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Integrating conflict-health training into healthcare curricula in low- and middle-income countries

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Protracted conflicts continue to strain health systems in Low- and Middle-Income Countries, leaving healthcare professionals underprepared for conflict-related challenges. Here, we highlight practical recommendations for integrating conflict-responsive training into healthcare education to strengthen workforce readiness in conflict-affected settings.

Current gaps and challenges in conflict-related training in healthcare curricula

Many regions across the world experience protracted armed conflicts and political unrest, resulting in severe humanitarian crises and significant health challenges including strained health systems. This currently applies to countries such as Lebanon, the occupied Palestinian territories, Sudan and Yemen[1,2]. This endemic state of hostilities creates a warfare ecology, with challenges persisting beyond ceasefires[3]. Healthcare delivery and patient needs are different from those seen in peaceful conditions. Warfare populations suffer from high rates of trauma injury, including blast injuries, complex limb wounds and burns, as well as infectious disease outbreaks exacerbated by overcrowding, poor sanitation and interrupted public health programs. These conditions place immense demands on the whole healthcare team[4]. Medical doctors and nurses are often required to manage complex cases with limited resources and high patient ratios, make urgent triage decisions, and perform under extreme pressure. Pharmacists also face challenges securing, managing, and dispensing essential medications while balancing clinical duties amid unstable supply chains and shifting treatment protocols. Mental health specialists must respond to widespread psychological trauma, including acute stress and post-traumatic stress disorder, which are widespread and often neglected disorders. Respiratory therapists and social workers may experience a high workload with limited resources, while dietitians, physical and rehabilitation specialists are not fully engaged and unable to deliver comprehensive care. This highlights a shared global need to create a healthcare workforce that can work effectively in conflict zones and respond to context-specific humanitarian needs[5].

Despite these acute needs, most healthcare curricula offered in academic institutions of low- and middle-income countries remain tethered to educational models developed for Western-based, high-resource healthcare environments[6,7]. These educational programs commonly mirror high income countries' frameworks, overlooking the differences in disease patterns, resource availability, and operational constraints that define conflict-affected settings[8,9]. As a result, healthcare students learn universal medical principles that, even though foundational, fail to prepare them for the realities of conflict zones[10,11]. Moreover, sustainable transfer and retention of knowledge is limited. Training efforts led by international humanitarian organizations, while beneficial in the short term, often result in temporary gains without establishing lasting local capacity. This is partly due to pedagogical approaches that emphasize knowledge acquisition over developing an understanding of the contextual constraints and the behavior change necessary to translate knowledge into effective action and thus improved patient outcomes. Moreover, there is limited academic infrastructure available to support both the dissemination of specialized conflict-related knowledge and its effective implementation. Healthcare professionals managing conflict-related health conditions often work in non-academic settings, resulting in limited systematic knowledge transfer to future generations and a reliance on informal channels[5]. This transient approach hinders the ability to independently develop and maintain expertise, perpetuating a cycle of reliance on external support[12].

This persistent gap, where conflict-related healthcare remains largely overlooked by conventional Western-based education models, underscores the urgent need to contextualize and integrate conflict-responsive training into formal healthcare curricula. Addressing this requires not only curricular reform but also an understanding of the barriers and enablers to deliver pragmatic, effective, and evidence-informed healthcare within fragmented, under-resourced, and insecure systems. In this Comment, we offer practical recommendations for addressing this gap.

The contribution of the global health institute to advancing conflict-related training

Established in 2017, the Global Health Institute (GHI) at the American University of Beirut adopts an interdisciplinary and contextualized approach to bridge regional priorities with global health agendas, fostering partnerships, and generating impactful evidence to inform policy and practice. Through its Academy Division and Conflict Medicine Program, GHI has rolled out several initiatives aimed at equipping healthcare

professionals with both theoretical foundations and practical skills necessary for conflict zones. These include the development of a Certificate in Conflict Medicine, which aims to deliver medical knowledge contextualized to the settings of conflict and fragility; the establishment of the Centre for Research and Education in the Ecology of War; a fellowship program focused on equipping healthcare professionals with the skills to conduct research in conflict settings, and ongoing work on a competency-based framework for post-graduate conflict medicine training.

To frame all these efforts in a participatory approach with stakeholders, GHI hosted two regional intersectoral dialogs bringing together an international consortium of healthcare practitioners, academics, and humanitarians from different healthcare disciplines. Stakeholders examined the need to embed conflict-related training as a core component of healthcare education, while also addressing the practical considerations associated with its adoption. The first dialog focused on the clinical experience of physicians in conflict settings. The second broadened the scope to nursing, pharmacy, psychology, rehabilitation and allied health professionals, highlighting the multidisciplinary nature of healthcare delivery during conflict. Each intersectoral dialog was structured around two panel discussions. The first panel focused on the experiences of healthcare professionals and how their roles shift in conflict settings and the challenges they face. The second panel built on these insights and explored potential strategies for integrating conflict-related training into healthcare education. The following section presents the outcomes of these two intersectoral dialogs, outlining the key considerations and approaches discussed.

Practical pathways for structured approaches to integrate conflict-related training into formal healthcare curricula

Building on the outcomes of the intersectoral dialogs, we propose the following practical pathways to support the integration of conflict-related training into healthcare curricula. These can be organized into four main categories: (1) Foundational Components, (2) Curricular Pathways, (3) Pedagogical Approaches, and (4) Academic Stages of Integration (Fig. 1).

Prioritize early sensitization. Healthcare curricula should introduce conflict-context training early. This foundational exposure is vital for all healthcare professionals. Sensitization should extend beyond theoretical knowledge to include contextual sociopolitical awareness, culture

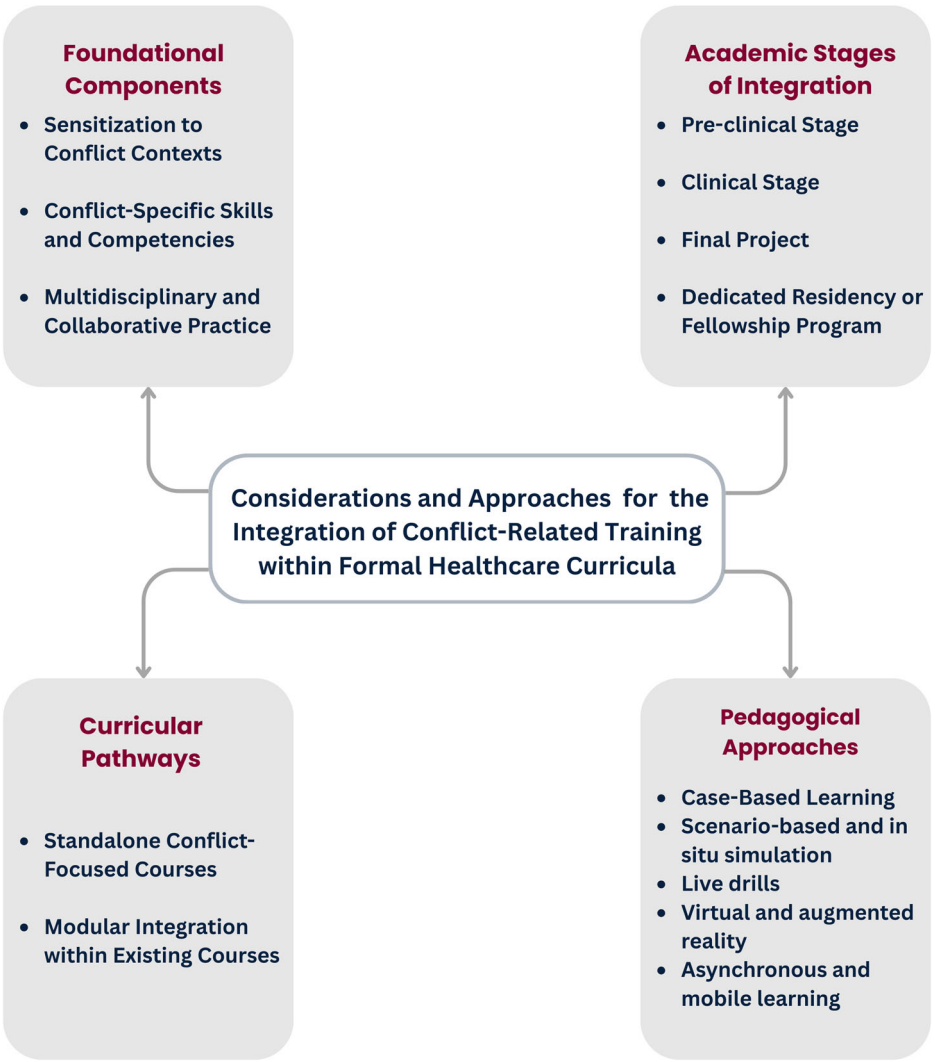

Fig. 1 | Considerations and approaches for the integration of conflict-related training within formal healthcare curricula. This figure presents four key categories of considerations that emerged from the dialogs on integrating conflict-responsive training into healthcare curricula: (1) foundational components, (2) curricular pathways, (3) pedagogical approaches, and (4) stages of academic integration.

sensitivity, cross-cultural communication skills, conflict mediation, emergency preparedness and response, humanitarian principles and international humanitarian law, patient and provider safety during conflict, ethical decision-making in warfare, and human behavior, which are skills, often, overlooked in traditional medical education.

Establish conflict-specific competency frameworks. Curricula should develop and adopt clear, discipline-specific competencies that reflect the realities of healthcare delivery in conflict settings, serving as the foundation for both curriculum design and assessment. These include technical and soft skills, such as adaptability, triage under scarcity, ethical reasoning, and inter-agency coordination, among others. Competencies should be co-designed with practitioners experienced in conflict zones and validated across institutions.

Promote multidisciplinary and collaborative approaches. Training should emphasize collaboration among and across disciplines, ensuring that all healthcare professionals are empowered and engaged to provide holistic care. Intraprofessional sensitivity and interprofessional education should be institutionalized to prepare healthcare students to understand and respect the roles of members of their own team and each other's roles, communicate effectively, and deliver coordinated care under pressure[13]. Importantly, this intra- and interprofessional spirit should be established as a culture in hospitals, clinics and mobile clinics to ensure collaborative care and for students to experience it in the field. This approach establishes clear roles, mutual trust and shared goals, and is vital to optimize patient outcomes.

Integrate training across the learning continuum. Conflict-related training should be embedded throughout the academic stages. The preclinical stage builds foundational knowledge and attitudes, while the clinical stage offers opportunities to apply this through structured clinical exposure. Final projects can be leveraged to serve as a culminating experience, allowing students to apply their learning as a final step before going into practice. Based on resources and capacity, institutions can also work toward establishing dedicated residencies or fellowship programs focused on healthcare delivery in conflict settings as an advanced training pathway. These programs can provide healthcare professionals with in-depth clinical, operational, and contextual expertise.

Diversify curricular pathways. Given the variability of institutional capacity, a flexible approach is recommended, allowing institutions to offer both standalone, conflict-focused courses and modular content embedded within existing courses. Institutions can begin with elective modules before scaling to full tracks or certificates. The tiered structure allows for gradual adoption without disrupting core curricula and accommodates the learning needs of different health disciplines.

Leverage innovative pedagogical tools. Institutions should adopt experiential learning strategies including case-based learning, scenario-based and in situ simulation, live drills, virtual and augmented reality. These methods can enhance critical thinking, collaboration, and decision-making in high-pressure environments. Technology-enhanced learning, including asynchronous and mobile learning, can also be leveraged to overcome accessibility and safety challenges pertinent to conflict settings.

Conclusions

Integrating conflict-related training into formal healthcare education is critical to building a workforce capable of delivering continuous, culturally sensitive, and patient-centered care during conflict. This requires collaboration among academic institutions, humanitarian organizations, healthcare practitioners, and regulatory bodies including accreditation agencies and Ministries of Higher Education. Their role in endorsing and recognizing conflict-specific competencies is vital for ensuring curricula are developed, adopted, and supported institutionally. At the same time, common barriers to implementation including faculty readiness, curricular overload, and limited institutional resources, must be acknowledged, and addressed through targeted faculty development, investment in relevant educational materials, and partnerships. These partnerships can provide the technical expertise, learning resources, and mentorship structures needed to support sustainable and effective integration across disciplines and institutions.

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Competing interests

The authors declare no competing interests.

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