

Coloniality in Simulation-Based Medical Education

Abstract

Simulation-based medical education (SBME) has emerged as a dominant pedagogical tool globally, yet its diffusion into low- and middle-income countries (LMICs) frequently occurs through uncritical transfer from high-income country (HIC) contexts. This viewpoint examines how coloniality, the enduring structures of power, knowledge, and cultural hierarchy inherited from colonialism continues to shape SBME in LMICs. Drawing on the author's experiences as a simulationist in Sri Lanka and the UK, the paper explores how colonial assumptions manifest across three phases of simulation practice: design and planning, execution and facilitation, and evaluation. In the planning stage, imported educational theories and faculty-development models often neglect local learning cultures and social hierarchies, resulting in pedagogical dissonance. In execution, simulation activities are frequently delivered in colonial languages and rely on equipment designed for Western physiologies, producing artificial learning encounters and limiting psychological safety. Evaluation processes, meanwhile, depend on HIC-derived metrics and standards that marginalize indigenous perspectives and reinforce epistemic dependency. These practices collectively reproduce inequities that privilege Western frameworks while silencing local innovation and contextual adaptation. Decolonising SBME therefore requires deliberate awareness, reflection, and re-design—through multilingual instruction, co-creation of contextually relevant scenarios, and development of locally led faculty and research ecosystems. By reframing simulation not as a technology to be imported but as a relational, culturally situated educational practice, educators can create more authentic and equitable learning environments. This article calls on simulationists, educators, and policymakers in both HICs and LMICs to recognize colonial legacies in SBME and to pursue inclusive, locally grounded approaches that enhance patient safety and learning outcomes without perpetuating dependency. Confronting coloniality within simulation is thus a necessary step toward the broader decolonization of global medical education.

Keywords: Simulation, Coloniality, Medical education, Low-and-middle-income countries

Practitioner Points:

1. Simulation-based medical education (SBME) in low- and middle-income countries (LMICs) often reproduces colonial assumptions from high-income contexts, limiting its contextual relevance.
2. Decolonising SBME requires critically adapting design, delivery, and evaluation processes to reflect local culture, language, and healthcare realities.
3. Building local simulation expertise and promoting contextually relevant innovation are essential to ensure equitable and sustainable simulation practices in LMICs

Main text

Simulation is a relatively new entrant to the teaching methodologies employed in medical education within low- and middle-income countries (LMICs) often adopted from High-income country (HIC) curricula. The term “LMICs” used in this essay broadly represents

under privileged communities that remain in “coloniality” embedded within the “colonial matrix of power”, extending beyond the traditional definition of post-colonial nations (1). Coloniality, defined as “the long-standing patterns of power that emerged from colonialism, but that define culture, labour, relationships, and knowledge production beyond the limits and existence of colonial administrations,” continues to shape educators and learners in LMICs.(2) Modern medical education can be viewed as a colonial legacy, deeply rooted in the coloniality of knowledge systems introduced under imperial rule.(3)

Before exploring the significance of simulation in medical education in LMICs, it is essential to understand what simulation means and the role of a “simulationist”. Gaba defines simulation as “a technique, not a technology, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion.” (4) A simulationist, in turn, is a professional responsible for designing, delivering, and facilitating simulation activities, products, and services.(5)

Simulation has been extensively researched, and proven effective in enhancing safety and learning outcomes in HIC medical education.(6) However, research evaluating its effectiveness in LMICs remains scarce.(7) Despite this gap, there is often an unexamined colonial assumption that the success of simulation in HIC contexts guarantees its universal applicability. (8) This assumption fosters the uncritical adoption of simulation as a benevolent intervention which is often implemented wholesale in the LMICs without adequately considering its contextual relevance or actual efficacy.(9)

Rather than providing definitive answers, this essay aims to identify and examine the prevailing issues in simulation-based medical education (SBME) arising from coloniality. These issues are explored through examples drawn from the lead author’s own experiences and observations as a simulationist in Sri Lanka.

Simulation can be broadly divided into three distinct phases: design and planning, execution or conduction of the simulation (including debriefing), and the evaluation phase. Each phase will be analysed individually to explore how coloniality manifests within these stages in SBME.

In the planning phase it is important to understand fundamental educational theories underlying simulation which are experiential learning and transformative learning. (10,11) These theories rely on the core principles of reflection on practice, genuine interest in reflecting, and intrinsic motivation to learn. However, in LMICs, the educational and parenting styles in many LMIC contexts is often rooted in didactic methods and instructional learning, leaving little room for autonomous reflection or self-directed learning. This is a key requirement for the effective implementation of SBME and an example where HIC standards of assumption are not directly transferable.(9,12) It remains unclear whether patient outcomes can be improved by completely unlearning and re-learning reflection practices or by adapting simulation methods to align with ingrained cultural practices while evolving the approach to include a reflective practice.-

In planning SBME, understanding how psychological safety of learner is maintained is critical for its effectiveness. Psychological safety as a concept often emerges from research and practices developed in HICs.(13) Disrupting these power dynamics is essential for individuals to feel free to express opinions or admit mistakes without fear of retribution(14,15). In LMICs, resource limitations can create environments of stressful competition. These pressures exacerbate fear of making mistakes or speaking up due to concerns about job security, resource allocation, or punitive measures, which makes the direct transfer of psychological safety models from HIC contexts challenging. Adopting a decolonial lens would mean reimagining psychological safety in ways that resonate with local cultural values.

Colonial legacy is evident when planning the goals, aims or objectives of simulation projects in LMICs. In HICs, simulation often aims to enhance patient safety within their specific healthcare realities while in LMICs, simulation is often employed to deliver standardized courses, such as Advanced Life Support (ALS) or Advanced Trauma Life Support (ATLS), which are prerequisites for healthcare professionals seeking employment in HICs. Consequently, while the stated objective of simulation-based education may be to improve skills or knowledge, its actual function often aligns more closely with meeting the workforce demands of HICs. HICs, which rely heavily on importing healthcare workers from LMICs, impose certification and training requirements that align with their systems. (16,17)Therefore, LMICs are often compelled to integrate simulation into medical education due to international accreditation pressures, or perceived global best practices.(18,19) This adoption occurs even when there are significant contextual barriers, such as a lack of curriculum, trained simulation expertise, or infrastructure.

What is often framed as “best practice” in HIC simulation is built upon assumptions of flattened hierarchies, protected learning time, resource abundance, and culturally reinforced individualism. These structural and cultural preconditions are not universally present in LMIC contexts. When such practices are transferred without adaptation, they risk producing pedagogical friction rather than transformation. Therefore, the question is not whether HIC-derived practices are inherently flawed, but whether their underlying assumptions align with local sociocultural and institutional realities.

Faculty development plays a crucial role in the planning phase of simulation. (6) Faculty development programs in LMICs often depend on trainers from HICs.(20) For example, in Sri Lanka, training of trainers conducted by foreign faculty is often regarded as more desirable than training provided locally reflecting the colonial matrix of power. This perpetuates the notion that expertise resides in HICs, marginalising local knowledge and limiting the growth of Indigenous faculty expertise. Due to this external authority, faculty in LMICs may feel pressured to adopt the practices and philosophies based on HICs without questioning their applicability. Faculty in LMICs even feel that their contributions or achievements are only legitimate if recognised by HIC-based institutions, which undermines their agency and autonomy. Addressing these challenges would require a deliberate effort to decolonise faculty development process and a better awareness of the coloniality by those involved in global SBME. Possible measures include establishing locally led faculty training programs that prioritise contextual case design; creating South–South simulation partnerships rather than relying exclusively on North–South collaborations; recognising local

simulation scholarship and innovation as legitimate without requiring external validation; developing certification pathways governed by national professional bodies; and incorporating critical reflexive practice that examines power dynamics in global simulation exchanges.

Modernity, as the current manifestation of coloniality, shapes notions of humanity which is referred to as “coloniality of being”.⁽¹⁾ These constructs reinforce colonial foundations that uphold the perceived superiority of certain ways of being human over others.⁽²¹⁾ This influence is evident in often mandating delivery to be conducted in the language of former colonisers. ⁽¹²⁾ In such contexts, simulation becomes an artificial encounter. For instance, although doctors and nurses in Sri Lanka typically communicate in Sinhala or Tamil, they are frequently required to converse in English during simulation sessions, even when the simulationist is proficient in native languages. ⁽²²⁾ It is essential to delve deeper into the history of medical education and the establishment of educational institutions, to understand why this unwritten rule of using English as the language of instruction continues to dominate, despite its limited necessity beyond allopathic medical terminology.⁽¹²⁾ This exploration could shed light on the colonial legacy’s implications for the efficacy of SBME in LMICs.

The simulation equipment currently utilised to deliver SBME is often designed for countries with higher purchasing power. For example, the standard 7-foot white male mannequin, commonly used in simulation, fails to represent the average 5-foot individual with a brown complexion typical in South Asia. Furthermore, the cyanosis or a rash that appears on a white high-fidelity manikin is meaningless for the learning in a brown skin majority context where the colours are often subtle or different⁽²³⁾. This mismatch illustrates how learning can be impaired, even when scenarios remain identical, due to the lack of contextually appropriate tools. Efforts to address equity and diversity in simulation equipment have emerged, but these initiatives primarily aim to address the diverse populations within HICs. This is evident by the financial barriers which further limit access to that equipment in LMICs. ⁽²⁴⁾ While improvising simulation equipment or using standardized patients can serve as practical alternatives in LMICs, the colonial mentality and the drive to adopt “McDonaldized standards” of medical education may explain why such contextually appropriate solutions are often overlooked.⁽²⁵⁾ Moreover, there is scarcity of local simulation equipment related research and development in LMICs. This phenomenon in LMICs warrants further exploration to better understand its implications for SBME.

Evaluation of SBME also continues to reinforce colonial frameworks. Standardized evaluation forms and processes predominantly originate from research in HICs, with tools and best practice recommendations originating from five historically colonizing countries (the UK, US, Canada, Netherlands, and Australia) dominating lead authorship positions ⁽²⁶⁾ This dominance can be attributed in part to the availability of funding for research and legislative requirement for measuring outcomes for quality improvement in these countries. Conversely, many LMICs lack local legislation mandating the evaluation of educational projects, and findings from such evaluations often fail to lead to actionable changes, reflecting broader challenges in medical education that extend to simulation. The widespread adoption of HIC-developed evaluation standards marginalises knowledge and methods originating in LMICs, treating them as less rigorous or valid. This dominance

reinforces a colonial hierarchy of knowledge where HIC perspectives are privileged. (20,27) Despite these challenges, the effectiveness of SBME heavily depends on feedback provided to simulationists. This feedback is crucial not only for improving the quality of simulation exercises but also for ensuring their sustainability. (28) Addressing the colonial underpinnings in evaluation practices and prioritizing meaningful feedback mechanisms are therefore essential for the long-term success and contextual relevance of simulation in LMICs.

The scarcity of SBME research originating from LMICs reflects deeper structural inequities in funding allocation, authorship hierarchies, and access to publication platforms. Addressing this imbalance requires deliberate and systemic strategies: dedicated funding streams that prioritise LMIC-led simulation research; journal policies that promote equitable authorship representation and guard against tokenistic collaboration; targeted capacity-building in qualitative, mixed-methods, and context-sensitive research approaches; the establishment of regional simulation research networks to foster South–South collaboration; and a shift in scholarly value systems to recognise implementation research and pragmatic innovation as equally important as technologically sophisticated interventions. Research agendas within LMICs should focus on locally meaningful questions, such as how simulation operates within hierarchical healthcare systems, what culturally grounded models of debriefing are most effective, and how multilingual delivery influences learning outcomes and psychological safety. Without strengthening locally grounded research ecosystems, SBME in LMICs risks remaining epistemically dependent on HIC scholarship, thereby perpetuating the very colonial hierarchies it seeks to challenge.

Decolonising SBME requires moving beyond passive recognition of inequity toward deliberate, structured action. As Naidu reminds us, awareness is a prerequisite for deliberation, and without deliberation, meaningful action cannot follow.(3) Building on this, reform must occur across design, delivery, and evaluation. At the design stage, simulation objectives should be grounded in local health priorities rather than external accreditation pressures or migration-driven workforce demands. At the delivery stage, multilingual facilitation, culturally responsive debriefing models, and contextually representative scenarios must be normalised rather than treated as secondary adaptations. At the evaluation stage, locally derived metrics, scholarship, and research leadership should be legitimised alongside global standards. Because SBME occupies a central position in contemporary medical education, its colonial underpinnings cannot remain unexamined if broader educational reform is to occur. Only when simulation is reframed as a culturally situated and relational practice, rather than a universally transferable technology, can it contribute meaningfully to equitable learning environments and sustainable healthcare development in LMIC contexts.

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