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The impact of international health worker migration and recruitment on health systems in source countries: Stakeholder perspectives from Colombia, Indonesia, and Jordan

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Abstract

Introduction: To address domestic shortages, high-income countries are increasingly recruiting health workers from low- and middle-income countries. This practice is much debated. Proponents underline benefits of return migration and remittances. Critics point in particular to the risk of *brain drain*. Empirical evidence supporting either position is yet rare. This study contributes to filling this gap in knowledge by reporting high-level stakeholders' perspectives on health system impacts of international migration in general, and active recruitment of health workers in specific, in Colombia, Indonesia, and Jordan.

Method: We used a multiple case study methodology, based on qualitative methods integrated with information available in the published literature.

Results: All respondents decried a lack of robust and detailed data as a serious challenge in ascertaining their perspectives on impacts of health worker migration. Stakeholders described current emigration levels as not

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substantially aggravating existing health workforce availability challenges. This is due to the fact that all three countries are faced with health worker unemployment grounded in unwillingness to work in rural areas and/or overproduction of certain cadres. Respondents, however, pleaded against targeting very experienced and specialised individuals. While observing little harm of health worker migration at present, stakeholders also noted few benefits such as *brain gain*, describing how various barriers to skill enhancement, return, and reintegration into the health system hamper in practice what may be possible in theory. **Conclusion:** Improved availability of data on health worker migration, including their potential return and reintegration into their country of origin's health system, is urgently necessary to understand and continuously monitor costs and benefits in dynamic national and international health labour markets. Our results imply that potential benefits of migration do not come into being automatically, but need in-country supportive policy and programming, such as favourable reintegration policies or programs targeting engagement of the diaspora.

KEYWORDS
Colombia, health system impacts, health worker migration, Indonesia, Jordan

Highlights

- Health worker migration may benefit or harm source country health systems
- No harm on health system currently apparent in Colombia, Indonesia, and Jordan
- However, neither are benefits such as brain or economic gain
- Close monitoring and benefit-supportive policy action is vital in the future

1 | INTRODUCTION

Many high-income countries are struggling with sufficiently staffing their healthcare institutions with domestic personnel.[1,2] The reasons are complex. Contributory factors include increased demand due to ageing populations, increases in chronic conditions, changes in expectations among service users, and recently the COVID-19 pandemic. They also include decreased supply due to deteriorating working conditions deterring young talent

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from joining the profession and having led many active health workers to resign. To address the staffing challenge, high-income countries rely more and more on healthcare professionals from low- and middle-income countries. While certain high-income countries have a long tradition of doing so (e.g. US, UK, Canada, Australia, Gulf States),[3] others have joined the international quest for healthcare personnel more recently (e.g. Germany).

There is significant debate around the ethics of international health worker recruitment particularly in relation to the impacts on health systems in source countries.[4] Proponents underline the potential *brain gain* through migrant health workers permanently or temporarily returning to their country of origin with enhanced skills and knowledge acquired in highly developed health systems, as well as the economic benefits of remittances by expatriate health workers. Critics, in contrast, decry the effective economic subsidy to high-income countries by low-and middle-income countries bearing the costs of training and education. Most importantly, critics point to the risk of further weakening health systems in countries with own health worker shortages through *brain drain*. To address the latter, World Health Organization member states in 2010 adopted the Global Code of Practice on the International Recruitment of Health Personnel, a set of guidelines and principles to promote fair migration practice and mitigate potential negative impacts.[5]

Despite substantial debate and policy responses, empirical evidence on impacts on health systems in source countries remains limited. A generalised lack of quality data on human resources for health and their migration[6–9] limits opportunities for robust and fine-grained analysis. Available research suggests that whether international migration leads to *brain drain* harmful to source countries' health systems appears to vary substantially by the specific country's size and health workforce characteristics.[10–12] The extent to which *brain drain* is counteracted by *brain gain* is even more difficult to ascertain due to lack of data, but also seems highly variable by source country, destination country, and individual health worker characteristics.[13–18] Research on broader economic and health system impacts suggests possible impacts on healthcare education and health system privatisation.[19–21] It also suggests that remittances may not make up for all economic losses of health worker emigration.[22–27] However, research is yet too scarce for definite conclusions.

With international migration of health workers likely to continue to increase in the future, more research on the complexities of impacts in source countries is urgently needed to inform policy aimed at mitigating negative effects and harvesting benefits. This study contributes by answering the following research question: How does international migration of health workers in general, and their active recruitment by high-income countries in specific, affect the health workforce and health system in Colombia, Indonesia, and Jordan? In the absence of tangible data on almost every aspect of health worker migration from and to the three countries, we rely on the lived experience of key stakeholders in answering the research question.

2 | METHODS

2.1 | Study design

We employed a multiple case study methodology, relying primarily on qualitative interviews with key informants integrated with data derived from published literature.

2.2 | Case selection

The selection of the cases reflects the inception of the broader study in which they were embedded. The study was commissioned by the German Federal Ministry for Economic Cooperation and Development and as such pursued a specific interest in German engagement in international health worker recruitment, in addition to understanding

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impacts of international migration and health worker recruitment more generally. To cater to this interest, cases were selected among all source countries with which the Federal Ministry for Economic Cooperation and Development collaborates and with which the German Federal Employment Agency holds placement agreements for health workers. Cases were further selected to result in variation in geography, country size, health system characteristics, as well as migration-specific aspects. Finally, they were selected with a view towards filling gaps in the country-specific literature, mindful of the fact that research attention has concentrated on certain source countries such as the Philippines and India.

2.3 | Data sources and collection

In each country, we engaged in between 11 and 13 key informant interviews. Key informants were selected through a snowball approach to cover a wide range of interest groups and included high-level government officials (Ministry of Health, Ministry of Labour), executives of professional associations, and representatives of service providers potentially affected by international migration and recruitment, such as training and healthcare institutions. Interviews were conducted by local researchers, in the three local languages, guided by semi-structured interview guides for uniformity in covered themes across countries. These included: General human resource for health and health worker migration situation in country; experienced and anticipated impacts of health worker migration on the local health system; and experienced and anticipated impacts of targeted recruitment on the local health system. To satisfy the dual interest in international dynamics as well as German engagement, and mindful of the current minor role of Germany as a destination country, questions were posed in a general manner, and then followed up by specific probes about German activities. In the analysis underlying this manuscript, we focused on general effects rather than on Germany-specific aspects. We complemented the understanding of the health system and human resources for health background emerging from the interviews with published literature identified through directed searches.

2.4 | Data analysis

Analysis was led by the first and last author, in close dialogue with the local researchers and other study team members. Interview transcripts were translated to English for the purpose of analysis. We used a thematic analysis approach to categorise the rich body of information that emerged from each country. After an initial reading and familiarisation with the material, we purposely focused on five impact themes, namely *brain drain* and *brain gain*, effects on the education sector, and economic costs and benefits. We first extracted relevant information for each country on the five themes separately, along with pertinent information allowing to situate narratives on impacts within a wider health system and human resources for health background. We complemented and enriched the latter with information from the published literature for a comprehensive contextual understanding of impacts of international migration. Once we felt that we had adequately understood the story of the individual countries, we engaged in comparisons to identify commonalities across and heterogeneity between them.

2.5 | Ethics

The study protocol was approved by the research ethics committee of the medical faculty of Heidelberg University (protocol number S-689/2022). Relevant local authorities approved the research.

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3 | RESULTS

In making sense of the health system impacts of international migration and recruitment, understanding the source country context is pivotal. We therefore start by providing an overview of the human resources for health background of each country, based on information provided by key informants as well as taken from the published literature (indicated by referencing). Table 1 provides key statistics to complement the following narratives.

3.1 | Human resources for health background

All three countries are middle-income countries with mixed public and private health system structures, aiming to reach Universal Health Coverage (UHC) through health insurance. All are challenged in this aim by human resources for health issues, which we summarise country by country in the following.

3.1.1 | Colombia

Colombia produces sufficient and well-trained health workers in principle, through a mix of public and private training institutions. However, health workers cluster in urban areas, while few are willing to practice in the many very remote areas of the country, resulting in a paradoxical situation of simultaneous vacant positions and unemployment. Efficient service provision is further limited by an inefficient skill mix and certain quality concerns. First, a proliferation of new training institutions since deregulatory policies in the 1990s has led to the desired increase in health worker output, but posed quality assurance challenges. Second, Colombia substantially overproduces medical doctors due to the combination of comparatively limited government regulation of the health care model, patients' general preferences for medical over nursing care, and the good reputation and financial

TABLE 1 Key health system and health worker migration statistics (latest available figures).

	Colombia	Indonesia	Jordan
Population[28]	51,874,024	275,501,339	11,285,869
Income level[29]	Upper-middle	Upper-middle	Lower-middle
Health expenditure per capita (current USD)[30]	477.27	132.96	298.64
Universal Health Coverage Index[31]	80	55	65
Share of health services provided by public sector[32]	18% (2023)[a]	34% (2017)	52% (2017)
Health worker density[33] (per 10,000 population)			
Medical doctors	23.62 (2021)	6.95 (2021)	25.13 (2019)
Nurses	14.49 (2021)	7.46 (2021)	23.67 (2019)
Main international destinations for emigrant health workers[b]	North America, Spain, Portugal	Asian high-income countries (part. Taiwan and Japan), Gulf States	Gulf States, US, UK

[a]Source: Special Registry of health service providers of the Ministry of Health Colombia.

[b]Source: Key informant interviews.

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prospects associated with the medical profession coupled with the ready availability of training opportunities. In fact, currently, Colombia is one of few countries worldwide with more medical doctors than nurses. Although the government continues to exert efforts to institute multi-cadre teams and task shift to lower-level cadres, at present, this results in inefficient use of talent. Finally, suboptimal pay and working conditions in the government health system have led many health workers to moonlight or exclusively work in the growing number of private clinics catering exclusively to wealthy Colombians as well as to medical tourists.

Colombia neither tracks nor regulates in any way the emigration of their health workforce, and as such does not dispose of data that would allow a robust quantification of the share of its health workforce that temporarily or permanently leaves the country for employment abroad. Among medical doctors, a Ministry of Health official estimated that as much as 70% of the yearly around 6000 graduates emigrate to pursue specialization abroad, with key destinations including the USA, Spain, Argentina and Brazil. For nurses, none of the key informants was able to provide an estimate, but several spoke of substantial migration particularly to North America.

3.1.2 | Indonesia

Health workers are educated in a mix of public and private training institutions, the latter contributing approximately 80%.[34] Production of health workers continuously increases, so that the country has moved out of a critical shortage overall, to the point where Indonesia currently produces more nurses than the health system is able to absorb.[35] The rapid increase, however, poses quality concerns, as evidenced by high fail rates between 2015 and 2020 in the Indonesian Nurse Competence Examination. Production of medical doctors, particularly of specialists, still lags behind demand, leading to shortages even in attractive settings. Beyond overall availability, regional disparities in health worker distribution constitute the primary challenge to UHC, as most health workers prefer to work on Java and specifically in the bigger cities. This results in concurrent unemployment of a substantial number of nurses, while many rural positions remain vacant.[35] Finally, poor pay and working conditions in the public sector have driven many health workers towards the private sector. In an attempt to improve the status quo, the government currently strives to improve attractiveness of public and particularly rural workplaces as well as to further expand medical training opportunities.

Historically, international migration of Indonesian health workers was limited to medical doctors seeking specialization or better work and living conditions abroad. Migration-willing nurses, in contrast, faced high practical hurdles in both Indonesia and destination countries, resulting in only limited natural migration. Beginning in the late 2000s, however, the government has increasingly adopted and promoted emigration as a strategy both for dealing with nurse unemployment and harvesting economic benefit through remittances.[36] In a wish to strive after the Philippines as a leading nurse exporting nation, the government has entered several placement agreements with high-income country governments (e.g. Japan, Germany) and started to reduce pre-existing hurdles to migration, leading to steadily increasing numbers of emigrant nurses. The Indonesian Migrant Workers Protection Agency (*Badan Pelindungan Pekerja Migran Indonesia*, BP2MI) is tasked with putting Law No. 18/2017 into practice, which offers protections to all qualified migrant workers from Indonesia. This includes setting up a database to track migrant health workers. At present, however, the country does not possess robust data on the extent of health worker emigration and return.

3.1.3 | Jordan

The Jordanian health system is characterised by strong differences in availability of health workers by geographic area, with most providers clustered in the capital Amman and other urban areas. Retention of health workers in rural areas is difficult. Most service provision takes place at hospital level, while primary care remains

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comparatively underused. Barriers to UHC also include two specific characteristics of the Jordanian health system: First, the country ranks among the top medical tourism destinations in the world, disposing of many world-class clinics catering to international and wealthy Jordanian clients and driving a gap between public and private service provision. Second, Jordan hosts one of the world's largest refugee populations—at the end of 2022, 744,368 refugees primarily from Syria and Palestine were registered with the UN Refugee Agency.[37] Although health service provision to the refugee population is bolstered by international aid institutions, the scope of the refugee population as well as their intensive healthcare needs pose a challenge to the health system at large. Medical doctors and nurses are educated in academic programs, in public as well as—for medical doctors only since 2022—private institutions. At present, Jordanian training institutions produce more medical doctors and nurses than the domestic health system can absorb. For medical doctors, this is in part due to the fact that Jordan serves as a medical training hub for the entire MENA region. Repatriation of a significant share of graduates is therefore priced in.

Jordanian medical doctors have a long history of international migration, particularly for the purpose of specialization, to return to practice in Jordan afterwards. For nurses, international migration beyond the Gulf states is a comparatively new phenomenon, driven by the international demand for health workers and related active recruitment efforts. Unlike medical doctors, which tend to migrate straight after graduation, migrant nurses tend to be experienced and/or specialized individuals. The government presently does not regulate or monitor international migration and return in any way, so that robust quantifications of the extent of the phenomena are not possible.

3.2 | Perspectives on impact of international health worker migration and recruitment on health systems

Hereafter, we report key informants' perspectives regarding the health system impacts of international migration and recruitment, by the five key thematic areas: *brain drain*, *brain gain*, health education sector effects, and economic costs and benefits.

3.2.1 | Brain drain

Key informants across countries concurred that current emigration levels, self-initiated or as a result of active international recruitment, do not substantially aggravate existing health workforce availability challenges. All acknowledge, however, that robust data to substantiate this judgement is lacking.

Most importantly, all underlined that the biggest challenge faced by all three health systems, namely the urban-rural imbalance in health worker availability, is neither caused nor aggravated by international migration in general, or targeted recruitment in specific. Across countries, respondents explained how health systems struggle to fill positions in rural areas, particularly with experienced professionals, while health workers flocking to urban areas struggle to find employment. The resulting unemployment of health workers—while simultaneously, public posts in rural areas remain unfilled—is aggravated by an overproduction of medical doctors (Colombia, Jordan) or nurses (Jordan, Indonesia) in the sense of training institutions outputting more graduates than the local health system is able to absorb. Against this background and mindful of the fact that increasing the attractiveness of rural posts will be an uphill battle, the vast majority of key informants endorsed international migration as a medium-term solution to the present supply and demand mismatch.

Several key informants also highlighted the role of migration tradition. Colombia and Jordan have a long tradition of emigration particularly of medical doctors moving abroad to undergo specialization, either returning eventually or staying abroad for good. While the current international scramble for healthcare personnel may have

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increased pull factors for migration, key informants explained how both health systems have known the issue for many years and adapted to it. Comparatively new to both countries, however, is an increased level of nurse emigration, driven by active international recruitment efforts. Given the relative novelty, negative impacts are not yet apparent. However, respondents warned of the likely adverse consequences for their health systems particularly if international actors continued to target experienced and specialised nurses, which tend to be in short supply and difficult to replace.

Indonesia, in contrast, does not have an emigration tradition of similar scope. Particularly nurse emigration is a comparatively recent and purposive phenomenon. However, it is yet small in scale in comparison to the oversupply of nurses. For medical doctors, the situation is more complex. While natural (i.e., self-initiated) emigration of a certain number of medical doctors has always been a reality for Indonesia as well, in light of the per capita shortage, the government does not endorse active recruitment of medical doctors by foreign governments, agencies, or institutions. Given the operational difficulty of recruiting without government endorsement, it is unlikely that an impactful number of medical doctors is actively recruited. Key informants were unable to paint a clear picture on whether those medical doctors emigrating on own their initiative were numerous enough to affect health system functioning, given the substantial absolute number of doctors in the fourth most populous country in the world.

Several key informants in Jordan pointed to an issue of particular concern in the public sector with potential transferability also to other settings. Specifically, the Jordanian public sector allows its employees generous long-term leave options, which many migrant nurses seem to take advantage of rather than resigning immediately. Uncertainty around whether and when they will return to service presents a challenge for human resources management, although the scale of the issue remained unclear.

Finally, the case of Colombia cautions how the human resources demand and supply status quo might rapidly change in countries invested in improving their human resources for health situation. Specifically, respondents reported that major health sector reforms are in planning and if realized would likely result in a substantial increase in local employment opportunities for health workers, reducing the current supply and demand imbalance.

3.2.2 | Brain gain

The vast majority of key informants in all three countries underlined as an anticipated key benefit of migration the injection and onward transfer of knowledge and skills acquired by returnee migrant health workers while on their international assignment. However, respondents expressed uncertainty and variation around the extent to which it currently materialises. In explanation, respondents touched on the three aspects necessary for successful *brain gain*, namely return, reintegration, and skill enhancement.

First, given a lack of tracking systems or other tangible data sources, all key informants expressed uncertainty over the extent of return of migrant health workers as the first prerequisite to *brain gain*. For Colombia, key informants perceived substantial return rates for medical doctors, while nobody was able to comment on the extent of return of nurses. For Indonesia, there was no consensus among respondents as to the overall extent, but narratives suggested major differences in return rates by destination country, grounded in cultural and religious factors as well as the respective destination country's visa and employment policy. For Jordan, most key informants suggested that return rates among nurses are low, at least in the short-to-medium term. Among medical doctors, return after specialisation abroad used to be a common phenomenon in the past, but the specialist labour market is now largely saturated and return rates have declined, accordingly.

Second, while Colombian and Jordanian respondents did not mention any reintegration issues, barriers to reintegration were discussed at length as the main issue in health worker migration by Indonesian key informants, deterring from return and leading many of those who do to leave the profession upon return. Specifically, longer periods of practice in non-nursing or sub-skill level roles, as often the case in destination countries while undergoing accreditation and licencing, posed major hurdles to relicensing in Indonesia in the past. Respondents cited

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the example of Japan, with which Indonesia has the longest-standing placement agreement and therefore comparatively much return experience. In Japan, Indonesian nurses are only allowed to work in assistant or caretaker function until obtaining a Japanese licence, which can take multiple years. In Indonesia, these assistant or caretaker years are not counted as professional experience, leading to a period of absence from the nursing profession too long for relicensing. Of note, the issue was recently addressed by the government as part of Law No. 17/2023.

Finally, key informants indicated successful and useful skill enhancement of medical doctors while on international assignments. For nurses, in contrast, respondents called into question the extent to which realities in certain destination countries would effectively allow the desired skill upgrade, as migrant nurses are often not allowed to practice at their full qualification level or learning opportunities for skills useful to the local health system are limited. In regard to the latter, for instance, multiple respondents across countries spoke about the fact that the task spectrum for nurses in Germany differs so dramatically from that in their countries that relevant skill upgrade appeared unrealistic.

Of further note, several Colombian key informants highlighted that Colombia not only incurs a significant outflow of health workers. Rather, it also receives a substantial number of migrant health workers from other countries in the region, most notably Venezuela, who fill vacant positions in unattractive rural areas and/or left behind by migrant health workers.

3.2.3 | Education sector effects

All three countries have seen an opening of the education sector to private institutions in the more or less recent past. In addition to domestic considerations, the rapidly growing international demand for health workers has contributed to a rapid growth in training institutions and health worker output from training institutions. Particularly Indonesia and Colombia have further seen the development of nursing training institutions explicitly educating nurses for the international market. One key informant stated that in Colombia, for instance, there are currently around 30 high-quality, accredited nursing programs educating for the North American markets, including technical elements critical to these markets as well as English language courses. Similarly, training institutions in Indonesia offer customised programs for the international market, often in close cooperation with international recruitment actors and supported by returnee and diaspora health workers. One Jordanian respondent reported current attempts to establish a training institution offering a nursing degree aligned with German nursing standards.

Key informants were divided in their opinion on these developments. Some noted difficulties with implementation of quality assurance in the rapidly increasing education sectors, which may eventually lead to an overall decline in education quality. Others, particularly in Indonesia, rather highlighted the positive effects of injecting international quality standards into the system. For instance, several Indonesian key informants talked about how returnee and diaspora health workers contributed to revising the geriatric nursing curriculum.

3.2.4 | Economic costs

Lost investment in the sense of initial training costs did not appear a concern to any of our key informants. However, several Colombian and Jordanian key informants expressed concern about the costs of losing highly experienced health workers, highlighting the financial and non-financial investments into educating respective individuals after their initial training. In Colombia, several key informants considered the issue in an even broader light, speaking of the loss of social capital more generally.

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3.2.5 | Economic benefits

Across countries, most key informants stressed the importance of the remittances diaspora health workers returned their extended families at home. Especially in Jordan, respondents underlined remittances as an important driver of the local economy and as one of the main reasons for their endorsement of international migration. Indonesian key informants cited the wish for remittances at large scale as the main reason behind the government's wish to strive after the Philippines as a key nurse exporting nation. The extent to which the health sector might ultimately benefit from household remittances, however, was not discussed by any of our key informants.

Only one key informant in Indonesia spoke explicitly about economic benefits beyond remittances, namely diaspora investments into health infrastructure, showing optimism about an acceleration of such investments following a recent legal change.

4 | DISCUSSION

Our study examined high-level stakeholder perspectives on the impact of international health worker migration in general, and active recruitment by international actors in specific, on health systems in three source countries, Colombia, Indonesia, and Jordan. We feed important empirical insight into the current dialogue around how to steer international migration of health workers in ways that not only do not harm health systems in source countries, but that rather result in tangible benefits.

4.1 | Migration currently does little harm to health systems in Colombia, Indonesia, and Jordan …

Overall, the impact of international health worker migration on the domestic health system appears limited at present in the three case study countries. Key informants across countries converged in that emigration levels, self-initiated or as a result of active international recruitment, at present do not substantially aggravate existing health workforce availability challenges, despite uncertainty about the extent to which health worker emigration is a "one-way street" or rather partially balanced by return or circular migration. This stands in contrast to the *brain drain* narrative dominating the applied but also part of the academic discourse.[4,10]

Rather than interpreting the findings as an all-clear argument in favour of international migration and recruitment, however, it is important to consider them in their specific human resources for health contexts. Despite severe shortages of health workers in various geographic areas, all three countries are faced with a significant number of unemployed health workers resulting from health worker unwillingness to work in rural areas—a common and pressing issue for most health systems in the world, including high-income countries[38]—and over-production of medical doctors (Colombia, Jordan) and nurses (Indonesia, Jordan) in the sense of training institutions outputting more graduates than the local health system is able to absorb. Migration may appear a quick fix to governments, at least in the short and medium term. However, it should of course not distract from the urgent need to create attractive domestic employment opportunities for those currently unemployed, by continuing to improve working conditions in rural areas and to create fiscal space for increasing public sector employment opportunities.

The study further highlights how in liberalised and privatised healthcare education systems, training institutions are quick to respond to changes in demand, as observed also for instance in the Philippines and India.[19] While the exact consequences remained unclear, in line with current international discussion,[39] our findings underlined the vital importance of regulatory frameworks and capacity in ensuring that a changed education landscape does not lead to a deterioration of education quality, unfavourable changes in education content, or a demand-need imbalance in production of various health worker cadres.

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4.2 | ... but do health systems in Colombia, Indonesia, and Jordan ultimately win?

Beyond constituting a way of utilising the unemployed health workforce, most of our respondents anticipated two health system benefits from international migration, namely brain gain and economic gain. Considering the findings in an international context, however, calls their optimism somewhat into question.

4.2.1 | Brain gain?

The first theme dominating the narrative around benefits of international migration was that of eventual *brain gain* through return migration outweighing the temporary *brain loss* through out-migration. Key informants conceded that a lack of data precluded a validation of their notion of a positive bottom line.

Brain gain, first and foremost, necessitates that during the assignment abroad, knowledge and skill enhancement has taken place, beyond what health workers would have also acquired in their countries of origin and useful to its health system. For medical doctors, such knowledge and skill enhancement was reported by key informants across the three countries. The cases of Colombia and Jordan, however, highlight how high emigration and return levels may lead to a situation where the marginal benefit of further return migration is minimal in the foreseeable future. For nurses, whether knowledge and skill enhancement matching the needs of the local health system actually takes place on foreign assignments is more variable by destination country. If skill and knowledge enhancement has taken place, its benefits to the source countries' health system largely depend on temporary or permanent health worker return, for which no tangible data is available in either of the three countries. As also documented for other source countries,[13–16] key informants highlighted the importance not only of cultural and socio-economic factors and the local labour market in determining return rates, but also destination country factors, leading to highly variable return rates. The case of Indonesia further highlights how integration of skills and knowledge gained by emigrants does not occur automatically but rather necessitates favourable local reintegration policies and practices, as also noted for instance by studies on Ghanaian health workers[16] and migrant health workers in Austria and Belgium.[15] Finally, whether enhanced skills and knowledge benefit the general population depends not only on return in general, but on whether health workers return to serve the general public as opposed to exclusively wealthy local clients or medical tourists.

Whether key informants' notion of an ultimate *brain gain* holds true therefore remains to be validated using longitudinal study designs and hinges much around the notion of return. Even if permanent return should be limited, however, from a policy perspective, enhancing the feeding back of knowledge and skills is certainly one of the most promising areas of action in the quest for harvesting the benefits of international migration for source countries' health systems. Interestingly, in our study, key informants almost exclusively conceptualised migration as a "there and back" process, while contemporary conceptualisations of circular migration did not appear to play a significant role in their thinking. Circular migration describes the common skilled labour migration reality of not simply leaving and returning once in a lifetime, but of a repeated back and forth, often between more than just one source and one destination country.[6] Specific policy options under discussion include for instance leveraging diaspora contributions in teaching or through regular short-term return, or stipulating periods of return in exchange for benefits in placement agreements.[40,41] To date, empirical evidence on extent, nature, and policy levers for circular migration is rare, and longitudinal research exploring this issue urgently necessary.

4.2.2 | Economic gain?

In all three countries, the idea that an economic net gain will ultimately result was the second theme dominating the narrative around the benefits of international migration. As for *brain gain*, however, most key informants admitted that in the absence of tangible data, it is not possible to validate their notion of net economic gain.

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Important to consider in this context is the fact that most key informants appeared to balance the financial costs of training against the financial benefits of remittances. In all three countries, students contribute a significant portion to their education expenses, particularly in the rapidly developing private education sector. Further, as discussed above, there was a strong general belief that many emigrant health workers would ultimately return, so that they might be considered on temporary leave rather than permanently lost. Consequently, public financial loss due to costs of training might in fact be limited, and therefore of limited concern to health system actors.

Only few key informants cautioned that a consideration of the wider economic and societal effects is necessary for a comprehensive judgement, in line with studies from other contexts. The generally positive meso-and macro-economic impacts of remittances on economic growth and poverty reduction have been widely shown in the development economics literature.[42,43] The relationship between general economic growth and health system improvements, in contrast, is not straightforward, although a certain positive spillover effect is reasonable to assume. Considering wider economic costs of health worker migration considerably changes the balance. Saluja and colleagues, for instance, estimated the economic costs of physician emigration due to associated excess mortality[22] at 15.86 billion USD annually. The international literature therefore strongly suggests the value of further research, using a wide definition of economic costs and benefits, before judging on whether international migration and particularly active recruitment of health workers does in fact constitute an ultimate economic benefit to source countries.

In further research, it will also be interesting to investigate more closely the extent to which diaspora health workers financially engage with the health system. Interestingly, this theme was barely touched upon by our key informants. The Jordanian government actively encourages the diaspora to invest in Jordan through its Ministry of Foreign Affairs and Expatriates.[44,45] Indonesia has seen a recent legal change (Law No. 17/2023) dropping almost all barriers on private investment into specialist clinics, paving the way for diaspora health workers to fuel the growth of charitable or private health services. The latter may be a driver of enhanced quality standards overall, but international experiences rather caution that a growing privatisation of the health system may well weaken it by withdrawing human and other resources from the public system and by encouraging further migration with attractive employment options upon return.[46] Better understanding the extent and nature of diaspora engagement will not only be important to capturing the full costs and benefits of international migration, but may constitute an important intervention lever in harvesting the benefits of migration.

4.3 | Which impacts may manifest in the future?

Beyond current effects, three points deserve a brief mention with a view towards the future.

4.3.1 | Migration tipping points

Respondents underlined that key health workforce challenges, notably the urban-rural maldistribution, are largely independent of international migration, implying that those individuals who decide to seek employment abroad are unlikely to take up rural employment. While this is plausible at present, narratives underline the dynamic nature of the health systems, and cautionary tales for instance from the Philippines[13] and Romania[47] suggest a close monitoring of the situation and care in the rapid scale-up of internationalisation in Indonesia. Castro-Palaganas and colleagues for instance describe the history of nurse emigration from the Philippines.[13] They caution that when international migration becomes the norm rather than the exception, a key motivation for joining the healthcare profession in the first place, and a necessity rather than a choice in order to be able to pay for training costs, then migration might contribute to a more fundamental and not necessarily positive change in the health labour market.

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4.3.2 | Other healthcare professions

In our study, key informants spoke primarily about medical doctors and nurses as the main migratory health worker populations in absolute numbers. Interviews with international key informants as part of the overall study in which this analysis was embedded, however, suggest that international recruitment actors are increasingly interested in other cadres, such as paramedical personnel, physiotherapists, and medical technical professionals. Tangible data on availability rarely exists in low- and middle-income countries, but it is reasonable to assume that these tend to be in particularly short supply in many classic source countries. A close monitoring of the migratory situation will therefore be key in detecting and counteracting harmful *brain drain*.

4.3.3 | Follow-on effects due to dual role as source and destination country

Finally, all three countries are not only source countries of health workers for international markets, but as comparatively well-developed and stable middle-income countries in their respective regions also final or intermediate ("bus stop") destination countries for health workers from other countries in the region. While the biggest potential for health worker immigration certainly lies in addressing the migration-unrelated challenge of staffing rural posts and other unattractive positions, immigrant health workers from neighbouring countries also represent a way of balancing losses due to emigration. In thinking through the effects of increased active recruitment of health workers,[48] it will therefore be important to also consider the follow-on effects for countries in the region with even weaker health systems.

4.4 | Methodological considerations

Our study was challenged in particular in three regards. First, in the absence of robust data and resources for extensive primary data collection, we relied on information supplied by two handfuls of key informants per country. While we took great care in selecting them to represent the full spectrum of possible perspectives, and while we did reach saturation in all countries, we cannot exclude that certain perspectives were not or underrepresented. For instance, we did not include respondents from the ministries of finance, who might have had a more differentiated perspective on the benefits of remittances at large and for the health system in specific.

Second and as anticipated,[6–9] key informants decried a lack of data on their health workforce, and particularly on their movement and activity patterns. Without such data, ascertaining how their emigration and potential repatriation might affect the domestic health system remains speculatory. In all three countries, attempts to improve the human resources for health data situation will hopefully contribute to a somewhat clearer picture on the emigration and repatriation of health workers. Understanding of many other aspects, however, will be difficult to foster with routine data and necessitate purposive research.

Finally, in the absence of tangible data, key informants struggled to differentiate the effects of general international migration, including such that is self-initiated, from that of active recruitment by international actors, particularly beyond the immediate *brain drain* and specific response of the education sector. Yet, an in-depth understanding of respective contributions is vital given that active recruitment can be regulated, while preserving individual health workers' right to migration in general as stipulated by the WHO Global Code of Practice.[5] Our study underlined previously constated need for innovative and more intensive research methods to achieve such understanding.[6]

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5 | CONCLUSION

Stakeholders noted no significant negative impact of the current health worker migration levels on the availability of health workers and on wider health system aspects in Colombia, Indonesia, and Jordan. Tangible data is urgently necessary to ascertain these stakeholder perspectives. However, there is doubt about the current benefits of such migration. In particular, the study highlights the need to better understand the extent to which prerequisites for potential *brain gain*, namely skill enhancement, return or circular migration, and reintegration, materialise in practice. It further emphasises the significance of conducting more comprehensive research to understand the economic and systemic impacts of health worker migration on source countries' health systems. Finally, to allow strategic health workforce planning and regulation, it underlines the need for continuous monitoring and evaluation of the health workforce migration status quo in highly dynamic domestic and international human resources for health labour markets.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available upon reasonable request from the corresponding author. The data are not publicly available due to confidentiality concerns.

ETHICS STATEMENT

The study protocol was approved by the research ethics committee of the medical faculty of Heidelberg University (protocol number S-689/2022). Relevant local authorities approved the research.

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