

Supplementary Material

Drivers of Health Workers Migration, Intention to Migrate, and Non-Migration from Low- and Middle-Income Countries: A Systematic Review

Supplementary Table 1: Search strategy

1. Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions(R) <1946 to August 21, 2022>

Concept	Variants used to query database
#1 (Health worker)	*Health workforce/ [Mesh] OR exp health personnel/ [Mesh] OR health worker*[tw] OR healthcare worker*[tw] OR health personnel [tw] OR health care worker*[tw] OR health service provider*[tw] OR medical worker*[tw] OR healthcare professional*[tw] OR healthcare provider*[tw] OR health care provider*[tw] OR doctor*[tw] OR physician*[tw] OR nurses[tw] OR nursing professional*[tw] OR pharmacist*[tw] OR dentist*[tw] OR dental surgeon*[tw] OR midwife[tw] OR midwives[tw]
#2 (Migration)	exp human migration/ OR "emigration and immigration"/[Mesh] OR migrat*[tw] OR migrant*[tw] OR emigrat*[tw] OR emigrant*[tw] OR emigrant*[tw] OR "brain drain" [tw] OR exodus[tw] OR relocate*[tw]
#3 (LMICs)	Developing Countries/ OR ((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies))[tiab] OR ((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world))[tiab] OR (low* adj (gdp or gnp or gross domestic or gross national))[tiab] OR (low adj3 middle adj3 countr*)[tiab] OR (lmic or lmic or third world or lami countr*)[tiab] OR transitional countr*[tiab] OR global south[tiab] OR Democratic People's Republic of Korea"/ OR (North Korea or (Democratic People* Republic adj2 Korea))[tiab] OR Cambodia/ OR Cambodia[tiab] OR Indonesia/ OR (Indonesia or Dutch East Indies)[tiab] OR (Kiribati or Gilbert Islands or Phoenix Islands or Line Islands)[tiab] OR Laos/ OR (Laos or (Lao adj1 Democratic Republic))[tiab] OR Micronesia/ OR Micronesia[tiab] OR Mongolia/ OR Mongolia[tiab] OR Myanmar/ OR (Myanmar or Burma)[tiab] OR Papua New Guinea/ OR (Papua New Guinea or German New Guinea or British New Guinea or Territory of Papua)[tiab] OR Philippines/ OR (Philippines or Philippine Islands)[tiab] OR Solomon Islands[tiab] OR Timor-Leste/ OR (Timor-Leste or East Timor or Portuguese Timor)[tiab] OR Vanuatu/ OR (Vanuatu or New Hebrides)[tiab] OR Vietnam/ OR (Viet Nam or Vietnam or French Indochina)[tiab] OR American Samoa/ OR American Samoa[tiab] OR exp China/ OR China[tiab] OR Fiji/ OR Fiji[tiab] OR Malaysia/ OR (Malaysia or Malayan Union or Malaya)[tiab] OR Marshall Islands[tiab] OR Nauru.t[tiab] OR "Independent State of Samoa"/ OR ((Samoa not American Samoa) or Western Samoa or Navigator Islands or Samoan Islands)[tiab] OR Thailand/ OR (Thailand or Siam)[tiab] OR Tonga/ OR Tonga[tiab] OR (Tuvalu or Ellice Islands)[tiab] OR Melanesia/ OR Melanesia[tiab] OR Polynesia/ OR Polynesia[tiab] OR Kyrgyzstan/ OR Kyrgyzstan or Kyrgyz Republic or Kirghizia or Kirghiz)[tiab] OR Moldova/ OR Moldova[tiab] OR Ukraine/ OR Ukraine[tiab] OR Uzbekistan/ OR Uzbekistan[tiab] OR Albania/ OR Albania[tiab] OR Armenia/ OR Armenia[tiab] OR Azerbaijan/ OR Azerbaijan[tiab] OR "Republic of Belarus"/ OR (Belarus or Byelarus or Byelorussia or Belorussia)[tiab] OR Bosnia-Herzegovina/ OR (Bosnia or Herzegovina)[tiab] OR Bulgaria/ OR Bulgaria[tiab] OR "Georgia (Republic)"/ OR Georgia[tiab] not Georgia/ OR Kazakhstan/ OR (Kazakhstan or Kazakh)[tiab] OR Kosovo/ OR Kosovo[tiab] OR Montenegro/ OR Montenegro[tiab] OR "Republic of North Macedonia"/ OR North Macedonia[tiab] OR Romania/ OR Romania[tiab] OR exp Russia/ OR "Russia (Pre-1917)"/ OR USSR/ OR (Russia or Russian Federation or USSR or Union of Soviet Socialist Republics or Soviet Union)[tiab] OR Serbia/ OR Serbia[tiab] OR Turkey/ OR (Turkey.[tiab] not animal/) or (Anatolia or Asia Minor)[tiab] OR Turkmenistan/ OR Turkmenistan[tiab] OR Tajikistan/ OR Tajikistan[tiab] OR Asia, Central/ OR Asia, Northern/ OR Central Asia[tiab] OR Haiti/ OR (Haiti or Hayti)[tiab] OR Bolivia/ OR Bolivia[tiab] OR El

	<p>Salvador/ OR El Salvador[tiab] OR Honduras/ OR Honduras[tiab] OR Nicaragua/ OR Nicaragua[tiab] OR Argentina/ OR (Argentina or Argentine Republic)[tiab] OR Belize/ OR Belize or British Honduras[tiab] OR Brazil/ OR Brazil[tiab] OR Colombia/ OR Colombia[tiab] OR Costa Rica/ OR Costa Rica[tiab] OR Cuba/ OR Cuba[tiab] OR Dominica/ OR Dominica[tiab] OR Dominica[tiab] OR Dominican Republic/ OR Dominican Republic[tiab] OR Ecuador/ OR Ecuador[tiab] OR Grenada/ OR Grenada[tiab] OR Guatemala/ OR Guatemala[tiab] OR Guyana/ OR (Guyana or British Guiana)[tiab] OR Jamaica/ OR Jamaica[tiab] OR Mexico/ OR (Mexico or United Mexican States)[tiab] OR Paraguay/ OR Paraguay.mp OR Peru/ OR Peru[tiab] OR Saint Lucia/ OR (St Lucia or Saint Lucia or Lyonala or Hewanorra)[tiab] OR "Saint Vincent and the Grenadines"/ OR (Saint Vincent or St Vincent or Grenadines)[tiab] OR Suriname/ OR (Suriname or Dutch Guiana)[tiab] OR Venezuela/ OR Venezuela[tiab] OR Djibouti/ OR (Djibouti or French Somaliland)[tiab] OR Egypt/ OR Egypt[tiab] OR Morocco/ OR Morocco[tiab] OR Tunisia/ OR Tunisia.mp OR (Gaza or West Bank or Palestine)[tiab] OR Algeria/ OR Algeria[tiab] OR Iran/ OR (Iran or Persia)[tiab] OR Iraq/ OR (Iraq or Mesopotamia)[tiab] OR Jordan/ OR Jordan[tiab] OR Lebanon/ OR (Lebanon or Lebanese Republic)[tiab] OR Libya/ OR Libya[tiab] Or Syria/ OR (Syria or Syrian Arab Republic)[tiab] OR Yemen/ OR Yemen[tiab] OR Afghanistan/ OR Afghanistan[tiab] OR Nepal/ OR Nepal[tiab] OR Bangladesh/ OR Bangladesh[tiab] OR Bhutan/ OR Bhutan[tiab] OR exp India/ OR India[tiab] OR Pakistan/ OR Pakistan[tiab] OR Maldives[tiab] OR Sri Lanka/ OR (Sri Lanka or Ceylon)[tiab] OR Angola/ OR Angola[tiab] OR Cameroon/ OR (Cameroon or Kamerun or Cameroun)[tiab] OR Cape Verde/ Or (Cape Verde or Cabo Verde)[tiab] OR Comoros/ OR (Comoros or Glorioso Islands or Mayotte)[tiab] OR Congo/ OR (Congo not ((Democratic Republic adj3 Congo) or congo red or crimean-congo))[tiab] OR Cote d'Ivoire/ OR Cote d'Ivoire or Cote dIvoire or Ivory Coast)[tiab] OR Eswatini/ OR (eSwatini or Swaziland)[tiab] OR Ghana/ OR (Ghana or Gold Coast)[tiab] OR Kenya/ OR (Kenya or East Africa Protectorate)[tiab] OR Lesotho/ OR (Lesotho or Basutoland)[tiab] OR Mauritania/ OR Mauritania[tiab] OR Nigeria/ OR Nigeria[tiab] OR (Sao Tome abj2 Principe)[tiab] OR Senegal/ OR Senegal[tiab] OR Sudan/ OR (Sudan not South Sudan)[tiab] OR Zambia/ OR Zambia or Northern Rhodesia)[ti,ab] OR Zimbabwe/ OR (Zimbabwe or Southern Rhodesia)[tiab] OR Botswana/ OR (Botswana or Bechuanaland or Kalahari)[tiab] OR Equatorial Guinea/ OR (Equatorial Guinea or Spanish Guinea)[tiab] OR Gabon/ OR (Gabon or Gabonese Republic)[tiab] OR Mauritius/ OR (Mauritius or Agalega Islands)[tiab] OR Namibia/ OR (Namibia or German South West Africa)[tiab] OR South Africa/ OR (South Africa or Cape Colony or British Bechuanaland or Boer Republics or Zululand or Transvaal or Natalia Republic or Orange Free State)[tiab] OR Benin/ OR (Benin or Dahomey)[tiab] OR Burkina Faso/ OR (Burkina Faso or Burkina Fasso or Upper Volta)[tiab] OR Burundi/ OR (Burundi or Ruanda-Urundi)[tiab] OR Central African Republic/ OR (Central African Republic or Ubangi-Shari)[tiab] OR Chad/ OR Chad[tiab] OR "Democratic Republic of the Congo"/ OR (((Democratic Republic or DR) adj2 Congo) or Congo-Kinshasa or Belgian Congo or Zaire or Congo Free State)[tiab] OR Eritrea/ OR Eritrea[tiab] OR Ethiopia/ OR (Ethiopia or Abyssinia)[tiab] OR Gambia/ OR Gambia[tiab] OR Guinea/ OR (Guinea not (New Guinea or Guinea Pig* or Guinea Fowl or Guinea-Bissau or Portuguese Guinea or Equatorial Guinea))[tiab] OR Guinea-Bissau/ OR (Guinea-Bissau or Portuguese Guinea)[tiab] OR Liberia/ OR Liberia[tiab] OR Madagascar/ OR (Madagascar or Malagasy Republic)[tiab] OR Malawi/ OR (Malawi or Nyasaland)[tiab] OR Mali/ OR Mali[tiab] OR Mozambique/ OR (Mozambique or Mocambique or Portuguese East Africa)[tiab] OR Niger/ OR (Niger not (Aspergillus or Peptococcus or Schizothorax or Cruciferae or Gobius or Lasius or Agelastes or Melanosuchus or radish or Parastromateus or Orius or Aspergillus or Parastromateus or Stomoxys))[tiab] OR Rwanda/ OR (Rwanda or Ruanda)[tiab] OR Sierra Leone/ OR (Sierra Leone or Salone)[tiab] OR Somalia/ OR (Somalia or Somaliland)[tiab] OR South Sudan/ OR South Sudan[tiab] OR Tanzania/ OR (Tanzania or Tanganyika or Zanzibar)[tiab] OR Togo/ OR (Togo or Togolese Republic or Togoland)[tiab] OR Uganda/ OR Uganda[tiab] OR "Africa south of the Sahara"/ OR Africa, central/ OR Africa, eastern/ OR Africa, southern/ OR Africa, western/ OR ("Africa South of the Sahara" or sub-Saharan Africa or sub-Saharan Africa)[tiab] OR Central Africa[tiab] OR Eastern Africa[tiab] OR Southern Africa[tiab] OR Western Africa[tiab]</p>
	#1 AND #2 AND #3
Limited to: English and French language.	

2. Embase Classic + Embase (Ovid) <1947 to August 22, 2022>

Concept	Variants used to query database
#1 (Health worker)	exp health care personnel/ OR clinician/ OR dental personnel/ OR health workforce/ OR hospital personnel/ OR medical personnel/ OR mental health care personnel/ OR "health worker*".mp OR "health personnel".mp OR "healthcare worker*".mp OR "health care worker*".mp OR "health service provider*".mp OR "medical worker*".mp OR "healthcare professional*".mp OR "health care professional*".mp OR "healthcare provider*".mp OR "health care provider*".mp OR doctor*.mp OR physician*.mp OR nurse*.mp OR "nursing professional".mp OR pharmacist*.mp OR dentist*.mp OR "dental surgeon*".mp OR midwife.mp OR midwives.mp OR "health service providers".mp OR surgeon*.mp OR "medical officer*".mp OR "medical practitioner*".mp OR "nursing practitioner*".mp OR "dental officer*".mp OR "oral healthcare professional*".mp OR "oral healthcare provider*".mp
#2 (Migration)	exp migration/ OR forced migration/ OR migrat*.mp OR migrant*.mp OR emigrat*.mp OR emigrant*.mp OR "brain drain".mp OR exodus.mp OR relocat*.mp
#3 (LMICs)	Developing Countries/ OR ((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies))[tiab] OR ((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world))[tiab] OR (low* adj (gdp or gnp or gross domestic or gross national))[tiab] OR (low adj3 middle adj3 countr*)[tiab] OR (lmic or lmic3 or third world or lami countr*)[tiab] OR transitional countr*[tiab] OR global south[tiab] OR Democratic People's Republic of Korea"/ OR (North Korea or (Democratic People* Republic adj2 Korea))[tiab] OR Cambodia/ OR Cambodia[tiab] OR Indonesia/ OR (Indonesia or Dutch East Indies)[tiab] OR (Kiribati or Gilbert Islands or Phoenix Islands or Line Islands)[tiab] OR Laos/ OR (Laos or (Lao adj1 Democratic Republic))[tiab] OR Micronesia/ OR Micronesia[tiab] OR Mongolia/ OR Mongolia[tiab] OR Myanmar/ OR (Myanmar or Burma)[tiab] OR Papua New Guinea/ OR (Papua New Guinea or German New Guinea or British New Guinea or Territory of Papua)[tiab] OR Philippines/ OR (Philippines or Philippine Islands)[tiab] OR Solomon Islands[tiab] OR Timor-Leste/ OR (Timor-Leste or East Timor or Portuguese Timor)[tiab] OR Vanuatu/ OR (Vanuatu or New Hebrides)[tiab] OR Vietnam/ OR (Viet Nam or Vietnam or French Indochina)[tiab] OR American Samoa/ OR American Samoa[tiab] OR exp China/ OR China[tiab] OR Fiji/ OR Fiji[tiab] OR Malaysia/ OR (Malaysia or Malayan Union or Malaya)[tiab] OR Marshall Islands[tiab] OR Nauru.t[tiab] OR "Independent State of Samoa"/ OR ((Samoa not American Samoa) or Western Samoa or Navigator Islands or Samoan Islands)[tiab] OR Thailand/ OR (Thailand or Siam)[tiab] OR Tonga/ OR Tonga[tiab] OR (Tuvalu or Ellice Islands)[tiab] OR Melanesia/ OR Melanesia[tiab] OR Polynesia/ OR Polynesia[tiab] OR Kyrgyzstan/ OR Kyrgyzstan or Kyrgyz Republic or Kirghizia or Kirghiz[tiab] OR Moldova/ OR Moldova[tiab] OR Ukraine/ OR Ukraine[tiab] OR Uzbekistan/ OR Uzbekistan[tiab] OR Albania/ OR Albania[tiab] OR Armenia/ OR Armenia[tiab] OR Azerbaijan/ OR Azerbaijan[tiab] OR "Republic of Belarus"/ OR (Belarus or Byelarus or Byelorussia or Belorussia)[tiab] OR Bosnia-Herzegovina/ OR (Bosnia or Herzegovina)[tiab] OR Bulgaria/ OR Bulgaria[tiab] OR "Georgia (Republic)"/ OR Georgia[tiab] not Georgia/ OR Kazakhstan/ OR (Kazakhstan or Kazakh)[tiab] OR Kosovo/ OR Kosovo[tiab] OR Montenegro/ OR Montenegro[tiab] OR "Republic of North Macedonia"/ OR North Macedonia[tiab] OR Romania/ OR Romania[tiab] OR exp Russia/ OR "Russia (Pre-1917)"/ OR USSR/ OR (Russia or Russian Federation or USSR or Union of Soviet Socialist Republics or Soviet Union)[tiab] OR Serbia/ OR Serbia[tiab] OR Turkey/ OR (Turkey.[tiab] not animal/) or (Anatolia or Asia Minor)[tiab] OR Turkmenistan/ OR Turkmenistan[tiab] OR Tajikistan/ OR Tajikistan[tiab] OR Asia, Central/ OR Asia, Northern/ OR Central Asia[tiab] OR Haiti/ OR (Haiti or Hayti)[tiab] OR Bolivia/ OR Bolivia[tiab] OR El Salvador/ OR El Salvador[tiab] OR Honduras/ OR Honduras[tiab] OR Nicaragua/ OR Nicaragua[tiab] OR Argentina/ OR (Argentina or Argentine Republic)[tiab] OR Belize/ OR Belize or British Honduras[tiab] OR

	<p>Brazil/ OR Brazil[tiab] OR Colombia/ OR Colombia[tiab] OR Costa Rica/ OR Costa Rica[tiab] OR Cuba/ OR Cuba[tiab] OR Dominica/ OR Dominica[tiab] OR Dominica[tiab] OR Dominican Republic/ OR Dominican Republic[tiab] OR Ecuador/ OR Ecuador[tiab] OR Grenada/ OR Grenada[tiab] OR Guatemala/ OR Guatemala[tiab] OR Guyana/ OR (Guyana or British Guiana)[tiab] OR Jamaica/ OR Jamaica[tiab] OR Mexico/ OR (Mexico or United Mexican States)[tiab] OR Paraguay/ OR Paraguay.mp OR Peru/ OR Peru[tiab] OR Saint Lucia/ OR (St Lucia or Saint Lucia or Lyonala or Hewanorra)[tiab] OR "Saint Vincent and the Grenadines"/ OR (Saint Vincent or St Vincent or Grenadines)[tiab] OR Suriname/ OR (Suriname or Dutch Guiana)[tiab] OR Venezuela/ OR Venezuela[tiab] OR Djibouti/ OR (Djibouti or French Somaliland)[tiab] OR Egypt/ OR Egypt[tiab] OR Morocco/ OR Morocco[tiab] OR Tunisia/ OR Tunisia.mp OR (Gaza or West Bank or Palestine)[tiab] OR Algeria/ OR Algeria[tiab] OR Iran/ OR (Iran or Persia)[tiab] OR Iraq/ OR (Iraq or Mesopotamia)[tiab] OR Jordan/ OR Jordan[tiab] OR Lebanon/ OR (Lebanon or Lebanese Republic)[tiab] OR Libya/ OR Libya[tiab] Or Syria/ OR (Syria or Syrian Arab Republic)[tiab] OR Yemen/ OR Yemen[tiab] OR Afghanistan/ OR Afghanistan[tiab] OR Nepal/ OR Nepal[tiab] OR Bangladesh/ OR Bangladesh[tiab] OR Bhutan/ OR Bhutan[tiab] OR exp India/ OR India[tiab] OR Pakistan/ OR Pakistan[tiab] OR Maldives[tiab] OR Sri Lanka/ OR (Sri Lanka or Ceylon)[tiab] OR Angola/ OR Angola[tiab] OR Cameroon/ OR (Cameroon or Kamerun or Cameroun)[tiab] OR Cape Verde/ Or (Cape Verde or Cabo Verde)[tiab] OR Comoros/ OR (Comoros or Glorioso Islands or Mayotte)[tiab] OR Congo/ OR (Congo not ((Democratic Republic adj3 Congo) or congo red or crimean-congo))[tiab] OR Cote d'Ivoire/ OR Cote d'Ivoire or Cote dlvoire or Ivory Coast)[tiab] OR Eswatini/ OR (eSwatini or Swaziland)[tiab] OR Ghana/ OR (Ghana or Gold Coast)[tiab] OR Kenya/ OR (Kenya or East Africa Protectorate)[tiab] OR Lesotho/ OR (Lesotho or Basutoland)[tiab] OR Mauritania/ OR Mauritania[tiab] OR Nigeria/ OR Nigeria[tiab] OR (Sao Tome abj2 Principe)[tiab] OR Senegal/ OR Senegal[tiab] OR Sudan/ OR (Sudan not South Sudan)[tiab] OR Zambia/ OR Zambia or Northern Rhodesia)[ti,ab] OR Zimbabwe/ OR (Zimbabwe or Southern Rhodesia)[tiab] OR Botswana/ OR (Botswana or Bechuanaland or Kalahari)[tiab] OR Equatorial Guinea/ OR (Equatorial Guinea or Spanish Guinea)[tiab] OR Gabon/ OR (Gabon or Gabonese Republic)[tiab] OR Mauritius/ OR (Mauritius or Agalega Islands)[tiab] OR Namibia/ OR (Namibia or German South West Africa)[tiab] OR South Africa/ OR (South Africa or Cape Colony or British Bechuanaland or Boer Republics or Zululand or Transvaal or Natalia Republic or Orange Free State)[tiab] OR Benin/ OR (Benin or Dahomey)[tiab] OR Burkina Faso/ OR (Burkina Faso or Burkina Fasso or Upper Volta)[tiab] OR Burundi/ OR (Burundi or Ruanda-Urundi)[tiab] OR Central African Republic/ OR (Central African Republic or Ubangi-Shari)[tiab] OR Chad/ OR Chad[tiab] OR "Democratic Republic of the Congo"/ OR (((Democratic Republic or DR) adj2 Congo) or Congo-Kinshasa or Belgian Congo or Zaire or Congo Free State)[tiab] OR Eritrea/ OR Eritrea[tiab] OR Ethiopia/ OR (Ethiopia or Abyssinia)[tiab] OR Gambia/ OR Gambia[tiab] OR Guinea/ OR (Guinea not (New Guinea or Guinea Pig* or Guinea Fowl or Guinea-Bissau or Portuguese Guinea or Equatorial Guinea))[tiab] OR Guinea-Bissau/ OR (Guinea-Bissau or Portuguese Guinea)[tiab] OR Liberia/ OR Liberia[tiab] OR Madagascar/ OR (Madagascar or Malagasy Republic)[tiab] OR Malawi/ OR (Malawi or Nyasaland)[tiab] OR Mali/ OR Mali[tiab] OR Mozambique/ OR (Mozambique or Mocambique or Portuguese East Africa)[tiab] OR Niger/ OR (Niger not (Aspergillus or Peptococcus or Schizothorax or Cruciferae or Gobius or Lasius or Agelastes or Melanosuchus or radish or Parastromateus or Orius or Aspergillus or Parastromateus or Stomoxys))[tiab] OR Rwanda/ OR (Rwanda or Ruanda)[tiab] OR Sierra Leone/ OR (Sierra Leone or Salone)[tiab] OR Somalia/ OR (Somalia or Somaliland)[tiab] OR South Sudan/ OR South Sudan[tiab] OR Tanzania/ OR (Tanzania or Tanganyika or Zanzibar)[tiab] OR Togo/ OR (Togo or Togolese Republic or Togoland)[tiab] OR Uganda/ OR Uganda[tiab] OR "Africa south of the Sahara"/ OR Africa, central/ OR Africa, eastern/ OR Africa, southern/ OR Africa, western/ OR ("Africa South of the Sahara" or sub-Saharan Africa or sub-Saharan Africa)[tiab] OR Central Africa[tiab] OR Eastern Africa[tiab] OR Southern Africa[tiab] OR Western Africa[tiab]</p>
	#1 AND #2 AND #3
Limited to: English and French language.	

3. Global Health (Ovid) <1910 to August 23, 2022>

Concept	Variants used to query database
#1 (Health worker)	exp health care workers/ or dentists/ or home health aides/ or midwives/ or nurses/ or physicians/ OR "health worker*".mp OR "health personnel".mp OR "healthcare worker*".mp OR "health care worker*".mp OR "health service provider*".mp OR "medical worker*".mp OR "healthcare professional*".mp OR "health care professional*".mp OR "healthcare provider*".mp OR "health care provider*".mp OR doctor*.mp OR physician*.mp OR nurses.mp OR "nursing professional".mp OR pharmacist*.mp OR dentist*.mp OR "dental surgeon*".mp OR midwife.mp OR midwives.mp OR "health service providers".mp OR surgeon*.mp OR "medical officer*".mp OR "medical practitioner*".mp OR "nursing practitioner*".mp OR "dental officer*".mp OR "oral healthcare professional*".mp OR "oral healthcare provider*".mp
#2 (Migration)	migration/ OR exp behaviour/ OR migrants/ OR movement/ OR settlement/ OR migrat*.mp OR migrant*.mp OR emigrat*.mp OR emigrant*.mp OR "brain drain".mp OR exodus.mp OR relocat*.mp
#3 (LMICs)	Developing Countries/ OR ((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies))[tiab] OR ((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world))[tiab] OR (low* adj (gdp or gnp or gross domestic or gross national))[tiab] OR (low adj3 middle adj3 countr*)[tiab] OR (lmic or Lmics or third world or lami countr*)[tiab] OR transitional countr*[tiab] OR global south[tiab] OR Democratic People's Republic of Korea"/ OR (North Korea or (Democratic People* Republic adj2 Korea))[tiab] OR Cambodia/ OR Cambodia[tiab] OR Indonesia/ OR (Indonesia or Dutch East Indies)[tiab] OR (Kiribati or Gilbert Islands or Phoenix Islands or Line Islands)[tiab] OR Laos/ OR (Laos or (Lao adj1 Democratic Republic))[tiab] OR Micronesia/ OR Micronesia[tiab] OR Mongolia/ OR Mongolia[tiab] OR Myanmar/ OR (Myanmar or Burma)[tiab] OR Papua New Guinea/ OR (Papua New Guinea or German New Guinea or British New Guinea or Territory of Papua)[tiab] OR Philippines/ OR (Philippines or Philippine Islands)[tiab] OR Solomon Islands[tiab] OR Timor-Leste/ OR (Timor-Leste or East Timor or Portuguese Timor)[tiab] OR Vanuatu/ OR (Vanuatu or New Hebrides)[tiab] OR Vietnam/ OR (Viet Nam or Vietnam or French Indochina)[tiab] OR American Samoa/ OR American Samoa[tiab] OR exp China/ OR China[tiab] OR Fiji/ OR Fiji[tiab] OR Malaysia/ OR (Malaysia or Malayan Union or Malaya)[tiab] OR Marshall Islands[tiab] OR Nauru.t[tiab] OR "Independent State of Samoa"/ OR ((Samoa not American Samoa) or Western Samoa or Navigator Islands or Samoan Islands)[tiab] OR Thailand/ OR (Thailand or Siam)[tiab] OR Tonga/ OR Tonga[tiab] OR (Tuvalu or Ellice Islands)[tiab] OR Melanesia/ OR Melanesia[tiab] OR Polynesia/ OR Polynesia[tiab] OR Kyrgyzstan/ OR Kyrgyzstan or Kyrgyz Republic or Kirghizia or Kirghiz[tiab] OR Moldova/ OR Moldova[tiab] OR Ukraine/ OR Ukraine[tiab] OR Uzbekistan/ OR Uzbekistan[tiab] OR Albania/ OR Albania[tiab] OR Armenia/ OR Armenia[tiab] OR Azerbaijan/ OR Azerbaijan[tiab] OR "Republic of Belarus"/ OR (Belarus or Byelarus or Byelorussia or Belorussia)[tiab] OR Bosnia-Herzegovina/ OR (Bosnia or Herzegovina)[tiab] OR Bulgaria/ OR Bulgaria[tiab] OR "Georgia (Republic)"/ OR Georgia[tiab] not Georgia/ OR Kazakhstan/ OR (Kazakhstan or Kazakh)[tiab] OR Kosovo/ OR Kosovo[tiab] OR Montenegro/ OR Montenegro[tiab] OR "Republic of North Macedonia"/ OR North Macedonia[tiab] OR Romania/ OR Romania[tiab] OR exp Russia/ OR "Russia (Pre-1917)"/ OR USSR/ OR (Russia or Russian Federation or USSR or Union of Soviet Socialist Republics or Soviet Union)[tiab] OR Serbia/ OR Serbia[tiab] OR Turkey/ OR (Turkey.[tiab] not animal/) or (Anatolia or Asia Minor)[tiab] OR Turkmenistan/ OR Turkmenistan[tiab] OR Tajikistan/ OR Tajikistan[tiab] OR Asia, Central/ OR Asia, Northern/ OR Central Asia[tiab] OR Haiti/ OR (Haiti or Hayti)[tiab] OR Bolivia/ OR Bolivia[tiab] OR El Salvador/ OR El Salvador[tiab] OR Honduras/ OR Honduras[tiab] OR Nicaragua/ OR Nicaragua[tiab] OR Argentina/ OR (Argentina or Argentine Republic)[tiab] OR Belize/ OR Belize or British Honduras[tiab] OR Brazil/ OR Brazil[tiab] OR Colombia/ OR Colombia[tiab] OR Costa Rica/ OR Costa Rica[tiab] OR Cuba/ OR Cuba[tiab] OR Dominica/ OR Dominica[tiab] OR Dominica[tiab] OR Dominican Republic/ OR Dominican

	<p>Republic[tiab] OR Ecuador/ OR Ecuador[tiab] OR Grenada/ OR Grenada[tiab] OR Guatemala/ OR Guatemala[tiab] OR Guyana/ OR (Guyana or British Guiana)[tiab] OR Jamaica/ OR Jamaica[tiab] OR Mexico/ OR (Mexico or United Mexican States)[tiab] OR Paraguay/ OR Paraguay.mp OR Peru/ OR Peru[tiab] OR Saint Lucia/ OR (St Lucia or Saint Lucia or Lyonala or Hewanorra)[tiab] OR "Saint Vincent and the Grenadines"/ OR (Saint Vincent or St Vincent or Grenadines)[tiab] OR Suriname/ OR (Suriname or Dutch Guiana)[tiab] OR Venezuela/ OR Venezuela[tiab] OR Djibouti/ OR (Djibouti or French Somaliland)[tiab] OR Egypt/ OR Egypt[tiab] OR Morocco/ OR Morocco[tiab] OR Tunisia/ OR Tunisia.mp OR (Gaza or West Bank or Palestine)[tiab] OR Algeria/ OR Algeria[tiab] OR Iran/ OR (Iran or Persia)[tiab] OR Iraq/ OR (Iraq or Mesopotamia)[tiab] OR Jordan/ OR Jordan[tiab] OR Lebanon/ OR (Lebanon or Lebanese Republic)[tiab] OR Libya/ OR Libya[tiab] Or Syria/ OR (Syria or Syrian Arab Republic)[tiab] OR Yemen/ OR Yemen[tiab] OR Afghanistan/ OR Afghanistan[tiab] OR Nepal/ OR Nepal[tiab] OR Bangladesh/ OR Bangladesh[tiab] OR Bhutan/ OR Bhutan[tiab] OR exp India/ OR India[tiab] OR Pakistan/ OR Pakistan[tiab] OR Maldives[tiab] OR Sri Lanka/ OR (Sri Lanka or Ceylon)[tiab] OR Angola/ OR Angola[tiab] OR Cameroon/ OR (Cameroon or Kamerun or Cameroun)[tiab] OR Cape Verde/ Or (Cape Verde or Cabo Verde)[tiab] OR Comoros/ OR (Comoros or Glorioso Islands or Mayotte)[tiab] OR Congo/ OR (Congo not ((Democratic Republic adj3 Congo) or congo red or crimean-congo))[tiab] OR Cote d'Ivoire/ OR Cote d'Ivoire or Cote dlvoire or Ivory Coast)[tiab] OR Eswatini/ OR (eSwatini or Swaziland)[tiab] OR Ghana/ OR (Ghana or Gold Coast)[tiab] OR Kenya/ OR (Kenya or East Africa Protectorate)[tiab] OR Lesotho/ OR (Lesotho or Basutoland)[tiab] OR Mauritania/ OR Mauritania[tiab] OR Nigeria/ OR Nigeria[tiab] OR (Sao Tome abj2 Principe)[tiab] OR Senegal/ OR Senegal[tiab] OR Sudan/ OR (Sudan not South Sudan)[tiab] OR Zambia/ OR Zambia or Northern Rhodesia)[ti,ab] OR Zimbabwe/ OR (Zimbabwe or Southern Rhodesia)[tiab] OR Botswana/ OR (Botswana or Bechuanaland or Kalahari)[tiab] OR Equatorial Guinea/ OR (Equatorial Guinea or Spanish Guinea)[tiab] OR Gabon/ OR (Gabon or Gabonese Republic)[tiab] OR Mauritius/ OR (Mauritius or Agalega Islands)[tiab] OR Namibia/ OR (Namibia or German South West Africa)[tiab] OR South Africa/ OR (South Africa or Cape Colony or British Bechuanaland or Boer Republics or Zululand or Transvaal or Natalia Republic or Orange Free State)[tiab] OR Benin/ OR (Benin or Dahomey)[tiab] OR Burkina Faso/ OR (Burkina Faso or Burkina Fasso or Upper Volta)[tiab] OR Burundi/ OR (Burundi or Ruanda-Urundi)[tiab] OR Central African Republic/ OR (Central African Republic or Ubangi-Shari)[tiab] OR Chad/ OR Chad[tiab] OR "Democratic Republic of the Congo"/ OR (((Democratic Republic or DR) adj2 Congo) or Congo-Kinshasa or Belgian Congo or Zaire or Congo Free State)[tiab] OR Eritrea/ OR Eritrea[tiab] OR Ethiopia/ OR (Ethiopia or Abyssinia)[tiab] OR Gambia/ OR Gambia[tiab] OR Guinea/ OR (Guinea not (New Guinea or Guinea Pig* or Guinea Fowl or Guinea-Bissau or Portuguese Guinea or Equatorial Guinea))[tiab] OR Guinea-Bissau/ OR (Guinea-Bissau or Portuguese Guinea)[tiab] OR Liberia/ OR Liberia[tiab] OR Madagascar/ OR (Madagascar or Malagasy Republic)[tiab] OR Malawi/ OR (Malawi or Nyasaland)[tiab] OR Mali/ OR Mali[tiab] OR Mozambique/ OR (Mozambique or Mocambique or Portuguese East Africa)[tiab] OR Niger/ OR (Niger not (Aspergillus or Peptococcus or Schizothorax or Cruciferae or Gobius or Lasius or Agelastes or Melanosuchus or radish or Parastromateus or Orius or Aspergillus or Parastromateus or Stomoxys))[tiab] OR Rwanda/ OR (Rwanda or Ruanda)[tiab] OR Sierra Leone/ OR (Sierra Leone or Salone)[tiab] OR Somalia/ OR (Somalia or Somaliland)[tiab] OR South Sudan/ OR South Sudan[tiab] OR Tanzania/ OR (Tanzania or Tanganyika or Zanzibar)[tiab] OR Togo/ OR (Togo or Togolese Republic or Togoland)[tiab] OR Uganda/ OR Uganda[tiab] OR "Africa south of the Sahara"/ OR Africa, central/ OR Africa, eastern/ OR Africa, southern/ OR Africa, western/ OR ("Africa South of the Sahara" or sub-Saharan Africa or sub-Saharan Africa)[tiab] OR Central Africa[tiab] OR Eastern Africa[tiab] OR Southern Africa[tiab] OR Western Africa[tiab]</p>
	#1 AND #2 AND #3
Limited to: English and French language.	

4. CINAHL Complete (EBSCOhost Research Databases) <inception to August 25, 2022>

Concept	Variants used to query database (Exclude MEDLINE records/Apply equivalent subjects)
#1 (Health worker)	healthcare workers OR healthcare professionals OR healthcare personnel or healthcare worker OR health personnel OR "health service provider" OR "medical workers" OR "medical personel" OR medical personnel OR healthcare providers OR doctors OR physicians OR "medical officer" OR medical practitioners OR medical practitioners OR surgeon* OR nurses OR "nursing professional" OR pharmacist* OR dentist* OR "dental surgeon*" OR midwife OR midwives OR "health service providers" OR "nursing practitioner*" OR "dental officer*" OR "oral healthcare professional*" OR "oral healthcare provider*"
#2 (Migration)	migration OR migrat* OR migrant* OR emigrat* OR emigrant* OR "brain drain" OR exodus OR relocat* OR migration or immigration or emigration or refugee
#3 (LMICs)	low and middle income countries OR developing countries OR low and middle income countries or developing countries (Geographic Subset: Africa, Asia, Mexico & Central/South America, Middle East)
	#1 AND #2 AND #3
Limited to: English and French language.	

5. Web of Science (in Web of Science Core Collection) <1969 to August 29, 2022>

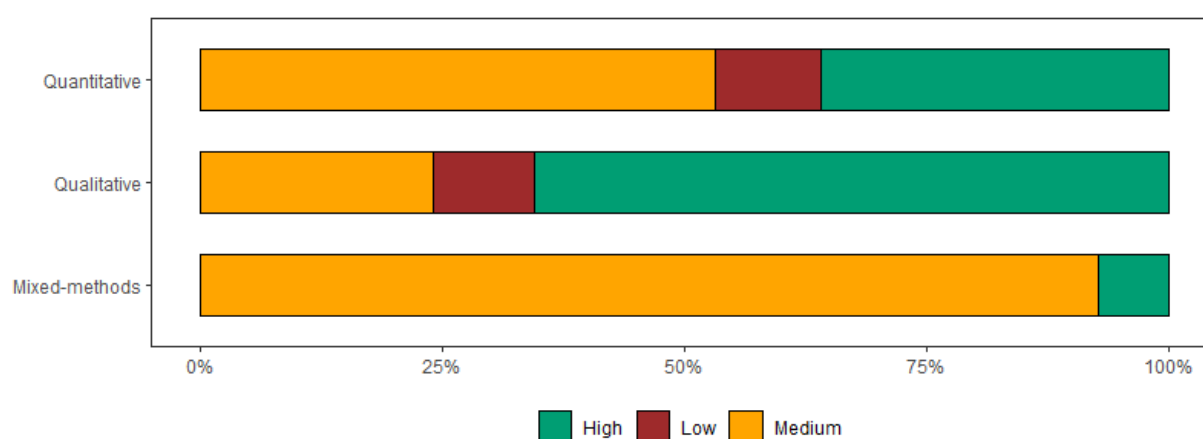
Concept	Variants used to query database
#1 (Health worker)	"health care workers" (All Fields) or "health worker*" (All Fields) or "health personnel" (All Fields) or "healthcare worker*" (All Fields) or "health care worker*" (All Fields) or "health service provider*" (All Fields) or "medical worker*" (All Fields) or "healthcare professional*" (All Fields) or "health care professional*" (All Fields) or "healthcare provider*" (All Fields) or "health care provider*" (All Fields) or doctor* (All Fields) or physician* (All Fields) or nurses (All Fields) or "nursing professional" (All Fields) or pharmacist* (All Fields) or dentist* (All Fields) or "dental surgeon*" (All Fields) or midwife (All Fields) or midwives (All Fields) or "health service providers" (All Fields) or surgeon* (All Fields) or "medical officer*" (All Fields) or "medical practitioner*" (All Fields) or "nursing practitioner*" (All Fields) or "dental officer*" (All Fields) or "oral healthcare professional*" (All Fields) or "oral healthcare provider*" (All Fields)
#2 (Migration)	migration (All Fields) or migrants (Author) or relocat* (All Fields) or exodus (All Fields) or "brain drain" (All Fields) or emigrant* (All Fields) or emigrat* (All Fields) or migrant* (All Fields) or migrat* (All Fields)
#3 (LMICs)	ALL=("low-and middle-income countries") OR ALL=(Albania) OR ALL=(Afghanistan) OR ALL=(Algeria) OR ALL=(Angola) OR ALL=("Antigua and Barbuda") OR ALL=(Argentina) OR ALL=(Armenia) OR ALL=(Azerbaijan) OR ALL=(Bangladesh) OR ALL=(Belarus) OR ALL=(Belize) OR ALL=(Benin) OR ALL=(Bhutan) OR ALL=(Bolivia) OR ALL=("Bosnia and Herzegovina") OR ALL=(Botswana) OR ALL=(Brazil) OR ALL=("Burkina Faso") OR ALL=(Burundi) OR ALL=("Cabo Verde") OR ALL=(Cambodia) OR ALL=(Cameroon) OR ALL=("Central African Republic") OR ALL=(Chad) OR ALL=(China) OR ALL=(Colombia) OR ALL=(Comoros) OR ALL=("Democratic Republic of Congo") OR ALL=(Congo) OR ALL=("Costa Rica") OR ALL=("Côte d'Ivoire") OR ALL=(Cuba) OR ALL=(Djibouti) OR ALL=(Dominica) OR ALL=("Dominican Republic") OR ALL=(Ecuador) OR ALL=(Egypt) OR ALL=("El Salvador") OR ALL=(Eswatini) OR ALL=("Equatorial Guinea") OR ALL=(Eritrea) OR ALL=(Swaziland) OR ALL=(Ethiopia) OR ALL=(Fiji) OR ALL=(Gabon) OR ALL=(Gambia) OR ALL=(Georgia) OR ALL=(Ghana) OR ALL=(Grenada) OR ALL=(Guatemala) OR ALL=(Guinea) OR ALL=(Guinea-Bissau) OR ALL=(Guyana) OR ALL=(Haiti) OR ALL=(Honduras) OR ALL=(India) OR ALL=(Indonesia) OR ALL=(Iran) OR ALL=(Iraq) OR ALL=(Jamaica) OR ALL=(Jordan) OR ALL=(Kazakhstan) OR ALL=(Kenya) OR ALL=(Kiribati) OR ALL=("Democratic People's Republic of Korea") OR ALL=(Kosovo) OR ALL=(Kyrgyzstan) OR ALL=("Lao People's Democratic Republic") OR ALL=(Lebanon) OR ALL=(Lesotho) OR ALL=(Liberia) OR ALL=(Libya) OR ALL=("North Macedonia") OR ALL=(Madagascar) OR ALL=(Malawi) OR ALL=(Malaysia) OR ALL=(Maldives) OR ALL=(Mali) OR ALL=("Marshall Islands") OR ALL=(Mauritania) OR ALL=(Mauritius) OR ALL=(Mexico) OR ALL=(Micronesia) OR ALL=(Moldova) OR ALL=(Mongolia) OR ALL=(Montenegro) OR ALL=(Montserrat) OR ALL=(Morocco) OR ALL=(Mozambique) OR ALL=(Myanmar) OR ALL=(Namibia) OR ALL=(Nauru) OR ALL=(Nepal) OR ALL=(Nicaragua) OR ALL=(Niger) OR ALL=(Nigeria) OR ALL=(Niue) OR Pakistan (All Fields) or Palau (Author) or Panama (All Fields) or "Papua New Guinea" (All Fields) or Paraguay (All Fields) or Peru (All Fields) or Rwanda (All Fields) or Philippines (All Fields) or "Saint Helena" (All Fields) or Samoa (All Fields) or "São Tomé and Príncipe" (All Fields) or Senegal (All Fields) or Serbia (All Fields) or "Sierra Leone" (All Fields) or "Solomon Islands" (All Fields) or Somalia (All Fields) or "South Africa" (All Fields) or "South Sudan" (All Fields) or "Sri Lanka" (All Fields) or "Saint Lucia" (All Fields) or "Saint Vincent and the Grenadines" (All Fields) or Sudan (All Fields) or Suriname (All Fields) or "Syrian Arab Republic" (All Fields) or Tajikistan (All Fields) or Tanzania (All Fields) or Thailand (All Fields) or Timor-Leste (All Fields) or Togo (All Fields) or Tokelau (All Fields) or Tonga (All Fields) or Tunisia (All Fields) or Turkey (All Fields) or Turkmenistan (All Fields) or Tuvalu (All Fields) or Uganda (All Fields) or Ukraine (All Fields) or Vanuatu (All Fields) or Uzbekistan (All Fields) or Venezuela (All Fields) or Vietnam (All Fields) or "Wallis and Futuna" (All Fields) or "West Bank and Gaza Strip" (All Fields) or Yemen (All Fields) or Zambia (All Fields) or Zimbabwe (All Fields) or "developing countr*" (All Fields) or "low income countr*" (All Fields) or "middle income countr*" (All Fields)
	#1 AND #2 AND #3
Limited to: English and French language.	

Supplementary Figure 1a: Methodological quality of the included primary studies based on the five core criteria for each study design using the the Mixed Methods Appraisal Tool (MMAT)



Note: Percentages represents the proportion of studies within each study type that were scored "yes", "no" or "cant tell". There were 52 quantitative studies, 31 qualitative studies, and 24 mixed methods studies.

Supplementary figure 1b: The overall quality of the included studies



Note: A study was classified as "**high quality**" if it met all the five core criteria, rated as "yes." Studies that met three to four criteria were considered "**medium quality**," while those that met one or two criteria were deemed "**low quality**"

Supplementary Table 2: Merging decision of drivers of migration

Local Push Factors	New variable	Original variable
	Gender	Gender
	Unemployment/underemployment	Unemployment/underemployment
	Insecurity	Insecurity
	Sociopolitical situations in their home countries	Social injustice Racism Implementation of the affirmative action policy Religion Linguistic group (language)
	Lack of job satisfaction	Disillusioned with the healthcare system Dissatisfaction with level of autonomy and responsibility Not Being valued as professionals/ No appreciation by society
	Poor career development opportunities	Poor career prospects Poor training/ commitment to excellence in training
	Peer pressure	Peer pressure
	Corruption	Corruption
	Poor pay	Poor pay
	Poor work conditions	Hostile working environment Excessive workload Lack of professional support from supervisor/colleagues Mandatory rural posting
	Poor resource availability	Poor facilities Lack of optimal technology
	Migratory culture	Migratory culture
	Low cadre	Low cadre
	High cadre	High cadre Having a university degree
	Improved financial situation	Improved finances Scholarships
	Risk of contracting HIV	Risk of contracting HIV
	Family pressure	Family pressure Difficult family situation
	Personal ambition/desire to settle abroad	Personal ambition/desire to settle abroad
	Younger age	Younger age
	Poor economic conditions in home countries	Poor living conditions High cost of living Decline in GDP
	Providing financial assistance to family living in source country	providing financial assistance to family living in source country
	Concerns for children's future	Poor educational facility for children Poor future/uncertain future for children

Local Pull Factors	Medical school characteristics in source country	Higher ranked medical colleges Medical colleges with larger post-graduate programs Higher medical schools per million population
	Source country health characteristics	Higher physician, nurse and public health workforce densities Higher total health spending Higher population health status
	Improved economic and social development in source country	Improved economic and social development in source country Higher per capita GDP/ middle income countries
	Countries without medical schools	Countries without medical schools
	Private health sector	Private health sector
	Residents in urban areas	Residents in urban areas
	Family ties	Family ties Familial desire to return
	Advancing age	Advancing age
	Increased years lived outside of source country	Increased years lived outside of source country
	Professional satisfaction	Professional satisfaction Professional accomplishment Improved training Opportunity for career advancement Job security
	Patriotism	Patriotism Desire to settle in source country optimism about the future
	Bonds	Bonds
	Low cadre	Low cadre
	High Cadre	High Cadre
	Public health sector	Public health sector
	Having financial security	Ownership of business or property Higher pay
	Good working conditions	Improved working conditions Improvement in health infrastructures through foreign aid Management support Attention to employee suggestions Flexibility in working hours
	Improved security	Improved security
	Improved economic conditions in source country	Improved standard of living Improving per capita income/economic growth
Social and cultural factors including	Culturally appropriate for raising children Culture and social life Religion	

Foreign Push Factors	Higher income inequality	Higher income inequality
	Political stability	Political stability
	Lack of necessary resources	Lack of necessary resources
	Social and cultural factors	Religion and culture Racism Language barrier
	Cost of migration	Cost of migration Financial barriers
	Qualifying examinations	Qualifying examinations
	Weather conditions	Weather conditions
	Poor career prospects	Poor career prospects Lack of information about career pathway
	Poor working conditions	Inadequate incentives Lack of professionalism and respect Long working hours
	Poor quality of life	Poor quality of life Fractured family life
	Lack of opportunities for family members	Lack of job opportunity for spouse Lack of educational opportunities for children
Foreign Pull Factors	Financial incentives	Higher income Better economic prospect after training
	Scholarships	Scholarships
	Good working environment	Better working environment Flexible work hours
	Better quality of life	Better quality of life Psychological wellbeing
	Security/Stability	Security/Stability
	Good career opportunities	Professional advancement opportunities
		Better training/Improved knowledge and skills Research opportunities Easy of finding job abroad
	Job satisfaction	Professional status/prestige Job security Appreciation by society
	Peer Influence	Peer Influence
	Adventure/ Taste of something new	Adventure/ Taste of something new
	Conducive immigration and settlement policies in host country	Offer of permanent residency Conducive immigration and settlement policies in host country Citizenship
	Family members abroad	Family members abroad
	Weather	Weather
	Active recruitment of health workers	Active recruitment of health workers

	Relocation assistance
Previous travel abroad for professional reasons	Previous travel abroad for professional reasons
No exams to write	No exams to write
Proximity to source country	Proximity to source country
Social and cultural factors	Language Cultural similarities Personal freedom