

# Health labor force exodus: A systematic review of drivers influencing nurses' migration intentions from source countries

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**Abstract:** The global shortage of nurses has resulted in the demand for their services across different jurisdictions causing migration from developing to developed regions. This study aimed to review the literature on drivers of nurses' migration intentions from source countries and offer future research directions. A search strategy was applied to ScienceDirect, Web of Science, and Scopus academic databases to find literature. The search was limited to peer-reviewed, empirical studies published in English from 2013–2023 resulting in 841 papers. The study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines to conduct a systematic review of 35 studies after thorough inclusion and exclusion criteria. In addition, the VOSviewer software was utilized to map network visualization of keywords, geographic and author cooperation for bibliometric understanding. The findings revealed various socio-economic, organizational, and national factors driving nurses' migration intentions. However, limited studies have been conducted on family income, organizational culture, leadership style, infrastructure development, social benefits, emergency service delivery, specialized training, and bilateral agreements as potential drivers for informing nurses' migration intentions. Moreover, a few studies were examined from a theoretical perspective, mainly the push and pull theory of migration. This paper contributes to the health human resources literature and shows the need for future studies to consider the gaps identified in the management and policy direction of nurse labor migration.

**Keywords:** nurse mobility; health workforce; global recruitment; factors; intents

## 1. Introduction

The increase in healthcare needs of individuals, families, and communities, coupled with higher records of non-communicable diseases contributing to annual mortality rates of about 74% globally (WHO factsheet, 2023) requires more health human resources to meet the demands (Buchan and Catton, 2020). Given this, developing and providing a world-class healthcare system for the general population entails an adequate workforce, especially nurses with the requisite skills (Adams et al., 2021). These cadres of human capital constitute about 50% of the health workforce globally (WHO, 2020). Moreover, they serve as one of the core components for service delivery within the continuum of care for effective patient outcomes (Kolan et al., 2023; Poku et al., 2023). Despite the significant role of nurses, they are short in supply globally by 5.9 million (Buchan and Catton, 2020).

The shortage affects developed and developing countries accordingly (Garcia-Dia, 2022). This is due to myriad reasons attributed to policy, planning, training, and development (Garcia-Dia, 2022; Tamata and Mohammadnezhad, 2023). Moreover, deliberate policies introduced to increase enrolment in training institutions to

improve the human resource capacity in developing nations fail owing to limited employment opportunities upon graduation and improper implementation strategies (Asamani et al., 2020; Öncü et al., 2023). Existing studies have also shown the COVID-19 pandemic further revealed the shortage of nurses in some countries, particularly those in the League of the Organization for Economic Cooperation and Development Countries (Socha-Dietrich and Dumont, 2021).

Consequently, health facilities have resorted to recruiting nurses in developing and other upper-middle-income countries to fill the gap in workforce needs (Socha-Dietrich and Dumont, 2021). Accordingly, there has been tremendous engagement of nurses from source countries like the Philippines, India, Nigeria, Ghana, and others to supplement the human resource deficiency in high-income countries (Socha-Dietrich and Dumont, 2021). These strategies have improved the numerical strength of nurses in some developed countries with subsequent impact on access to skilled personnel and retention (Sánchez-Cardona et al., 2021; Socha-Dietrich and Dumont, 2021). The increase shows that one in eight nurses presently works in countries other than their native land or training globally (WHO, 2020). For instance, the Health Service in England alone as of June 2023 records nurses of Asian descent at 60,336 (17%) and those of African descent at 18,313 (5%) respectively (Commons Library Research, 2023).

The recruitment of nurses, however, impacts service delivery which ultimately leads to negative health outcomes for patients in the affected countries (Hashish and Ashour, 2020) as well as retention of nurses which leads to a skewed distribution of skilled nurses across regions in source countries (Garcia-Dia, 2022). On the other hand, nurses' response to employment in other nations stems from weakening structures in their countries of origin where adverse policies in the health system influence migration decisions largely (Kolan et al., 2023). For instance, the lack of permanent jobs for newly recruited nurses in Spain increased job schedules and influenced nurse migration decisions (Acea-López et al., 2021). Again, in the Philippines, where the state is a significant player in nurse labor export, personnel chose to migrate during the COVID-19 pandemic disregarding the state's regulations against the exodus of health personnel to other countries (Ortiga et al., 2022).

Furthermore, the motivations for nurses' migration have been established based on the push and pull theory (Lee, 1966). According to Lee (1966), people decide on migration based on prevailing circumstances in the place of origin, destination, prevailing barriers, and individual factors. Thus, conditions in the place of origin may be negative situations that push individuals to migrate. On the other hand, the pull factors are the conditions in the destination countries that offer better opportunities to encourage migration (Lee, 1966). Although the push and pull factors influence the decision to migrate, the movement of nurses across the borders of nations does not depend solely on the individual but, involves other players and mediators; namely, private agencies, bilateral labor export agreements, and health institutions (Efendi et al., 2021; Ortiga et al., 2022).

Scholarly work on nurse migration shows that the global need for the nursing workforce and the corresponding movement from their countries to work abroad cannot be over-emphasized (Acea-López et al., 2021; Smith and Gillian, 2021) since the current capacity outstrips the demand. However, other studies have also found

that nurses, like other migrants, experience diverse challenges with language competence, certificate recognition, license acquisition, and a lack of recognition of their skills after migrating (Dahl et al., 2021; Smith et al., 2022; Tao et al., 2024). Notwithstanding their demand, they must adhere to several migration protocols and also observe the rules and regulations of the host country's institution, and professional bodies to be able to practice (Gotehus, 2021). Moreover, professional integration impacts newly recruited nurses as they have to adapt to new environments, technology, and procedures (Stokes and Iskander, 2021).

Despite the challenges mentioned above, nurses continue to migrate from source countries to work in developed nations. This study argues that an in-depth examination of the persistence in the migration of nursing personnel is needed. Numerous works have been done on health workers' migration (Acea-López et al., 2021; Anduaga-Beramendi et al., 2019; Domagala et al., 2022; Hashish and Ashour, 2020) with a few focusing on nurses' migration intentions (Efendi et al., 2021; Öncü et al., 2021; Poku et al., 2023). In addition, the findings of these studies on the health workforce migration appear in a dispersed and convoluted manner.

Again, only a few works have attempted to organize these findings from the perspective of a systematic literature review (Adams et al., 2021; Tamata and Mohammadnezhad, 2023). However, these works focused on the factors responsible for the shortage of nurses while others reviewed studies on policies and retention measures in Africa (Kolan et al., 2023; Osei et al., 2023; Tamata and Mohammadnezhad, 2023). Consequently, there's a need to bring a new dimension to the issue by classifying the drivers of nurses' migration intentions and the theories that have been advanced to study the phenomenon. Again, we bring a new perspective by evaluating the existing literature with a bibliometric analysis of keywords co-occurrence, geographic, and author co-operation.

Thus, the study seeks to examine the literature on nurses' migration intentions from the individual, organizational, and national factors informing personnel's decisions and fill these important research gaps. Given this, the study aimed to map and review the literature on the drivers of nurses' migration intentions from 2013 to 2023 and offer future research direction (Eva et al., 2019). Therefore, our research contributes to scientific knowledge in two ways. First of all, it enriches the health human resource literature by categorizing the drivers of nurse migration (Eva et al., 2019). It further adds to the existing literature by finding other drivers that have not yet been explored (Syahri and Salahudin, 2024). Practically the findings will also contribute to policymaking by identifying the focal points that inform nurses' migration intentions from the source countries and aid healthcare managers in implementing strategic measures to retain nurses in source countries.

## **2. Materials and methods**

This systematic literature review aimed to collect and synthesize existing studies on the drivers of nurses' migration intentions and identify the gaps to propose future research directions (Atkinson and Cipriani, 2018; Page et al., 2021). Given this, the study developed criteria based on the research question. It utilized keywords to find relevant peer-reviewed literature from academic databases of Scopus,

ScienceDirect, and Web of Science (Atkinson and Cipriani, 2018). The following keywords together with Boolean operators and wildcards were used to identify the literature (“nurse migration” OR “nurse emigration”) AND (intention), (nurse migration\*) OR (nurse emigration\*) OR (nurse exodus\*) OR (nurse mobility\*) OR (skilled nurse\*) AND (intention), (“nurse migration” OR “nurse emigration”) AND (intention). Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021; Sarkis-Onofre et al., 2021) for conducting reviews, the selection criteria mapped literature on the drivers of nurses’ migration intentions from 2013 to 2023. The initial search in the databases resulted in 2094 records that were filtered with the years of publication, subject areas, English language, articles, and journals to 841 studies for data extraction. Conference papers, books, and articles in the press were all excluded since the study sought to review only final peer-reviewed studies.

Subsequently, the records were exported into the Covidence software which is designed to aid in screening, inclusion, exclusion, and extraction of literature for systematic reviews, Cochrane reviews, and others (Kellermeyer et al., 2018; Mudiyansele et al., 2022). The Covidence platform provides the opportunity to streamline literature by avoiding bias in the synthesis of research material (Cleo et al., 2019; Kellermeyer et al., 2018). It also reduces the amount of time in screening titles, abstracts, and full text for eligibility whilst ensuring accuracy promptly (Kellermeyer et al., 2018; Mudiyansele et al., 2022; Steen and Rose Prasath, 2023). Again, it allows for teamwork and follows a rigorous protocol that ensures all team members adhere to the standards in developing a robust study. The procedure requires that users go through each stage from identification to eligibility of literature (Mudiyansele et al., 2022).

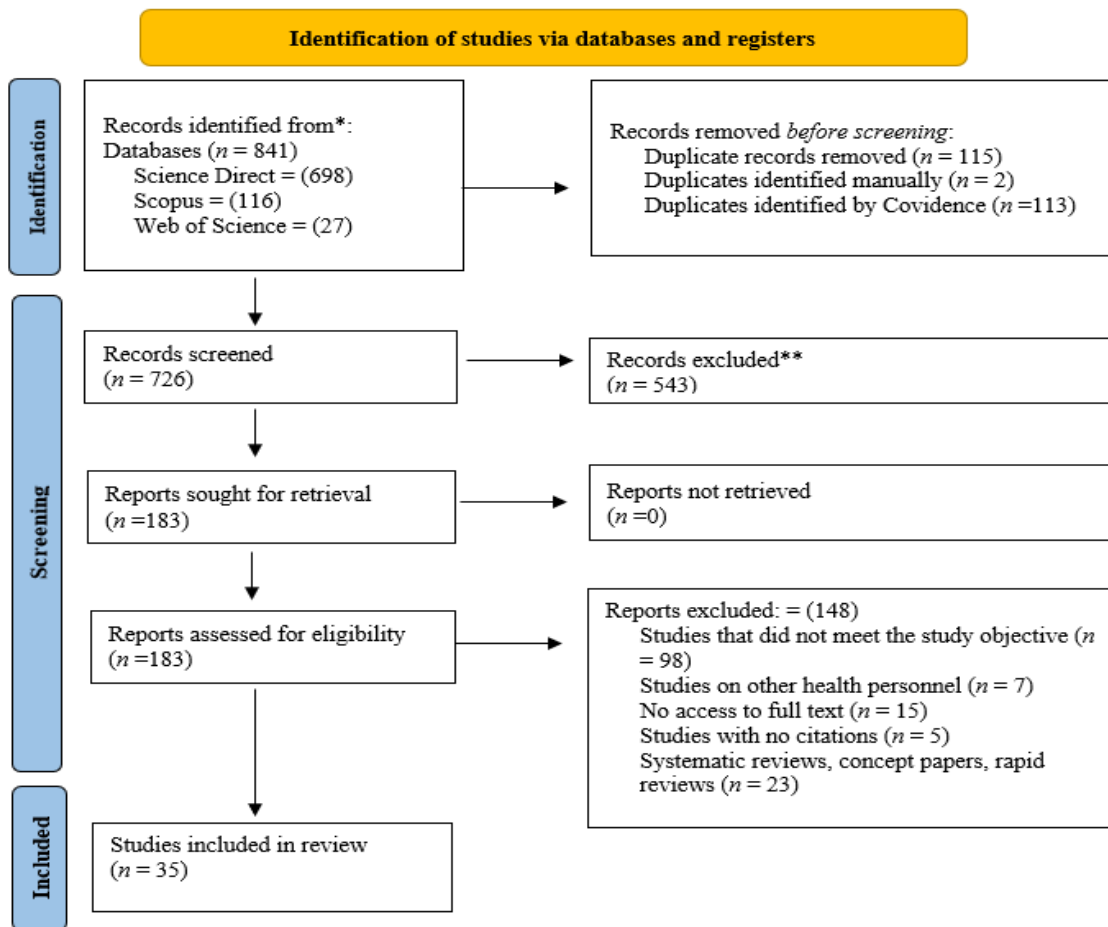
To establish quality assessment, the first author screened all publications’ titles, read the abstracts, and voted for their suitability based on the research objective. The second author proceeded and read the abstracts for final eligibility. Subsequently, both authors read the full articles for a final determination of documents to include and exclude from the study. Eventually, 35 publications of the 841 records were found eligible for the study. The inclusion reports focused on specialist, general, and student nurses. Since the study’s objective was to examine drivers of nurses’ migration intentions, we considered works that examined personnel who have not yet migrated but might have conceived the idea or started the process. Following the PRISMA protocol, reasons for the exclusion of publications were agreed upon by both authors and specified in the flow chart. Finally, the full articles of the included citations were uploaded into Microsoft Excel for data processing.

### **3. Results and discussion**

This section presents the results in the PRISMA 2020 flowchart, a classification of country studies, yearly publications, number of citations, and journal publications in figures and tables. Also, a network visualization was developed from the VOSviewer platform for a bibliometric understanding of author cooperation, keyword co-occurrence, and geographical mapping of studies.

### 3.1. Descriptive statistical analysis

According to the PRISMA 2020 guidelines, the data gathered from the various stages of inclusion and exclusion were entered into the framework’s flowchart in **Figure 1**. The final 35 studies included were based on empirical studies published in the last decade in peer-reviewed journals and cited by other studies. In terms of methodology, the majority used quantitative methods ( $n = 24$ ), whereas ( $n = 6$ ) utilized qualitative methods, and ( $n = 5$ ) mixed methods. In addition, most of the quantitative studies focused on cross-sectional studies with sample sizes ranging between 166 and 9079. The qualitative studies were composed of interviews and focus group discussions. Additionally, seven studies were theoretically investigated.



**Figure 1.** PRISMA flowchart showing the process of the inclusion and exclusion criteria adapted from PRISMA (2020).

### 3.2. Country studies of publication

The classification of country studies aids in giving a better perspective of the landscape of migration of nurses from the most popular sending countries and the least popular (Li et al., 2023). It also helps to identify if migration motivations are country-specific or are shared across multiple countries. The literature included was conducted in popular sending countries, in India, Philippines, South Africa, and Indonesia. Other source countries in Africa, Asia, the Middle East, and South America recorded a few studies. European Region countries, Spain, Portugal, Turkey,

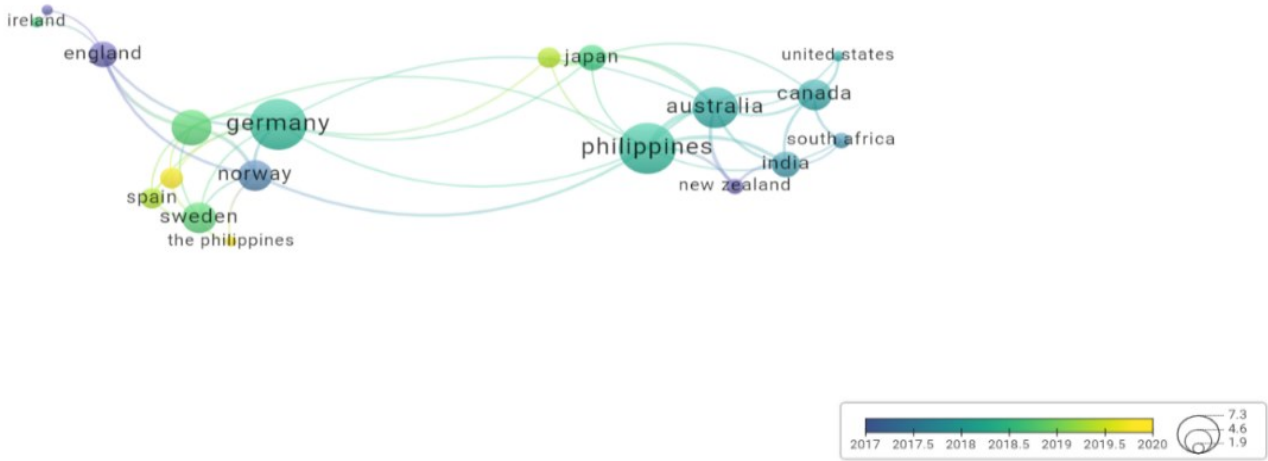
and Italy which are not regular source countries also evidenced some works as seen in **Table 1**. Since the respective European countries are not major players in the migration of personnel, the works could be partly attributed to the impact of the 2008 economic crisis and the after-shocks that led to the unemployment of health professionals contributing to the migration of nurses (Galbany-Estragués et al., 2019).

**Table 1.** Country studies of publication.

<b>Country</b>	<b>Number of publication</b>
India	4
Philippines	3
South Africa	3
Poland	2
Ghana	2
Iran	2
Serbia	2
Spain	2
Portugal	2
Turkey	2
Jamaica	1
Czech Republic	1
Korea	1
Lithuania	1
Nepal	1
Peru	1
Indonesia	1
Egypt	1
Ireland	1
Italy	1
South Korea	1
<b>Total</b>	<b>35</b>

**Figure 2** shows the geographical distribution of network visualization for the countries of publications utilized through the VOSviewer platform. Li et al. (2023) argue that network mapping provides insight into countries of higher visibility and collaboration. The countries of publications evidenced 19 items in the colored nodes with 4 clusters and a link strength of 79 connections. The output indicates the country collaboration spanned 2017 to 2020. The first cluster from the left shows 3 countries, Northern Ireland, Ireland, and England. The second cluster also involves Poland, Germany, Norway, Spain, Sweden and the Philippines. It is worth noting that the Philippines appears twice within the network. This may be attributed to the fact that the country is a foremost exporter of nurses to most countries in Europe and North America (Ortiga et al., 2022). Cluster 3 on the other hand includes Japan and Indonesia, which supports the evidence that Japan signed bilateral agreements with Indonesia for the recruitment of nurses (Efendi et al., 2021) hence the closeness

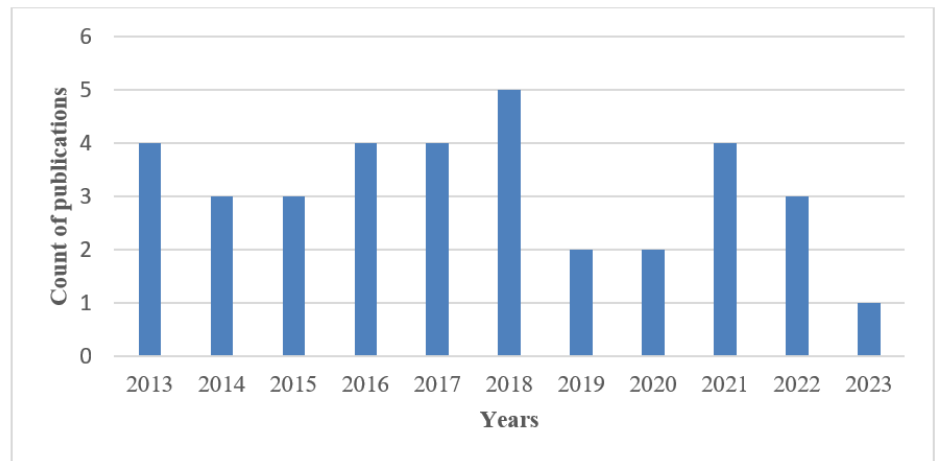
within the network. The countries in the last cluster are the United States of America, Australia, Canada, New Zealand, India, the Philippines, and South Africa, all major sources of recruiting and destination countries.



**Figure 2.** Country studies network visualization map from 2017–2020 (TinyURL, n.d.a).

### 3.3. Records distributed over the years

The yearly distribution of the studies gives mixed results over the decade. As noted in **Figure 3** 2018 recorded 5 studies. Followed by 2013, 2016, 2017, and 2021 where 4 studies were conducted correspondingly. Moreover, 2014, 2015, and 2022 evidenced 3 studies each. Whereas 2019 and 2020 saw 2 publications. On the other hand, 2023 shows 1 study, which demonstrates that the area requires further inquiry since the trend in migration increased after the outbreak of the COVID-19 pandemic (Buchan and Catton, 2020).



**Figure 3.** Number of publications from 2013–2023.

### 3.4. Article citations

The number of citations from an article signifies the researchers' impact and knowledge appreciation by other scholars (Borgohain et al., 2022). This is demonstrated in the respective works presented in **Table 2**. The top cited papers range from 112 to 182 studies by Castro-Palaganas et al. (2017); Gurková et al.

(2013); Leone et al. (2015); Labrague et al. (2018); Walton-Roberts et al. (2017). These studies were published in high-ranking journals.

**Table 2.** Top ten cited articles.

Authorship	Title	Citation	Journal title
Labrague et al. (2018)	Factors influencing turnover intention among registered nurses in Samar Philippines	182	Applied Nursing Research
Leone et al. (2015)	Work environment issues and intention-to-leave in Portuguese nurses: A cross-sectional study	143	Health Policy
Castro-Palaganas et al. (2017)	An examination of the causes, consequences, and policy responses to the migration of highly trained health personnel from the Philippines: the high cost of living/leaving-a mixed method study.	135	Human Resources for Health
Gurková et al. (2013)	Job satisfaction and leaving intentions of Slovak and Czech nurses.	121	International Nursing Review
Walton-Roberts et al. (2017)	Causes, consequences, and policy responses to the migration of health workers: key findings from India.	112	Human Resources for Health
Goštautaitė et al. (2018)	Migration intentions of Lithuanian physicians, nurses, residents and medical students	57	Health Policy
Johnson et al. (2014)	A suitable job? A qualitative study of becoming a nurse in the context of a globalizing profession in India	53	International Journal of Nursing Studies
Lee and Moon (2013)	Korean nursing students' intention to migrate abroad	49	Nurse Education Today
Santric-Milicevic et al. (2015)	Determinants of intention to work abroad of college and specialist nursing graduates in Serbia.	43	Nurse Education Today
Tomblin Murphy et al. (2016)	A mixed-methods study of health worker migration from Jamaica	39	Human Resources for Health

### 3.5. Journal publications

**Table 3** shows the journals and the distribution of the 35 articles published from 2013 to 2023. The topmost journals that published studies on nurses' migration are Human Resources for Health, which recorded the highest number of studies ( $n = 5$ ), and the Journal of Nursing Management and Health Policy ( $n = 4$ ) studies respectively. Also, the African Journal of Primary Health Care and Family Medicine, International Nursing Review, Nurse Education in Practice, and Nurse Education Today evidenced ( $n = 2$ ) publications equally. The rest of the journals recorded ( $n = 1$ ) study accordingly. All of the journals are indexed in the Scimago Journal and Country Rankings.

**Table 3.** Number of publications in journals.

Journal title	Number of publications
Human Resources for Health	5
Health Policy	4
Journal of Nursing Management	4
International Nursing Review	3
African Journal of Primary Health Care and Family Medicine	2
Nurse Education in Practice	2
Nurse Education Today	2
Frontiers in Public Health	1
Health SA Gesondheid	1

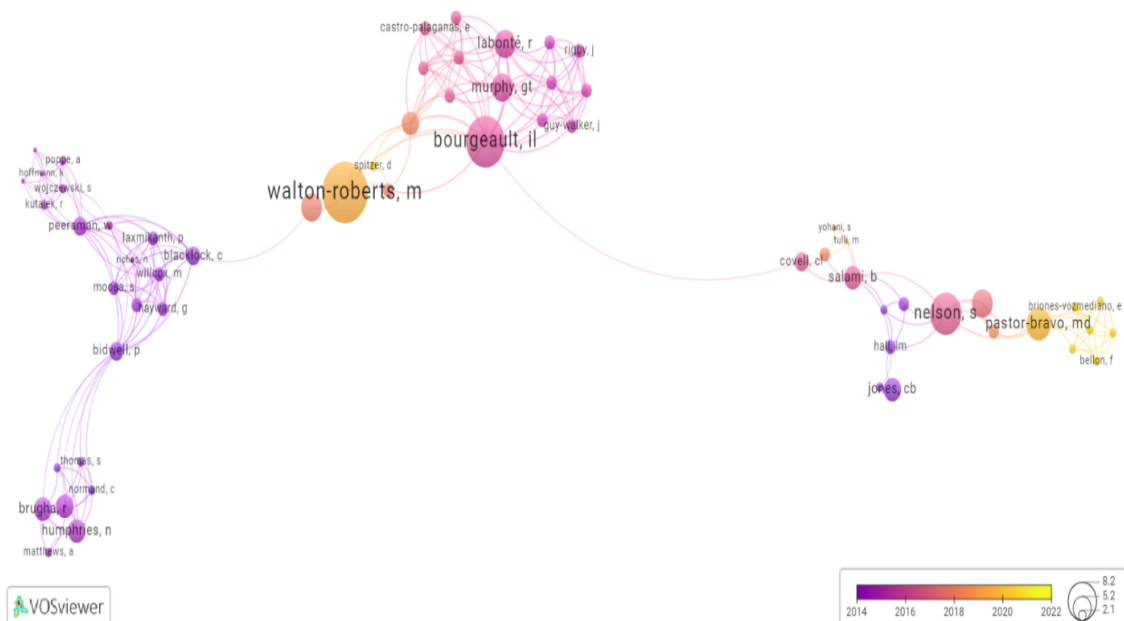


**Table 3. (Continued).**

Journal title	Number of publications
Applied Nursing Research	1
International Journal of African Nursing Sciences	1
International Journal of Nursing Studies	1
Iranian Journal of Public Health	1
Journal of Client Centered Nursing Care	1
Journal of International Migration Integration	1
Journal of Research in Nursing	1
Journal of Transcultural Nursing	1
Nursing & Health Sciences	1
Safety and Health at Work	1
Social Science & Medicine	1
Total	35

### 3.6. Co-authorship network

**Figure 4** shows the co-authorship network among researchers which is significant for analyzing and understanding how authors cooperate within a field of study (Li et al., 2023; Syahri and Salahudin, 2024). It also provides an understanding of the research focus of the authors. Given this, the VOSviewer software was utilized to map and visualize the network collaborations on the phenomenon of global nurse migration and the interaction among scholars. The network landscape revealed 7 clusters from 62 items from the literature reviewed with 221 links. The links show how the different groups are connected from 2014–2022. Also, the color shows the average yearly publication of an author within the network. Thus, 2014 and 2015 registered purple and mauve color nodes which shows the beginning of collaboration among the authors.



**Figure 4.** Co-authorship network from 2014–2022 (TinyURL, n.d.b).



systematic literature review can be adept in finding gaps and inform future direction (Eva et al., 2019). Thus, to answer the research question of this study, a datasheet was developed to categorize the purpose, research approach, study population, drivers of migration, and findings from the 35 articles of the included literature (see Appendix). The results were categorized and discussed according to the individual, organizational, and national drivers influencing nurses' migration intentions from the source countries.

#### **4.1. Individual migration drivers**

The findings from the study revealed that socio-demographic factors namely, the age of respondents, future of children, household income, family responsibilities, social connection in desired destinations, and interest in investing in family businesses formed nurses' migration intentions (Abuosi and Abor 2015; Deasy et al., 2021; Efendi et al., 2021; Ferreira et al., 2020; Johnson et al., 2014; Santric-Milicevic et al., 2015; Shojaeimotlagh et al., 2016). The results indicate an interesting pattern where family and friends networks in destination countries increased the prevalence of migration (Abuosi and Abor, 2015; Poudel et al., 2018). This reinforces Lee's (1966) postulation that migration decisions could also stem from personal prevailing circumstances to influence the choice to move across borders of nations.

Others were related to the quest for post-graduate studies, foreign language competency, previous traveling experience, job dissatisfaction, work experience, and confidence in the preferred country for migration (Acea-López et al., 2021; Castro-Domagala et al., 2022; Gacevic et al., 2018; Hashish and Ashour, 2020; Palaganas et al., 2017). Some studies also mention that future job prospects, career development, and security in the country of origin are significant in decision-making for nursing practitioners and students (Öncü et al., 2021; Smith and Gillin, 2021; Tosunöz and Nazik, 2022). Thus, individual ambitions and the quest for career growth and development are paramount to most nursing personnel leading toward migration into a more developed health system (Poku et al., 2023). Regardless of these findings, the study observes that family income, opportunities for children, networks in destination countries, as well as the desire for career growth among early career nurses, have been less researched as drivers leading to nurses' migration intentions from the existing studies.

#### **4.2. Organizational migration drivers**

At the organizational level, conditions of high workload, limited career progression, burnout, fatigue, workplace aggression, occupational hazards, insufficient personnel, inadequate technological inputs, shortage in medicines and supplies, poor health infrastructure, and long working hours are found to impact the migration intentions of nurses (Anduaga-Beramendi et al., 2019; Boafó, 2016; Ferreira et al., 2020; Labrague et al., 2018; Tomblin Murphy et al., 2016). In addition, limited autonomy, promotion, lack of connection between theory and practice, work conditions, supervision, and employee engagement terms trigger migration decisions (Galbany-Estragués et al., 2019; Garner et al., 2014; George and

Reardon, 2013; Goštautaitė et al., 2018; Lee, 2016; Salehi et al., 2023; Shojaeimotlagh et al., 2016; Walton-Roberts et al., 2017).

These findings indicate that unresolved organizational problems lead to negative perceptions and attitudes toward migration (Kolan et al., 2023). This has also been observed to impact student nurses and increase their intentions toward migration (Öncü et al., 2023). However, the health system-level factors of leadership styles, organizational culture, training opportunities, workplace aggression, emergency service delivery, and infrastructure development have been less studied in the literature on nurse migration (Boafo, 2016; Gacevic et al., 2018; Tomblin Murphy et al., 2016).

### **4.3. National migration drivers**

National-level factors found to drive nurses' migration intentions were inadequate income and incentives, unemployment, transfer to rural areas, lack of commitment to the country, poor investment in the health system, short-term contracts, lack of state support, insecurity, economic conditions, less dignity for nurses, and bilateral recruitment agreements between countries (Bagraim, 2013; Domagala et al., 2022; George and Rhodes, 2017; Lee and Moon, 2013; Ortiga et al., 2022; Walton-Roberts et al., 2017). The outcome of these studies reveals the push factors that force nurses to migrate to other countries (Hashish and Ashour, 2020). Meanwhile, the health sector in most developing countries is not in the best of conditions in terms of infrastructure development, equipment, and machinery. The absence of these inputs impacts nursing personnel and their ability to utilize their skill set for career growth and enhancement (Poku et al., 2023).

These findings corroborate that the perceived lack of recruitment and limited job availability after training drives intentions to migrate (Asamani et al., 2020; Öncü et al., 2023). Despite the many causative factors espoused to inform nurses' migration decisions, some have received fewer studies, and these are bi-lateral agreements, the standard of living, policy on training and development, rural postings, and security (Castro-Palaganas et al., 2017; Domagala et al., 2022; Tomblin Murphy et al., 2016). For instance, the role of the state as a major player in the training, development, and recruitment of nurses in origin countries has been noted to deepen the plight of nurses post-graduation due to the limited opportunities, inadequate investment in the health sector, and improper policy implementation and direction (Asamani et al., 2020; Walton-Roberts et al., 2017).

### **4.4. Future research directions**

This study sought to map and review existing literature on the drivers of nurses' migration intentions from 2013 to 2023 and define future research direction. The findings evidenced that nurturing the intention to migrate depends on varied socio-demographic, organizational, and national conditions (Acea-López et al., 2021; Domagala et al., 2022; Efendi et al., 2021; Ferreira et al., 2020; Ortiga et al., 2022; Tosunoz and Nazik, 2022). In terms of theories, it was observed that the push and pull theory of migration was used in some of the studies (Hashish and Ashour, 2020; Lee, 2016; Lee and Moon, 2013; Öncü et al., 2021; Poku et al., 2023). Abuosi and

Abor (2015) employed neoclassical economic and network theory while Poudel et al. (2018) engaged the system theory framework, and Shojaeimotlagh et al. (2016) examined their study on grounded theory. However, no specific theories were utilized in the rest of the studies. Van de Ven (1989) postulates that the use of theories to study a phenomenon provides scientific rigor for research design and understanding to enhance scientific studies and contribute to existing knowledge and application, rendering it relevant for future research development.

Although numerous factors were found to have a significant influence on the migration intentions of nurses, the study identified that family income, prospects for children, the quest for career growth among early-career nurses, and social networks in destination countries were not broadly examined as individual factors leading to the migration of nurses. Again, organizational culture, leadership style, and emergency service delivery were limited in the literature. Leadership style, particularly, was found to play a substantial role in employee participation in organizational development (Mehmood et al., 2024). Finally, at a national level, the findings show that the standard of living, policy on training and development, bilateral agreements, security, and rural postings were investigated by few authors. We argue that the identified factors need further studies to establish the outcomes on the demand and supply of nurses. The study contributes to the human resource literature on the drivers of nurse migration and fills the gap accordingly. Future studies may be conducted from these perspectives to find out how they impact the decision to migrate. Again, the findings indicate that the majority of the studies did not examine the phenomenon of nurses' migration from the theoretical dimension. It will be useful for future studies to explore other theories, such as the theory of planned behavior to have a better understanding of the factors responsible for migration from an individual's perspective.

## **5. Conclusion**

This systematic literature review mapped and examined extant literature on nurse labor exodus from source countries. Several drivers were realized to inform nurses' migration intentions. However, the study found scant literature on certain factors that have the potential to influence nurses' migration intentions and also limited works based on theories in the existing literature. The outcome of this study shows that the health system across nations is in dire need of nursing personnel to provide holistic healthcare for the general population as the burden of non-communicable diseases continues to grow. With current demand outstripping supply, countries with better health systems stand a greater chance of recruiting nurses from under-resourced countries. This requires a broader stakeholder approach to tackle the challenges in source countries of managing the flow of nurses. Consequently, policymakers, health managers and institutions involved in managing health human resources will need to begin conversations with nursing personnel on the issues that affect training, recruitment, and retention for the common good of the larger society in developing nations.

**Author contributions:** Conceptualization, EAA and JPK; methodology, EAA;

software, EAA and JPK; validation; EAA and JPK; formal analysis, EAA and JPK; investigation, EAA; resources, JPK; data curation, EAA; writing—original draft preparation, EAA; writing—review and editing, JPK and EAA; visualization, EAA; supervision, JPK; project administration, EAA; funding acquisition, JPK. All authors have read and agreed to the published version of the manuscript.

**Conflict of interest:** The authors declare no conflict of interest.

## References

- Abuosi, A. A., & Abor, P. A. (2015). Migration intentions of nursing students in Ghana: Implications for human resource development in the health sector. *Journal of International Migration and Integration*, 16(3), 593–606. <https://doi.org/10.1007/s12134-014-0353-5>
- Acea-López, L., Pastor-Bravo, M., Rubinat-Arnaldo, E., et al. (2021). Burnout and job satisfaction among nurses in three Spanish Regions. *Journal of Nursing Management*, 29(7), 2208–2215. <https://doi.org/10.1111/jonm.13376>
- Adams, R., Ryan, T., & Wood, E. (2021). Understanding the factors that affect retention within the mental health nursing workforce: A systematic review and thematic synthesis. *International Journal of Mental Health Nursing*, 30(6), 1476–1497. <https://doi.org/10.1111/inm.12904>
- Anduaga-Beramendi, A., Beas, R., Maticorena-Quevedo, J., et al. (2019). Association between burnout and intention to emigrate in Peruvian health-care workers. *Safety And Health at Work*, 10(1), 80–86. <https://doi.org/10.1016/j.shaw.2018.08.004>
- Asamani, J. A., Amertil, N. P., Ismaila, H., et al. (2020). The imperative of evidence-based health workforce planning and implementation: Lessons from nurses and midwives unemployment crisis in Ghana. *Human Resources for Health*, 18(1). <https://doi.org/10.1186/s12960-020-0462-5>
- Atkinson, L., & Cipriani, A. (2017). How to carry out a literature search for a systematic review: A practical guide. *BJPsych Advances*, 24(2), 74–82.
- Bagraim, J. J. (2013). Commitment and the emigration intentions of South African professional nurses. *Health SA Gesondheid*, 18(1). <https://doi.org/10.4102/hsag.v18i1.512>
- Boafo, I. M. (2016). Ghanaian nurses' emigration intentions: The role of workplace violence. *International Journal of Africa Nursing Sciences*, 5, 29–35. <https://doi.org/10.1016/j.ijans.2016.11.001>
- Borghain, D. J., Zakaria, S., & Kumar Verma, M. (2022). Cluster analysis and network visualization of global research on digital libraries during 2016–2020: A bibliometric mapping. *Science & Technology Libraries*, 41(3), 266–287.
- Buchan, J., & Catton, H. (2020). COVID-19 and the international supply of nurses. Report for the International Council of Nurses. Available online: <https://www.icn.ch/resources/publications-and-reports/covid-19-and-international-supply-nurses> (accessed on 22 January 2024).
- Castro-Palaganas, E., Spitzer, D., Kabamalan, M., et al. (2017). An examination of the causes, consequences, and policy responses to the migration of highly trained health personnel from the Philippines: The high cost of living/leaving—a mixed method study. *Human Resources for Health*, 15. <https://doi.org/10.1186/s12960-017-0198-z>
- Cleo, G., Scott, A. M., Islam, F., et al. (2019). Usability and acceptability of four systematic review automation software packages: A mixed method design. *Systematic Reviews*, 8(1). <https://doi.org/10.1186/s13643-019-1069-6>
- Dahl, K., Bjørnnes, A. K., Lohne, V., et al. (2021). Motivation, Education, and Expectations: Experiences of Philippine Immigrant Nurses. *SAGE Open*, 11(2). <https://doi.org/10.1177/21582440211016554>
- Deasy, C., Loughlin, C., Markey, K., et al. (2021). Effective workforce planning: Understanding final-year nursing and midwifery students' intentions to migrate after graduation. *Journal Of Nursing Management*, 29(2), 220–228. <https://doi.org/10.1111/jonm.13143>
- Domagala, A., Kulbat, A., & Parzonka, K. (2022). Emigration from the perspective of Polish health professionals—Insights from a qualitative study. *Frontiers In Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.1075728>
- Efendi, F., Oda, H., Kurniati, A., et al. (2021). Determinants of nursing students' intention to migrate overseas to work and implications for sustainability: The case of Indonesian students. *Nursing & Health Sciences*, 23(1), 103–112. <https://doi.org/10.1111/nhs.12757>
- Eva, N., Robin, M., Sendjaya, S., et al. (2019). Servant Leadership: A systematic review and call for future research. *Leadership Quarterly*, 30(1), 111–132. <https://doi.org/10.1016/j.leaqua.2018.07.004>

- Ferreira, P., Raposo, V., Tavares, A., et al. (2020). Drivers for emigration among healthcare professionals: Testing an analytical model in a primary healthcare setting. *Health policy*, 124(7), 751–757. <https://doi.org/10.1016/j.healthpol.2020.04.009>
- Gacevic, M., Santric Milicevic, M., Vasic, M., et al. (2018). The relationship between dual practice, intention to work abroad and job satisfaction: A population-based study in the Serbian public healthcare sector. *Health Policy*, 122(10), 1132–1139. <https://doi.org/10.1016/j.healthpol.2018.09.004>
- Galbany-Estragués, P., Millán-Martínez, P., Pastor-Bravo, M., et al. (2019). Emigration and job security: An analysis of workforce trends for Spanish-trained nurses (2010-2015). *Journal Of Nursing Management*, 27(6), 1224–1232. <https://doi.org/10.1111/jonm.12803>
- Garcia-Dia, M. J. (2022). The ethical recruitment of internationally educated nurses: A leadership perspective on labor migration. *Nurse Leader*, 20(1), 43–47.
- Garner, S., Raj, L., Prater, L., et al. (2014). Student nurses' perceived challenges of nursing in India. *International Nursing Review*, 61(3), 389–397. <https://doi.org/10.1111/inr.12117>
- George, G., & Reardon, C. (2013). Preparing for export? Medical and nursing student migration intentions post-qualification in South Africa. *African Journal of Primary Health Care and Family Medicine*, 5(1). <https://doi.org/10.4102/phcfm.v5i1.483>
- George, G., & Rhodes, B. (2017). Is there a financial incentive to immigrate? Examining of the health worker salary gap between India and popular destination countries. *Human Resources for Health*, 15. <https://doi.org/10.1186/s12960-017-0249-5>
- Goštautaitė, B., Bučiūnienė, I., Milašauskienė, Ž., et al. (2018). Migration intentions of Lithuanian physicians, nurses, residents and medical students. *Health Policy*, 122(10), 1126–1131. <https://doi.org/10.1016/j.healthpol.2018.07.001>
- Gotehus, A. (2021). Agency in deskilling: Filipino nurses' experiences in the Norwegian health care sector. *Geoforum*, 126, 340–349. <https://doi.org/10.1016/j.geoforum.2021.08.012>
- Gurková, E., Soósová, M. S., Haroková, S., et al. (2013). Job satisfaction and leaving intentions of Slovak and Czech nurses. *Int. Nurs. Rev.*, 60(1), 112–121. <https://doi.org/10.1111/j.1466-7657.2012.01030.x>
- Hashish, E. A., & Ashour, H. M. (2020). Determinants and mitigating factors of the brain drain among Egyptian nurses: A mixed-methods study. *Journal of Research in Nursing*, 25(8), 699–719. <https://doi.org/10.1177/1744987120940381>
- House of Commons Library. (2023). NHS Staff from overseas: Statistics, (Baker, C.). Available online: <https://commonslibrary.parliament.uk/research-briefings/cbp-7783/> (accessed on 22 January 2024).
- Johnson, S. E., Green, J., & Maben, J. (2014). A suitable job: A qualitative study of becoming a nurse in the context of a globalizing profession in India. *International Journal of Nursing Studies*, 51(5), 734–743. <https://doi.org/10.1016/j.ijnurstu.2013.09.009>
- Kellermeyer, L., Harnke, B., & Knight, S. (2018). Covidence And Rayyan. *Journal of the Medical Library Association*, 106(4), 580–583. <https://doi.org/10.5195/JMLA.2018.513>
- Konlan, K. D., Lee, T. W., & Damiran, D. (2023). The factors that are associated with nurse immigration in lower and middle-income countries: An integrative review. *Nursing Open*, 10(12), 7454–7466. <https://doi.org/10.1002/nop2.2003>
- Labrague, L. J., Gloe, D., McEnroe, D. M., et al. (2018). Factors influencing turnover intention among registered nurses in Samar Philippines. *Applied Nursing Research*, 39, 200–206. <https://doi.org/10.1016/j.apnr.2017.11.027>
- Lee, E. (2016). Factors influencing the intent to migrate in nursing students in South Korea. *Journal Of Transcultural Nursing*, 27(5), 529–537. <https://doi.org/10.1177/1043659615577697>
- Lee, E., & Moon, M. (2013). Korean nursing students' intention to migrate abroad. *Nurse Education Today*, 33(12), 1517–1522. <https://doi.org/10.1016/j.nedt.2013.04.006>
- Lee, E. S. (1966). A Theory of Migration. *Demography*, 3(1), 47–57. <https://doi.org/10.2307/2060063>
- Leone, C., Bruyneel, L., Anderson, J. E., et al. (2015). Work environment issues and intention-to-leave in Portuguese nurses: A cross-sectional study. *Health Policy*, 119(12), 1584–1592. <https://doi.org/10.1016/j.healthpol.2015.09.006>
- Li, H., Kang, Q., Calabrò, A., et al. (2023). International entrepreneurship: Analysing the current state of research. *European Journal of International Management*, 21(1), 96–120.
- Mayona, E. L., & Sutriadi, R. (2024). Ecological city concept: Challenge and future research agenda in urban ecology perspective. *Journal of Infrastructure, Policy and Development*, 8(5), 2852.
- Mehmood, S., Bano, A., Khan, M. A., et al. (2024). Effect of workplace bullying and incivility on employee performance: Mediating role of psychological well being. *Journal of Infrastructure, Policy and Development*, 8(5), 3390. <https://doi.org/10.24294/jipd.v8i5.3390>
- Mudiyansele, S. R., Davis, D., Kurz, E., et al. (2022). Infant and young child feeding during natural disasters: A systematic

- integrative literature review. *Women and Birth*, 35(6), 524–531.
- Öncü, E., Köksoy Vayısoğlu, S., Karadağ, G., et al. (2023). The relationship between unemployment anxiety, job satisfaction and migration attitude among the next generation of Turkish nurses: A cross-sectional study. *International Journal of Nursing Studies*, 148. <https://doi.org/10.1016/j.ijnurstu.2023.104603>
- Öncü, E., Vayısoğlu, S. K., Karadağ, G., et al. (2021). Intention to migrate among the next generation of Turkish nurses and drivers of migration. *Journal of Nursing Management*, 29(3), 487–496. <https://doi.org/10.1111/jonm.13187>
- Osei, S. K. J., Owusu, M. B., Frimpong, S., et al. (2023). Systematic review and meta-synthesis protocol for examining policies mitigating the determinants of African nurses' and midwives' migration. *BMJ open*, 13(9), e073203.
- Ortiga, Y., Dino, M., & Macabasag, R. (2022). Clocking out: Nurses refusing to work in a time of pandemic. *Social Science & Medicine*, 305. <https://doi.org/10.1016/j.socscimed.2022.115114>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Systematic Reviews*, 10(1). <https://doi.org/10.1186/s13643-021-01626-4>
- Palese, A., Falomo, M., Brugnolli, A., et al. (2017). Nursing student plans for the future after graduation: A multicentre study. *International Nursing Review*, 64(1), 99–108. <https://doi.org/10.1111/inr.12346>
- Poku, C. A., Abebrese, A. K., Dwumfour, C. K., et al. (2023). Draining the specialized nursing brains, the emigration paradigm of Ghana: A cross-sectional study. *Nursing Open*. <https://doi.org/10.1002/nop2.1662>
- Poudel, C., Ramjan, L., Everett, B., et al. (2018). Exploring migration intention of nursing students in Nepal: A mixed-methods study. *Nurse Education in Practice*, 29, 95–102. <https://doi.org/10.1016/j.nepr.2017.11.012>
- Prisma Flow Diagram. (2020). PRISMA 2020 Flow diagram. Available online: <https://www.prisma-statement.org/prisma-2020> (accessed on 13 January 2024).
- Reardon, C., & George, G. (2014). An examination of the factors fueling migration amongst Community Service practitioners. *African Journal of Primary Health Care and Family Medicine*, 6(1). <https://doi.org/10.4102/phcfm.v6i1.625>
- Roth, C., Wensing, M., Breckner, A., et al. (2022). Keeping nurses in nursing: A qualitative study of German nurses' perceptions of push and pull factors to leave or stay in the profession. *BMC Nursing*, 21(1). <https://doi.org/10.1186/s12912-022-00822-4>
- Salehi, T., Mirzaee, M., Haghani, S., et al. (2023). Assessment of the Relationship Between Intention to Migrate with Workload and a Healthy Work Environment of Nurses. *J. Client. Cent. Nurs. Care.*, 9(2), 113–122. <https://doi.org/10.32598/JCCNC.9.2.426.1>
- Sánchez-Cardona, I., Vera, M., & Marrero-Centeno, J. (2021). Job resources and employees' intention to stay: The mediating role of meaningful work and work engagement. *Journal of Management and Organization*. <https://doi.org/10.1017/jmo.2021.10>
- Santric-Milicevic, M., Matejic, B., Terzic-Supic, Z., et al. (2015). Determinants of intention to work abroad of college and specialist nursing graduates in Serbia. *Nurse Education Today*, 35(4), 590–596. <https://doi.org/10.1016/j.nedt.2014.12.022>
- Sarkis-Onofre, R., Catalá-López, F., Aromataris, E., et al. (2021). How to properly use the PRISMA Statement. *Systematic Reviews*, 10, 1–3.
- Shojaeimotlagh, V., Valizadeh, S., Hasankhani, H., et al. (2018). Psychological needs, satisfaction and intention to migrate in Iranian nurses: A qualitative content analysis. *Iranian Journal of Public Health*, 47(8), 1201–1208.
- Smith, D. M., & Gillin, N. (2021). Filipino nurse migration to the UK: Understanding migration choices from an ontological security-seeking perspective. *Social Science and Medicine*, 276. <https://doi.org/10.1016/j.socscimed.2021.113881>
- Smith, J. B., Herinek, D., Woodward-Kron, R., et al. (2022). Nurse Migration in Australia, Germany, and the UK: A Rapid Evidence Assessment of Empirical Research Involving Migrant Nurses. *Policy, Politics, and Nursing Practice*, 23(3), 175–194. <https://doi.org/10.1177/15271544221102964>
- Socha-Dietrich, K., & Dumont, J. C. (2021). International migration and movement of nursing personnel to and within OECD countries-2000 to 2018: Developments in countries of destination and impact on countries of origin. *OECD Health Working Papers*, 125. <https://doi.org/10.1787/b286a957-en>
- Steen, S., & Rose Prasath, P. (2023). Black doctoral student research participants: A mixed-method systematic literature review. *Counselor Education and Supervision*, 62(2), 132–148. <https://doi.org/10.1002/ceas.12262>
- Stokes, F., & Iskander, R. (2021). Human Rights and Bioethical Considerations of Global Nurse Migration. *Journal of Bioethical Inquiry*, 18(3), 429–439. <https://doi.org/10.1007/s11673-021-10110-6>
- Syahri, M., & Salahudin, S. (2024). Understanding ecological citizenship through global literature: A bibliometric analysis. *Journal of Infrastructure, Policy and Development*, 8(7), 4088. <https://doi.org/10.24294/jipd.v8i7.4088>
- Szpakowski, R., Zajac, P. W., Dykowska, G., et al. (2016). Labour migration of Polish nurses: A questionnaire survey conducted



- with the Computer Assisted Web Interview technique. *Human Resources for Health*, 14. <https://doi.org/10.1186/s12960-016-0124-9>
- Tamata, A. T., & Mohammadnezhad, M. (2023). A systematic review study on the factors affecting shortage of nursing workforce in the hospitals. *Nursing Open*, 10(3), 1247–1257. <https://doi.org/10.1002/nop2.1434>
- Tao, L., Pang, L., Wei, Y., et al. (2024). How does housing affordability affect migration intentions of married migrant workers? Social integration as a mediating variable. *Journal of Infrastructure, Policy and Development*, 8(6), 5165. <https://doi.org/10.24294/jipd.v8i6.5165>
- Tomblin Murphy, G., MacKenzie, A., Waysome, B., et al. (2016). A mixed-methods study of health worker migration from Jamaica. *Human Resources for Health*, 14, 89–103.
- Tosunoz, I., & Nazik, E. (2022). Career future perceptions and attitudes towards migration of nursing students: A cross-sectional multicenter study. *Nurse Education in Practice*, 63. <https://doi.org/10.1016/j.nepr.2022.103413>
- TinyURL. (n.d.a). Available online: <https://tinyurl.com/232sqcr6> (accessed on 12 May 2024).
- TinyURL. (n.d.b). Available online: <https://tinyurl.com/23pl7l8r> (accessed on 13 May 2024).
- TinyURL. (n.d.c). Available online: <https://tinyurl.com/2yhyhvqj> (accessed on 14 May 2024).
- Van de Ven, A. H. (1989). Nothing is quite so practical as a good theory. *Academy of Management Review*, 14(4), 486–489.
- Walton-Roberts, M., Runnels, V., Rajan, S., et al. (2017). Causes, consequences, and policy responses to the migration of health workers: Key findings from India. *Human Resources for Health*, 15. <https://doi.org/10.1186/s12960-017-0199-y>
- World Health Organization. (2020). State of the World's Nursing 2020: Investing in education, jobs and leadership: Web annex: Nursing roles in 21st-century health systems. World Health Organization.
- World Health Organization. (2023). Noncommunicable diseases. Available online: <https://www.who.int/news-room/factsheets/detail/noncommunicable-diseases> (accessed on 24 January 2024).

## Appendix

**Table A1.** Datasheet developed from the 35 studies.

Reference	Purpose	Approach/Design	Study population and sample size	Drivers of migration	Results
Abuosi and Abor (2015)	To investigate the impact of socio-economic and demographic factors on nursing students' emigration intents.	Quantitative/Cross-sectional study	Nursing students, $n = 747$	Income, Professional development, Education for children, Social networks, Transfers, and Personal initiative.	Most respondents were between 18–25 years old. Prevalence for migration was 93.2%. The possibility of earning more income was more significant to inform migration decisions.
Acea-López et al. (2021)	To establish the rate of exhaustion and career contentment of Spanish nurses.	Quantitative/Cross-sectional study	Nurses, $n = 228$	Short-term contracts, fatigue, and lack of satisfaction.	The mean age of respondents was 37.11–10.87. Career contentment was fairly high, while exhaustion, and detachment, were low. 21.59% had migrated already and 18.58% had future migration plans.
Anduaga-Beramendi et al. (2019)	To determine the link between fatigue and related factors for migration among Peruvian health personnel.	Secondary data/Cross-sectional analysis	Health Professionals, $n = 5062$	Occupational burnout	The frequency of migration was 7.4%. Exhaustion levels among nurses were 2.1%. The study established a link between exhaustion and migration.
Bagraim (2013)	To establish the association between intent to migrate and employee loyalty.	Quantitative/Cross-sectional	Professional Nurses, $n = 219$	National commitment	Lack of loyalty to South Africa increased the possibility of migration.
Boafo (2016)	To investigate the effect of workplace aggression on nurse migration intents.	Quantitative/Cross-sectional study	Professional Nurses, $n = 592$	Workplace aggression	About 48.9% of respondents had nurtured migration intents. Young nurses had a higher desire of 2.8 times than upper-level nurses. Personal, sexual, and verbal attacks constituted workplace aggression.
Castro-Palaganas et al. (2017)	To give an account of the micro, macro, and meso-level factors of migration and the impact on the Philippine health system.	Mixed methods /Comparative study	Health professionals and stakeholders, $n = 457$	Investment in the health sector, employment, career growth, and insecurity.	Nurses reported a 51% prevalence of migration. The lack of jobs and low funding in the health sector increased migration. The findings revealed a huge impact on healthcare outcomes and workforce supply.
Deasy et al. (2021)	To examine post-graduation motivations of migration among fourth-year nursing and midwifery students	Quantitative/Cross-Sectional	Nursing/Midwifery students, $n = 406$	Wage, conditions of employment, professional growth, access to further education, and domestic responsibilities.	Migration intention was 85%, about 25% had planned to migrate after graduation whilst 65% planned on working for a short period and migrating subsequently.

**Table A1. (Continued).**

Reference	Purpose	Approach/Design	Study population and sample size	Drivers of migration	Results
Domagala et al. (2022)	To identify the causes and effects of migration among Polish health personnel.	Qualitative	Health Professionals, $n = 15$	Dignity, workload, working hours, personal well-being, training, and development.	The study included four nurses with 2–27 years of experience. The respondents noted perceived challenges with language, integration, and family responsibilities upon migration.
Efendi et al. (2021)	To determine the predominance of emigration intents among Indonesian nursing students.	Quantitative/Cross-sectional study	Nursing students, $n = 1407$	Age, foreign exposure, household income, foreign language competence, and information about Japan-Indonesia cooperation.	The majority (91.3%) intended to migrate to Japan. About 75% of respondents apply to work as caregivers under the Economic Partnership Cooperation.
Ferreira et al. (2020)	To add to the debate on health labor emigration by testing an analytical model on the determinants.	Quantitative	Health personnel, $n = 9079$	Family finance, fatigue, technology development, and occupational regulations.	Highly educated nurses were more likely to migrate. 6.6 % of nurses had made migration plans, while 82.9% had no migration desires.
Gacevic et al. (2018)	To determine variables and predictors of double occupation and intent to practice in another country.	Quantitative/Cross-sectional study	Health professionals, $n = 62,571$	Supervision, occupational conditions, and career satisfaction.	About 51.0% of participants were nurses and midwives. Personnel below 55 years had a higher desire to migrate.
Galbany-Estragués et al. (2019)	To identify the linkage between intention to emigrate and occupational security among Spanish nurses.	Secondary data	Professional nurses	Secured employment and license applications.	The study found an increase in accreditation applications among nurses with no experience, unemployment, resignation, and temporal engagement.
Garner et al. (2014)	To throw light on nursing students' understanding of the nursing profession in India.	Qualitative/Interview and Photovoice	Nursing students, $n = 14$	Position ranking and insufficient personnel.	The findings indicate that respect, security, wages, workload, and lack of correlation between theory and practice impacted student's perspective of the profession.
George and Reardon (2013)	To examine the share of nursing and medical students intending to migrate and the motivations for their decisions.	Quantitative/Cross-sectional study	Nursing and Medical students, $n = 298$	Increased workload, medical supplies, and occupational risk.	About 66.6% of nursing students had migration intentions post-graduation. Participants were aged between 19–24 years old. Close to a quarter (37%) had plans for further training abroad.
George and Reardon (2017)	To investigate the income difference between, popular destination countries and India. In comparison to the standard of living.	Secondary data	Medical personnel	Wages and Salaries	The study finds that nurses earn about 82.7% more in the USA than in India. Again, those in Canada and UAE earn about 28% and 20% more. While nurses in India seemed to earn more than their UK colleagues.

**Table A1. (Continued).**

Reference	Purpose	Approach/Design	Study population and sample size	Drivers of migration	Results
Goštautaitė et al. (2018)	To examine the migration motives of health professionals and students in Lithuania.	Quantitative/Cross-sectional study	Nurses, Physicians, Residents, Students. <i>n</i> = 1080	Socio-demographic, monetary, and institutional.	About 12% of nurses, intended to migrate. Being a parent, poor professional collaboration, and lack of respect for nurses' roles predisposed migration decisions.
Gurková et al. (2013)	To establish the link between intention to leave and work contentment.	Quantitative/Cross-sectional study	Professional nurses, <i>n</i> = 1055	Level of contentment, workload, and autonomy.	Significant differences were recorded between Czech nurses who were more satisfied than Slovak nurses. Experienced personnel aged between 36–40 years having a family were more likely to migrate or leave the profession.
Hashish and Ashour (2020)	To identify the motivations of human capital flight and moderating elements among Egyptian nurses.	Mixed Methods/ Concurrent Triangulation Design	Nurses, <i>n</i> = 360	Finance, workplace conditions, communal responsibilities, and individual ambitions	Push-pull motivations for migration were 99.6% and 97.5%. Most of the participants were females at 90.2%. About 65.5% had more than 10 years of experience.
Johnson et al. (2014)	To study nurses' narrative of enrolling in the profession within the global.	Qualitative/In-depth Interview	Nurse personnel, <i>n</i> = 56	Career upgrades, financial benefits, and respect.	The study finds the possibility of earning a higher income, financing marriage, purchasing houses, and investing in family businesses to influence migration decisions.
Labrague et al. (2018)	To examine the impacts of job satisfaction, burnout, and intention to quit among Filipino nurses.	Quantitative/Cross-sectional study	Nurses, <i>n</i> = 166	Career development, financial benefits, and social recognition.	The variables of age, career satisfaction, and burnout accounted for 37.5% significance for nurse intent of turnover.
Lee (2016)	To examine the extent of Korean nursing students' exodus motives and the determinants.	Quantitative/Cross-sectional study	Nursing students, <i>n</i> = 886	Age, career satisfaction and burnout.	Entrance into nursing for employment abroad was 41.48%, and the intention to migrate was 50.74%. The desire for migration decreased as students progressed in the training year.
Lee and Moon (2013)	To investigate Korean nursing students' intents, and choices for emigration and practice in other countries.	Quantitative/ Descriptive survey	Nursing students, <i>n</i> = 717	Workplace conditions, respect for the profession, guaranteed employment, and work abroad.	About 69.8% of students had emigration intentions after graduation. Also, (71%) anticipated difficulties with foreign language. Most of the respondents (64%) intend to return after some time.
Leone et al. (2015)	To develop the study on Registered Nursing Forecasting (RN4CAST) on Portuguese nurses.	Quantitative/RN4CAST Questionnaire	Registered nurses, <i>n</i> = 2235	Specialist training, job dissatisfaction, and professional opportunities.	Specialist nurses were more prepared to exit. Nurses with bachelor's degrees have a higher possibility of migrating. An improvement in the organizational environment could reduce migration decisions.

**Table A1. (Continued).**

Reference	Purpose	Approach/Design	Study population and sample size	Drivers of migration	Results
Öncü et al. (2021)	To identify motivations of final year nursing students' plans to migrate and examine the impact on their career.	Quantitative/Cross-sectional study	Nursing students, $n = 1410$	Political situation, organizational conditions, and experience abroad.	The study records a 56.30 mean score for the probability of migration. About 30% were not inclined to work in the health industry for a long period. Opportunity for career growth and work conditions scored 50% and 54% for migration.
Ortiga et al (2022)	To examine how Filipino nurses received a government ruling on migration during the COVID-19 pandemic.	Qualitative study	Nurses, $n = 360$	Poor working conditions, lack of employment, bilateral agreements, and employment offers abroad.	The study shows some nurses accepted government appointments as an opportunity for skills upgrade. Others refused to yield the government ban since they had gained employment opportunities overseas before the COVID-19 pandemic
Palese et al. (2017)	To find out post-graduation aspirations of nursing students, and determinants of their migration intents	Quantitative study	Nursing students, $n = 923$	Prior experience abroad, confidence in the country of preference, career growth and satisfaction.	About 62.4% had plans to apply for jobs in the country, 15.8% had migration intentions and 11.1% indicated looking for a job both in Italy and abroad.
Poudel et al. (2018)	To examine the migration intention of nursing students in Nepal, and identify influencing motivations.	Mixed Methods	Nursing students, $n = 811$	Low income, lack of jobs, working environments, professional independence, and postgraduate opportunities.	The majority (92 %) indicated the intention to migrate. The chance to study abroad, and be with family was also significant. Some participants had the least interest in practicing the profession.
Reardon and George (2014)	To identify the determinants of migration among South African health practitioners, bilateral agreements, and the effect on labour emigration.	Qualitative/Focus group discussion	Nurses/Doctors, $n = 23$	Occupational conditions, long duty hours, workload, insufficient equipment, low wages, and uncertainty of state support.	The study found challenges within community health systems triggered the migration decisions of participants. Nurses with family obligations were most likely to migrate.
Salehi et al. (2023)	To identify the link between emigration intents, volume of work, and occupational environment among nurses.	Quantitative/Cross-sectional study	Nurses, $n = 360$	Workplace conditions, employment terms, and work experience.	The mean intention to migrate was $65.59 \pm 33.51$ . The study found a relationship between the intention to migrate and the workload. The conditions at the workplace equally impact migration intentions.
Santric-Milicevic et al. (2015)	To examine the migration motives among nursing students to practice overseas.	Quantitative/Descriptive study	Nursing graduates, $n = 719$	Career development, low income, and better life.	About 70% of respondents had the intention to migrate. 13% had advanced plans to move. Single graduates were 2.3 times more likely to work abroad than married colleagues.

**Table A1. (Continued).**

Reference	Purpose	Approach/Design	Study population and sample size	Drivers of migration	Results
Shojaeimotlagh et al. (2016)	To investigate the mental reasons influencing emigration intentions among Iranian nurses.	Qualitative/Interviews and Observation	Nurse practitioners, $n = 20$	Autonomy, career progression, and social assistance.	The study finds the desire to fulfill psychological demands as the main reason for migration intent. Others were the occupational environment, position ranking, and training.
Szpakowski et al. (2016)	To investigate the emigration aspirations of Polish nurses to work across Europe.	Quantitative	Professional nurses, $n = 581$	Low income, conditions of service, career advancement, long-term experience, and respect for nurses.	About 29.6% of nurses intend to move abroad due to career aspirations. Most participants (72.8%) were dissatisfied. The preferred destinations for migration are Germany and the United Kingdom
Tomblin Murphy et al. (2016)	To provide a Jamaican version of the findings of a four-country study on health worker migration.	Mixed methods/Comparative study	Health professionals/stakeholders	Standard of living, conditions of service, and state of infrastructure.	The study finds that about 79% of participants considered migrating for work. 51% of nurses had plans to migrate within 5 years, while the salaries recorded 64% for the highest reason.
Tosunoz and Nazik (2022)	To identify the long-term career expectations of student nurses and their perspectives on emigration.	Quantitative/Cross-sectional	Nursing students, $n = 3053$	Previous studies abroad, knowledge of foreign languages, and work environment.	The mean age of respondents was 20.29 with women in the majority. 60.9% had no foreign language competence, 90.6% had no prior experience abroad, and 73.3 % of respondents desired to work abroad upon graduation.
Walton-Roberts et al. (2017)	To publish the findings of the determinants of emigration decisions of experienced health workforce in India.	Mixed Methods	Health professionals and stakeholders, $n = 1793$	Lack of jobs, respect for nurses, and employment packages.	About 42% of nurses had considered migration. However, most had not taken any steps towards migration. Nurses working in the public sector were less likely to migrate.