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Humanitarian philanthropy amid genocide in Gaza: An observational humanitarian field study

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Abstract. The genocide in Gaza has caused widespread destruction of communities, healthcare systems, and the environment. However, direct field evidence on humanitarian healthcare disruption remains limited. This observational humanitarian study aimed to document and analyse the humanitarian catastrophe in Gaza. Direct field observations in Southern Gaza assessed healthcare disruption, humanitarian conditions, and environmental degradation during an 11-day deployment in April–May 2025. Humanitarian access remained restricted throughout the mission. Destruction of healthcare and public infrastructure disrupted health services, humanitarian operations, and civilian mobility. Environmental degradation was evident across affected areas. Shortages of medicines, medical supplies, food, clean water, electricity, and fuel severely constrained care. Many displaced civilians lived in temporary shelters and overcrowded settings. Personnel at Nasser Medical Complex worked prolonged hours despite severe resource limitations. The Indonesian EMT treated approximately 100 patients and initiated voluntary blood donation activities. Under Rahma Worldwide Mission 32, the Indonesian and Qatari teams managed 434 consultations and emergency cases, performed 169 surgical procedures without intraoperative mortality, assisted eight normal deliveries, and treated 53 patients with non-communicable diseases. The Indonesian EMT also provided humanitarian medical education, capacity building, and clinical training in regenerative medicine and wound management, and established a pain clinic for patients. These findings underscore the multidimensional impacts of genocide on civilian survival, healthcare systems, and social resilience in Gaza. The Indonesian EMT experience highlights the urgent need to end the genocide, protect civilians, sustain medical support, and support long-term recovery.

Keywords: Gaza; genocide; humanitarian philanthropy; emergency medical team;

Introduction

The Israeli genocide in Gaza has been ongoing since October 2023 (Niu et al., 2025) . It has evolved into one of the most severe multidimensional humanitarian crises of the twenty-first century (Bakri et al., 2025). The long-standing blockade of Gaza intensified after the onset of the genocide, severely restricting humanitarian access (Missoni & Sen, 2025). Civilian infrastructure, the environment, education and healthcare systems, and other essential public services have been extensively devastated (Alhossary et al., 2024). Large-scale population displacement, persistent shortages of food, clean water, medicines, electricity, and fuel have further intensified the crisis (Ali et al., 2025). These conditions have profoundly disrupted civilian life and the delivery of essential healthcare (Ali et al., 2025). Women, children, older

adults, healthcare personnel, and other vulnerable populations have borne the greatest burden (Jamaluddine et al., 2025; Saad, 2024). Estimated trauma deaths in Gaza from October 2023 to June 2024 reached 64,260, likely exceeding 70,000 due to under-reporting. They face increased risks of mortality, disease, malnutrition, and psychological distress (Bakri et al., 2025; El-taji et al., 2025). The continuing deterioration of humanitarian conditions threatens civilian survival and compromises health system functioning. It delays the recovery of essential public services and undermines community resilience. These far-reaching consequences make Gaza an urgent global health priority. They threaten population health, humanitarian response capacity, and sustainable recovery. WHO calls for unhindered humanitarian aid to enter Gaza at scale through all crossings. WHO 22 Mai 2025 (World Health Organization (WHO), 2025). In response to this call, the Indonesian Red Crescent deployed four Emergency Medical Teams (EMTs) to Gaza.

By late April 2025, the ongoing genocide had devastated the health system. By August 31, 2025, the cumulative toll since October 7, 2023, had reached 63,557 deaths and 160,660 injuries, including 18,004 deaths and 52,281 injuries recorded in 2025 alone. Women, children, and adults older than 60 years accounted for 54% of deaths, and 1.9 million people had been displaced. Healthcare was severely disrupted, with 335 attacks reported, 34 of 36 Gaza hospitals damaged, and only 18 partially functional. Hospitals continued operating despite critical shortages of medicines, medical supplies, electricity, and fuel. Humanitarian operations were further constrained by restricted access and persistent insecurity, substantially limiting essential health service delivery. Famine was declared on August 22, 2025, with 132,000 children expected to suffer acute malnutrition by June 2026. WHO urged a ceasefire, unrestricted humanitarian access, health-system rebuilding, accelerated medical evacuations, and financial support (World Health Organization (WHO), 2026)

Environmental destruction in Gaza has generated a systemic public health crisis with long-term consequences. By August 2024, drinking water entering Gaza had declined. Destruction all of wells and all desalination plants severely reduced water availability. Sanitation collapsed, with overcrowding reaching 340 people per toilet, increasing respiratory, skin, and diarrheal diseases. Poliovirus was detected in wastewater, and the first case of paralysis in Gaza in 25 years was reported. Between October 2023 and May 2024, Gaza accumulated about 40 million tons of debris, which was estimated to require 15 years to clear.

Continuous drones, jets, and artillery exceeded safe noise limits, contributing to sleep disruption, hearing loss, cardiovascular risk, anxiety, phobias, and post-traumatic stress disorder (PTSD). Food insecurity worsened to emergency levels, with Gaza residents surviving on only 245 calories per day. Vulnerable groups were severely affected: 183 women gave birth daily without adequate analgesia or anesthesia, miscarriages increased threefold, and pregnant and lactating women faced severe food insecurity. At least 19,000 children were orphaned. Gaza had the world's highest number of child amputees (Abuawad et al., 2025).

Previous studies discussed above have shown that the genocide in Gaza has caused a severe humanitarian crisis and a profound health-system crisis. However, to our knowledge, those studies were based mainly on secondary data, situation reports, or surveillance systems (Çamcı et al., 2025). And none has used data from direct observations by physicians serving on site while the genocide was unfolding. Previous studies have reported that EMTs play an important role in maintaining healthcare services during humanitarian emergencies and disaster responses (Hamilton et al., 2022; Yeung et al., 2026). However, to our knowledge, no report has yet documented direct field evidence from an EMT deployed while the genocide was unfolding. The novelty of this study lies in its direct humanitarian field evidence from EMT

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observations during the ongoing genocide in Gaza, providing a comprehensive analysis of its impacts on the health system and humanitarian response.

This field observational study was conducted to generate empirical evidence on the impacts of the ongoing genocide in Gaza by examining the field experience of the Indonesian Emergency Medical Team. This approach is important to understand how emergency medical response operates during an active genocide, within a collapsed health system, restricted humanitarian access, and a multidimensional public health crisis. This study aimed to document field observations of the impacts of genocide on the health system, humanitarian conditions, and environmental degradation, with specific attention to the role of the Indonesian Emergency Medical Team during its humanitarian mission in Gaza. The findings are expected to enrich scientific evidence on genocide-related health-system disruption and EMT roles, and to inform future research and humanitarian practice in armed conflict settings. This study was reported in accordance with the STROBE guideline for observational studies (Vandenbroucke et al., 2014).

Methods

Study Design

This study was reported in accordance with the STROBE guideline for observational studies. An observational humanitarian field study design was employed to document and analyse the impacts of prolonged genocide and armed conflict on healthcare systems, civilian conditions, environmental sustainability, and social resilience in Gaza.

Study Setting, Mission Context, and EMT Deployment

The Indonesian Red Crescent conducted four sequential EMT deployments to Gaza from February to August 2025, involving 16 healthcare professionals across multiple specialties (Table 1). This study reports Phase 2 findings, during which the author directly participated in humanitarian and clinical activities in Southern Gaza. The 11-day Phase 2 humanitarian medical mission occurred from late April to early May 2025. Before entering Gaza, the team remained in Jordan while awaiting authorization from Israeli authorities. At departure from Indonesia, deployment sites in Gaza had not been determined. After approval, the team travelled through Jordan and Israel before crossing into Southern Gaza. On arrival, the team stayed overnight at the Rahma Worldwide Foundation coordination office. Clinical assignments were finalized according to local needs and operational requirements. The Indonesian EMT comprised six healthcare professionals in orthopaedic surgery, anaesthesiology, obstetrics and gynaecology, oral and maxillofacial surgery, and dentistry. All members were assigned to Nasser Medical Complex in Khan Younis. Additional assessments were conducted at the BSMI Clinic and Rahma Worldwide Foundation Clinic, both approximately 3 km from Nasser Medical Complex. The wider humanitarian response included physicians from several countries under Rahma Worldwide Foundation coordination. The final composition of the international medical teams and their deployment locations were determined only after entry authorization had been granted and the teams had arrived in Gaza. Clinical deployment was subsequently distributed according to local healthcare needs and operational requirements.

Data Sources and Field Assessment

Data were obtained through direct field assessments undertaken during clinical service activities, humanitarian operations, and routine situational evaluations conducted throughout the deployment period.

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Information was collected from healthcare facilities, civilian environments, humanitarian response activities, and operational observations within the mission area. Assessment domains included healthcare facility functionality, availability of medicines and medical supplies, access to clean water, electricity and fuel, civilian displacement, infrastructure damage, environmental disruption, and humanitarian response capacity. The study focused on documenting conditions observed during the mission rather than measuring predefined clinical outcomes. No formal inclusion or exclusion criteria were applied because the study was based on non-interventional humanitarian field observations conducted during routine emergency response activities.

Variables and Outcomes

The primary outcomes were observed effects on healthcare systems, civilian living conditions, infrastructure, environmental sustainability, and community resilience. Assessment domains included service capacity, resource availability, displacement, environmental degradation, and disruption of education and public services.

Data Analysis

A descriptive observational synthesis identified major humanitarian patterns and multidimensional crisis impacts. Findings were grouped into healthcare disruption, civilian vulnerability, infrastructure damage, environmental degradation, and social resilience, providing a concise overview of conditions encountered during deployment across the mission area.

Bias and Data Validity

Active conflict restricted access to locations, healthcare facilities, and affected populations. Bombardment, security threats, and shifting security zones limited movement beyond designated operational areas. These constraints may have reduced the scope of observations and information available. Because access varied over time, observations may not represent locations or populations affected across Southern Gaza during the deployment. Data validity was strengthened through repeated field assessments, multidisciplinary team discussions, and direct participation in humanitarian activities throughout the mission.

Ethical Considerations

No patient-identifiable information was collected or recorded. The study used non-interventional field observations obtained during humanitarian service and did not alter routine patient management or healthcare delivery. Ethical conduct followed humanitarian principles, confidentiality, protection of vulnerable populations, and respect for human dignity in conflict settings.

Table 1. Composition of Indonesian Red Crescent EMT Missions in Gaza, 2025

Phase	Deployment Period	Number of Personnel	Team Composition
Phase 1	24 March – 20 April 2025	2	Neurosurgeon; Anaesthesiologist
Phase 2	15 April – 3 May 2025	5	Orthopaedic Surgeon; Anaesthesiologist; Obstetrician-Gynaecologist; Dentist Oral and Maxillofacial Surgeon;
Phase 3	8–27 July 2025	6	Orthopaedic Surgeon; Anaesthesiologist; Obstetrician-Gynaecologist; Dermatologist; Ophthalmologist; Wound Care Specialist
Phase 4	5–24 August 2025	3	General Surgeon; Dermatologist; Paediatrician
Total	24 March – 24 August 2025	16	Multidisciplinary EMT Personnel

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Footnote**:** EMT = Emergency Medical Team. The present study reports direct field observations from Phase 2, during which the author served as an orthopaedic surgeon at Nasser Hospital, Khan Younis, Southern Gaza, for 11 days between late April and early May 2025.

Result and Discussion

Result

Mission Context

The Indonesian EMT collaborated with three Qatari physicians under the Rahma Worldwide Mission 32 humanitarian programme during the humanitarian medical mission in Gaza. The combined team comprised nine physicians from multiple specialties: orthopaedic surgery, anaesthesiology, urology, obstetrics and gynaecology, dentistry, oral and maxillofacial surgery, thoracic surgery, and ophthalmology (Table 2). The Qatari orthopaedic surgeon was assigned to Nasser Medical Complex, while the ophthalmologist and urologist were deployed to European Gaza Hospital in Khan Younis, another major referral centre in Southern Gaza. Assignments were determined by specialty requirements and operational needs.

Humanitarian access remained a major operational challenge throughout the mission. Entry into Gaza required authorization, delaying deployment. Clinical assignments were finalized only after arrival and completion of local operational assessments.

Information obtained during the mission indicated that some international humanitarian personnel seeking to participate in medical relief activities were denied entry. These restrictions affected team composition, operational planning, and workforce availability. Such constraints occurred amid an ongoing humanitarian crisis.

For security and operational reasons, team members were accommodated near their deployment sites. Personnel assigned to Nasser Medical Complex stayed within designated hospital facilities, whereas those at European Gaza Hospital resided on or near its campus. Both hospitals served as major trauma and emergency referral centres. Security restrictions limited mobility, and movement outside hospital compounds required prior authorisation and coordination. Consequently, most clinical, humanitarian, educational, and observational activities occurred within the hospitals and surrounding areas. Multidisciplinary teams assessed emergency and trauma care, surgical services, maternal health, non-communicable disease management, humanitarian medical education, and regenerative medicine capacity-building during the conflict.

Table 2. Composition of Rahma Worldwide Mission 32 Healthcare Team

Specialty	Number of Physicians
Orthopaedic Surgery	2
Anaesthesiology	1
Urology	1
Obstetrics and Gynaecology	1
Dentistry	1
Oral and Maxillofacial Surgery	1
Thoracic Surgery	1
Ophthalmology	1
Total	9

Healthcare and Public Infrastructure Destruction

Field observations revealed extensive destruction of healthcare and public infrastructure across Khan Younis and surrounding areas. Damage affected health facilities, residential

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buildings, roads, public utilities, and community infrastructure. Many structures showed blast damage, partial or complete collapse, and severe deterioration. Extensive destruction was also observed along the route from the Gaza border to Khan Younis. Displaced families commonly lived in temporary shelters and makeshift tents among the ruins, with limited access to water, electricity, and other essential services. Infrastructure deterioration impaired healthcare access, humanitarian logistics, and civilian mobility. Damage to roads, utilities, and public services complicated response operations and reduced access to essential care.

Hospitals, dialysis facilities, and other medical services experienced varying degrees of disruption because of structural damage and resource shortages. A dialysis centre previously housing approximately 60 machines was severely damaged and became non-operational. Extensive fire damage left large sections charred and structurally compromised.

To maintain renal replacement therapy, Nasser Medical Complex established a temporary 20-bed dialysis unit with NGO support. International medical volunteers assisted with service delivery and trained local healthcare personnel in unit operations.

Hebrew inscriptions were observed on walls in several areas of Nasser Medical Complex, consistent with reports of previous Israeli military presence on the hospital premises. Structural damage affected multiple hospital sections. One inpatient ward was reported to have sustained a direct strike, causing patient fatalities, while adjacent rooms remained largely intact. The localized damage pattern was documented; however, the targeting technologies and operational mechanisms involved could not be independently verified during the mission. These observations underscore the vulnerability of healthcare facilities in active conflict and the substantial risks faced by patients and healthcare personnel. Despite extensive infrastructure damage, Nasser Medical Complex remained one of the principal referral hospitals in Southern Gaza. Essential services continued under severe operational constraints, demonstrating healthcare personnel resilience and the importance of humanitarian support in sustaining care during active conflict.

Shortages of Essential Medicines, Food, Clean Water, Electricity, and Fuel

Severe shortages of medicines, medical consumables, clean water, electricity, and fuel persisted throughout Gaza and predated the deployment, according to healthcare personnel. Facilities operated under constrained conditions because of disrupted utilities and limited medical resources. Fuel shortages impaired transportation, hospital operations, water distribution, and emergency response, while recurrent power outages disrupted routine and emergency care. Clean water remained scarce in several locations, raising public health concerns. These shortages affected both healthcare facilities and displacement sites. Despite limited medicines, consumables, fuel, and other essential supplies, Nasser Medical Complex remained operational. Food scarcity was also severe: bread was the only food available to healthcare workers, humanitarian personnel, patients, and many civilians, while sugar, eggs, vegetables, and fruit were unavailable. Direct observations at the ambulance depot adjacent to the mortuary showed that most ambulances were damaged and non-operational. Local personnel attributed most damage to Israeli military attacks, while fewer vehicles were affected by other causes. Only a few ambulances remained functional, with operations further restricted by fuel shortages. Fuel supplies depended largely on humanitarian assistance, including support from the World Health Organization.

Additional shortages were observed within the operating theatre. Surgical linen and operating gowns were available only in limited quantities, necessitating repeated use and careful allocation of available supplies. Alcohol-based antiseptic solutions were unavailable. These constraints affected routine surgical preparation and perioperative care. During the

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deployment period, the management of wound infections was further complicated by shortages of antimicrobial resources. Difficulties were encountered in obtaining antibiotic irrigation solutions for wound care because antibiotic supplies were severely limited. According to local clinical practice during the crisis, available antibiotics were prioritized for postoperative patients, restricting their use for routine wound management and infection control. As a result of these constraints, secretome-based therapy was utilized as part of wound management in selected patients. The application of secretome was performed within the context of humanitarian medical services and under local institutional approval. This approach was employed in selected patients when conventional wound-care resources were unavailable or severely restricted.

Despite approximately three months without regular salary payments, physicians, nurses, and hospital staff maintained high morale and dedication to patient care. Emergency department nurses reported that some personnel received temporary financial assistance through donations from foreign non-governmental organisations. Clinical services continued under severe resource constraints and difficult working conditions. These shortages affected emergency care, surgery, diagnostic capacity, transportation, infection control, and routine hospital operations. Healthcare personnel continuously prioritised limited resources while managing large numbers of trauma patients amid ongoing conflict. Despite these constraints, essential clinical services remained available across multiple hospital departments.

Civilian Displacement and Humanitarian Conditions

Large numbers of civilians, including healthcare workers and their families, were displaced and lived in temporary shelters or overcrowded communal settings. Many occupied plastic tents under difficult environmental conditions, with limited access to food, clean water, electricity, sanitation, healthcare services, and other basic necessities. Long queues for humanitarian food assistance were frequently observed across affected communities.

Despite prolonged electricity shortages, physicians and hospital staff consistently wore clean, neat, and well-maintained uniforms, many appearing freshly ironed. This contrasted with the difficult living conditions of healthcare workers and their families, many of whom lived in temporary shelters or displacement settings. Women, children, older adults, and people with chronic illnesses appeared especially vulnerable. Overcrowding, insecurity, and limited resources further increased humanitarian needs across affected communities.

Healthcare Burden and Medical Challenges

Similar resource constraints affected the emergency department, where facilities were overwhelmed by patients requiring urgent and ongoing care. Drones, explosions, and gunfire were heard throughout the deployment. Ambulances frequently arrived at emergency and mortuary facilities, reflecting a sustained influx of conflict-related casualties. Field observations indicated that all casualties encountered were civilians, including children, women, older adults, and persons with disabilities. No combatants were observed among patients treated during the mission.

Emergency department nurses at Nasser Medical Complex reported that patient volumes increased during intensified military attacks, reaching approximately 600 patients at peak periods. This influx challenged triage, emergency treatment, inpatient admission, and overall clinical management under severe resource constraints. The Indonesian EMT treated an older patient with hearing impairment who sustained severe head trauma after being struck by debris from a building that collapsed following a bombing. The patient reportedly did not hear the explosion because of the hearing impairment. Children, women, and older adults were

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commonly observed in hospital treatment areas. Frequent conditions included traumatic injuries, amputations, wound complications, and malnutrition.

During a paediatric ward visit with a Nasser Medical Complex paediatrician, children showing signs of undernutrition were observed, including one weighing less than 10 kg. Several patients had extensive underlying tissue damage despite relatively small external wounds. A similar pattern was found in a child with a maxillofacial fracture who underwent surgery by an Indonesian EMT oral and maxillofacial surgeon and Nasser Medical Complex surgeons. Intraoperative examination revealed extensive skeletal destruction despite a small overlying skin wound and no obvious external soft-tissue injury.

Frequently encountered conditions included crush injuries, fractures, soft-tissue necrosis, vascular disruption, amputations, severe infections, malnutrition, and conflict-related fatalities. During joint management with local orthopaedic surgeons, the Indonesian EMT treated a male patient with multiple fractures, including a Gustilo–Anderson grade III open tibial and fibular fracture and hand and wrist fractures. Doppler ultrasonography indicated severely compromised arterial flow in the affected limb. External fixation was performed; however, no distal foot pulse was detected the following day, necessitating amputation. Similar cases occurred during the mission. Severe musculoskeletal trauma was commonly associated with extensive soft-tissue and vascular injury. Polytrauma was also frequent, involving combinations of head, abdominal, thoracic, musculoskeletal, extremity, and pelvic injuries.

The continuous influx of patients severely challenged healthcare delivery under resource constraints. One inpatient ward was reportedly struck by a rocket, killing patients in the room, while adjacent rooms remained structurally intact despite their proximity. Shortages of medicines, equipment, surgical supplies, blood products, and specialised services further limited hospital capacity to meet rising demand. Clinical teams therefore had to prioritise scarce resources in response to operational constraints.

Diagnostic capacity was severely constrained. MRI equipment was non-functional, whereas plain radiography and CT scanners remained operational. Radiological images were generally reviewed digitally rather than printed because of resource limitations, while paper shortages further disrupted clinical documentation and hospital administration. Despite these constraints, Nasser Medical Complex continued providing emergency and surgical services and remained a principal trauma referral centre in Southern Gaza. Diesel-powered generators, supplied through humanitarian assistance including WHO support, sustained hospital operations. Healthcare personnel worked prolonged hours under substantial physical and psychological stress, continuing patient care despite shortages of food, rest, salaries, medicines, and other essential resources.

Environmental Degradation

Field observations identified significant environmental degradation associated with prolonged conflict. Damage to public infrastructure, disruption of water and sanitation systems, accumulation of debris, and destruction of the surrounding environment were observed in multiple areas. Large quantities of debris from damaged buildings and infrastructure were visible throughout the assessment area. The destruction of residential neighbourhoods, healthcare facilities, public buildings, transportation networks, and other essential infrastructure substantially altered the physical environment and contributed to deteriorating living conditions.

These environmental impacts affected public health conditions and created additional challenges for humanitarian operations and future recovery efforts. Widespread destruction of buildings and infrastructure generated large volumes of construction debris and environmental

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contamination across affected areas. Damage to water and sanitation systems further increased environmental and public health risks.

Clinical Service Activities of the Indonesian EMT

During the deployment, the Indonesian EMT participated in the management of approximately 100 patients, including trauma cases, amputations, wound-care cases, obstetric emergencies, dental conditions, and other conflict-related medical conditions. Team members also participated in voluntary blood donation activities to support emergency transfusion needs and ongoing patient care. Additional operational data from Rahma Worldwide Mission 32 provided further insight into healthcare service delivery during the study period. Over a 12-day operational period, the mission managed 434 consultations and emergency department cases, including 10 dead-on-arrival (DOA) cases. Children younger than five years accounted for 30 cases, while female patients represented approximately 34% of all consultations. The mission performed 169 surgical procedures, of which 16% were emergency operations, with no intraoperative deaths. It also recorded eight normal deliveries and managed 53 patients with non-communicable diseases (NCDs) (Table 3).

Table 3. Operational Activities of Rahma Worldwide Mission 32 in Southern Gaza (17–29 April 2025)

Category	Indicator	Value
Mission Duration	Working period	12 days
Hospital Coverage	Nasser Medical Complex and European Gaza Hospital	2 hospitals
Clinical Services	Consultations / Emergency Department Cases	434
	Dead on Arrival (DOA)	10
	Under-5 Patients	30
	Female Patients	34%
	Surgical Interventions	169
	Emergency Surgeries	16% of all surgeries
	Intraoperative Deaths	0
	Natural Deliveries	8
	Patients with Non-Communicable Diseases (NCDs)	53
Educational Activities	Educational Sessions	12
	Participants	46
Regenerative Medicine and Capacity-Building Activities	Lectures on Stem Cell Therapy and Musculoskeletal Tissue Engineering	Conducted
	Training on Secretome Production Techniques	Conducted
	Workshop on Stem Cell-Based Wound Healing	Conducted
	Secretome Application for Complex Wounds	5 cases
	Secretome Application for Osteoarthritis	1 case

Humanitarian Medical Education, Capacity Building, and Clinical Training Activities

The conflict substantially disrupted education across affected areas. Damage to educational facilities, displacement of students and educators, and persistent insecurity limited access to formal learning. Several institutions were reported to be damaged, inaccessible, or non-operational because of ongoing hostilities. Despite these conditions, educational activities continued at Nasser Medical Complex. Clinical training for medical students, resident physicians, nurses, and nursing trainees remained active despite conflict-related and operational constraints. Undergraduate medical education also continued remotely through online learning, despite disruption to conventional educational infrastructure and clinical training environments.

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In addition to clinical service delivery, humanitarian medical education and capacity-building activities were conducted. Educational sessions on stem cell therapy, regenerative medicine, musculoskeletal tissue engineering, and pain management were delivered to local healthcare professionals with approval from local health authorities, the hospital administration, and the Nasser Medical Complex Education Department. The programme included lectures, scientific discussions, practical demonstrations, and workshops on regenerative medicine concepts, tissue engineering techniques, advanced wound-healing techniques, and the preparation and clinical application of secretome-based therapies. During the mission, 12 educational sessions involving 46 healthcare personnel were conducted. Practical training included instruction in secretome production techniques and workshops on stem cell-based wound-healing strategies. Under institutional approval and clinical supervision, secretome-based treatment was applied to five patients with complex wounds and one patient with osteoarthritis as part of humanitarian medical services and knowledge-transfer activities.

The Indonesian EMT initiated the development of a pain management clinic at Nasser Medical Complex. Its anaesthesiologist collaborated with the Head of the Department of Anaesthesiology and a Malaysian EMT pain specialist through educational sessions, practical discussions, and capacity-building activities to transfer clinical knowledge and skills. The initiative was continued by the succeeding Indonesian EMT, which included anaesthesiology and pain management specialists. Team members also conducted bedside teaching for nurses, nursing trainees, and other healthcare personnel, and joined orthopaedic residency activities, including morning reports, case discussions, and clinical reviews. Despite resource and security constraints, undergraduate, postgraduate, and professional education continued, supporting workforce development and clinical service continuity.

These activities complemented emergency care by supporting professional development, strengthening local capacity, and transferring knowledge and skills in regenerative medicine, tissue engineering, wound care, and pain management within a conflict-affected healthcare setting.

Discussion

This observational humanitarian field study provides firsthand evidence of the impact of the Israeli genocide in Gaza during one of the twenty-first century's most severe humanitarian crises. Despite restricted access and security constraints, multidisciplinary Indonesian and international teams supported healthcare delivery in Southern Gaza. The crisis involved environmental destruction, infrastructure collapse, healthcare-system disruption, mass displacement, severe shortages, and overwhelming clinical demand. These conditions impaired emergency and surgical care, sanitation, nutrition, chronic disease management, wound care, and essential hospital services. Nevertheless, Nasser Medical Complex remained operational under extreme pressure. The Indonesian Red Crescent EMT supported clinical care, voluntary blood donation, humanitarian medical education, capacity building, regenerative medicine training, wound management, and pain clinic development. Overall, the findings demonstrate effects on healthcare, humanitarian conditions, environmental sustainability, social resilience, and emergency medical response.

The Gaza crisis extended far beyond casualty figures, reflecting systemic collapse across key determinants of health, including hospital functionality, humanitarian access, water, food, electricity, fuel, transport, sanitation, and medical supply chains. Despite severe resource constraints, Nasser Medical Complex remained a major referral centre. Healthcare continuity depended on local professional resilience, humanitarian assistance, and adaptive clinical prioritisation. High volumes of emergency consultations, surgical procedures, deliveries, and

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non-communicable disease cases showed that healthcare needs extended beyond trauma. The study also carries profound ethical significance, grounded in the universal sanctity of human life. This principle is reflected in the Qur'an, Al-Mā'idah 5:32: "if any one slew a person — unless it be for murder or for spreading mischief in the land — it would be as if he slew the whole people: and if any one saved a life, it would be as if he saved the life of the whole people" (Ali, 1989, Al-Mā'idah 5:32). In Gaza, this principle was not an abstract moral teaching, but a lived humanitarian reality. In Gaza, this principle was not an abstract moral teaching, but a lived humanitarian reality. Each injured child, displaced civilian, untreated wound, exhausted healthcare worker, and overwhelmed hospital service reflected the collapse of the conditions required for human survival. At the same time, every clinical intervention, blood donation, wound-care effort, educational session, act of medical solidarity, and attempt to preserve hospital function represented a commitment to safeguarding life amid systematic destruction. Therefore, this field testimony should be understood not only as an observational humanitarian medical study, but also as a scientific and moral witness to the defence of human dignity. In this context, saving one life in Gaza was not merely an act of medical care; it was an affirmation of the dignity of all humanity.

The observed multidimensional disruption can be explained primarily by the continuing genocide against civilians and was compounded by infrastructure destruction, restricted humanitarian access, insecurity, displacement, environmental degradation, and shortages of essential resources. Military pressure and security zoning restrictions further limited civilian mobility and humanitarian operations outside the hospital complex. Damage to roads, public facilities, markets, schools, hospitals, ambulances, dialysis facilities, and utilities disrupted humanitarian logistics, referral pathways, education, and access to essential services. Shortages of food, medicines, medical supplies, clean water, fuel, electricity, sanitation facilities, and operational resources created a cumulative humanitarian burden affecting nutrition, hygiene, infection control, emergency and surgical care, diagnostics, wound management, chronic disease care, and routine hospital administration. Overcrowded displacement settings increased vulnerability to malnutrition, infections, untreated wounds, and worsening chronic illnesses.

Within this context, Nasser Medical Complex managed mass trauma, obstetric cases, chronic diseases, wound infections, malnutrition, and complex surgical conditions despite limited resources. Humanitarian entry restrictions also constrained workforce availability, operational planning, and continuity of external medical support. Despite unpaid salaries, tent living, persistent bombardment, and deaths or disabilities among relatives, doctors and nurses continued patient care without expressing complaints during field interactions. This resilience appeared to be sustained by professional duty, humanitarian commitment, community solidarity, and *iman*, understood as a faith-based spiritual conviction to serve and protect human life. For these healthcare workers, sustaining medical services amid systematic destruction was also understood as a form of spiritual striving, or jihad. This perspective aligns with the Qur'anic assurance: "And those who strive in Our (cause), We will certainly guide them to Our Paths: For verily Allah is with those who do right" (Ali, 1989, Al-'Ankabūt 29:69). Within this crisis, such divine assurance appeared to translate theological conviction into a practical source of resilience, enabling healthcare workers to continue serving patients despite fear, deprivation, loss, and exhaustion. The highly localised pattern of hospital damage observed during the mission should be interpreted cautiously in light of published reports on precision-targeting systems and AI-assisted warfare in Gaza; however, the specific targeting technology could not be independently verified during this field study (Andersin, 2025). Oringa and Ahanor reported the Israeli military's use of AI-based targeting systems, including Lavender, Habsora, and

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"Where is Daddy?", to identify and prioritise suspected targets during the genocide in Gaza (Oringa & Ahanor, 2026).

These findings are consistent with selected high-quality reports and peer-reviewed literature describing Gaza as a severe public health and health-system crisis, marked by hospital damage, disruption of essential services, restricted humanitarian access, population displacement, and worsening civilian vulnerability (Jirmanus et al., 2026). Previous studies have documented excess mortality, war-related trauma patterns, malnutrition, environmental degradation, and the progressive erosion of healthcare capacity in Gaza (Jamaluddine et al., 2025). However, much of the available evidence has been derived from secondary data, surveillance systems, situation reports, or external assessments. This study complements the existing literature by providing direct field observations from an Emergency Medical Team physician deployed during the crisis. The findings also align with previous evidence showing that EMTs play an important role in sustaining healthcare delivery during disasters (Hamilton et al., 2022). Published peer-reviewed, field-based evidence from Emergency Medical Team deployments during the genocide in Gaza remains limited. This study therefore complements the existing literature by reporting direct field observations made by an EMT physician deployed to Nasser Medical Complex during the genocide in Gaza.

Humanitarian and Global Health Perspective

From a humanitarian and global health perspective, the findings indicate that the genocide in Gaza has paralysed the healthcare system. Although medical services had not ceased entirely, routine care had been reduced to a survival-oriented emergency response under severe and sustained constraints. At Nasser Medical Complex, clinical services continued despite the near-collapse of essential foundations for safe hospital functioning, limiting comprehensive and continuous care. The crisis had therefore progressed beyond hospital overload to a population-level survival threat. Displacement, overcrowding, inadequate nutrition, unsafe water, poor sanitation, and environmental damage undermined infection control, chronic disease management, rehabilitation, and public health protection. This pattern aligns with literature on conflict and health showing that war increases morbidity through direct injury, disrupted essential services, and environmental breakdown. These findings reinforce the urgent humanitarian imperative to stop the genocide, protect civilians, and restore essential conditions for survival and recovery in Gaza. The observed destruction and deprivation reflect acts that have been reported to constitute crimes against humanity and violations of the most fundamental principles of human dignity (Vogli et al., 2026).

EMT, NGO, and International Collaboration

This field mission resulted from international collaboration involving multiple teams and public and private institutions. By Allah's permission, the team overcame substantial barriers, gained access to an active war zone, and fulfilled its humanitarian and medical duties in Gaza. This achievement was particularly meaningful because access had been considered unlikely under such extreme conflict conditions. The mission demonstrates the operational importance of international collaboration when humanitarian access is severely constrained. The Indonesian EMT entered Gaza and carried out its medical and humanitarian mandate during active conflict. Its significance lay not only in gaining access, but also in sustaining care through coordinated institutional roles. EMTs, NGOs, local hospitals, and international partners served as complementary components of a fragile response system. Their coordination helped preserve essential services when routine hospital capacity was severely compromised. This collaboration relied on pragmatic task-sharing, alignment with local priorities, logistical support, and

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continuity across humanitarian deployments. Cooperation with Nasser Medical Complex provided the local platform for integrating emergency care, surgical support, and capacity building. The mission therefore demonstrates that EMT deployment is most effective when embedded within local priorities and established coordination structures.

This interpretation is consistent with literature emphasizing access authorization, security, mobility, logistics, and deployment continuity. This mission also marks an important transition from previous Indonesian Red Crescent deployments in natural disasters to EMT operations in an active war zone. Previous experience in the Turkey–Syria earthquake emphasized disaster response, aid distribution, coordination, and future deployment planning (Supartono et al., 2023). In contrast, the Gaza mission required clinical care, humanitarian access, and coordination under sustained conflict and security threats.

Capacity Building and Medical Innovation

Capacity building and medical innovation extended the mission beyond emergency care at Nasser Medical Complex. Educational activities converted clinical service into opportunities for knowledge transfer, skill reinforcement, and context-adapted practice. By embedding teaching in daily clinical work and bedside problem-solving, the programme supported immediate care while strengthening local capacity. Supervised secretome-based practice integrated wound care, regenerative medicine, and capacity building.

This approach reflected tissue-engineering principles involving cells, signaling molecules, scaffolds, and regenerative mechanisms (Supartono, 2018; Supartono & Noviantari, 2025). The biological rationale is supported by paracrine, anti-inflammatory, immunomodulatory, angiogenic, and regenerative effects. This interpretation is consistent with previous diabetic wound and orthopaedic regenerative-medicine literature (Dilogo, 2025; Supartono, 2025). It also aligns with Gaza-based pain-clinic experience emphasizing adaptive protocols, supervised training, and sustainable local capacity transfer (Laksono et al., 2026).

Therefore, the Gaza mission translated prior Indonesian regenerative-medicine and pain-management experience into adaptive humanitarian practice. In this context, medical innovation was not merely a technical intervention. It became a strategy to preserve care quality, transfer skills, and support dignity-oriented recovery.

Scientific Contribution

The novelty of this study lies in its firsthand evidence from an Indonesian EMT during the ongoing genocide in Gaza. Unlike much of the existing literature, which relies primarily on secondary data, reports, and surveillance, this study presents direct observations from a humanitarian field mission. It integrates clinical, operational, educational, environmental, and access-related dimensions within a single analysis. Its scientific contribution is the synthesis of health-system disruption, civilian vulnerability, environmental degradation, EMT roles, and capacity building. This integrated perspective demonstrates how emergency care, coordination, education, and innovation functioned within a severely damaged health system. The study therefore advances humanitarian medicine by positioning EMT deployment as a form of adaptive health-system support under genocide-related restrictions on humanitarian access.

Implications

These findings have clinical, public health, humanitarian, operational, and recovery implications for the medical response in Gaza. Clinically, prolonged conflict requires integrated trauma care, wound management, obstetric services, infection control, continuity of dialysis, adequate blood supplies, and management of non-communicable diseases. From a public health

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perspective, medical response cannot be separated from essential survival systems. Restoring water, sanitation, food security, fuel, electricity, ambulance capacity, and essential medicines is critical to reducing preventable morbidity and mortality. From a humanitarian perspective, the findings underscore the urgent need to protect civilians, healthcare workers, hospitals, ambulances, and humanitarian access. EMT deployment in such settings requires predictable entry, security guarantees, coordination with local hospitals, and continuity across mission phases.

Long-term recovery in Gaza requires more than emergency medical assistance. A sustainable response should prioritise health-system reconstruction, restoration of essential services, environmental recovery, rehabilitation, medical education, and sustained support for affected communities.

Strengths and Limitations

The main strength of this study is its direct field observation during the genocide in Gaza, Palestine. It also integrates clinical, operational, infrastructural, environmental, and capacity-building dimensions within one field-based analysis. This approach provides a multidimensional account of EMT response under genocide conditions. Several limitations should be acknowledged. The mission duration was short, and movement was restricted by security conditions. Access to some locations, populations, and facilities was limited. Some information could not be independently verified because the field situation changed rapidly. The study was descriptive and observational. Therefore, it cannot establish causality or assess long-term outcomes. Despite these limitations, the findings provide important field-based evidence on healthcare disruption and EMT response in Gaza. Israel's genocide in Gaza must stop now. This study also calls for stronger humanitarian protection, sustained medical assistance, and coordinated EMT deployment.

Conclusion

This study shows that the Indonesian EMT directly witnessed the Israeli genocide in Gaza as a multidimensional humanitarian and health-system crisis that exceeded acceptable limits of human suffering. These findings affirm the urgent need to end the genocide immediately, protect civilians, and restore the fundamental rights of the people of Gaza to live as an independent nation, with dignity, freedom, safety, and humane living conditions. This study positions medical NGOs and EMTs not only as care providers, but also as witnesses to genocide. Through direct field presence in Gaza, the Indonesian EMT documented suffering, sustained care, supported capacity, and introduced adaptive innovation. Most importantly, this study affirms the ethical duty of humanitarian medical actors to bear witness, speak firmly against genocide, and call unequivocally for its immediate cessation. This contribution links emergency medical response, moral witness, and global health responsibility. The limitations relate to the time-limited observational phase and restricted field mobility under security constraints. Field mobility was restricted by security conditions, limiting access to several locations, populations, and facilities. **.** Further multidisciplinary studies are needed to assess the long-term effects of genocide in Gaza. They should examine healthcare systems, environmental sustainability, rehabilitation needs, mental health, and community resilience. Subsequent EMT deployments should use stronger planning, prospective documentation, standardized data collection, and better mission preparation. Such studies should evaluate clinical, operational, educational, and humanitarian outcomes across mission phases.

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