

International Volunteering and Health Crisis Management in Morocco

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ABSTRACT

The international mobility of volunteers in the field of public health has become a key factor in reducing health disparities worldwide. Volunteers, often health professionals, cross borders to support resource-limited regions, facilitating skills transfer and capacity building.

This article aims to examine the multifaceted impact of international volunteer mobility on public health, highlighting both the benefits and challenges associated with their work in low-resource contexts.

The study analyzes existing literature on the history and evolution of international volunteering in public health, along with surveys regarding volunteer missions, their contributions, and the challenges they face. Statistical data and case studies are also utilized to illustrate the impacts of volunteer missions.

Findings indicate that volunteers contribute to a 20% improvement in the technical skills of local professionals, a reduction in infant mortality rates, and a strengthening of local capacities. However, challenges persist, including discontinuity of care, cultural differences, and the risk of dependency on volunteers. Additionally, tensions may arise between local staff and volunteers, and ethical concerns may emerge due to unqualified interventions.

The mobility of international volunteers has a significant impact on public health, providing essential skills and improving access to care. However, it is crucial to adopt a balanced approach that emphasizes training, coordination, and sustainable partnerships to maximize benefits and mitigate risks associated with these interventions. Strengthening global collaboration will enhance the effectiveness of volunteer missions and contribute to sustainable public health goals.

Keyword: International Volunteer Mobility, Global Health, Cultural Barriers, artificial intelligence.

INTRODUCTION

The increasing mobility of international volunteers in the field of public health has become a globally significant phenomenon, influencing health systems worldwide. These volunteers, often professionals such as doctors, nurses, and public health experts, cross borders to provide essential services in resource-limited regions. Their contributions, ranging from skills transfer to capacity building, play a crucial role in reducing health inequalities.

However, this mobility also presents challenges, including cultural barriers, continuity of care, and the risk of dependency. This article explores the multifaceted impact of international volunteer mobility on public health, assessing both its benefits and potential drawbacks.

Conceptual Framework

In this article, the mobility of international volunteers refers to the movement of healthcare professionals and volunteers across borders to provide health services in contexts where local resources are limited. These volunteers may include doctors, nurses, dentists, public health specialists, and other healthcare professionals.

The international mobility of volunteers, particularly in the health sector, is often explained by several migration theories. These theories shed light on the motivations and dynamics that underlie individuals' movements across borders.

According to the theory of comparative advantage, individuals migrate to areas where they can maximize their well-being based on the costs associated with migration. This means that international volunteers choose to move to regions where their skills can meet specific needs, such as in low-resource health areas. (Taghlobi 2012)

On the other hand, transnationalism emphasizes that migrants, including volunteers, maintain active ties with their home country while engaging in activities in their host country. This fosters an exchange of skills and knowledge that can benefit both local communities and the home countries of the volunteers. (Piché 2013)

Meanwhile, the human capital theory, developed by economists like Gary Becker, suggests that the transfer of skills and knowledge can strengthen local capacities. It posits that investing in the training and education of individuals enhances their productivity and, by extension, the systems in which they operate. (Vigneault 2016)

The Mobility of International Volunteers in the Field of Public Health

History and Evolution

The mobility of international volunteers in the field of public health in Morocco has evolved over the years, influenced by various historical, political, and socio-economic factors. Here is an overview of the key milestones in this history:

Colonial Period and Post-Independence (Before 1960)

French Colonization (1912-1956): During this period, volunteers and health professionals, often French doctors and nurses, were deployed in Morocco to work in hospitals and health centers established by the colonial administration. (D. MOUSSAOUI, O. BATTAS, A. CHAKIB 1992)

Independence (1956): After independence, Morocco continued to receive international aid in the health sector, primarily from former colonial powers and international organizations. (Mustapha AKHMISSE 1992)

1960s-1980s: Beginning of International Cooperation

1960s: International volunteer programs began to take shape, with organizations like the Peace Corps from the United States sending volunteers to work on health and community development projects.

1970s-1980s: The UN and its specialized agencies (WHO, UNICEF) began to play a more active role, sending experts and volunteers to support public health programs in Morocco, particularly in the fight against infectious diseases and malnutrition.

1990s-2000s: Expansion and Diversification of Programs

1990s: Morocco intensified its health sector reforms, and cooperation with international NGOs grew. Organizations like Médecins Sans Frontières (MSF) and the Red Cross participated in public health initiatives,

often in rural and underserved areas.

2000s: Volunteer programs became more diversified, including projects on HIV/AIDS, reproductive health, and non-communicable diseases. International volunteers worked alongside Moroccan health professionals to strengthen local capacities.

Since 2010 : Deepening Partnerships and Innovations

2010s: The role of international volunteers evolved towards more strategic partnerships and skills transfers. Programs funded by USAID, the World Bank, and the European Union emphasized strengthening health systems and training Moroccan health cadres. (Oussama et Mohammed 2023)

Recent Initiatives: International volunteers are involved in innovative projects such as telemedicine, digital health, and responses to health emergencies, including managing the COVID-19 pandemic. (Basrur et Kliem 2021)

Types of Missions

International volunteer missions in public health vary widely in terms of duration, objectives, and impact, ranging from short-term crisis interventions to long-term capacity-building programs. Each mission type plays a unique role in strengthening healthcare systems globally.

According to Médecins Sans Frontières (MSF), 60% of global health volunteer missions last less than six months, focusing primarily on crisis interventions (MSF, 2019). However, some countries, including Morocco, benefit from a blend of short-term emergency missions and long-term international cooperation, particularly with partners such as China, the European Union, the World Health Organization (WHO), and the Japan International Cooperation Agency (JICA).

In Morocco, international health volunteering can be divided into several categories (Ministère de la Santé et de la Protection Sociale, 2022):

Humanitarian Volunteering

Organizations like Médecins Sans Frontières (MSF), the Red Cross, and Chinese Medical Teams (EMC) deploy volunteers to areas affected by armed conflicts, natural disasters, or disease outbreaks. Their primary goals include providing emergency medical care (e.g., field hospitals in disaster zones), controlling epidemics (e.g., Ebola response teams in West Africa), and offering disaster relief (e.g., post-earthquake medical assistance). During the COVID-19 pandemic, humanitarian volunteers played a key role in testing, treatment, and vaccine distribution. More recently, Chinese medical teams contributed to the 2023 earthquake response in Morocco, offering emergency medical care in the affected regions.

Sustainable Development Projects

These initiatives differ from emergency responses by focusing on long-term healthcare improvements. They include community health programs (e.g., maternal and child health), infectious disease prevention (e.g., HIV/AIDS and tuberculosis control), and public health education (e.g., hygiene and nutrition campaigns). One of the longest-running examples of this approach is China's medical cooperation with Morocco, which has been ongoing since 1975. This initiative has sent over 1,600 Chinese medical professionals to Moroccan hospitals, provided 5.3 million consultations and 380,000 surgeries annually as of 2022 (Ministère de la Santé et de la Protection Sociale, 2022), and introduced Traditional Chinese Medicine (TCM), including acupuncture and herbal remedies, to the Moroccan healthcare system. Additionally, the European Union and JICA have supported Morocco with infrastructure development, healthcare training, and modernization of medical equipment.

Professional Exchanges

These programs facilitate the transfer of knowledge and skills between international and local healthcare

professionals. They involve medical training and workshops (e.g., Moroccan doctors receiving specialized training in oncology or emergency medicine), temporary placements and fellowships (e.g., Moroccan health professionals participating in exchange programs in China, France, and Japan), and mentorship initiatives (e.g., senior international specialists mentoring Moroccan medical staff). In 2022, Morocco hosted 239 healthcare students from 34 African countries as part of its South-South cooperation efforts, offering them training in various medical fields.

These diverse forms of international volunteer involvement contribute significantly to the strengthening of Morocco's healthcare system, fostering both immediate support during crises and long-term improvements in healthcare infrastructure and professional development.

Advantages of the Mobility of International Volunteers

Health volunteer missions vary widely based on local needs, ranging from emergency interventions to sustainable development programs aimed at strengthening healthcare systems:

Transfer of Skills and Knowledge

Volunteers bring specialized skills and knowledge that can enhance local practices and the capacities of health systems (Ebrahim and Rangan 2014). For example, a study showed that health volunteers contribute to a 20% increase in the technical skills of local staff after a six-month mission (Koehn 2018).

Strengthening Local Capacities

By working alongside local staff, volunteers can help train and strengthen the capacities of local healthcare professionals (Sousa et al. 2014). A research study conducted by the World Health Organization (WHO) indicated that a significant 75% of local healthcare professionals who received training from international volunteers maintain and apply the skills they acquired during their missions even after those missions conclude. This finding highlights the long-term impact of volunteer training on local healthcare systems and emphasizes the value of international collaboration in enhancing the capabilities of healthcare workers in underserved areas (WHO, 2019).

Improvement of Health Coverage

Volunteers can fill gaps in healthcare, particularly in rural and underserved areas, thereby increasing access to health services (Anderson 2018). For instance, a study in Ghana showed that the presence of volunteers reduced the infant mortality rate by 30% in certain rural regions (GHS, 2017).

Promotion of Intercultural Understanding

The presence of international volunteers fosters better intercultural understanding and strengthens international relations (Grignon, Owusu, and Sweetman 2013). A survey conducted by the Peace Corps indicated that 90% of volunteers and local communities report better mutual understanding after the missions (Peace Corps, 2020).

International volunteers have played a critical role in Morocco's healthcare development, particularly in **Expanding vaccination programs and disease prevention efforts, Training local healthcare professionals, leading to improved clinical skills and patient care Supporting crisis management, as seen during the COVID-19 pandemic and natural disasters and introducing new medical approaches, such as Traditional Chinese Medicine, into the Moroccan healthcare system.** (El gaoual & Taib, 2024)

According to the Moroccan Ministry of Health and Social Protection, approximately 500 international volunteers contribute to the country's healthcare system each year (Ministère de la Santé et de la Protection Sociale du Maroc, 2022). While these contributions are significant, ensuring effective coordination between volunteers and local health workers remains essential to maximize impact and sustainability.

Challenges and Potential Risks

Volunteering in healthcare, while providing valuable support, raises several challenges that can impact the quality and continuity of care. These issues include care discontinuity, cultural and language barriers, excessive reliance on volunteers, and the ethical dilemmas associated with medical tourism.

Discontinuity of Care

Discontinuity of care remains a significant challenge, especially in rural regions of Morocco, where access to healthcare is already limited. The short-term nature of volunteer missions prevents the establishment of continuous care for patients, particularly those suffering from chronic conditions like diabetes or hypertension. In the High Atlas Mountains, a study revealed that 35% of patients with chronic illnesses experienced disruptions in their care when a volunteer left the mission after less than six months (Sousa et al., 2014). This discontinuity was further exacerbated by the geographical isolation of health centers, making it difficult for patients to receive consistent follow-up. To mitigate this issue, it would be beneficial to implement continuous training programs for volunteers and explore the potential of telemedicine technologies to ensure remote monitoring and care. Additionally, integrating volunteers into local healthcare networks would foster better continuity, as it allows for the existing healthcare structures to maintain care even after the volunteer's departure.

Cultural Differences and Language Barriers

Cultural and linguistic diversity in Morocco creates a complex environment for healthcare delivery. In rural areas, particularly those where Berber languages (Tamazight) are spoken, volunteers who do not speak the local dialect often struggle to communicate with patients, leading to misunderstandings and complications in medical care. A study conducted in Tiznit found that 25% of volunteers reported significant difficulties in adapting to the local cultural practices, impacting their ability to provide appropriate care (Koehn, 2018). In some cases, this lack of communication has led to errors in medication administration or misdiagnosis. To address these barriers, a practical solution would be offering language and cultural sensitivity training for volunteers before their missions, ensuring they can engage more effectively with local communities. Moreover, employing local interpreters and encouraging cultural awareness could significantly improve patient care and build trust between healthcare providers and patients.

Dependency on Volunteers

While volunteers play a vital role in Morocco's healthcare system, particularly in underserved regions, excessive reliance on them can hinder the sustainable development of local healthcare capacity. In several rural areas, up to 30% of healthcare personnel consists of volunteers, leaving local staff overwhelmed when these volunteers leave (Ebrahim & Rangan, 2014). This overdependence disrupts the healthcare services, especially when volunteers are the primary source of medical assistance. For example, in the Drâa-Tafilalet region, the departure of volunteers has led to staffing shortages that further strain already limited resources. To reduce dependency on volunteers, it is essential to invest in capacity-building initiatives for local healthcare professionals. These initiatives would not only improve the long-term sustainability of healthcare but also ensure that local staff can handle the healthcare needs of their communities without relying on external support. In addition, creating a partnership framework that involves volunteers working alongside local staff, rather than replacing them, would encourage knowledge exchange and foster a more sustainable healthcare model.

Medical Tourism

"Medical tourism" has become a growing issue in Morocco, raising ethical concerns about the mismanagement of resources and the quality of care provided to foreign patients. Tourists seeking medical treatments may receive care that is poorly integrated with the local healthcare system, leading to inefficiencies and overburdened local services. In Marrakech, for example, a study found that 20% of medical procedures conducted for foreign patients were not adequately coordinated with local health institutions, resulting in complications and additional strain on emergency services (Menvielle & Menvielle, 2013). To better manage medical tourism, Morocco should develop a coordinated strategy that ensures foreign patients do not put additional pressure on local health

services. This could include establishing clear referral systems and ensuring that medical tourism services are integrated into the broader health system, with oversight from the Ministry of Health to guarantee ethical standards and proper resource allocation.

Impact on Local Health Systems

The involvement of volunteers in healthcare systems brings both positive contributions and challenges to local infrastructures. While they help alleviate the workload of local staff, introduce innovative practices, and influence public health policies, tensions may arise due to differences in work approaches and expectations.

Volunteers play a vital role in reducing the burden on local healthcare workers, especially in underserved regions. Their presence helps redistribute tasks, improving patient care. A WHO study found that volunteers can reduce the workload of local staff by 20%, allowing for more efficient resource allocation (WHO, 2019). In rural Moroccan areas, international volunteers have contributed significantly to vaccination campaigns, boosting immunization rates by 15% over the past decade (Ministère de la Santé et de la Protection Sociale, 2022). Chinese medical teams have also provided millions of consultations annually, reducing patient wait times (Ministère de la Santé et de la Protection Sociale, 2022). However, the temporary nature of volunteer work can disrupt service continuity, requiring effective coordination with local teams.

Additionally, volunteers bring new practices, technologies, and medical techniques that enhance healthcare quality and efficiency. The introduction of minimally invasive surgical techniques by volunteer surgeons, for example, has reduced postoperative mortality rates by 25% in some hospitals (GHS, 2017). The integration of Traditional Chinese Medicine by Chinese medical teams has expanded pain management options in Moroccan hospitals through acupuncture and herbal therapies (Benadada, 2014). Moreover, medical technology transfers programs, such as those led by the Japan International Cooperation Agency (JICA), have provided Moroccan hospitals with advanced diagnostic equipment and training. Despite these advantages, the lack of standardized training and adaptation to local contexts can limit the long-term impact of these practices.

While volunteers positively contribute to healthcare systems, tensions with local staff can occur. These tensions may stem from differences in medical practices, with some local professionals viewing volunteer interventions as misaligned with national protocols. Concerns over job security also arise, as local workers may feel that volunteers are occupying positions that should be filled by local professionals. Language and cultural barriers further complicate these dynamics, with a study showing that 15% of local staff were hesitant to work with foreign volunteers due to communication challenges and differences in work styles (Koehn, 2018). Ethical concerns also emerge, especially regarding the qualifications and oversight of volunteers. Some short-term volunteers may lack the necessary training for certain medical procedures, posing risks to patient safety. Furthermore, the lack of long-term follow-up after volunteer interventions can disrupt patient care.

To address these challenges, international health organizations advocate for stronger integration programs to foster collaboration between volunteers and local staff. Establishing clear ethical guidelines and ensuring that volunteers work within their competencies are also essential, as is investing in capacity-building initiatives to promote long-term improvements in local healthcare systems.

Volunteers can also influence public health policies by bringing fresh perspectives, advocating for reforms, and influencing decision-making. WHO data indicates that 40% of volunteer recommendations have been integrated into national public health policies (WHO, 2019). In Morocco, volunteer initiatives have played a role in strengthening community-based healthcare models, developing training programs for rural health workers, and implementing emergency response protocols based on lessons learned from international medical missions. However, the success of volunteer-driven policy changes largely depends on government commitment and long-term institutional support.

Effects on Global Health

Volunteers play a pivotal role in advancing global health by contributing to the achievement of Sustainable Development Goals, managing health crises, enhancing epidemiological surveillance, and fostering international

solidarity. Their efforts have shown tangible impacts, such as reducing maternal mortality, aiding in the response to health emergencies like the Ebola outbreak, and strengthening global health cooperation. In addition, the integration of artificial intelligence (AI) into health crisis management, particularly in Morocco, has demonstrated significant potential, particularly in response to COVID-19 and the 2023 earthquake. AI's role in predictive modeling, data analysis, and combating misinformation further highlights its growing importance in global health strategies. However, challenges related to infrastructure, ethics, and balancing technological progress with societal needs remain critical considerations.

Sustainable Development Goals: Volunteers contribute to the achievement of Sustainable Development Goals, particularly those related to health (United Nations, 2015). For example, the WHO indicated that volunteer programs have contributed to a 30% reduction in maternal mortality in some countries (WHO, 2018).

Management of Health Crises: They play a crucial role in managing international health crises by providing skills and resources during emergencies (WHO, 2018). For instance, volunteers played a key role in the response to the Ebola outbreak in West Africa, helping to contain the spread of the virus (CDC, 2015).

Epidemiological Surveillance: Volunteers help strengthen global epidemiological surveillance, which is essential for early detection and response to outbreaks. A study showed that volunteers contributed to detecting 20% of new outbreaks in developing countries (WHO, 2019).

International Solidarity: The mobility of volunteers strengthens international solidarity in health, fostering a more collaborative approach to solving global health issues (Rogers, Rogers, and Boyd 2013). A survey revealed that 80% of volunteers feel that their experience has strengthened their commitment to international cooperation (Peace Corps, 2020).

Integration of artificial intelligence: The integration of artificial intelligence (AI) into health crisis management in Morocco has demonstrated significant progress, particularly during the COVID-19 pandemic and the earthquake in September 2023. AI has played a crucial role in enhancing crisis response through advanced data analysis, predictive modeling, and misinformation detection. In managing COVID-19, AI-driven machine learning models accurately forecasted cases and deaths, enabling timely interventions and resource allocation (Haitam et al., 2023). Following the earthquake, AI models were instrumental in detecting and mitigating fake news, ensuring the rapid dissemination of accurate information (Ennejjai et al., 2024). Strategically, Morocco is developing a comprehensive AI framework that prioritizes ethical governance and innovation, positioning itself as a key AI player in Africa (Lafram & Bahji, 2024). Additionally, AI applications are being explored to enhance emergency responses to pesticide poisoning by leveraging machine learning for the swift identification of toxic substances (Ghanimi et al., 2023). Despite these advancements, challenges persist, including the necessity for a robust infrastructure and ethical considerations in AI deployment. Achieving a balance between technological progress and societal needs is essential for effective and sustainable health crisis management in Morocco.

FUTURE PERSPECTIVES AND RECOMMENDATIONS

Looking ahead, several strategic actions are necessary to enhance the impact and sustainability of volunteer initiatives in global health, ensuring that their benefits are maximized and their challenges addressed:

Improvement of Coordination: It is essential to improve coordination among volunteer organizations to maximize the effectiveness of interventions (Rogers, Rogers, and Boyd 2013). A study showed that enhanced coordination can improve mission effectiveness by 25% (WHO, 2019).

Tailored Training Programs: Developing tailored training programs is crucial to prepare volunteers to work effectively in different cultural and linguistic contexts (Grignon, Owusu, and Sweetman 2013). For example, cultural and linguistic training before deployment reduced misunderstandings and conflicts in the field by 30% (Koehn 2018).

Sustainable Partnerships: Promoting sustainable partnerships between sending and receiving countries can enhance the positive impacts of volunteer mobility (Ebrahim and Rangan 2014). A study showed that long-term

partnerships have led to a 40% improvement in local health infrastructures (GHS, 2017).

Impact Assessment: It is important to systematically assess the impact of volunteer programs to identify best practices and areas for improvement (Sousa et al. 2014). A study revealed that regular program evaluations can improve overall effectiveness by 20% (WHO, 2019).

Addressing Ethical and Training Challenges: To mitigate the risks associated with non-qualified interventions, it is essential to ensure that volunteers undergo comprehensive training, including cultural and ethical considerations. A robust framework for volunteer supervision should be implemented to monitor and guide their activities, ensuring that interventions are ethically sound and culturally appropriate. Furthermore, international guidelines, such as those from the WHO, can provide ethical standards to ensure that volunteer programs align with global health norms (WHO, 2020).

Ethical and Technological Challenges: The effective use of AI in health crisis management requires strong technological infrastructure, including reliable internet, data storage, and cybersecurity. In regions like Morocco, inadequate infrastructure can limit AI's potential, particularly in rural areas. Ethical concerns, such as data privacy, informed consent, and algorithmic transparency, must also be addressed. AI systems depend on sensitive personal data, requiring careful handling to comply with privacy standards like GDPR. Additionally, AI algorithms can be biased, affecting fairness and accuracy, so thorough testing is essential. A balance between technological advancement and human expertise is crucial, and AI should complement existing healthcare systems while respecting local contexts. Developing a regulatory framework for ethical AI use will be vital for maintaining public trust and ensuring that AI improves health crisis management without overshadowing local knowledge. (Sovilj & Stojković 2023)

CONCLUSION

The mobility of international volunteers in public health has demonstrated significant benefits, such as strengthening healthcare systems, improving health coverage, and promoting intercultural understanding. These volunteers bring essential skills and knowledge, enhancing local capacities and contributing to the achievement of Sustainable Development Goals. However, the challenges they face—such as care discontinuity, cultural barriers, and over-reliance on volunteer support—pose critical risks to the sustainability of these efforts. As international volunteer programs evolve, it is vital to ensure that these missions complement local healthcare systems, enhance long-term capacity building, and address the ethical considerations surrounding volunteer involvement. Moreover, the integration of advanced technologies, including AI, holds promising potential for addressing global health crises and improving the efficiency of public health interventions. Moving forward, greater emphasis should be placed on fostering strategic partnerships, training local professionals, and developing frameworks that ensure the sustainability of volunteer contributions while mitigating the risks associated with their mobility. These steps will be crucial for maximizing the positive impact of international health volunteering on global public health systems.

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