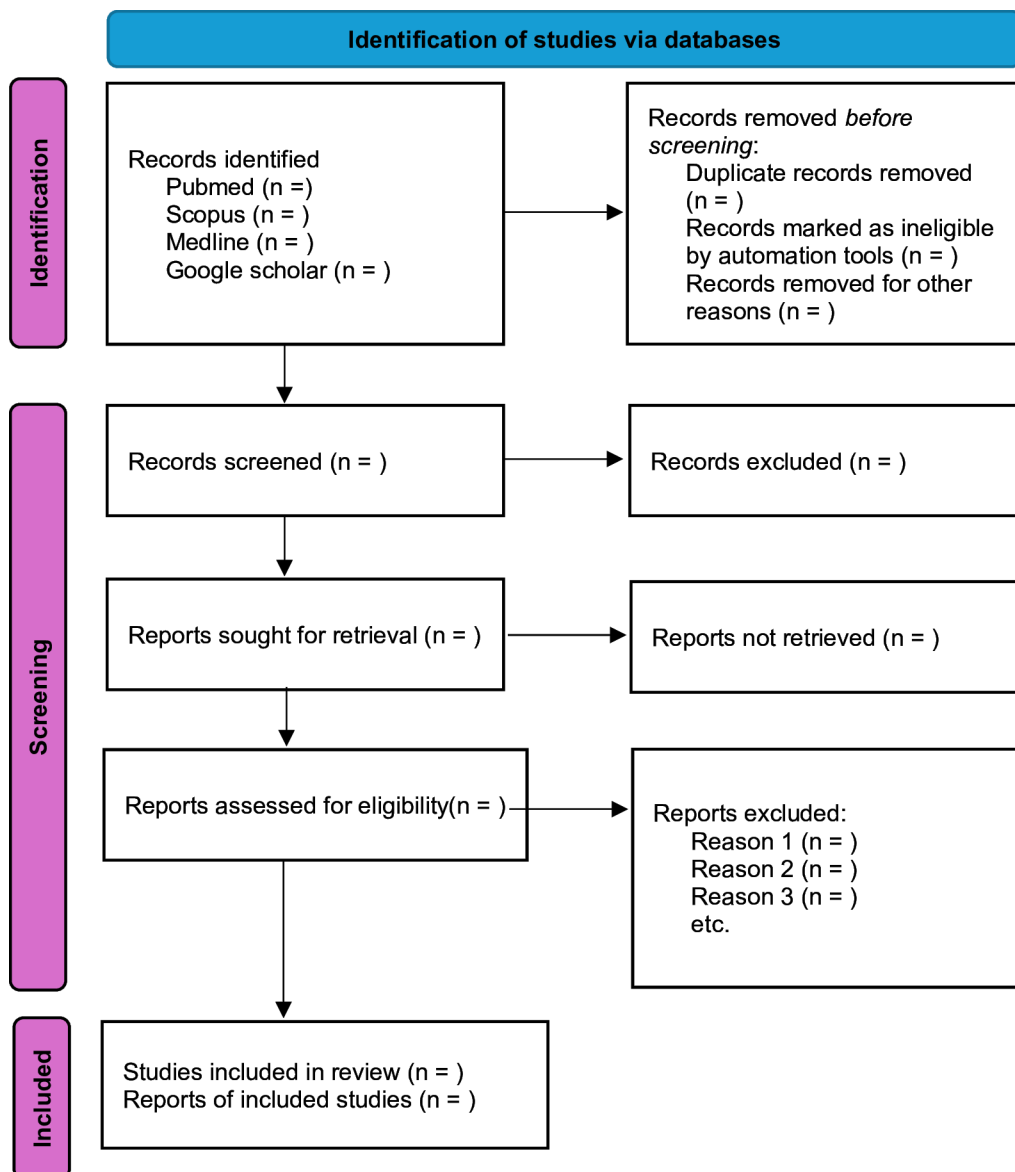
Population	Concept	Context
Nurse Midwife Doctor Pharmacist	Incent*; high* remuneration; motivation, safe* work environment; change in work environment; high* salar*	Influence; impact; effect Digitalizat* digitiz* digitalisat* digitis* International migrant*; international migrat*; relocat*; labour migrant*; labour migrat*; migrant*, migrat*; immigrant*, immigrate*; emigrant*; emigrat*; resettlement, Low and middle-income count*; developing count*; third world count*; underdeveloped count*; LMIC*; developing nation*; less developed count*; third world nation*; under developed nation*

and screened, and the charting of data will be done as outlined in the JBI Manual on scoping review.<sup>21</sup> Excel spreadsheet will be developed with the following row headings: author(s) and publication of year, country or context of the study, study title, aim or purpose, type of study or source of evidence, population and sampling, recruitment strategies driving migration intention, drivers of migration, social media influence and sociopolitical context. Additional rows will be included depending on the type of study. Limitations of the study will also be tracked in the review for contextual synthesis of the data. All reviewers will first screen 30 titles and abstracts (same articles) to pilot the decision process and review the data screening outline where necessary. Two reviewers will then extract the articles, and in case of obvious differences in perspectives, another two will review the article to make the final decision. The entire team will resolve discrepancies based on the majority decision as may be

applicable. Rayyan review tools will be used to facilitate a more efficient review process and tracking of decisions. Data from grey sources will be extracted qualitatively as transcripts for thematic analysis. This means text and images retrieved will be previewed for familiarity, coded and grouped into themes and subthemes.

#### Step 5: collating, summarising and reporting results

A flow diagram with descriptions will be used to illustrate the number of articles retrieved and the number that met eligibility criteria. The reasons for rejection and the final articles considered for the review will also be presented as illustrated in figure 1. Findings will be synthesised relative to the concepts and questions under review, the context of the study and the methodology. Narratives will be extracted for qualitative analysis using reflexive thematic analysis.



**Figure 1** The Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 statement: an updated guideline for reporting systematic reviews. Source Page *et al.*<sup>22</sup>

## Patient and public involvement

No patient or public were involved in the development of the review questions and the entire protocol. No patient or public will be involved in the implementation of this review. However, the public is likely consumers of the final report if disseminated through the sharing of plain language summaries in published papers and social media posts.

## Ethics and dissemination

This scoping review protocol, which seeks to explore the influence of digitalisation on the migration of the health workforce, is situated within the codes and standards of ethical migration. This is a scoping review on a subject of interest that poses no risk to individuals or groups. All the information will be retrieved from open sources only. The protocol was registered with the Open Science Framework registry and is accessible via <https://doi.org/10.17605/OSF.IO/ZAN3Q>. Reports from the review will be published in a peer-reviewed journal and presented at conferences. Links to published reports will be shared on social media handles to improve visibility.

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