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# HIV/AIDS health care challenges for cross-country migrants in low- and middle-income countries: a scoping review

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**Introduction:** HIV/AIDS has been one of the world's most important health challenges in recent history. The global solidarity in responding to HIV/AIDS through the provision of antiretroviral therapy (ART) and encouraging early screening has been proved successful in saving lives of infected populations in past decades. However, there remain several challenges, one of which is how HIV/AIDS policies keep pace with the growing speed and diversity of migration flows. This study therefore aimed to examine the nature and the extent of HIV/AIDS health services, barriers to care, and epidemic burdens among cross-country migrants in low- and middle-income countries.

**Methods:** A scoping review was undertaken by gathering evidence from electronic databases and gray literature from the websites of relevant international initiatives. The articles were reviewed according to the defined themes: epidemic burdens of HIV/AIDS, barriers to health services and HIV/AIDS risks, and the operational management of the current health systems for HIV/AIDS.

**Results:** Of the 437 articles selected for an initial screening, 35 were read in full and mapped with the defined research questions. A high HIV/AIDS infection rate was a major concern among cross-country migrants in many regions, in particular sub-Saharan Africa. Despite a large number of studies reported in Africa, fewer studies were found in Asia and Latin America. Barriers of access to HIV/AIDS services comprised inadequate management of guidelines and referral systems, discriminatory attitudes, language differences, unstable legal status, and financial hardship. Though health systems management varied across countries, international partners consistently played a critical role in providing support for HIV/AIDS services to uninsured migrants and refugees.

**Conclusion:** It was evident that HIV/AIDS health care problems for migrants were a major concern in many developing nations. However, there was little evidence suggesting if the current health systems effectively addressed those problems or if such management would sustainably function if support from global partners was withdrawn. More in-depth studies were recommended to further explore those knowledge gaps.

**Keywords:** migrant, refugee, low- and middle-income countries, HIV/AIDS, health systems, scoping review

## Introduction

HIV/AIDS has been one of the most important global threats for decades. It has jeopardized not only human health but also countries' economic growth and the well-being of society as a whole.<sup>1-3</sup> Consequently, to effectively tackle the disease, a firm collaboration of medical and health systems research at all levels is required.<sup>4,5</sup>

The United Nations Programme on HIV/AIDS (UNAIDS) reported that approximately 34 million people around the world were living with HIV/AIDS in 2011 and about 1.7 million people died from the disease in that year.<sup>6</sup> Its epidemic burdens vary greatly between countries and regions. Sub-Saharan Africa is the most affected region, contributing to 69% of people living with HIV/AIDS worldwide. The prevalence of HIV/AIDS in adults is consistently high in many regions: approximately 4.9% in sub-Saharan Africa, and 1.0% in the countries of the Caribbean, Eastern Europe, and Central Asia. In South, Southeast, and East Asia, there were almost 5 million infected in these three regions combined.<sup>6</sup>

Though HIV/AIDS has been one of the world's greatest health challenges, the global solidarity in responding to HIV/AIDS through the provision of antiretroviral therapy (ART) and the promotion of early screening has been proved successful in saving the lives of infected populations in the past few decades.<sup>7</sup> Combating HIV/AIDS was also set as one of the eight Millennium Development Goals, with a target of halting and reversing the spread of the disease by 2015.<sup>8</sup> However, there remain several challenges, one of which is how to develop HIV/AIDS policies to be able to keep pace with the growing speed, diversity, and disparity of modern migration flows.<sup>9</sup> Several pieces of evidence suggest that migrants and mobile populations are vulnerable to HIV/AIDS infection, and traditional approaches are insufficient to address these complex challenges.<sup>10–14</sup> Besides, migrant health is a complex topic and closely linked with unequal distribution of socioeconomic resources. Therefore, to respond to this complexity, policy approaches should be multidisciplinary and be collaborative with stakeholders from all relevant sectors.<sup>15,16</sup>

The growing demand for a reorientation of policies aimed at securing migrants' health can be illustrated by a number of recent high-profile health-related international activities. For instance, the 2001 UN General Assembly Special Session on HIV/AIDS called for national, regional, and international strategies that facilitated access to HIV/AIDS-prevention programs for migrants and mobile workers by 2005. In 2009, the Program Coordination Board of the UNAIDS governing body held its 24th meeting in Geneva, with a focus on HIV-related needs for people on the move. The board underscored that the improvement of HIV information and services for these people would boost the development, promotion, and implementation of national, regional, and international strategies.<sup>17</sup> In addition, the World Health Organization (WHO) has played active roles in addressing migrants' health in recent years. This is remarkable through

relevant World Health Assembly (WHA) resolutions, eg, *Workers Health: Global Plan of Action*,<sup>18</sup> urging member states to work toward full coverage of all workers including migrants, and *Health of Migrants*, requesting member states for migrant-sensitive health policies and practices whilst asking the WHO to promote migrant health in collaboration with other relevant organizations.<sup>19</sup>

With respect to the aforementioned reasons, broader efforts are necessary to understand the interplay between the current HIV/AIDS health service policies and the HIV/AIDS problems affecting migrants' health. Hitherto, there exist a great number of international publications describing policies in respect of the current HIV/AIDS health services for migrants, such as Mladovsky et al,<sup>20</sup> Rechel et al,<sup>21</sup> and Gray and van Ginneken,<sup>22</sup> and the special report on implementing the Dublin Declaration on partnerships to fight HIV/AIDS in Europe and Central Asia launched by the European Center for Disease Prevention and Control in 2010.<sup>23</sup> However, most publications focused on the situation in developed nations. Conversely, pieces of evidence describing the situation in developing countries were hardly found. This is in contrast to the demand for research reported by the International Organization for Migration (IOM) in 2009, which pointed out that the number of migrants flowing between developing countries was not far different from the number of migrants flowing to developed countries.<sup>24</sup> The evidence was also supported by the report of the secretary-general of the UN General Assembly in 2006, detailing that approximately a third of the 191 million migrants in the world had flowed from one developing country to another, and another third had moved from a developing country to a developed country. That is to say, "south-to-south" migrants were about as numerous as "south-to-north" migrants.<sup>25</sup>

This study therefore sought to counter the dearth of evidence by examining the actual practices and challenges of HIV/AIDS health care provision among migrants in low- and middle-income countries (LMICs). The study was executed through a scoping review, focusing on evidence from published literature and from websites of relevant international partners, ie, the WHO, World Bank, and IOM. The authors used a scoping review approach as it is more feasible in finding evidence under broad objectives than traditional systematic reviews that better match with a narrower focus or more specific research questions.<sup>26</sup> It was hoped that the study would lead to clearer insights on how HIV/AIDS policies were implemented and operated in response to HIV/AIDS epidemics and health care barriers for migrant populations in developing countries. The byproducts of the review would

help to identify the remaining challenges and to suggest ways toward positive policy coherence, as well as future study areas where current evidence is still sparse.<sup>20,27</sup>

## Materials and methods

A roundtable discussion involving all researchers was convened to develop the conceptual framework and identify the review's subjects. The conceptual framework was adapted and simplified from the "six-building-block" approach of health systems and the *Conceptual Framework for Action on the Social Determinants of Health* proposed by the WHO.<sup>28,29</sup> Nonetheless, only service delivery, human resources, and health financing were key concerns for this review, as they better reflected the broad operational management of the system, whereas other building blocks like medical products and information systems were more technically oriented and should be explored separately. The social determinants of health (SDHs) framework was used to characterize factors regarding hindrances to HIV/AIDS care through a gradient approach, ranging from individual level to community, national, and international level in that order.

Key research questions were identified: 1) What are the epidemic burdens of HIV/AIDS in cross-country migrants living in LMICs?; 2) What are the obstacles hampering the access to health services and what are the related HIV/AIDS risks in the migrant population?; and 3) What is the operational management of existing health systems for addressing HIV/AIDS problems in the migrant population? To address the third research question thoroughly, the following domains were set: service provision and benefit packages, types and roles of the implementing agencies/institutes, human resources for health in managing such services, and health-financing management (Figure 1).

## Search strategy

The study explored the literature using two main approaches: systematic search and purposive search. In the systematic search, two key online databases (ie, Medline and ScienceDirect) were identified. The search terms used in the Medline database were constructed as follows: ("HIV Infections"[Mesh] AND (hasabstract[text])) AND ("Transients and Migrants"[Mesh] AND (hasabstract[text]) AND Humans[Mesh]) OR ("Refugees"[Mesh] AND (hasabstract[text] AND Humans[Mesh])). The publication date was limited to between January 1, 2002 and December 31, 2012, and confined to only human studies. For the ScienceDirect database, search terms and date specifications were employed in the same fashion. However, the

specific topic areas, ie, social science and medicine, public health, evaluation and program planning, were imposed to narrow the diversity of retrieved articles. In the purposive search, relevant reports and policy briefs were retrieved from the websites of three global development agencies, ie, the WHO, the International Finance Corporation: the World Bank Group, and the IOM. Due to limited capacity in language translation, studies published in languages other than English were excluded.

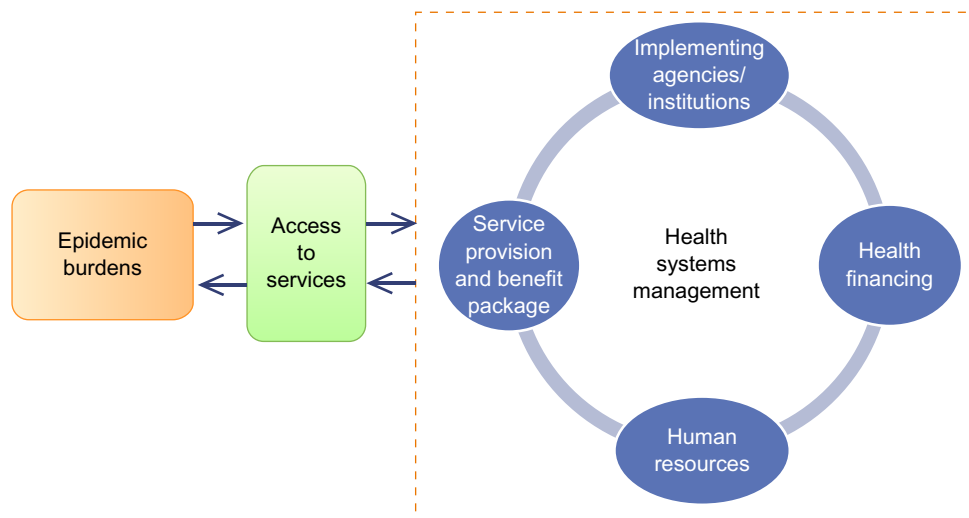
## Inclusion and exclusion criteria

Inclusion and exclusion criteria were defined to ensure the relevance of retrieved articles. Eligible studies were included when they met the following criteria: 1) providing piece(s) of evidence within or about LMICs when they served as destination sites of migration (the identification of LMICs was checked against the World Bank list of country economies in July 2012)<sup>30</sup>; 2) presenting evidence relevant to the situations and magnitudes of HIV/AIDS-related problems as well as evidence about barriers to health services and/or HIV/AIDS risks in the target population. In this case, the target population was defined as cross-country or cross-national transients and migrants, refugees, and returnees to their countries of origin; and 3) demonstrating the actual practices of existing HIV/AIDS health service systems for the target population.

Concerning the exclusion criteria, studies were kept out of the review if they focused on either 1) a high-income country, 2) domestic migration, or 3) diagnostic tests, clinical trials, and basic science research, all of which were considered irrelevant to the review's objectives.

## Study selection, data extraction, and synthesis

Two authors (RS and PL) independently reviewed titles and abstracts of all the articles retrieved from the databases based on the inclusion and exclusion criteria. Disagreements between the two reviewers were resolved by discussion and consensus with a third party (WP). Potential articles were selected for full-text review and were screened for duplication. EndNote software version X4 (Thomson Reuters, Carlsbad, CA, USA) was used to store and track the search results in a computerized and retrievable format. Selected articles were read and assessed in full in the roundtable discussions among authors. Key information of the selected articles was extracted and entered into the data-extraction form, which was designed in correspondence with the research questions.



**Figure 1** Conceptual framework of the review on HIV/AIDS-related problems and services in low- and middle-income countries.

## Results

### Literature search and included studies

A total of 419 citations were selected from Medline and ScienceDirect, and 18 reports (six from the WHO, three from the World Bank, and nine from the IOM). Of these 437 articles, two were excluded on the basis of duplication, leaving a total of 435 articles for further screening. After the initial screen by two independent reviewers (RS and PL), 56 articles were considered relevant. Cohen's kappa coefficient of interrater reliability was 0.51, suggesting moderate agreement. At this stage, 35 articles were read in full and assessed by all researchers. Their findings were mapped with the research questions and entered into the data-extraction form. The overall article-screening process is presented in Figure 2, and Table 1 displays the overall key information extracted from the selected articles.

### Epidemic burdens

Of the 35 articles reviewed, about a third provided evidence about HIV/AIDS prevalence in the general population without specific data for the migrant and transient population. However, only seven articles from the review presented information on HIV/AIDS epidemics centering on migrants.

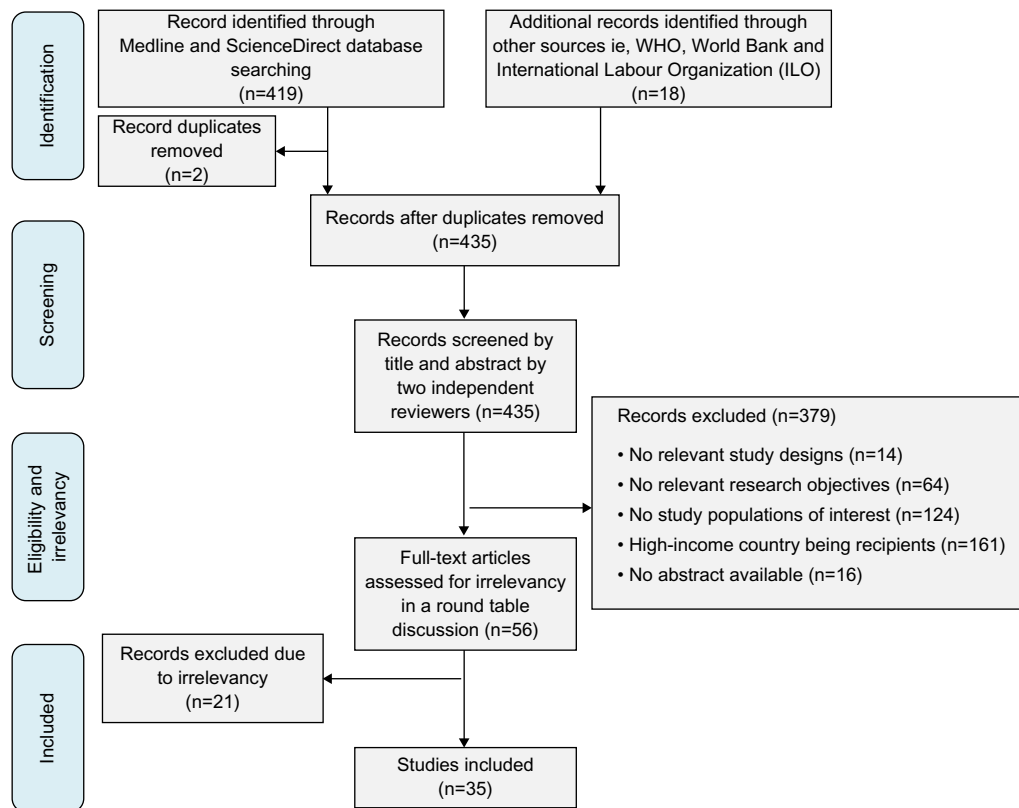
Rees et al reported a broad range of HIV/AIDS prevalence of migrants in South Africa, where 22%–29% of migrants were infected with HIV/AIDS between 2003 and 2007.<sup>31</sup> In other African countries, ie, Kenya, Uganda, Rwanda, Sudan, Tanzania, and Zambia, a variety of HIV/AIDS rates were observed, ranging from 0.6% to 5% in refugees residing in different camp sites during 2001–2005.<sup>32,33</sup>

Karkee and Shrestha<sup>34</sup> and Nepal<sup>35</sup> reported a high prevalence of HIV/AIDS in labor migrants in Nepal, far above the prevalence in the nonmigrant population. In the early 2000s, the prevalence of HIV/AIDS was more pronounced in female sex workers returning from India, accounting for 44%–73% of the returnees, significantly higher than the 4%–10% prevalence in male labor migrants.<sup>35</sup> This observation was also consistent with the findings in Sri Lanka by the United Nations Development Programme, where 40% of HIV/AIDS-positive women had a history of overseas employment.<sup>36</sup> Only one article from Latin America, reported by Caballero-Hoyos et al in 2008, suggested that at the end of 2000, a quarter of more than 47,000 HIV/AIDS cases throughout Mexico had prior migratory experience.<sup>37</sup>

### Barriers to HIV/AIDS services and risks of HIV/AIDS infection

There were 27 articles mentioning factors impeding HIV/AIDS health services and risks of HIV/AIDS infection in cross-national migrants.<sup>31,34–36,38–60</sup> Some articles specifically reported the situation of migrants in certain regions, ie, Asia,<sup>34,35,44–47,51,59,60</sup> America (particularly among Mexican migrants),<sup>40,42,43,45,48,53</sup> and Africa.<sup>31,38,41,49,52</sup> From the review, the barriers to HIV/AIDS services could be classified into two main features: the inadequacy of health service availability, and inaccessibility to care, with special features associating with occupation types and legal status.

The lack of health services was found at all levels of care. At an international level, supports from and within various countries to ensure smooth management for essential and



**Figure 2** Article-selection process of the review on HIV/AIDS-related problems and services in low- and middle-income countries.  
**Abbreviation:** WHO, World Health Organization.

sustainable treatments were still inadequate. This issue was flagged in the regional dialogue on the health challenges for Asian labor migrants in 2010.<sup>36</sup> Potential solutions were proposed, eg, establishing regular health and migration consultations across sectors and among countries of origin, transit, and destination. Yet, the possibility of implementing such bilateral agreements were to be further examined.<sup>36</sup> At a national level, resources were inequitably distributed and provision for migrants was comparatively scarce compared to those for the general population.<sup>42,56</sup> Trippayya also reported that national law was one of the key factors causing discriminatory attitudes toward migrants.<sup>41</sup> At a community level, long distances between migrants' households and health facilities hampered access to health care. This situation was worsened by feeble infrastructure, inadequate management guidelines, and poor referral mechanisms.<sup>42,57</sup> In Nepal, a change in lifestyle and community norms influenced Nepali migrants in India to be more engaged in premarital and extramarital conjugations and alcohol consumption, raising their risk of HIV/AIDS infection.<sup>60</sup> At an individual organization level, Michinobu revealed that some companies did not provide sufficient medical information for migrant employees, nor did they follow the International Labour

Organization code of practice aimed at guaranteeing a decent workplace and proper health care for workers regardless of their HIV/AIDS status.<sup>50</sup> Some Japanese companies in Thailand also failed to adopt international standards on HIV/AIDS, as HIV/AIDS management was not considered a business strategy. Furthermore, imposing the notion of human rights on the promotion of HIV prevention among workers was problematic in Thai society, since workers justified themselves as being identified as a powerless and vulnerable group.<sup>50</sup>

From the perspective of health care inaccessibility and risks of HIV/AIDS infection, the risks included a lack of knowledge and information,<sup>34,38,46,48,51,53</sup> discriminatory attitudes toward HIV/AIDS,<sup>39,40,43,46,48,55,58</sup> language differences,<sup>43,47,54,57–59</sup> and financial hardship.<sup>48,49,52</sup> In practice, these factors led to difficulty in accessing such medical products as condoms and clean syringes, as well as other supporting services.<sup>44,45,53,58</sup>

It is noteworthy that migrants' types of work significantly interplayed with HIV/AIDS risks. Oscillating migrants working in gold mines in South Africa usually had "informal" family near their place of work alongside their previous family in the country of origin. Oscillating migration influenced

**Table I** Data-extraction table

Study	Year	HIV/AIDS-related problems	
		Epidemic burdens	Barriers to care or services and HIV/AIDS risks
Rangel et al <sup>53</sup>	2012		Illegal immigration status and low rates of health insurance coverage explain the low levels of HIV testing and treatment among Mexican migrants.
Golobof et al <sup>51</sup>	2011		Tajik wives in Moscow had limited abilities to express their views regarding HIV/AIDS and condom use for their partners.
Munyewende et al <sup>52</sup>	2011		Uncertain legal status, financial hardships, and prior unpleasant experience with health workers had made Zimbabwean migrants in South Africa avoid accessing health services. Ineffective cross-border referral systems and disharmonizing management guidelines were constraints to HIV/AIDS care in migrants. The problems also intertwined with lack of knowledge and language difficulties in migrant community.
International Organization for Migration <sup>57</sup>	2010		
Rees et al <sup>31</sup>	2010	The prevalence of seropositive South African gold miners had a dramatic rise in the 1990s, with an estimated 27% by 2000. Recent data suggested that between 2003 and 2007, 22%–29% of migrants in South Africa were infected with HIV/AIDS.	Oscillating migration influenced HIV/AIDS spread in South African gold miners by creating a sexual network that encourages multiple partners and concurrent partnerships.
Tansey et al <sup>64</sup>	2010		
United Nations Development Programme Asia-Pacific Regional Centre <sup>36</sup>	2010	Around 40% of the HIV-positive women had a history of employment overseas.	Lack of health services was found at all levels of care. At the international level, support from various countries to ensure the seamless management for essential and sustainable treatments was still inadequate. Potential solutions were proposed, eg, setting regular health and migration consultations across sectors and among countries of origin, transit, and destination. Yet, the possibility of establishing such bilateral agreements were to be further examined.
World Bank <sup>66</sup>	2010		

**Health systems management**

Provision of benefit packages	Implementing agencies/ institutes	Human resources	Health financing
The HIV and tuberculosis surveillance programs were initiated.	The US–Mexico Border Health Commission focusing on HIV prevention for Mexican migrants in communities of origin, destination, and intermediate points of the migration journey had been implemented. The Republic of Tajikistan served as a main vehicle in addressing HIV/AIDS through providing testing, treatment, prevention, and information.	Health workers were recommended to be more sensitive to health needs and rights of migrants. A defined procedure for frontline workers was in great need. This should be made alongside the recognition of the work done by hospital staff, and particularly those who stood in solidarity with migrants.	
The Transnet National Ports Authority and the Port Terminal Authority workplace HIV program procured condoms and IEC (information, education, communication) materials to over 4,000 workers.	The MOPH of Thailand was the main purchaser of health insurance for illegal migrants by collecting a premium of ฿1,300 per annum.	“Training of the trainers” program was established in the Philippines for health staff who got involved with overseas migrants.	In Thailand, illegal migrants had to pay a premium of ฿1,300 per annum per individual.
Health education and promotion were provided by the Ministry of Public Health (MOPH) of Thailand. Illegal registered migrants were insured by paying a ฿1,300 premium. The benefit package also covered the prevention of mother-to-child HIV transmission (PMTCT). The insurance also included treatment of general diseases, sexually transmitted diseases, and emergency care.		Indigenous people were allowed to participate in the decision-making process with the National AIDS Control Council of Kenya for HIV/AIDS prevention programs for highly mobile populations and migrants.	

(Continued)



**Table 1** (Continued)

Study	Year	HIV/AIDS-related problems	
		Epidemic burdens	Barriers to care or services and HIV/AIDS risks
World Health Organization Regional Office for Europe <sup>58</sup>	2010		Linguistic barriers and inadequate entitlement were reasons impeding migrants from health services.
International Organization for Migration <sup>56</sup>	2009		Trafficked persons often did not access appropriate health services, due to the control and coercion of the trafficker, lack of financial resources, and fear of discovery.
Michinobu <sup>50</sup>	2009		Some private Japanese companies in northern Thailand were not providing accommodation or sufficient medical information for HIV-positive employees. Adopting international standards on HIV/AIDS had failed in some Japanese companies in Thailand, since HIV/AIDS management was not considered as business strategy.
Stephen and Roberts <sup>32</sup>	2009	In the mid-2000s, HIV/AIDS prevalence in refugee camps in Tanzania varied between 1% and 4.8%, while the prevalence in the host population varied between 2% and 3.7%.	
United Nations Institute for Training and Research <sup>55</sup>	2009		Vulnerability to HIV/AIDS was largely influenced by poor socioeconomic conditions, lack of education and awareness, poverty, lack of decent work, and living conditions.
Caballero-Hoyos et al <sup>37</sup>	2008	At the end of 2000, a quarter of more than 47,000 HIV/AIDS cases throughout Mexico had prior migratory experience.	
Ford and Chamrathirong <sup>46</sup>	2008		Low level of education enhanced risks of HIV/AIDS infection among migrants in Thailand. Cambodian men were more likely than men from Myanmar and Laos to have experienced sex with sex workers.
Plewes et al <sup>47</sup>	2008		HIV/AIDS initiatives were often hampered by language differences, problematic legal status, and mobile behaviors of migrants.
Rutta et al <sup>63</sup>	2008		

**Health systems management**

Provision of benefit packages	Implementing agencies/ institutes	Human resources	Health financing
<p>A wide range of health services was promoted by the International Organization for Migration (IOM), not only for HIV/AIDS but also other infectious diseases.</p>	<p>Government of Tanzania planned to include refugees in the national ART program at the end of 2006 as a result of a memorandum of understanding (MOU) between the Tanzanian government and the United Nations High Commissioner for Refugees (UNHCR).</p>	<p>The use of “cultural mediators” was considered an effective means of health care delivery. Training programs were implemented in several countries, with an emphasis on basic communication and counseling skills for community leaders.</p>	<p>Expenditure for migrants’ health programs, including HIV/AIDS-related activities, soared significantly, from US\$51.6 million in 2008 to US\$56.1 million in 2009. The Thailand Business Coalition on HIV/AIDS (TBCA), a specific group of private companies, developed the AIDS-response Standard Organization, which provided life insurance premium bonuses of 5%–10% to affiliated private companies that implemented firm-level HIV/AIDS measures.</p>
<p>Antiretroviral therapy (ART) protocol was similar to that applied for the host communities.</p>	<p>The Thai government served as the main actor for HIV/AIDS prevention programs, eg, “100% Condom Use” campaign.</p>	<p>The number of health staff providing HIV/AIDS services in the camps had met the UNHCR standard; however, high turnover rates were observed.</p>	<p>The government commitment to ART provision was reflected by an increase in the government’s pledges to HIV/AIDS activities of 74% from 2005/2006 to 2007/2008, and a further 75% by 2012.</p>
<p>A PMTCT program was commenced in Mae La refugee camp, Tak Province, Thailand in 2002. A PMTCT program was implemented in a refugee camp, in addition to community sensitization and voluntary counseling and testing (VCT).</p>		<p>Particular concern was voiced in sub-Saharan Africa, which held over 20% of the global HIV-positive population, but had only 3% of the global health care workforce.</p>	<p>The United Nations Children’s Fund (UNICEF) and the UNHCR provided support for HIV/AIDS services in refugee camps that the Tanzanian government did not cover.</p>

(Continued)

**Table 1** (Continued)

Study	Year	HIV/AIDS-related problems	
		Epidemic burdens	Barriers to care or services and HIV/AIDS risks
Sowell et al <sup>48</sup>	2008		Long distance between migrants' residences and health facilities was one of several key barriers hindering access to services in the migrant population. Though the Mexican government provided free medical services, the measures were not effectively executed due to high travel expenses. Loneliness and loss of cultural ties often resulted in male labor migrants having an increased number of sex partners.
Tanaka et al <sup>62</sup>	2008		
Weine et al <sup>49</sup>	2008		Most Tajik migrants in Moscow were undocumented, and were often subject to discrimination and abuse. They were at high risk of HIV/AIDS due to unprotected sexual contact, often accompanied by alcohol use.
Lippman et al <sup>42</sup>	2007		There was a lack of infrastructure in remote health facilities, which inevitably affected HIV/AIDS-related service at the border. In addition, lack of secondary education among residents in the north of Brazil created a great concern for HIV/AIDS spread.
Nepal <sup>35</sup>	2007	The prevalence of HIV/AIDS was extremely high among male labor migrants and female sex workers (FSWs) who returned from India: approximately 6%–10% of returnee Mumbai men, compared to up to 4% of returnee Indian men. These figures were significantly higher than the 3% prevalence found in nonmigrant men in far west Nepal.	Migrant returnees tended to have unsafe sex with their wives and other sex partners. Besides, stigmatization and discrimination of HIV-infected people were still noticeable in the migrant communities.
Olshesky et al <sup>43</sup>	2007		Latino migrants were not aware of HIV/AIDS testing, despite being a population at risk.
Poudel et al <sup>44</sup>	2007		Lack of HIV/AIDS information impeded migrants from essential prevention measures.

**Health systems management**

Provision of benefit packages	Implementing agencies/ institutes	Human resources	Health financing
<p>Male and female condoms were given to clients at clinics where VCT for HIV prevention took place.</p>	<p>The Mexican government established the national council, namely COESIDA, which was mainly responsible for prevention and control of HIV/AIDS.</p>	<p>A health information team (HIT) was established to play a bridging role between all the refugee communities and the encamped health services by referring cases to a dispensary/health post.</p>	
<p>The Popular Opinion Leader (POL) intervention and family interventions proved to be effective in changing behaviors of Tajik migrants, since most Tajik migrants were part of organized social networks in Moscow that revolved around religious leaders, village leaders, and brigadiers.</p> <p>HIV/AIDS screening for pregnant mothers was mandatory in Brazil.</p>		<p>Shortages of health personnel and also their limited capacity to deal with political and logistic chaos at the borders made HIV/AIDS impact difficult to mitigate.</p>	
<p>VCT clinics were available for both India internal migrants and returnees from Nepal.</p>	<p>A coordination between community health facilities and academic institutes, eg, University of California, was observed. The collaboration was aimed at addressing the HIV/AIDS problems among Mexican migrants at the Mexico–US border.</p> <p>The United Nations Development Programme (UNDP) and the Nepalese National Centre for AIDS and STD (sexually transmitted disease) Control, namely NCASC, jointly implemented HIV/AIDS projects in Doti district between 1994 and 2001.</p>		

(Continued)

**Table I** (Continued)

Study	Year	HIV/AIDS-related problems	
		Epidemic burdens	Barriers to care or services and HIV/AIDS risks
Rachlis et al <sup>45</sup>	2007		Mexican migrants faced difficulties in obtaining clean syringes. Policies and immigration authorities also created barriers for migrants where health care was in great need.
Spiegel et al <sup>33</sup>	2007	The HIV/AIDS prevalence rate in several refugee camps in Africa was markedly diverse, from 0.6% of Somali refugees in Kenya to 18.9% of refugees in Zambia.	
Karkee and Shrestha <sup>34</sup>	2006	The prevalence of HIV/AIDS in female sex workers in Kathmandu skyrocketed from 2.7% in 1997 to 17% in 2000. Most of them were Nepali migrants, and often brought home HIV/AIDS on their return. The disease then was known as “Mumbai disease” in Nepal.	Migrant female sex workers did not often negotiate for safe sex with the male clients, who in most cases were also from lower socioeconomic status with similar knowledge about HIV/AIDS.
United Nations Institute for Training and Research <sup>54</sup>	2006		Migrants often faced language difficulties and lack of social support and legal protection, which made them at risk of being deported.
Mooney and Sarangi <sup>59</sup>	2005		Migrant women were often considered as having lower citizenship status. This situation led to difficulties in negotiating safe sex with partners.
Trippayya <sup>41</sup>	2005		Botswana’s Refugee Recognition and Control Act did not adequately recognize the rights of refugees.
Busza and Baker <sup>39</sup>	2004		Resistance in female partners against some HIV/AIDS interventions, eg, female condom, was observed.
Magis-Rodríguez et al <sup>40</sup>	2004		Low negotiating power with partners in the matter of sexual practices was observed in Mexican women.
Poudel et al <sup>60</sup>	2004		In India, a large proportion of Nepali migrants sought frequent sex with multiple partners, and some continued extramarital sex after their return to Nepal. This behavior was influenced by alcohol, being single, and low perception of HIV.
Smart <sup>65</sup>	2004		
Holt et al <sup>38</sup>	2003		The level of knowledge on condom use was low in Sudanese refugees.

**Health systems management**

Provision of benefit packages	Implementing agencies/ institutes	Human resources	Health financing
The mobile clinics along the China–Vietnam border offered HIV/STD testing and counseling as well as condom distribution.			Concern regarding continuity of financial support for HIV/AIDS-related programs was highlighted.
In Nepal, a number of HIV/AIDS initiatives were launched between 2002 and 2006, in line with the National HIV/AIDS Strategy (2002–2006). The activities included education programs for migrants, a provision of free condoms, and VCT services.	The Inter-Agency Standing Committee (IASC) was initiated in collaboration with several development partners, eg, International Federation of Red Cross and Red Crescent Societies (IFRC) and International Council of Voluntary Agencies (ICVA).		
Services provision was not exclusive to HIV/AIDS awareness, prevention, and care, but also aimed to leverage quality of life of migrants, through provision of medical facilities and education programs.	The Disha Foundation, a nongovernmental organization (NGO), applied an ecological intervention to improve living conditions for migrants, though the organization was not founded to respond to high prevalence rates of HIV/AIDS in migrants at the beginning.		
Comprehensive VCT, PMTCT, and ART were initiated.			
A “community mobilization” model was adopted. The model comprised participatory education, group work, skill-building, and facilitation of communities’ ownership. It also positioned individuals’ ability to adopt and sustain safer sex practices.	A joint collaboration between domestic partners: the Mexican Ministry of Health and the National Institute on Geography and Statistics, was established.	The usefulness of the community mobilization model in Cambodia, which engaged residents in community to participate in the workshop promoting female condom use in Vietnamese migrants, was highlighted.	
		Peer educators were promoted to deliver community-based HIV/AIDS activities.	

HIV/AIDS spread in South African gold miners by creating a sexual network that encouraged multiple partners and concurrent partnerships. This network inevitably resulted in a burgeoning HIV/AIDS epidemic across the entire region.<sup>31</sup> The Cambodian seafarers in Thailand reported sex-worker visits more frequently than other men. The reasons behind this included loneliness and time out at sea, a lump payment for work on fishing boats when they arrived at the harbor, and strong pressure from other colleagues working on the boats.<sup>46</sup> Loneliness, fewer women, and loss of cultural ties often resulted in male labor migrants having an increased number of sex partners, having sex with male partners, and participating in increased drug use.<sup>35,48,61</sup> Even for high-level workers like Japanese and Thai managers working in structured Japanese organizations in Thailand, the HIV/AIDS issue was not adequately considered. As a consequence, measures in the companies were limited only to provision of HIV/AIDS information.

The barriers to care also interweaved with the legal status of migrants, especially those entering the countries illegally.<sup>51</sup> For example, male Tajik workers in Russia were legally marginalized at the bottom of the socioeconomic hierarchy. This finding was consistent to what happened in other regions, such as the Mexico–US or India–Nepal borders.<sup>42,44,53</sup> Moreover, unsecured legal status made female migrants working in restaurants have no option to complain against sexual exploitation experiences.<sup>34</sup> Legal status even affected attitudes of health care providers and hampered the provision of HIV/AIDS programs for migrants living along the Thailand–Myanmar border.<sup>47</sup> Likewise, Munyewende et al raised the case of health care staff in South Africa who often denied migrant health services due to mistaken beliefs that the law disallowed services for migrants.<sup>52</sup>

## Health-system management

### Service provision and benefit packages

The provision of benefit packages and HIV/AIDS-related services for cross-country migrants was reported in 16 articles.<sup>32,34–36,39,41,42,45,47,49,53,56,59,62–64</sup> Of these 16 articles, 14 provided information about general services, including both treatment programs and HIV/AIDS prevention and promotion of interventions. These comprised subactivities as follows: prevention of mother-to-child transmission (PMTCT),<sup>36,47,63</sup> ART,<sup>41</sup> health education and public campaigns,<sup>32,34,39,42,53,59,62,64</sup> condom distribution,<sup>45,64</sup> supplementary breastfeeding,<sup>63</sup> mobile clinics for HIV/AIDS screening,<sup>45</sup> voluntary counseling and testing,<sup>35,41,63</sup> and mandatory HIV testing for pregnant women.<sup>42</sup> Busza and Baker<sup>39</sup>

and Mooney and Sarangi<sup>59</sup> also urged for the strengthening of communities' capacity to cope with HIV/AIDS problems. Other articles, eg, Weine et al,<sup>49</sup> raised awareness of gender empowerment and challenges in addressing disparities in economic status, language, and cultural positioning in order to maximize the effectiveness of HIV/AIDS intervention programs.<sup>56</sup>

It is worth mentioning that regional dialogue among policy makers on the health challenges for Asian labor migrants in 2010 suggested the development of guidelines and minimum standards to assist countries of origin and destination for migrant workers, including mandatory health insurance. This initiative was aimed at benefiting migrants as well as their families, regardless if they were joining migrant workers or staying behind.<sup>36</sup> Multicountry partnerships should be established to ensure uninterrupted management of conditions requiring long-term treatment, such as HIV/AIDS and tuberculosis. However, the article did not address explicitly how those activities could be executed effectively in actual practice.<sup>36</sup>

## Implementing agencies/institutions

Eleven articles published information about the implementing agencies of HIV/AIDS health care services,<sup>32,34,36,40,43,44,46,48,51,53,59</sup> These articles could be further divided into two categories: a single main agency, and jointly collaborative agencies.

Ford and Chamratrithong highlighted the role of the Thai government in explicitly acting as the most powerful vehicle in setting comprehensive HIV/AIDS programs in the country. One of the key programs was the campaign for 100% condom use by commercial sex workers.<sup>46</sup> The Ministry of Public Health (MOPH) of Thailand also instigated health insurance covering PMTCT and a wide range of benefit packages for illegal migrants.<sup>36</sup> Sowell et al flagged the leadership of the State Council for Prevention and Control of HIV/AIDS in HIV/AIDS care throughout Mexico.<sup>48</sup> Public health leaders in the Republic of Tajikistan integrated gender issues into HIV/AIDS programs by encouraging wives of migrants to play active roles in HIV-prevention initiatives.<sup>51</sup> Mooney and Sarangi<sup>59</sup> described the case of the Disha Foundation, which applied an ecological intervention to improve living conditions for migrants. However, the organization was not initially tasked with responding to HIV/AIDS problems.

The joint implementing agencies were divided into three subcategories based on the characteristics of collaborations. Magis-Rodríguez et al<sup>40</sup> and Olshefsky et al<sup>43</sup> reported the first type – domestic agency collaboration – by noting the works done by a number of domestic authorities charged by

Mexican government policy with dealing with HIV/AIDS. The second type were multinational collaborations between countries whose borders are connected, eg, Mexico and the US.<sup>53</sup> The third type was international development partners who worked with host governments.<sup>32,44</sup> It is notable that the stepping in of international development partners could create a profound working network. For instance, the Inter-Agency Standing Committee was initiated in collaboration with several development partners, including the International Federation of Red Cross and Red Crescent Societies and International Council of Voluntary Agencies, which worked together to respond to the dramatic rise in HIV-transmission rates in Kathmandu, Nepal.<sup>34</sup>

## Human resources for health

The issue of labor forces for HIV/AIDS services in migrant populations were discussed in twelve articles<sup>32,36,39,42,52,55–58,62,65,66</sup> and grouped according to two main points: shortages in health personnel, and personnel-training systems, as well as capacity-building activities.

Concerns about the shortages of health personnel were found in the three reviewed articles.<sup>32,42,55</sup> Lippman et al also detailed the problem of high staff turnover rates, which was aggravated by the drug trade and the weak governmental and community response at the borders of Brazil.<sup>42</sup>

With regard to personnel training, there were a couple of articles that noted the challenges in training health workforces in general.<sup>36,56</sup> Some articles gave specific detail about special training modules, eg, the International Finance Corporation developed training plans for identifying staff who were assigned to be peer educators in mining communities in Southern Africa.<sup>65</sup> Several articles also mentioned the strengthening of staff in a wide range of skills, eg, data gathering, research skills, and service delivery, by using cultural mediators and adapting protocols for everyday practices.<sup>52,56–58,66</sup> Tanaka et al underscored the use of a health information team consisting of staff with professional backgrounds for delivering HIV/AIDS campaigns to the population of the Nyarugusu refugee camp in Tanzania.<sup>62</sup> Busza and Baker underscored the usefulness of a community-mobilization model in Cambodia, which engaged residents in the community to participate in a workshop promoting female condom use in Vietnamese migrants.<sup>39</sup>

## Health financing

Six articles reported the management of financial resources to cope with HIV/AIDS problems in the migrant population.<sup>32,36,45,50,56,63</sup> Rutta et al emphasized the important

roles of international development partners, ie, the United Nations Children's Fund and the United Nations High Commissioner for Refugees, in providing support for HIV/AIDS services in refugee camps since the support by Tanzanian government did not cover this population subgroup.<sup>63</sup> Rachlis et al raised the importance of continuity of finances for HIV/AIDS-related programs.<sup>45</sup> The summary report of the IOM in 2009 pointed out the increase of global expenditure on migrants' health, from US\$51.6 million in 2008 to US\$56.1 million in 2009, four times higher than the total 5 years before.<sup>56</sup> However, it should be noted that this expenditure comprised all operational expenses of programs targeting migrant health and was not confined only to HIV/AIDS care.

In Thailand, the MOPH provided health security for illegal migrants by collecting an annual ฿1,300 premium per individual and allocating this revenue to public hospitals affiliated to the Office of Permanent Secretary under the MOPH. Part of the revenue was pooled at the central authority to cover other high-cost treatments, including PMTCT.<sup>36</sup>

The Tanzanian government pledged to leverage ART coverage to 75% by 2012. Funding was secured via commitments through bilateral contributions and global health initiatives to refugees. These commitments were agreed to as funders foresaw a marginal increase in the cost of ART for refugees due to a small number of refugees.<sup>32</sup> The private sector also played critical roles in mobilizing funds for HIV/AIDS responses. This was evident in Thailand, where the Thailand Business Coalition on HIV/AIDS, a group of private companies, developed the AIDS Response Standard Organization, providing life insurance premium bonuses of 5%–10% to affiliated private companies that implemented firm-level HIV/AIDS policies and measures, such as corporate social responsibility for HIV/AIDS.<sup>50</sup> The initiative was established with an objective to address the societal concerns of the HIV/AIDS epidemic alongside concerns regarding the sexual behavior of young migrant women working in both the commercial and industrial sectors.

## Discussion

This review demonstrated interesting findings and comprehensive views about the operational management of current HIV/AIDS health services. However, it is worth mentioning that the results from the review were affected by certain limitations, which will be separately discussed.

Despite the fact that rich information about HIV/AIDS prevalence emerged from the review, few publications explored the actual operational management of existing health systems, with unclear views on the quality, effectiveness, efficiency, and



responsiveness of their performance. Some initiatives were proposed, such as developing guidelines and minimum standards for protecting health and financial status of migrants in either origin or destination countries, establishing information-sharing mechanisms across governments for securing health of migrants. These however were still in the process of exploring implementation possibilities.<sup>36</sup> Moreover, the roles of receiving and sending countries were not adequately identified, and thus there is a great need for studies examining this matter.

The availability of HIV/AIDS prevalence data in cross-country migrants gave the general impression that such data are quite plentiful in Africa, while not so much information was found about the situation in Latin America and South Asia. This is not surprising, as sub-Saharan Africa contains the greatest HIV/AIDS burden across the globe, and served as a primary region for data gathering. As indicated by the World Bank report in 2006, about two-thirds of the world's HIV infections were concentrated in sub-Saharan Africa, whose population accounted for 10% of the world's residents.<sup>67</sup> However, the limited number of studies in Latin America and Asia indicated demands for further research on HIV/AIDS services for migrant populations, since the numbers of international migrants and refugees were on the rise in these areas.<sup>68,69</sup>

Factors hampering HIV/AIDS services were presented in almost half the literature retrieved. The findings were consistent with observations in other publications that explained barriers to HIV/AIDS services for non-migrant populations.<sup>70-72</sup> Most of the evidence found common barriers of access to HIV/AIDS services and that these problems were complex, but even more so if they involved migrant populations, since issues of legal status, funding, and stigmatization often played out more significantly.<sup>52,65,73</sup> It seems to be a commonly held view that the general health care systems of nations around the world are not adequately dealing with migrants' SDHs. More primary qualitative works are suggested to obtain better understanding of how diverse religious beliefs and cultural norms are involved in HIV/AIDS risks. For instance, Golobof et al<sup>51</sup> underlined the impact of "male-dominated" society on Tajik migrants' wives, as women had limited ability to voice their concerns on sexual activity with their partners, despite having some awareness of HIV/AIDS.

Most of the publications/reports emphasized the benefits of "hardware" provision, especially condom distribution and the supply of ART, whereas few articles deeply explored or clearly recommended how health care staff and managers might address stigmatization, community attitudes, and legal problems in routine health care service.<sup>74</sup> This raises a concern whether such initiatives were

adequately and effectively implemented for tackling HIV/AIDS problems in migrants.<sup>28,75</sup> Additionally, only a limited number of publications flagged the issues of language impediments and cultural positioning, both of which may seriously stand in the way of the effectiveness of HIV/AIDS programs.<sup>39,49,56,59</sup>

As in the case of health care provision for the general population, the success of migrant health care provision is contingent upon the development and training of health care personnel. Without competent health care staff, good services cannot be delivered.<sup>76,77</sup> The reviewed publications did not suggest clearly how to manage and train personnel for HIV/AIDS programs in actual situations. Outside HIV/AIDS programs, successful human resources training programs often include "task-shifting"<sup>78-80</sup> and "interdisciplinary collaboration."<sup>81,82</sup> Some clues of working with local personnel as cultural mediators and promoting public participation were noticed in a few publications.<sup>39,40,58</sup> The lack of data on personnel development/training might derive from a limitation in the search strategy, or it possibly shows up the lack of this issue being addressed by researchers and practitioners dealing with migrant health care at present.

This study also revealed several types of collaborations between different agencies, both domestic and international, in managing HIV/AIDS services for migrants.<sup>63</sup> It is clear that there was a growing role for international agencies in filling health care gaps where the government was not willing or able to cover these, as in the case of Tanzania reported by Stephen and Roberts, where bilateral collaborations and global health initiatives supported ART for refugees.<sup>32</sup> However, none of the reviewed articles deeply scrutinized the pros and cons of each type of collaboration between the agencies, nor did they deeply outline their challenges and barriers. Furthermore, the monitoring and evaluation systems on such collaborations were not clearly addressed. It is possible that positive signs of HIV/AIDS support from the international partnerships did not derive from the effectiveness of their program management but were due to the small number of refugees they cared for.<sup>32</sup> The sustainability of such programs therefore was equivocal.

Another concrete example is what happened in Thailand. Though the government committed to support PMTCT for migrants,<sup>36</sup> the population coverage encompassed only registered migrants, while those who were unregistered were left behind. A recent study by Martin in 2007 suggested over 1.3 million migrants in Thailand were unregistered, about triple the number of registered migrants in that year.<sup>83</sup> As a result, the responsibility of taking care of this hard-to-reach popula-

tion who were often engaged with other populations at risk, eg, men who have sex with men and people who inject drugs, were mostly shouldered by nongovernmental organizations (NGOs) in the country.<sup>84</sup> Those NGOs thereby mobilized resources from Global Fund (GF) to support their activities for non-Thai key affected populations and migrants. As per the 23rd GF Board meeting in May 2011, a new eligibility, counterpart financing, and prioritization policy was adopted for all funding channels, by taking into account the country's income level, disease burden, and recent funding history. Although the HIV/AIDS burden in Thailand was high, with its history of recent funding, Thailand is not eligible to ask for support from the GF funding pool. Hitherto, there was no explicit roadmap of how the country will prepare itself given the GF policy has changed.<sup>85</sup>

This article supported and provided further insights of the findings from the previous systematic review conducted by Weine and Kashuba,<sup>61</sup> which identified the determinants of health associated with HIV risks among labor migrants. They mentioned various important HIV/AIDS risks, eg, little social support, family separation, sexual misbehaviors, and low levels of HIV/AIDS knowledge.<sup>61</sup> This study further suggested that those factors were not serving as risks alone, but also encumbering the access to HIV/AIDS services, which inevitably created a vicious cycle of the HIV/AIDS situation in migrants. Interestingly, mental health was not explicitly mentioned in this article as a factor impeding access to HIV/AIDS health care services, in contrast to what other studies, such as Weine et al,<sup>86</sup> Huang et al,<sup>87</sup> and Wong et al,<sup>88</sup> have suggested. Though few of the literature describe the issue of mental health in relating to HIV/AIDS, mental health problems among migrant population might be embedded in discriminatory attitudes and stigmatizations, which were reported in many articles under the review.<sup>39,40,43,46,48,55,58</sup>

Unless a comprehensive policy taking into account all these determinants is to be implemented, HIV/AIDS burdens will continuously be growing in many regions. This review found a variety of efforts aimed at tackling SDHs problems of migrants through many levels, eg, offering HIV/AIDS education to migrant individuals and communities and setting national policies focusing on HIV/AIDS control (a 100% condom campaign, for instance).<sup>46</sup> This review however did not illustrate practical approaches on how these policies could be linked together. According to the conceptual framework for tackling SDH inequalities,<sup>29</sup> intersectoral action, social participation, and empowerment in the design and implementation of policies were essential to success in addressing SDHs. This point also coincided with

that previously discussed, ie, how HIV/AIDS programs for migrants would survive constructively by their own resources and capacity if support from international development agencies was to be curtailed.

## Limitations of the study

This study contains certain limitations. First, it is the nature of a scoping review to aim to identify, gather, and summarize articles in order to obtain a comprehensive understanding in a particular research area of interest, not to scrutinize a specific set of questions like a traditional systematic review.<sup>89</sup> Another key difference is that a systematic review requires explicit methodologies to assess the quality of included articles, and it requires a full range of search engines where necessary. On the contrary, a scoping review does not necessarily delve into quality assessment of the selected literature. The merit of the scoping review lies in producing a profile of the existing evidence in a specific topic and creating a rich database that will be a foundation for more detailed reviews in an area where existing research is scarce.<sup>90</sup> Another reason for not having assessed the scientific quality of the selected publications was the vast heterogeneity of the characteristics of the reviewed articles, unlike a clinical study, which in general practice has a clear set of common quality-assessment tools.

The second limitation is the language restriction. Non-English-language articles were not included due to limited capacity to identify and understand them and lack of access to translation services. This point is fully acknowledged and should be improved in further research, when deeper reviews on a well-defined set of research questions are warranted.<sup>91</sup> Third, the review relied heavily on systematic search strategies, but less focus was directed at gray-literature searches. Gray literature in original articles should be further explored if the research question is to be more focused. Though the reviewed literature ransacked evidence from LMICs, it has not been possible to delve into the details of each individual country. Finally, when applying the findings of this review to actual practice, one should bear in mind that this study drew experiences only from LMICs that served as destination sites for migrants. More primary research is required to obtain better understanding of the interacting mechanisms between migrants and the general health systems available for native populations, taking into account differences in socioeconomic background and contextual environment between countries.

Last but not least, it should be noted that extrapolating the results of this study to a wider population should be done with caution, as the study concentrated on cross-country

migrants, who were identified by specified search terms like “migrants” and “refugees.” However, in real practice, it is difficult to distinguish migrants or refugees with other hard-to-reach population subgroups, such as people with citizenship problems, ethnic minorities, and other transient populations, due to an overlapping in definition. Regardless of the obscurity in definition, health systems should enable these populations to access standard quality services in equitable fashion. How to achieve such a goal is worth exploring in any future studies.

## Conclusion

It was clearly suggested that HIV/AIDS epidemics among cross-country migrants are a major concern in many LMICs, especially for those residing in sub-Saharan Africa. The high prevalence of HIV/AIDS was associated with a number of factors hindering access to health care services in migrant populations. These impediments included inadequate management of guidelines and referral systems, discriminatory attitudes, language differences, and financial hardship. Health systems management for HIV/AIDS in migrant populations had great varieties in benefit packages, human resources, health care financing, and types of collaborations between implementing institutes. Although there are many global partners involved heavily in HIV/AIDS care, there was little evidence concerning either the sustainability or the effectiveness of such involvement. Future studies are recommended to determine the interaction between HIV/AIDS health care services for migrant populations and existing health systems for native populations, taking into account differences in socioeconomic background and contextual environment between countries.

## Author contributions

RS, PL, and WP jointly designed the study; data collection was conducted by RS, KK, and PL. RS, AS, CK, CT, KK, PJ, TT, and TW contributed to analyzing the data. All authors contributed to the drafting, revision, finalization, and approval of the manuscript.

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The authors report no conflicts of interest in this work.

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