

# **UNDERSTANDING HOW LANGUAGE BARRIERS INHIBIT PATIENT CARE IN EMERGENCY SITUATIONS**

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## **OVERVIEW OF PREHOSPITAL CARE IN LOW AND MIDDLE INCOME COUNTRIES**

Unlike high income countries, emergency care systems in low and middle income countries are seldom robust and lack the resources to be effective and efficient. As of 2020, The World Bank defines low and middle income countries (LMICs) as those with a gross national income per capita below \$12,375 (The World Bank, 2020). In turn, organizations such as the World Health Organization use this definition to apportion funds to countries where healthcare resources are scanty (Khan, Penoff, Pirrotta, & Hosang, 2018, p. 2). However, funding cannot be allocated to countries where data on the shortcomings of the healthcare system does not exist. The shortage of prehospital care and sufficient patient data can be attributed to many sources including: lack of funding for infrastructure, untrained medical staff, unavailability of transportation, outdated equipment, poor road conditions, and cultural misunderstandings (Kironji et al, 2018, n.p.).

Prehospital care is often decentralized in LMICs and is run by private companies who do not operate under strict legislation (Suryanto, Plummer & Boyle, 2017, p. 9). Additionally, Khan, Penoff, Pirrotta, and Hosang (2018) explained in their research that low and middle income countries (LMICs) have opted to fund more primary care facilities than emergency facilities to increase access to care. However, emergency surgeries are more common than elective surgeries in underdeveloped nations, making emergency care networks imperative (p. 2). A study conducted on public hospital access in sub-Saharan Africa by Marsh and Rouhani (2018) showed that approximately 29% of the population in 48 sub-Saharan countries lives two hours or more away from the closest hospital (p. 240). Thus, access to care is compromised for populations living far from city centers, increasing the need for tenacious urgent care networks in LMICs.

While research has been conducted on the fiscal and physical barriers to emergency care in resource-constrained nations, there is a dearth of research on the cultural barriers to emergency care. Language, in particular, poses an issue because tongues and dialects can vary heavily by region in a given country, making communication between emergency medical staff and patients difficult (Jesus, 2010, p. 18).

The technical project addresses one facet of healthcare in LMICs by examining the digitization of intraoperative data collected at University Teaching Hospital in Kigali, Rwanda. The intention of the project is to allow doctors in Rwanda to access patient data in order to perform research studies on surgical outcomes. In the case of surgeries, intraoperative data can elucidate recovery time and the probabilities of certain surgical outcomes, including death (Vaid, Bell, Grim, & Ahuja, 2012, p. 12). Perioperative mortality rate (POMR), which measures the number of mortalities from surgeries in a given hospital, is one metric which can be accurately calculated with better data collection processes. Metrics such as POMR also determine how likely a hospital is to receive funding from the World Health Organization (Khan, Penoff, Pirrotta, & Hosang, 2018, p. 2). Regarding prehospital care, data collection is necessary for emergency medical staff to inform physicians in hospitals of a patient's symptoms and medical background.

The technical project and interactions with doctors from multiple LMICs served as motivation for the STS topic, which seeks to define the impact of language barriers on prehospital care in LMICs. Ultimately, clear communication between paramedics and patients is critical for accurate reporting to physicians, proper diagnosis and successful treatment. In this way, the technical and STS projects can inform better data collection practices in order to improve patient outcomes. The coupling between both topics is evident in the need for effective

data collection practices in surgeries and emergencies. The geographic focus of both topics is sub-Saharan African countries and other low and middle income countries around the world.

## THE RELATIONSHIP BETWEEN LANGUAGE AND EMERGENCY MEDICINE

A common characteristic shared between many LMICs is the multitude of languages spoken within the same country. Not considering dialects, the languages vary widely between the various regions in a country. Despite having a national language, many people remain fluent in a different mother tongue, which poses a problem when approached by healthcare professionals who are trained to communicate in a standardized language, as observed in a study conducted by researcher Narayan in 2013. An example of this is seen in India, which is a lower middle income country with 22 official languages and 122 recognized languages and dialects across the country

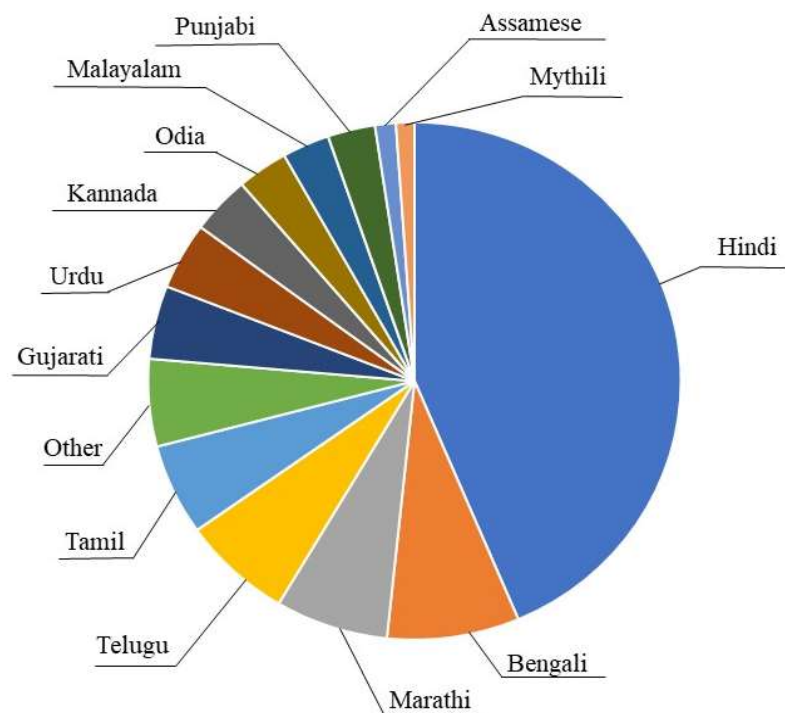


Figure 1: Distribution of Mother Tongues in India: Visual representation of most languages and their popularity throughout India (Adapted by Channavajjala, B., from data provided by Office of Registrar General, India, 2019).

(Narayan, 2013, p. 236). Figure 1 below shows the distribution of 14 out of 22 primary languages spoken throughout India and illustrates how varied patient backgrounds can be.

Furthermore, medical vocabulary is often limited to the national language of a country and prevents patients from

understanding the full extent of a medical condition in their own tongue. Narayan (2013) also

noticed that patients usually receive very crude, un-nuanced translations for what they are seeking if they are unable to understand the doctor (p. 236).

In addition to misinforming patients about their conditions, miscommunication may even result in mistreatment. The risk of mistreatment is further exacerbated when doctors are operating under time constraints, which is often the case in emergency situations and in understaffed hospitals in LMICs (Jesus, 2010). Dr. John Jesus' team travelled to Ghana for a medical initiative and observed that short-term projects such as theirs could easily be marred by miscommunication. Their initiative took place along the Volta River in Ghana, which houses a large, underdeveloped community (Jesus, 2010, p. 17). Dr. Jesus concluded that even the slightest misinterpretation could have led to an misunderstanding of symptoms and incorrect diagnoses for patients (Jesus, 2010, p.18). Given that many encounters between emergency care staff and patients tend to be strained by time and pressure, it follows that even nuanced mistranslations could occlude proper patient treatment.

Another threat imposed by communication gaps between care providers and patients is that of a power imbalance. Doctors can use the naivete and misinformation of a patient to their advantage by administering ineffective, but convenient treatments or by neglecting the full extent of the patient's condition. Thus, patients in underdeveloped countries tend to mistrust the healthcare system, leading more people to self-diagnose and self-medicate instead of seeking professional care. An example of doctors violating patients' trust was demonstrated in a study in South Africa conducted by Hunter-Adams and Rother (2017). The researchers studied how migrant populations in Cape Town, South Africa struggled to receive proper maternal care because of their inability to speak any of South Africa's many languages. The women in the study hailed from Zimbabwe, Somalia, and the Democratic Republic of Congo and required their

partners to translate questions and recommendations from healthcare providers (p. 1). In a focus group setting, the women discussed how they were stereotyped by doctors and were sometimes forced into treatments they felt they did not require. Language was used discriminatorily in healthcare settings and patients were ultimately unable to communicate all their concerns to the doctor. This led to the women to mistrust their healthcare options in South Africa (p. 5).

Previous studies have highlighted the dangers of miscommunication in hospital care which include: lack of transparency in medical procedures, mistranslation, mistreatment and discrimination. Thus, given the power language has to influence the diagnosis and treatment of a patient's condition, this STS project seeks to understand how language barriers prevent proper healthcare administration in emergency situations, as opposed to hospital settings. Especially in time-constrained settings, heightened pressure may lead to translation errors which can be fatal for patients. Therefore, overcoming language barriers in emergency situations can help medical personnel deliver safe and effective treatments in a timely manner. Using Pacey's Triangle, this STS paper will examine the cultural, technical and organizational contexts surrounding emergency care in LMICs and pinpoint how language barriers penetrate each context. The results of this analysis point to solutions for improving communication between patients and doctors, and could help all professionals associated with emergency care better understand best practices for conversing with patients and their families.

## **USING PACEY'S TRIANGLE AS A FRAMEWORK FOR UNDERSTANDING EMERGENCY CARE IN LMICs**

In this book, *The Culture of Technology*, author Arnold Pacey asserts that technology exists within a societal context and that its use is governed by complex interactions. In order to characterize these interactions, Pacey mapped the organizational, technical and cultural contexts

of technology to a triangular framework, known as Pacey’s Triangle. The contexts of emergency care in LMICs can thus be mapped to Pacey’s Triangle (Pacey, 1983). Upon elaborating on each of the contexts, it is evident that language and communication play an essential role in every aspect of prehospital care. As seen in the Figure 2 below, emergency care administration is the technology placed at the center of the triangle and associated organizational, cultural and technical elements are listed at the vertices of the triangle.

## THE ORGANIZATIONAL CONTEXT OF EMERGENCY CARE

The idea of emergency care is rooted in international initiatives to grant every citizen the right to a healthy life. Three examples of international treaties and governmental decrees exist that enforce this

idea. These can be mapped to the

organizational

aspect of

Pacey’s

Triangle. The

first example is

Article 12 of the

United Nations’

International

Covenant for

Economic, Social and Cultural Rights (1976), which states that “The States Parties to the present

Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of

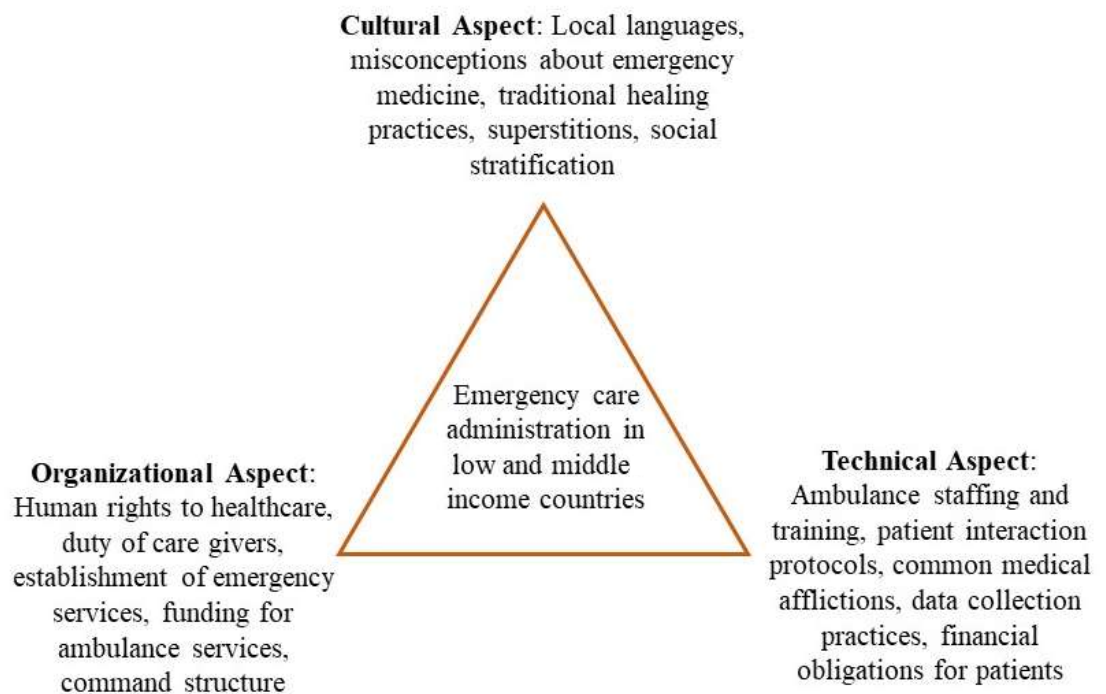


Figure 2: Contexts of Emergency Data Collection: Adapting Pacey's Triangle to the cultural, organizational and technical aspects of emergency care in low and middle income countries (Adapted by Channavajjala, B. from Pacey A., 2020)

physical and mental health”, and that this is contingent upon “creation of conditions which would assure to all medical service and medical attention in the event of sickness” (Article 12, para. 1). The United Nations has continued to support the tenants of this treaty since 1976. As a governing body, the United Nations represents an international effort to afford equal and proper care to all global citizens and many LMICs have signed the treaty, affirming their commitment to providing quality medical care for all their citizens (International Covenant for Economic, Social and Cultural Rights, 1976).

The second example of government action to promote fair healthcare practices comes from South Africa where the Constitution of South Africa and the National Health Act of 2003 prevent cultural discrimination in healthcare (Van den Berg, 2016, p. 229). The Constitution of South Africa, which was promulgated in 1996, explicitly states that every citizen has the right to health care services, including reproductive health (Chapter 1, § 27). Additionally, the constitution dedicates a section of Chapter 1 to recognizing the myriad of languages spoken in South Africa and ensures that conditions will be created for all languages to coexist and receive respect (Chapter 1, § 6). Enacted in 2003, the National Health Act of South Africa states that healthcare providers must fully inform patients of their rights, medical afflictions, treatment options, and potential exposure to risk for each treatment option (p. 20). In order to convey this to patients, subsection 6 of Chapter 2 states that “The health care provider concerned must, where possible, inform the user ... in a language that the user understands and in a manner, which takes into account the user’s level of literacy” (Republic of South Africa, 2003, p. 20). Together, the Constitution of South Africa and National Health Act of South Africa assert that all citizens have the right to receive healthcare in the language they understand best, and cannot be discriminated against on the basis of language.



The final example of governmental action to ensure proper healthcare delivery to citizens, comes from Ghana. Adamtey, Frimpong and Dinye (2015) recounted actions taken by Ghana's Ministry of Health to establish the National Ambulance Services (NAS) following the stampede at Accra Sports Stadium in the year 2001, which took the lives of 126 people. By 2015, NAS had expanded to every district in Ghana and was available to citizens 24 hours a day (p. 74). This final example of governmental action to provide healthcare to citizens demonstrates the organizational impetus behind emergency care in LMICs. The United Nations and national governments such as those of Ghana and South Africa acknowledge every human's right to proper healthcare and the South African government even took further legislative action to prevent language from being a barrier to patient treatment. Thus, language plays a role in the organizational aspect of emergency care services in LMICs, as ignoring it could mean ignoring the human right to adequate medical attention.

## **THE TECHNICAL CONTEXT OF EMERGENCY CARE**

The technical aspect of Pacey's Triangle involves: training of emergency care staff, availability of ambulances, data collection practices, and other logistical details. Suryanto, Plummer & Boyle (2017) reviewed the capabilities of ambulance fleets across various LMICs. They found that most ambulance personnel were untrained in the necessary technical skills and were overworked, making patient interactions even more difficult. In Morocco, specifically, they reported that a typical ambulance is staffed with a driver and two paramedics, where only one of the paramedics is trained in prehospital care (p. 13). Furthermore, the researchers found that in a fleet of ambulances in the Fez district of Morocco, only three out of 15 ambulances were equipped with resuscitation equipment. The other 12 ambulances only contained first aid equipment (p. 14). Suryanto et al. (2017) reported similar problems in Nigeria and Sudan, where

drivers were largely untrained and overworked (p. 12). In Ghana, while the National Ambulance Service is very widespread, staff are generally trained in cardiopulmonary resuscitation, oxygen therapy, bandaging, and splinting, but do not have formal training, making advanced caregiving and patient communication difficult and unprofessional (Suryanto et al., 2017, p. 13). The unavailability of emergency services and undertraining of staff implies that essential skills such as interpersonal communication are ignored, given that basic functions of ambulatory services are already lacking. Consequently, unprofessional medical services can eventually lead to public mistrust in the emergency care system, as it is perceived as inaccessible and inefficient.

Another facet of the technical aspect of emergency care services draws on the previously identified unreliability of ambulances. Adamtey et al. (2015) studied the adoption of emergency care in the Bibiani-Anhwiaso-Bekwai District of Ghana and found that patients in Ghana tend to prefer other forms of transportation to ambulances for a variety of reasons. First, poor road conditions and mechanical failures of the ambulances inhibit the emergency medical technicians (EMTs) from arriving to the scene on time. Thus, patients preferred to take a taxi or other convenient transportation to the nearest hospital (p. 80). Second, the families of patients were often asked to bear the burden of fuel costs for the ambulance because federal funding allotted to ambulances was used to address mechanical maintenance. Thus, unclear communication regarding fuel costs deterred patients from using ambulances in emergencies (Adamtey et al., 2015, p. 80). Finally, EMTs were required to fill out a patient information form to present to the hospital upon arrival, but had to adapt to local languages to accurately fill out the form, which many EMTs were unable to do. Issues of patient vulnerability made this difficult and ambulance personnel were reportedly acting unprofessionally under time constraints (Adamtey et al., 2015, p. 76). Therefore, the logistic issues inherent in using ambulances for transportation encourages

patients to use their own transportation to hospitals rather than relying on emergency networks. While Adamtey et al. (2015) only conducted their study in Ghana, other LMICs with a decreased ambulance presence may be facing similar problems, with a greater intensity.

A final consideration for the technical aspect of emergency care services is whether populations are aware of emergency care services and the support they are able to provide. In their 2018 study, Kironji et al. found that populations of LMICs were unaware of the best number to call in order to contact emergency services or unaware that such services even existed. It was even reported that some dispatch centers lacked trained staff and thus did not relay information to paramedics properly. Overall, 45% of the articles reviewed by Kironji et al. (2018) reported that communication and coordination with emergency transportation services were barriers to accepting emergency care (n.p.). It is evident how miscommunication and language barriers can affect a patient's experience from communicating with the dispatcher to explaining symptoms to care personnel, who are often under duress because of time constraints and their lack of comprehensive training.

## **THE CULTURAL CONTEXT OF EMERGENCY CARE**

The final aspect of Pacey's Triangle to consider is the cultural context of emergency services, which encompasses: cultural beliefs, traditional practices, language preferences and social dynamics. A significant cultural barrier to emergency care is the trust rural populations place in traditional healing practices. Kironji et al. (2018) identified cases in Kenya and India where patients preferred their traditional healing practices to the services offered by emergency services. There were also cases where emergent conditions in the patients were not recognized early, thus resulting in a delay of care (n.p.). The study conducted in the Volta River district of Ghana by Dr. John Jesus in 2010 echoed a similar sentiment, contending that a lack of

understanding of local healing practices could be harmful, as it is unclear how the patient has already been treated (p. 18). Thus, both studies exhibit how reluctant rural populations can be to accepting modern medical practices. Given this, language barriers could further complicate emergency care administration by paramedics if patients and their families are already reliant on traditional healing practices.

Another cultural aspect of emergency care to consider is that a lack of knowledge of emergency care services leads to mistrust and neglect of urgent care. Considering the uncertainty language barriers can create when populations have not been exposed to modern medical practices, it follows that the same populations are hesitant when foreign treatments are recommended to them by doctors. In their study in the Bibiani-Anhwiaso-Bekwai District of Ghana, Adamtey et al. (2015) found that 70% of the participants believed ambulances were used to transport corpses and that only dead relatives were carried away in them. Some onlookers even refused to let ambulances park in front of their houses because they perceived the ambulance to be a negative omen. This misconception was not effectively dispelled by emergency care service providers, making people even more hesitant to accept urgent care for future needs (p. 81). Suryanto et al. (2017) noted that in Indonesia, populations perceived accidents or diseases as a sign from God and refused to accept urgent care services for that reason (p. 15). Deep cultural beliefs can therefore become obstacles to patients receiving proper urgent care. These obstacles are exacerbated by communication difficulties, where paramedics are unable to communicate the value and purpose of their services to patients and their families. This is especially true under the time and pressure constraints inherent in emergencies.

A final cultural aspect to consider in emergency care is the power imbalance created between linguistic minorities and those who are fluent in commonly-spoken languages. This

imbalance is clear between doctors and patients who do not speak the same language, and by extension, can be observed between paramedics and families of patients. The technical knowledge medical experts possess, coupled with their ability to communicate in the language of the majority, creates a superiority complex which results in mistreatment and discrimination of patients. Narayan (2013) found that linguistic minorities and illiterate populations were more likely to experience language barriers, and were neglected more often by doctors in India (p. 236). Such minorities could only afford to receive treatment in overcrowded and understaffed public hospitals and thus received minimal attention from doctors, as patients were not able to comprehend the extent of own their medical affliction (Narayan, 2013, p. 236).

The previously referenced study conducted by Hunter-Adams and Rother in 2017 in Cape Town, South Africa found that immigrant women seeking care felt that they were being intentionally mistreated by their doctors because they could not understand local languages. These women felt they were being forced into treatments they did not require, as a result. From this, the researchers concluded that linguistic minorities placed minimal trust in healthcare providers (p. 5). These studies recount examples of language barriers creating a toxic, unethical power dynamic between doctors and patients, which can easily be extrapolated to the dynamic between paramedics and patients who are in a linguistic minority. Given the pressure EMTs experience, they may not communicate or listen to patients fully and could misunderstand the patient's afflictions or could incorrectly stereotype patients based on their cultural background, leading to unfair biases. Thus, emergency care services have an extensive cultural context in LMICs because populations may have their own traditional healing practices, beliefs and languages which can create a power imbalance, mistrust and miscommunication between caregivers and patients in urgent situations.

## **OVERCOMING LANGUAGE BARRIERS IN EMERGENCY SITUATIONS**

From using Pacey's Triangle as a framework for analyzing the contexts of emergency care, it is evident that language barriers affect emergency care administration organizationally, technically and culturally. Multiple studies have cited examples of countries where emergency medical technicians are not properly trained to handle all patient afflictions and are also not trained to communicate effectively with patients. Furthermore, collecting patient's data is made even more difficult because patients and their families are unable to trust paramedics due to cultural and sometimes, financial barriers. While international treaties and other governmental initiatives guarantee the right for every citizen to receive medical attention regardless of race, gender, language, etc. emergency care systems remain underdeveloped and care personnel remain untrained in interacting with patients who speak various languages and have different cultural backgrounds. In South Africa, for example, the Constitution and National Health Act guarantee that citizens will receive proper healthcare in the language they find most comfortable, but the study conducted by Hunter-Adams and Rother in 2017 found that immigrants from Zimbabwe, Somalia and the Democratic Republic of Congo faced discrimination and maltreatment when they sought medical attention in South Africa. Thus, there is a discordance between the organizational measures set in place to protect the rights of the population and the logistical execution of health care in LMICs.

Although emergency care systems still have scope for development in LMICs such as Morocco, Ghana and Nigeria, effective systems have been implemented in other low-resource settings. In their literature review, Suryanto et al. (2017) mention that Pakistan is an example of a lower-middle income country with a successful emergency care system. They attribute Pakistan's success to monetary support from high income countries, strategic placement of

ambulance stations, the use of a single command structure, and culturally-minded training for care personnel (p. 11). Similarly, a 2016 study by Tate, Hodkinson, Meehan-Coussee and Cooperstein, which surveyed dispatchers and field operators in both New Mexico and South Africa found potential solutions for a better functioning emergency care network. Dispatchers often relied on third-party translators to convey information to the patient and field operators had to rely on bystanders to converse properly with patients, compromising patient confidentiality and introducing the possibility for bias (p. 417). The study suggested extra training for emergency personnel, the use of visual aids in the ambulance to communicate with patients and the use of mobile apps to translate basic phrases (Tate, Hodkinson et al., 2016, p. 415).

Based on the studies in Pakistan, New Mexico and South Africa, proposed solutions to overcoming language barriers include: better training programs for care personnel, having translators on hand and the use of cellular devices for translation. While feasible in some countries, such solutions can be difficult to implement because of inadequate funding. The lack of funding prevents more comprehensive training programs and hiring of experienced translators. Additionally, while many mobile apps are available for quick translation, network coverage is usually scanty in rural areas of LMICs, discouraging the use of mobile applications which require Internet connection. The general understaffing and overworking of personnel as seen in Nigeria and Sudan also makes it difficult for hospitals to schedule comprehensive training sessions (Suryanto et al., 2017, p.12). However, care systems could adopt some of the strategies used in Pakistan to establish a clear chain of command and include culturally-gear training for personnel before they are initially dispatched to work.

Ultimately, emergency care personnel in underdeveloped nations lack proper training and should be made more aware of local languages and strategies for overcoming communication

barriers. These strategies can be introduced in training or through the use of visual aids to help patients understand their treatment and any financial obligations. Future work can examine the effectiveness of visual aids and avenues for training personnel in various languages and cultural practices of rural populations. In a broader context, emergency care systems can be perceived as a metaphor for the general healthcare system in LMICs. Communication gaps can negatively affect patient experience in most healthcare settings and may also result in mistreatment and discrimination. Thus, the findings of this paper suggest that healthcare workers should be more cognizant of language differences and should be trained to overcome them, as misunderstandings can violate the basic human right to fair and proper healthcare.



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