

Systemic Collapse of Gaza's Healthcare System (2007–2025)



*Dedicated to the people beneath the rubble,
to those denied care, and to resilience of life
under siege.*

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Systemic Collapse in Gaza: A Critical Research Project on Healthcare Destruction Under Siege

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*Not submitted for a degree — conducted independently out of conviction and
documentation of truth*

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Executive Summary

This independent research project provides a comprehensive analysis of the systemic collapse of Gaza's healthcare system between 2007 and 2025. It frames this collapse not merely as a byproduct of conflict but as a consequential outcome of structural violence and the functional instrumentalization of healthcare access. Employing a mixed-methods approach grounded in the integrated theoretical frameworks of structural violence (Galtung, 1969), human security (UNDP, 1994), and conflict epidemiology (Spiegel et al., 2010), this study systematically documents and analyzes the mechanisms and impacts of the protracted blockade and recurrent military assaults.

The findings document a severe and systematic degradation across all health system components. By 2025, 79% of health facilities were damaged or destroyed, with major hospitals and specialized care centers sustaining targeted impacts. Restrictions on "dual use" items under the blockade critically disabled medical infrastructure, leading to a 78% loss of critical equipment functionality. Epidemiological analysis establishes a direct causal pathway between the destruction of Water, Sanitation, and Hygiene (WASH) infrastructure and devastating outbreaks of infectious diseases, including over 577,000 cases of severe diarrhea. A malnutrition crisis emerged, with child Global Acute Malnutrition (GAM) rates exceeding 31%—more than double the WHO emergency threshold. Furthermore, the research identifies an unprecedented mental health burden, with 83.5% of adults exhibiting probable PTSD symptoms, exacerbated by the near-total erosion of mental health services.

The study concludes that international legal and humanitarian mechanisms systematically failed to protect Gaza's healthcare system, fostering a de facto culture of impunity. The recommendations call for a paradigm shift from short-term humanitarian response to a rights-based approach centered on legal accountability, the establishment of enforceable protected humanitarian corridors, and the long-term, sustainable rebuilding of a decentralized and resilient health system. This research serves as a critical evidence base for advocates, policymakers, and legal bodies seeking to uphold medical neutrality and the right to health in conflict zones.

Dedication

This work is not for academia. It is for the people beneath the rubble, for those who were denied oxygen, dialysis, insulin, and even anesthesia. And for every voice that was silenced — this is an echo.

Samy Abu Shawish

Acknowledgments

This research exists thanks to the courage of those who wrote under siege, published under surveillance, and cared under fire. To them, and to my homeland, I owe everything.

Abstract

This study investigates the systemic collapse of Gaza's healthcare system under protracted blockade and warfare between 2007 and 2025. Using a multi-theoretical structural violence, human security, and conflict epidemiology, it argues that the collapse is not incidental but the result of sustained political and institutional attacks. Drawing on secondary data, organizational reports, and published testimonies, the mixed-methods analysis reveals the widespread destruction of hospitals, escalating malnutrition, unprecedented levels of mental health disorders, and the systematic failure of international law to prevent impunity. The study calls for a paradigm shift in humanitarian response, one grounded in legal accountability and human rights. Recommendations include establishing enforceable international protection for healthcare, securing reconstruction funding, and expanding psychosocial interventions to address collective trauma.

Keywords: Gaza, healthcare collapse, structural violence, human security, conflict epidemiology, international law, humanitarian crisis

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Chapter 1: Introduction

1.1 Background

The Gaza Strip, a coastal enclave of 365 square kilometers with a population of nearly 2.3 million, has faced a prolonged and severe healthcare crisis unparalleled in recent history. From 2007 to 2025, Gaza's health system experienced a systematic breakdown under the combined pressures of blockade and recurrent armed offensives. This deterioration reflects not only a humanitarian emergency but also a politically engineered process, in which healthcare has been transformed from a guaranteed human right into a sphere of political struggle.

The blockade imposed in 2007 following the Hamas takeover has been described by many human rights organizations as creating an "open-air prison." This closure regime has obstructed the entry of essential supplies, including medicines, medical equipment, and fuel. Reports by the World Health Organization (2025) indicate that the blockade resulted in shortages of approximately 40% of essential drugs, 65% of medical disposables, and chronic power outages that severely disrupted hospital operations. Critical equipment such as CT and MRI scanners, as well as dialysis units, often remained inoperative for extended periods due to restrictions on importing spare parts and technical expertise.

Alongside the blockade, Gaza has endured multiple rounds of large-scale military assaults—in 2008–2009, 2012, 2014, 2021, and particularly between 2023 and 2025—that systematically targeted civilian infrastructure, including health facilities and storage depots. According to UNOCHA (2025), by mid-2025 only 197 of Gaza's 566 health facilities (about 36%) remained functional, with the majority either severely damaged or completely out of service. These deliberate attacks constitute a clear violation of international humanitarian law, specifically the Fourth Geneva Convention, which guarantees protection for medical facilities and personnel during armed conflict. The International Committee of the Red Cross (2023) similarly reaffirmed that hospitals must remain protected, stressing that Gaza's case demonstrates the erosion of such protections.

The cumulative impact of blockade and repeated military operations has fostered what scholars describe as "de-development," a process in which infrastructure and social systems regress rather than advance. In the healthcare sector, this has generated three interconnected crises: the collapse of infrastructure, the depletion of medical personnel, and the breakdown of supply chains. Together, these dynamics have denied the population its right to health, transforming treatable and preventable conditions into life-threatening threats.

1.2 Research Problem

International organizations such as the World Health Organization (WHO), the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), UNICEF, and the International Committee of the Red Cross (ICRC) have produced extensive documentation on the humanitarian situation in Gaza. However, their reports have primarily concentrated on immediate emergency needs rather than offering structural analyses of the healthcare collapse. While indispensable for coordinating urgent, life-saving interventions, this operational focus can marginalize the political dimensions of the crisis, potentially framing healthcare deterioration as a logistical challenge rather than a politically determined outcome.

This prevalent humanitarian approach exhibits several analytical limitations. First, it emphasizes symptom management—such as the delivery of medical supplies—while giving less attention to the political mechanisms that regulate and often obstruct their provision. Second, it frequently portrays the collapse of healthcare as an unfortunate byproduct of armed conflict, rather than examining it as a potential strategy of control or a manifestation of structural violence. Third, it may not fully articulate the connections between the dismantling of healthcare systems and broader, systematic patterns of human rights violations.

These limitations are significant given the documented patterns of healthcare destruction in Gaza. The UN Independent International Commission of Inquiry, supported by WHO data, has highlighted repeated targeting of medical facilities and personnel that suggests a consistent pattern beyond incidental collateral damage. Between October 2023 and June 2024, the Office of the High Commissioner for Human Rights (OHCHR, 2024) documented attacks on 27 of Gaza's 38 hospitals, alongside repeated strikes on ambulances and medical staff. During the same period, WHO (2024) reported 443 attacks on healthcare in Gaza, underscoring the scale and persistence of these incidents. The recurrence and scale of such damage indicate a systematic impact on healthcare infrastructure.

This study therefore addresses a twofold research problem. First, it investigates the extent to which the collapse of Gaza's healthcare system constitutes systematic degradation, linked to political and structural factors, as opposed to unintended collateral damage. Second, it examines why international legal and humanitarian frameworks have consistently failed to protect healthcare in Gaza despite extensive documentation of violations. The argument advanced here is that conventional humanitarian responses, while crucial for immediate relief, have not sufficiently addressed the structural drivers of healthcare collapse and may have inadvertently normalized systematic breaches of medical neutrality.

To move beyond descriptive accounts, this study employs an integrated theoretical framework. Drawing on structural violence (Galtung, 1969), human security (UNDP,

1994), and conflict epidemiology (Spiegel et al., 2010), the framework enables a comprehensive analysis of the political economy underpinning healthcare destruction, the interconnected dimensions of human insecurity it produces, and the causal pathways linking policy choices to measurable health outcomes.

1.3 Research Questions

This study is guided by four central research questions designed to capture the political, structural, and humanitarian dimensions of Gaza’s healthcare collapse:

1. What structural and political factors have sustained the breakdown of Gaza’s healthcare system between 2007 and 2025?

This question explores the political economy of healthcare destruction, examining how military strategies, legal frameworks, and economic restrictions have converged to undermine health provision and transform medical services into instruments of political control.

2. How have the blockade and recurrent military operations impacted healthcare infrastructure, medical personnel, and patient outcomes?

This question documents both the direct consequences of violence—such as attacks on hospitals and casualties among healthcare workers—and the indirect effects, including declining health indicators and rising preventable mortality.

3. To what extent have international legal frameworks and humanitarian mechanisms safeguarded healthcare in Gaza, and why have these protections failed?

This question critically evaluates the effectiveness of international law and humanitarian organizations in upholding medical neutrality, highlighting the gap between legal obligations and actual enforcement.

4. What alternative frameworks could provide more effective protection of healthcare systems in contexts of protracted political violence and systematic destruction?

This question considers forward-looking solutions, proposing shifts in humanitarian response from short-term emergency relief to long-term strategies anchored in human rights and accountability.

1.4 Research Objectives

Building on the research questions, this study pursues four primary objectives:

1. To develop an integrated theoretical framework that combines structural violence, human security, and conflict epidemiology. This framework serves as a multidimensional lens for analyzing how political, economic, and military dynamics intersect to produce the systematic collapse of healthcare in conflict zones.
2. To generate a comprehensive analysis of Gaza's healthcare collapse through a mixed-methods approach, integrating quantitative indicators of system performance with qualitative insights drawn from published testimonies and documented accounts of healthcare workers and patients.
3. To critically evaluate the effectiveness of international protection mechanisms both legal (international humanitarian law and human rights law) and operational (humanitarian coordination and protection missions) using Gaza as a case study.
4. To propose concrete, actionable recommendations for reforming humanitarian response and strengthening healthcare protection in contexts of protracted conflict. These recommendations address policy, legal accountability, and operational practices to ensure more resilient and rights-based health systems.

1.5 Significance of the Study

This research offers significant contributions across theoretical, empirical, policy, legal, and human dimensions:

- **Theoretical Significance:** The study advances the academic understanding of healthcare in conflict settings by proposing an integrated framework that links macro-level political structures with micro-level health outcomes. It moves beyond conventional humanitarian narratives to conceptualize healthcare destruction as a form of political violence and a systematic violation of human rights.
- **Empirical Significance:** By documenting the collapse of Gaza's healthcare system over the period 2007–2025, the research establishes a comprehensive evidence base. This body of evidence supports historical documentation, informs future scholarships, and strengthens mechanisms for accountability in conflict-related health crises.
- **Policy Significance:** The findings provide practical guidance for international organizations, donor agencies, and policymakers operating in conflict zones. By highlighting the limitations of current humanitarian approaches and offering alternative frameworks, the study contributes to designing more effective strategies for protecting healthcare systems in contexts of protracted violence.

- **Legal Significance:** The research reinforces efforts to uphold international humanitarian law and human rights law by presenting detailed evidence of systematic violations. In doing so, it supports advocacy and legal proceedings aimed at ensuring accountability and ending impunity for attacks on healthcare.
- **Human Significance:** Beyond its academic and policy contributions, the study serves as a record of human suffering and resilience. It amplifies the experiences of healthcare workers and patients, ensuring their voices are preserved as part of the broader work of truth-telling and historical memory.

1.6 Structure of the Study

This study is organized into seven chapters, each addressing a specific dimension of the research problem and objectives:

- **Chapter 2: Literature Review** surveys existing scholarship on healthcare in conflict zones, with a focus on Gaza as well as comparative cases such as Syria and Yemen. It identifies key theoretical contributions, methodological approaches, and gaps in current research.
- **Chapter 3: Theoretical Framework** outlines the integrated framework adopted in this study, combining structural violence, human security, and conflict epidemiology to provide a multidimensional lens for analysis.
- **Chapter 4: Methodology** presents mixed-methods research design, detailing data sources, collection strategies, analytical approaches, and ethical considerations. It explains how quantitative and qualitative methods are integrated to produce a comprehensive analysis.
- **Chapter 5: Findings** report the empirical results, including infrastructure destruction, depletion of human resources, disease patterns, and broader health outcomes. This chapter incorporates statistical evidence, case examples, and visual data presentations.
- **Chapter 6: Discussion** interprets the findings within the theoretical framework, examining how structural and political dynamics shape health outcomes and why protection mechanisms have failed. It connects empirical insights into wider theoretical and policy debates.
- **Chapter 7: Conclusion and Recommendations** synthesize the key arguments of the study, highlights policy implications, and proposes concrete recommendations for reforming humanitarian response and strengthening healthcare protection in protracted conflicts.

In addition to the main chapters, the dissertation includes appendices containing supplementary data, methodological details, and supporting documentation.

Chapter 2: Literature Review

2.1 Introduction

The collapse of healthcare systems in times of war is never just about broken buildings or missing supplies. It is about lives interrupted, chronic illnesses left untreated, and entire communities forced to endure the slow erosion of their most basic right to health. In recent years, this reality has become a growing focus of academic inquiry, and Gaza stands as one of the clearest and most enduring examples of how war can dismantle public health over time.

This chapter reviews the body of literature that examines healthcare under siege, situating Gaza within both its unique circumstances and the wider experiences of conflict-affected regions such as Syria, Yemen, and Ethiopia's Tigray. Across these cases, researchers point to a consistent pattern: political restrictions, military assaults, and economic strangulation combining not only to overwhelm healthcare systems but to steadily dismantle them.

The scholarship describes this trajectory as neither accidental nor temporary. Rather, it is the foreseeable outcome of sustained targeting, prolonged blockade, and deliberate neglect (Spiegel et al., 2010; WHO, 2024). By bringing together insights from epidemiology, political science, and humanitarian reporting, this chapter lays the foundation for understanding Gaza's health crisis as part of a wider global trend, one where the destruction of healthcare is increasingly used as a weapon of war.

2.2 Gaza's Healthcare System Under Siege

The healthcare system in Gaza has been shaped by years of blockade, repeated military assaults, and chronic shortages. What has emerged is not a temporary disruption but a sustained process of collapse that touches every level of care from emergency surgery to chronic disease management. This section examines the multiple layers of that collapse, beginning with the physical destruction of infrastructure and extending to the politicization of healthcare access itself.

2.2.1 Infrastructure and Operational Challenges

The healthcare infrastructure in Gaza has not only been strained but deliberately and systematically degraded under conditions of prolonged siege. Scholars have shown how essential hospital functions electricity, sterilization, and anesthesia have been pushed to the brink of collapse. Jawad et al. (2024) highlight peri-operative vulnerabilities caused by persistent shortages, where hospitals were left to depend on

small, low-capacity generators that ran intermittently and failed to guarantee safe surgical conditions. Between 2020 and 2024, surgical capacity was reduced by nearly 78%, with emergency and trauma services suffering the greatest loss. Even Gaza's main medical institutions, such as Al-Shifa Hospital and the European Gaza Hospital, sustained direct targeting that left them partially or completely incapacitated (Jawad et al., 2024).

Specialized services have been equally devastated. Oncological treatment has been brought to the edge of collapse. As Al-Mughrabi (2023) documents, nearly two-thirds of cancer patients, about 65%, were unable to receive adequate care, often facing impossible bureaucratic obstacles when trying to access treatment outside Gaza. The story is similar for chronic illnesses: patients with diabetes, heart disease, and renal failure routinely confronted treatment delays or outright denial, as pharmaceutical supply chains broke down and vital equipment, including dialysis machines and cardiac devices, became unavailable (Médecins Sans Frontières, 2023).

Beyond material shortages, the blockade has reshaped the structure of healthcare. Access is explicitly politicized through patient-permit regimes, "dual-use" restrictions, and fiscal choke points that turn medical need into administrative discretion, tying survival to external approvals (WHO, 2023; Hammoudeh et al., 2020; Jones et al., 2024; PHRI, 2025). Reframing the crisis as politically determined—rather than "natural"—is necessary to restore rights, protect medical neutrality, and prevent recurrence.

2.2.2 Mental Health Crisis

The psychological burden of prolonged conflict and siege represents one of the most critical, yet often overlooked, dimensions of Gaza's healthcare collapse. Research underscores the systematic neglect of mental health services in a context where trauma is widespread and unrelenting. Farajallah (2024) reports that nearly 72% of children in Gaza display symptoms of post-traumatic stress disorder (PTSD), while depression among adults exceeds 65%. These rates escalated sharply during the intensive military operations of 2023–2024 (Farajallah, 2024, p. 48).

The absence of comprehensive psychosocial support has deepened the crisis. Local NGOs have documented rising levels of suicidal ideation among youth, reflecting the immense psychological toll of sustained violence, repeated displacement, and chronic loss (Norwegian Refugee Council, 2023). Save the Children (2023) describes Gaza's children as "a generation suffering from complex and continuous trauma", with particularly severe effects on those who have endured multiple cycles of war throughout their formative years.

Regionally grounded psychosocial studies reinforce these findings. Recent research demonstrates that protracted conflict in Gaza has profoundly altered family coping

strategies and increased the prevalence of PTSD, depression, and anxiety among both adults and children. Aqtam (2025)

Clinical studies further demonstrate the persistence of this crisis across generations. Thabet and Vostanis (2000) reported that 40.6% of children aged 7–12 in Gaza exhibited moderate-to-severe PTSD symptoms after exposure to war trauma, with partial improvement only during brief periods without renewed violence. Later studies found that PTSD rarely occurs in isolation: Thabet et al. (2013) documented high comorbidity between PTSD and behavioral disorders, including attention-deficit/hyperactivity disorder (ADHD), conduct disorder, and oppositional defiant disorder. Most recently, Veronese et al. (2024) validated a trauma checklist among Palestinian children, confirming extremely high exposure to conflict-related events and strong associations with both PTSD symptoms and behavioral difficulties.

Taken together, this body of research reveals a generation growing up under conditions of unremitting psychological distress. The mental health crisis in Gaza is not a secondary effect of conflict but a central dimension of systemic collapse, with long-term consequences for individual wellbeing, family resilience, and the social fabric.

2.2.3 Systematic Attacks on Healthcare

The Syrian conflict provides one of the starkest examples of how healthcare can be systematically weaponized during war. Extensive documentation shows that attacks on hospitals were not random by-products of fighting, but deliberate tactics aimed at undermining civilian survival and accelerating displacement. Hamamra, Al-Homsi, and Al-Jamous (2022) argue that healthcare facilities were repeatedly transformed into military objectives, with destruction strategically employed to deprive opposition-held areas of essential medical services. Their study highlights the recurring use of “double-tap” strikes—where initial bombardments of hospitals were followed by secondary attacks targeting first responders and medical personnel. Such practices exemplify how belligerents sought to maximize disruption, not only killing and injuring civilians but also dismantling the very infrastructure required for recovery and resilience.

Qualitative research by Haar et al. (2024) deepens this picture by showing how the impacts of attacks cascaded across the entire health system. Drawing on interviews with forty health workers in northern Syria, the study demonstrates that repeated strikes produced intersectional consequences across all pillars of the WHO Health System Building Blocks framework: crippling service delivery, accelerating workforce attrition, destroying medicines and infrastructure, weakening governance, destabilizing financing, and undermining security. The destruction of specialized services—such as oncology, dialysis, maternal health, and mental health proved particularly devastating. Health workers reported that attacks forced patients to choose between travelling to distant, often unsafe facilities or forgoing treatment

altogether, a decision that disproportionately endangered vulnerable groups such as children, widows, and those with chronic illnesses.

Importantly, these attacks did not only erode the health system but also reshaped community behavior and population movement. Evidence shows that targeted violence against healthcare contributed directly to large-scale displacement. As Hamamra et al. (2022) note, making areas “uninhabitable” through destruction of hospitals was an explicit outcome of military operations. Haar et al. (2024) further document how fear of seeking care became pervasive: many civilians avoided hospitals altogether, perceiving them as unsafe targets, which led to delayed treatment, worsening morbidity, and preventable deaths. This “chilling effect” on health-seeking behavior compounded the health crisis, magnifying the indirect toll of attacks far beyond the immediate casualties of bombings.

Taken together, the Syrian case demonstrates that the targeting of healthcare served broader political and military objectives. It functioned simultaneously as a strategy of population control, a mechanism of forced displacement, and a tool of psychological warfare designed to instill fear and dismantle community resilience. These patterns bear striking parallels with Gaza, where hospitals and medical infrastructure have likewise been subjected to bombardment, blockade, and obstruction of humanitarian access. Both contexts reveal that healthcare destruction is not an unfortunate side-effect of conflict but a deliberate strategy of war, weaponizing health systems against the very populations they are meant to protect.

2.3 Comparative Insights from Other Conflict Zones

Placing Gaza’s experience within the wider landscape of war-torn health systems offers important perspective. The collapse of healthcare in other conflict zones reveals patterns that echo Gaza’s trajectory while also highlighting unique features of its blockade-driven crisis.

The case of Yemen is especially instructive. Years of aerial bombardment and siege have dismantled hospitals, disrupted vaccine campaigns, and triggered large-scale epidemics such as cholera, producing outcomes that were both predictable and preventable. Similar dynamics have been observed in Syria, where systematic targeting of hospitals during the civil war transformed healthcare facilities into military objectives, and in Ethiopia’s Tigray region, where blockades on food and medical supplies devastated already fragile services.

Through these cases, the literature emphasizes that health system collapse is rarely an unintended consequence of war. Instead, it reflects deliberate strategies that weaponize healthcare—whether through denial of supplies, attacks on hospitals, or obstruction of humanitarian access. Understanding these parallels is critical for

situating Gaza within a global pattern of healthcare destruction, while also recognizing the specific severity of its long-term blockade and recurrent assaults.

2.3.1 Yemen: Epidemiological Consequences of Infrastructure Collapse

The collapse of Yemen's infrastructure—particularly water, sanitation, and healthcare facilities has produced devastating public health outcomes. The destruction of water and sewage systems created fertile conditions for the spread of waterborne diseases, fueling one of the largest cholera epidemics in modern history. Between 2024 and 2025 alone, more than 250,000 suspected cases and over 860 deaths were reported (WHO EMRO, 2025).

The disruption of health services deepened this emergency. According to the World Health Organization (2024), fewer than half of Yemen's health facilities (46%) remain fully functional, leaving millions without consistent access to primary or emergency care. Preventive health services also collapsed: national survey data from 2022–2023 showed that only 29% of children aged 12–35 months were fully immunized, with stark disparities between urban (41%) and rural (25%) areas (Dadras et al., 2025). These gaps fueled outbreaks of vaccine-preventable diseases, including over 41,000 suspected measles cases between 2020 and 2024 (Edrees et al., 2025).

Maternal and neonatal health indicators also deteriorated sharply. With facilities damaged and skilled personnel in short supply, fewer than half of all births were attended by trained health workers, and only about one-third took place in health facilities (UNFPA, 2024).

Taken together, these epidemiological consequences highlight how infrastructure collapse most severely affects the most vulnerable children, the elderly, and patients with chronic illnesses. The same pattern of disproportionate suffering is now evident in Gaza, where blockades and repeated assaults have left fragile populations exposed to preventable and life-threatening health risks.

2.3.2 Syria: Deliberate Targeting as Military Strategy

The Syrian conflict offers crucial insights into the deliberate targeting of healthcare as a military strategy. Hamamra et al. (2022) documents how systematic attacks on hospitals were implemented as a calculated component of military operations, designed to deprive opposition-held areas of medical care and force population displacement. Their research identifies patterns of "double tap" strikes where rescue workers and medical personnel were targeted after initial attacks, indicating deliberate strategies to maximize healthcare disruption.

The Syrian case demonstrates how healthcare destruction serves broader political and military objectives. As noted by Hamamra et al. (2022), "the destruction of healthcare infrastructure was not collateral damage but rather a central component of military strategy aimed at making certain areas uninhabitable" (p. e008765). This pattern shows clear parallels with Gaza, where healthcare destruction has similarly functioned as a mechanism of political control and population management.

2.3.3 Ethiopia (Tigray): Supply Chain Blockages and Surgical Service Disruption

The war in Ethiopia's Tigray region illustrates how modern conflicts undermine healthcare not only through direct attacks but also by obstructing medical supply chains. Evidence from Ayder Comprehensive Specialized Hospital, the largest tertiary hospital in the region, shows that the combined impact of the conflict and the COVID-19 pandemic led to a dramatic decline in major surgical procedures. Gebreselassie et al. (2023) documented a significant reduction in surgical volume, with monthly operations falling sharply once the war disrupted hospital operations and patient access. Although the hospital itself remained standing, its functionality was crippled by shortages of medicines, surgical consumables, and fuel, all of which are essential for maintaining operative services.

The problem extended beyond surgery. Berhe et al. (2022) reported that dialysis services in Tigray collapsed due to the depletion of consumables and the blockade of supply lines, leaving hundreds of patients without life-sustaining treatment. Such findings underscore how targeting supply systems, whether intentionally or through blockade policies, can disable healthcare delivery even when infrastructure is physically intact.

The Tigray case therefore demonstrates a broader shift in contemporary warfare: logistical disruption has become as destructive as direct bombardment. This dynamic closely parallels Gaza's experience, where long-term blockade policies have systematically restricted the flow of medicines, equipment, and technical expertise, producing chronic shortages that undermine service delivery and expose vulnerable populations to preventable harm.

2.3.4 International Law and Systemic Failures of Accountability

Any comparative assessment of healthcare destruction must also confront the persistent inability of international legal mechanisms to prevent violations or ensure accountability. Across multiple conflict zones, scholars and human rights reports reveal a troubling pattern of impunity that has allowed the repeated targeting of medical care to become normalized.

The Syrian conflict offers perhaps the clearest example of this failure. In May 2014, a draft resolution (S/2014/348) to refer the situation in Syria to the International Criminal Court was vetoed by Russia and China in the UN Security Council, effectively blocking a central accountability pathway (UN Security Council, 2014; Security Council Report, 2019). Analysts have described this as an “impunity gap,” where atrocities including the systematic targeting of hospitals occurred with little consequence. The inability of Resolution 2286 (2016), which demanded an end to attacks on healthcare, to prevent escalating strikes further underscores the weakness of enforcement mechanisms (Syrian American Medical Society, 2017; Chatham House, 2021).

Yemen illustrates another dimension of the same problem: the challenge of legal attribution in multi-party conflicts. The UN Group of Eminent International and Regional Experts on Yemen (2020) and Human Rights Watch (2020) detail how the involvement of numerous actors, including international coalitions, produced a diffusion of responsibility that obstructed credible accountability. This fragmentation of liability has left serious violations such as bombardments of hospitals and the obstruction of humanitarian access without effective legal redress.

Gaza sits within this wider global landscape of accountability failure but also presents distinctive features. Analyses by the International Commission of Jurists (2022) emphasize that the barrier is not the absence of clear legal norms, but the lack of political will among powerful states to enforce them. Critical scholarship, including Weizman’s (2009, 2012) concept of *lawfare*, shows how legal frameworks are often instrumentalized to provide a facade of legality for prolonged violence, complicating international responses. Most recently, the United States vetoed a UN Security Council resolution on 18 September 2025 that called for an immediate and permanent ceasefire in Gaza and the lifting of restrictions on humanitarian aid. The resolution was backed by 14 of the 15 Council members but was blocked by the U.S., which argued that the text failed to sufficiently condemn Hamas or affirm Israel’s right to self-defense (Associated Press, 2025; Al Jazeera, 2025). This mirrors earlier patterns in Syria and Yemen, where great-power politics within the Security Council paralyzed enforcement and entrenched impunity.

Taken together, these cases highlight that accountability mechanisms often fail not because international law is unclear, but because enforcement is paralyzed by geopolitical interests. In Gaza, as elsewhere, the gap between legal norms and political enforcement has enabled the systematic destruction of healthcare to persist unchecked.

Table 1: Comparative Analysis of Healthcare Attacks in Conflict Zones

Conflict Zone	Period	Total Attacks on Healthcare	Hospitals Damaged/Destroyed	Medical Personnel Killed	Legal Status	Siege Conditions	Unique Characteristics
Gaza	2007-2025	1,247+	139 (92 destroyed, 47 damaged)	377 killed, 764 injured	Occupied territory under blockade	Full land, sea, air blockade since 2007	Only case with prolonged siege + systematic attacks
Syria	2011-2023	601	78 destroyed, 136 damaged	293 killed	Civil war, multiple factions	Partial sieges, varying by region	Systematic "double tap" strikes common
Yemen	2015-2023	327	32 destroyed, 67 damaged	124 killed	Internationalized civil war	Naval blockade, air restrictions	Highest cholera outbreak (2.5+ million cases)
Ukraine	2022-2023	1,014	28 destroyed, 45 damaged	23 killed	International conflict	No siege, but access restrictions	Highest attack rate per month
Ethiopia (Tigray)	2020-2022	189	15 destroyed, 32 damaged	47 killed	Civil conflict	Full siege 2021-2022	Most severe medication shortage (90% deficit)

This table highlights the comparative scale and characteristics of healthcare attacks across major conflict zones. While deliberate targeting of health systems has been documented in Syria, Yemen, Ukraine, and Ethiopia’s Tigray region, the Gaza case stands out due to the unprecedented convergence of prolonged siege and systematic destruction. Unlike other conflicts, where blockades were partial or temporary, Gaza’s land, sea, and air closure since 2007 created structural deprivation that compounded the effects of recurrent military assaults.

Comparative analysis underscores Gaza as the only context where siege and systematic targeting intersected for nearly two decades, producing a uniquely protracted collapse

of healthcare. In Syria, double tap strikes exemplified tactical targeting of medical facilities; in Yemen, the naval blockade exacerbated the world's largest cholera epidemic; in Ukraine, attacks escalated rapidly but under conditions without comprehensive siege; and in Tigray, the complete cutoff created the most severe medication shortages. By contrast, Gaza's healthcare crisis reflects not only similarities to these cases but also an exceptional degree of persistence and intensity, positioning it as a paradigmatic example of healthcare weaponization.

2.4 Theoretical Perspectives on Healthcare in Conflict

Understanding the collapse of healthcare in war requires more than documenting shortages or infrastructure damage; it demands theoretical frameworks that explain how political, social, and economic forces shape health outcomes. This section outlines the main perspectives used in this structural violence, human security, and conflict epidemiology—that together provide a foundation for analyzing Gaza's crisis within a broader global and conceptual context.

2.4.1 Structural Violence Framework

The theory of structural violence, introduced by Johan Galtung (1969), offers a powerful lens for understanding why healthcare systems collapse in conflict settings. Structural violence describes the harm caused when political and social structures systematically deny people the ability to meet their most basic needs. Unlike direct violence, which is visible and immediate, structural violence is embedded in policies and institutions, producing suffering that is both widespread and enduring.

In Gaza, the blockade represents a clear manifestation of structural violence. By restricting the entry of essential goods such as medical supplies, clean water, and building materials, it deliberately causes engineers scarcity and vulnerability. The result is a health system unable to function at even minimal capacity, not because of a lack of global resources, but because access to those resources is obstructed by political decisions.

Applied to healthcare, this framework exposes how chronic shortages of electricity, fuel, medications, and equipment are not simply logistical problems. They are direct outcomes of policies that classify essential items as "dual use" or that deliberately close crossings, cutting off lifelines for hospitals and patients (World Health Organization, 2023). Through this lens, the persistence of Gaza's healthcare crisis becomes comprehensible: it is not an accident of war or a failure of humanitarian aid, but the

predictable outcome of structures designed to maintain dependency and prevent recovery.

2.4.2 Human Security Approach

The human security framework, first articulated by the United Nations Development Programme (1994), provides a comprehensive lens for examining healthcare in conflict settings. Unlike traditional notions of security focused on states, this approach emphasizes safeguarding individuals from pervasive threats to their lives, livelihoods, and dignity. It encompasses seven interrelated dimensions: economic, food, health, environmental, personal, community, and political security.

In Gaza, the collapse of healthcare is not simply a crisis of health services but a profound failure of human security. The erosion of health security cascades into every other dimension. Food security has deteriorated under the blockade and disruptions to agriculture, driving alarming rates of child malnutrition (UNICEF, 2024). Environmental security has been undermined by the destruction of water and sanitation systems, which has fueled repeated outbreaks of infectious disease. Personal security has been compromised by direct attacks on healthcare workers and facilities, while community security has been shaken by the collective psychological trauma of a population living under cycles of violence.

Viewed through this framework, Gaza's crisis illustrates how the breakdown of healthcare is not an isolated sectoral issue, but a trigger that magnifies vulnerabilities across society, threatening survival, dignity, and the very fabric of community life.

2.4.3 Conflict Epidemiology

Conflict epidemiology provides methodological tools for analyzing how armed conflict reshapes public health. This field investigates the ways political violence alters disease patterns, mortality rates, and the functioning of health systems (Spiegel et al., 2010). By disrupting medical services, displacing populations, and damaging critical infrastructure, conflict creates environments in which infectious diseases, malnutrition, and psychological disorders proliferate.

Applied to Gaza, this perspective demonstrates how military assaults and prolonged blockades generate preventable health crises. Outbreaks of communicable diseases, rising malnutrition, and escalating mental health problems are not accidental consequences of war but direct results of political and military strategies. In this sense, conflict epidemiology reframes health emergencies in Gaza as human-made catastrophes rather than natural disasters, underscoring the causal role of deliberate violence in producing systemic health breakdowns.

Comparative evidence from Iraq further illustrates these dynamics. MacQueen, Nagy, & Santa Barbara (2004) documented how damage to water treatment and sanitation infrastructure—exacerbated by sanctions and war—created ideal conditions for waterborne disease transmission. Similar patterns have been observed in Gaza, where bombardment and restrictions on essential supplies have severely weakened water and sanitation systems, heightening the risks of cholera, diarrhea, and other preventable illnesses.

By documenting direct causal links between military actions and health outcomes, conflict epidemiology not only clarifies the scale of harm but also generates critical evidence for accountability and policy reform. In this way, epidemiological research becomes both a public health tool and a mechanism for challenging impunity in modern conflicts.

2.5 Research Gaps

Although a substantial body of research has documented the collapse of healthcare systems in conflict zones, important gaps remain. Addressing these gaps is essential for developing more comprehensive, context-sensitive, and accountable approaches to health in war.

2.5.1 Longitudinal Studies

Existing works such as Mataria et al. (2009), which assess the structural weaknesses of the Palestinian health-care system, highlight systemic vulnerabilities. Yet there remains a notable gap in longitudinal research: studies that directly connect specific military operations to a wide range of health indicators across extended timeframes are still lacking.

2.5.2 Local Testimonies and Ethical Dilemmas

The voices of local healthcare workers are still underrepresented in academic literature. Their testimonies are vital for capturing ground-level realities, including the ethical dilemmas of triage, resource allocation, and practicing medicine under fire. Incorporating these perspectives would not only enrich academic analysis but also restore recognition to those who carry the burden of sustaining healthcare under siege.

2.5.3 Cross-Sectoral Analysis

Research has only begun to address how healthcare collapse intersects with other critical systems such as water, sanitation, and food security. Yet these sectors are deeply interdependent: the breakdown of one quickly reverberates through the others. More integrated, cross-sectoral studies are needed to show how systemic collapse unfolds and to inform interventions that address multiple vulnerabilities at once.

2.5.4 International Institutional Analysis

The role of international institutions in perpetuating or mitigating the neglect of healthcare remains insufficiently examined. Critical scrutiny is needed of how aid mechanisms, donor funding structures, and political alignments shape health outcomes in conflict settings. Understanding these dynamics is essential for reforming humanitarian systems and ensuring that international engagement supports long-term resilience rather than reinforcing cycles of vulnerability.

2.6 Conclusion

The literature makes clear that Gaza's healthcare collapse is not incidental, but systemic deeply embedded in political decisions, legal structures, and the realities of prolonged siege. While there are strong parallels with other conflict zones such as Yemen and Syria, Gaza's experience is distinct in the persistence of a chronic blockade that has turned healthcare into a contested political arena rather than a guaranteed human right.

Existing studies provide substantial evidence of deliberate and systematic destruction of healthcare, yet they also expose critical gaps. More longitudinal research is needed to capture the cumulative impact of repeated assaults, more interdisciplinary work is required to address the interconnected collapse of essential systems, and greater attention must be given to local voices that reflect lived realities on the ground.

This study builds directly on these insights. The following chapters develop an integrated theoretical framework, apply mixed-methods analysis to empirical evidence, and advance concrete recommendations aimed not only at understanding the collapse of healthcare in Gaza, but also at strengthening protection mechanisms in other conflict-affected contexts.

Chapter 3: Theoretical Framework

3.1 Introduction

This chapter lays out the multi-theoretical framework that underpins this study, combining three complementary perspectives: structural violence, human security, and conflict epidemiology. Together, these approaches offer a comprehensive lens for understanding how political, social, and environmental forces converge to produce and sustain health crises in conflict-affected regions.

Moving beyond the narrow boundaries of humanitarian narratives, this framework exposes the deeper mechanisms of harm that are often obscured, showing how healthcare systems are not only damaged by war but deliberately reshaped as instruments of control. By weaving these theories together, the study connects macro-level structures of power and policy with the micro-level realities of illness, deprivation, and survival. In doing so, it demonstrates how the collapse of healthcare in Gaza is both a symptom of prolonged siege and a tool within broader political strategies.

3.2 Structural Violence

3.2.1 Conceptual Foundations

The concept of structural violence, developed by Johan Galtung (1969), describes forms of harm that are built into the very organization of society. Unlike direct violence, which is visible and immediate, structural violence works silently through political, economic, and social arrangements that deny people access to the resources and opportunities they need to survive. It is often invisible because it is normalized within institutions, yet its effects are profound manifesting in premature death, preventable illness, and persistent inequality.

In Gaza, structural violence takes shape most clearly through the ongoing blockade, which systematically deprives the population of resources essential for health and survival. Chronic shortages of electricity, fuel, medications, and medical equipment are not accidental disruptions but the predictable results of policies that classify vital goods as “dual use” or that deliberately close border crossings (World Health Organization, 2023). This sustained deprivation has crippled hospitals, leaving them struggling to maintain even basic services. Intensive care units, dialysis wards, and surgical theaters often operate at minimal capacity or are forced to shut down entirely, turning treatable conditions into life-threatening emergencies.

3.2.2 Mechanisms of Structural Violence in Gaza

The blockade enforces structural violence through several interlocking mechanisms. First, restrictions on movement prevent patients from accessing specialized care outside Gaza and block medical professionals from pursuing advanced training. For instance, cancer patients often wait months for unpredictable and stressful exit permits to receive treatments unavailable locally (WHO EMRO, 2025).

Second, limitations on the importation of medical supplies and equipment generate chronic shortages that undermine healthcare quality. Médecins Sans Frontières (2025a) reported that essential medicines including anesthetics, pediatric antibiotics, and drugs for chronic conditions such as diabetes, epilepsy, and hypertension—were scarce, with some clinics forced to perform wound treatment without pain relief.

Third, restrictions on infrastructure development and repeated military assaults have prevented hospitals from being maintained or upgraded, leading to their progressive deterioration. Human Rights Watch (2023) documented repeated, apparently unlawful strikes against hospitals, ambulances, and medical personnel, leaving facilities damaged or destroyed and care delivery severely impaired. Even though the physical damage was limited, the threat of attack alone caused disproportionate disruption, forcing the suspension of services and delaying treatment.

The destruction of healthcare infrastructure compounds these effects. When electricity, fuel, or water are cut, essential hospital functions such as surgery, neonatal intensive care, and sterilization are interrupted or rendered impossible (Médecins Sans Frontières, 2025b). The result is a system perpetually on the verge of collapse, where the ability to provide even basic care is contingent on unstable access to the most fundamental resources.

Viewed through Galtung's lens, these dynamics exemplify structural violence: harm inflicted not through immediate physical assault, but through political and social systems that systematically deny people the conditions necessary for health. The inability of patients to access specialized treatment for cancer or chronic diseases is not an accident of war but a predictable outcome of political decisions, translating directly into preventable suffering and profound health disparities (Al-Mughrabi, 2023; Médecins Sans Frontières, 2023).

3.2.3 Naturalization and Invisibility

One of the most insidious features of structural violence is its tendency to be naturalized perceived as normal, unavoidable, or even inevitable rather than recognized as the outcome of deliberate political decisions (Galtung, 1969). In the case of Gaza, the collapse of healthcare is frequently framed in humanitarian terms,

emphasizing emergency relief efforts while obscuring questions of political accountability. Such framing reduces the crisis to a technical or logistical problem, diverting attention away from the policies and power arrangements that systematically produce health inequities.

The lens of structural violence challenges this normalization. It reframes Gaza's healthcare collapse not as a temporary emergency solvable through humanitarian aid alone, but as a deep political problem requiring structural change. Policies and regulations that appear neutral on the surface such as restrictions on imports, closures of crossings, or the categorization of vital materials as "dual use" are revealed to function as instruments of violence. By systematically denying the population the resources necessary for health and dignity, these measures embed inequality into everyday life and render preventable suffering invisible to those outside the blockade's reach.

3.2.4 Critiques and Application in This Study

A central critique of the structural violence framework lies in its breadth, which some scholars argue makes operationalization and empirical measurement difficult (Farmer, 2004). By attributing harm to diffuse structures, the concept can risk obscuring agency and diluting accountability (Galtung, 1969; Gilligan, 1997). This vagueness may complicate efforts to establish clear causal links between structural conditions and specific health outcomes.

In Gaza, however, the structures of violence are neither diffuse nor abstract. They are embedded in explicit and deliberate policies: the blockade regime that restricts the entry of goods and people, the permit system that dictates whether patients can access treatment outside the Strip, and the military rules of engagement that determine when and how civilian infrastructure is targeted. Human rights organizations have documented these mechanisms as institutionalized practices that directly shape health outcomes and widen disparities (Human Rights Watch, 2023; Médecins Sans Frontières, 2025)

This study therefore treats the breadth of the structural violence framework as a strength rather than a weakness. Its scope allows for the analysis of harm across multiple, intersecting domain economic restrictions, infrastructural destruction, and bureaucratic barriers—that converge to produce cumulative public health crises. By grounding the concept in observable policies and actions, the research maintains analytical precision. In Gaza, structural violence is not a vague metaphor for hidden forces but a framework that exposes the deliberate design of suffering through governance systems and military practice.

3.3 Human Security

The human security framework, first articulated by the United Nations Development Programme (UNDP, 1994), shifts the focus of security from states to individuals, emphasizing protection from pervasive threats to life, livelihoods, and dignity. This approach identifies seven interrelated dimensions: economic, food, health, environmental, personal, community, and political security (Tadjbakhsh & Chenoy, 2007).

In Gaza, the collapse of healthcare represents a profound failure of health security that reverberates across every other dimension of human security. When hospitals are destroyed, essential medicines are blocked, and health workers are targeted, the personal security of individuals is directly undermined. The denial of adequate healthcare further amplifies food insecurity through malnutrition-related illnesses, environmental insecurity through the collapse of sanitation and water systems, and economic insecurity through the loss of livelihoods when illness and disability go untreated. Gaza's health crisis is therefore not an isolated sectoral breakdown but part of a wider "insecurity complex" where vulnerabilities reinforce one another.

The erosion of human security is evident in devastating health outcomes. Food insecurity, driven by blockades and agricultural collapse, has contributed to alarming rates of child malnutrition. UNICEF (2025) reported that in May 2025 more than 5,000 children under five in Gaza were diagnosed with acute malnutrition—a 50% increase from April and a 150% increase compared to February. The World Food Programme (2024) likewise warned of rising risks of malnutrition among children and pregnant women. Environmental security has been compromised by the destruction of water and sanitation systems, fueling diarrheal diseases and raising the risk of cholera. While WHO (2025) confirmed no cholera epidemic in Gaza as of September 2025, outbreaks in neighboring countries and UNRWA warnings (as cited in Anadolu Agency, 2025) underscored the high likelihood of spread under current conditions.

Personal security is also directly threatened by attacks on healthcare facilities and personnel. WHO, UNICEF, and UNFPA (2023) documented at least 137 such attacks in just over a month, resulting in deaths and injuries among patients and medical staff. The International Committee of the Red Cross (ICRC, 2023) has repeatedly demanded immediate protection for health workers and civilians under international humanitarian law.

The collapse of community and personal security is reflected in mental health outcomes. Studies indicate that approximately 54% of children in Gaza exhibit symptoms of PTSD, alongside elevated levels of anxiety and depression (Thabet & Vostanis, 2025). Among adults, El-Khodary et al. (2024) found symptomatic PTSD in 67.8% of displaced populations, reflecting the psychological toll of recurrent warfare.

and displacement. These findings highlight that mental health is not only a medical issue but also a central human security concern, eroding resilience and weakening the social fabric.

Taken together, these dynamics demonstrate that the destruction of Gaza's healthcare system represents far more than the loss of medical services. It signals the unraveling of the broader web of human security—where health is both a standalone pillar and the foundation sustaining every other dimension of human dignity and survival.

3.3.1 Theoretical Development

The human security framework, first advanced by the United Nations Development Programme (UNDP, 1994), marked a paradigm shift from state-centered notions of security to a people-centered approach. Rather than focusing exclusively on territorial or military protection, it emphasizes safeguarding individuals from pervasive threats to their lives, livelihoods, and dignity. The framework identifies seven interrelated dimensions: economic, food, health, environmental, personal, community, and political security.

This approach is particularly significant for analyzing healthcare in conflict zones, as it recognizes that threats to human well-being are multidimensional and interconnected. In Gaza, the collapse of the healthcare system represents a profound failure of health security that cascades across the other dimensions. When hospitals are destroyed, access to essential medicines is denied, and health workers are systematically targeted, the personal security of individuals is directly undermined. In turn, these health-related insecurities intensify economic, food, and community insecurities, revealing the far-reaching and interconnected nature of healthcare collapse under conditions of protracted conflict.

3.3.2 Application to Gaza's Healthcare Crisis

Applying the human security framework to Gaza reveals how the collapse of healthcare generates cascading vulnerabilities across multiple domains. Food insecurity, intensified by the blockade and agricultural disruption, has directly contributed to rising rates of child malnutrition (UNICEF, 2024), threatening both the immediate survival and long-term development of an entire generation. Environmental security has been undermined by the destruction of water and sanitation infrastructure, which has fueled outbreaks of infectious diseases including cholera and hepatitis A (Boussaa et al., 2025).

Personal security is persistently jeopardized by direct attacks on healthcare workers and facilities. These violations of international humanitarian law create an atmosphere of fear that discourages both patients from seeking care and providers from delivering

it (Physicians for Human Rights, 2023). Community security has been eroded by widespread psychological trauma, weakening social cohesion and collective resilience. Political security is also compromised through the systematic denial of basic rights, such as the right to health, alongside the absence of effective mechanisms for protection and accountability.

3.3.3 Interconnectedness of Security Threats

A central insight of the human security framework is that threats rarely occur in isolation but are deeply interconnected (UNDP, 1994). In Gaza, this interdependence is starkly evident. The destruction of healthcare infrastructure exacerbates food insecurity by reducing the system's capacity to treat malnutrition-related illnesses. At the same time, environmental degradation caused by military operations—such as damage to water and sanitation systems—elevates disease burdens, which in turn further strain already weakened health services.

These cascading effects demonstrate that addressing only one dimension of insecurity in isolation is insufficient. Health cannot be separated from food, environment, or community resilience; each reinforces and magnifies the others. The human security perspective therefore provides a comprehensive framework for understanding Gaza's healthcare collapse not simply as a technical or humanitarian challenge, but as part of a wider matrix of overlapping vulnerabilities. Restoring health security, in this context, requires structural and political interventions that simultaneously address multiple, interconnected threats to survival, dignity, and well-being.

3.3.4 Critiques and Application in This Study

The human security framework has faced criticism for its expansive scope, which some scholars argue risks becoming overly broad and indistinguishable from general development objectives. Paris (2001), for instance, contends that its wide-ranging definition makes it difficult to set priorities or design targeted interventions.

While this critique holds weight in certain contexts, the present study views the framework's holistic nature as its greatest strength in analyzing Gaza. The collapse of healthcare in the Strip cannot be meaningfully examined apart from food insecurity, environmental degradation, or the psychological trauma that pervades daily life. The interconnectedness of these threats is not peripheral to the crisis—it is the crisis itself.

This research therefore embraces the comprehensive scope of the human security framework, using it to document how the erosion of health security cascades into every other dimension of human well-being. In doing so, it demonstrates the totality of Gaza's predicament in ways that narrower, sector-specific approaches would fail to capture.

3.4 Conflict Epidemiology

Conflict epidemiology provides a critical lens for understanding how war and siege transform health from a humanitarian concern into a measurable consequence of political and military decisions. By tracing the links between violence, displacement, and disease, this approach moves beyond descriptive accounts of suffering to demonstrate causality and accountability. In the case of Gaza, it offers a framework for showing how the blockade and recurrent military assaults have systematically generated public health crises that are both predictable and preventable.

3.4.1 Conceptual Foundations and Evolution

Conflict epidemiology is a specialized branch of public health that applies epidemiological methods to examine the patterns, determinants, and health impacts of armed conflict on populations. Beyond counting casualties, it investigates how violence, forced displacement, and the systematic destruction of infrastructure directly and indirectly shape morbidity, mortality, and the collapse of health systems (Spiegel et al., 2010).

The field emerged in the late twentieth century as a response to limitations in conventional approaches that treated war's health effects as incidental or unavoidable. Conflict epidemiology reframed these outcomes as both predictable and preventable, the result of human decision-making and political strategy rather than random misfortune (Murray et al., 2002). By doing so, it positioned armed conflict as a driver of measurable public health crises, subject to systematic study and accountability.

In the case of Gaza, this framework provides a critical methodological toolkit. It enables the shift from anecdotal accounts of suffering to robust, data-driven analysis that establishes causal relationships between military tactics, blockade policies, and public health collapse. In this way, conflict epidemiology not only documents harm but also creates the evidentiary basis for accountability and policy reform.

3.4.2 Core Methodologies and Applications

Conflict epidemiology relies on a range of methodologies designed to address the severe challenges of data collection in active war zones. Among the most widely used are:

Retrospective mortality surveys, which estimate death rates through household interviews, particularly important when civil registration systems have collapsed.

Verbal autopsies, in which relatives provide accounts that allow researchers to determine probable causes of death when medical certification is unavailable.

Syndromic surveillance, which tracks the spread of diseases such as diarrhea or cholera in near real-time, enabling early epidemic detection even when laboratory confirmation is not possible.

Geospatial mapping, which correlates the geographic distribution of airstrikes, infrastructure damage, and disease clusters to establish causal connections between violence and health outcomes.

Secondary data analysis and modelling, which compile and synthesize information from organizations such as WHO, NGOs, and local health authorities to create coherent estimates of excess mortality and morbidity.

The strength of conflict epidemiology lies in its capacity to make visible what is often obscured. It allows researchers to estimate excess mortality—deaths beyond what would be expected in a peaceful baseline scenario—and to distinguish between direct causes (such as injuries from bullets or shrapnel) and indirect ones (such as diabetic complications due to lack of insulin or cholera linked to contaminated water). As Checchi and Roberts (2008) argue, these methods not only document human suffering but also reveal the weaponization of health by demonstrating dose–response relationships between the intensity of conflict and the deterioration of health indicators.

3.4.3 Critiques, Limitations, and Application in This Study

One of the principal limitations of conflict epidemiology lies in its dependence on fragmented, incomplete, or politically contested data from war zones. Such conditions can introduce uncertainty, making verification difficult and exposing results to scrutiny regarding methodological choices such as sample size, survey design, and projection models (Checchi & Roberts, 2005). These challenges often fuel debates about the reliability and comparability of findings across different conflicts.

This study acknowledges these constraints but addresses them through a mixed-methods design. Quantitative data on mortality, disease incidence, and infrastructure destruction sourced from international organizations such as WHO, OCHA, and the Gaza Ministry of Health—provides the epidemiological foundation. However, these figures are not treated uncritically. They are triangulated with qualitative evidence: testimonies from healthcare workers documented by Physicians for Human Rights (2025), field reports from Médecins Sans Frontières (2023), and legal analyses from Human Rights Watch (2023).

By linking numerical data to lived experiences and on-the-ground documentation, the study mitigates the risks of over-reliance on imperfect statistics. For example, reported figures on child malnutrition are directly connected to evidence of restrictions on food imports and the destruction of agricultural land. This integrated approach strengthens causal claims, embeds epidemiological trends within the broader political context, and produces a more holistic and defensible analysis of Gaza's healthcare collapse.

3.4.4 Relevance to the Gaza Context

In the case of Gaza, conflict epidemiology is not simply an academic discipline but a forensic instrument for accountability. Its methods provide the evidence base to move beyond description and toward attribution of responsibility. Within this study, the framework serves four central purposes:

1. Establishing causality. By linking the destruction of water and sanitation infrastructure to subsequent outbreaks of hepatitis A and cholera, conflict epidemiology demonstrates that these epidemics were not random events but the direct outcomes of military actions (Boussaa et al., 2025).
2. Documenting targeted effects. The deliberate targeting of specialized care facilities—such as cancer hospitals and dialysis centers—can be correlated with measurable increases in mortality among vulnerable patient groups (Ministry of Health Gaza, 2024).
3. Countering misinformation. By grounding analysis in scientifically rigorous evidence, this approach challenges narratives that portray Gaza's health crisis as either an inevitable byproduct of war or the result of internal mismanagement.
4. Quantifying preventable deaths. Through estimations of excess mortality, conflict epidemiology makes visible the number of lives that could have been saved in the absence of the blockade and systematic attacks on healthcare. These calculations underscore the human cost of inaction and the persistence of impunity.

By applying these principles, the study positions conflict epidemiology as a vital tool for clarifying causality, documenting violations, and framing Gaza's health crisis as both preventable and politically constructed.

3.5 Theoretical Integration

3.5.1 Complementary Analytical Strengths

The three theoretical frameworks employed in this study structural violence, human security, and conflict epidemiology offer distinct yet complementary strengths for analyzing the collapse of healthcare in Gaza. Structural violence provides the macro-level perspective, illustrating how political, economic, and institutional arrangements create systematic disadvantages and embed inequities into daily life (Galtung, 1969). Human security extends this analysis by situating health within a wider matrix of economic, food, environmental, personal, community, and political highlighting the interconnected ways in which conflict erodes human dignity and survival (UNDP, 1994; Tadjbakhsh & Chenoy, 2007). Conflict epidemiology adds the methodological dimension, supplying tools to measure, document, and quantify the health impacts of violence, blockade, and infrastructural destruction (Spiegel et al., 2010).

Together, these frameworks enable a multidimensional analysis that connects macro-level political structures to micro-level health outcomes, exposes the interdependence of different forms of insecurity, and generates empirical evidence of the human costs of war. This integration moves the analysis beyond descriptive accounts of Gaza's healthcare collapse, uncovering the mechanisms and power relations that deliberately produce and perpetuate crisis.

3.5.2 Application to Research Questions

The integration of the three theoretical frameworks directly informs the research questions outlined in Chapter 1. Structural violence provides the lens for examining the political and institutional structures that have enabled and sustained the collapse of Gaza's healthcare system (Research Question 1). Human security highlights the multidimensional consequences of blockade and military operations, showing how health insecurities cascade into food, economic, environmental, and personal insecurities (Research Question 2). Conflict epidemiology offers methodological tools to evaluate the performance of international protection mechanisms by systematically documenting health outcomes and linking them to violations of humanitarian law (Research Question 3). Finally, the combined use of all three frameworks informs the development of alternative response strategies that address the root causes of healthcare collapse policies, governance, and patterns of violence rather than treating only the visible symptoms (Research Question 4).

3.5.3 Ethical and Political Implications

The integration of these theoretical frameworks carries significant ethical and political implications. By exposing the political origins of health inequities, it challenges narratives that frame Gaza's healthcare collapse as a neutral or technical issue and underscores the necessity of political solutions. By documenting the human costs of conflict in measurable terms, it provides a foundation for legal accountability and policy reform aimed at ending impunity for attacks on health. Furthermore, by highlighting the interconnections between health insecurity and other forms of vulnerability such as food, environmental, and community insecurity calls for comprehensive approaches that treat health not as an isolated sector, but as inseparable from the broader conditions required for human dignity and survival.

3.6 Conclusion

The integrated theoretical framework developed in this chapter establishes a robust foundation for analyzing the systematic collapse of Gaza's healthcare system. By bringing together the structural violence lens, the human security perspective, and the methodological tools of conflict epidemiology, it enables a multidimensional analysis that goes beyond short-term humanitarian narratives to expose the deliberate and layered nature of the crisis. This framing makes clear that the destruction of healthcare in Gaza is not an unintended byproduct of conflict, but the entrenched outcome of political decisions and structural inequalities. It thereby lays the groundwork for advancing arguments for legal accountability and comprehensive, rights-based interventions.

Building on this foundation, the following chapters apply the framework to empirical evidence. Through a mixed-methods approach, they document the human toll of blockades and violence, analyze the consistent failure of international protection mechanisms, and develop recommendations for response strategies that address both the immediate needs and the structural healthcare collapse.

Chapter 4: Methodology

4.1 Introduction

This chapter presents the methodological framework adopted to investigate the systemic collapse of Gaza's healthcare system between 2007 and 2025. Research in conflict-affected and besieged environments poses profound challenges, ranging from restricted access to politicized data and heightened risks for participants. To address these complexities, the study employs a qualitative-dominant mixed-methods design, integrating multiple forms of data and analytical techniques.

The methodology was developed with two guiding priorities: maintaining rigorous academic standards and upholding strong ethical principles. By combining quantitative evidence such as statistical trends, infrastructure damage, and mortality data with qualitative insights drawn from published testimonies and documented accounts of healthcare workers, patients, and humanitarian personnel, the research seeks to capture both the measurable scale of collapse and the lived experiences behind the numbers.

The sections that follow outline the key components of this design: the overall research strategy, the data sources and collection methods, the analytical framework, and the ethical safeguards. Attention is also given to the limitations of the study, recognizing that no single approach can fully capture the magnitude of Gaza's healthcare crisis, but that triangulating diverse forms of evidence provides the most comprehensive and defensible account possible.

4.2 Research Design

4.2.1 Mixed-Methods Approach

This study adopts a qualitative-dominant mixed-methods design, prioritizing depth of interpretation while incorporating quantitative evidence to contextualize and validate findings. Such an approach is particularly appropriate in conflict research, where statistical data alone cannot adequately reflect the layered realities of populations living under siege.

The design integrates three complementary components:

1. Document analysis: systematic review and critical appraisal of humanitarian reports, peer-reviewed studies, legal documents, and credible media coverage.

2. Secondary statistical analysis: compilation and examination of epidemiological data, facility damage assessments, and health indicators produced by international agencies and local health authorities.
3. Thematic analysis: identification and interpretation of recurring patterns within qualitative material, including secondary testimonies, published interviews, and field reports produced by established organizations.

This qualitative-dominant orientation acknowledges that understanding the collapse of healthcare in Gaza requires more than numerical measurement. It demands careful attention to lived experiences, local contexts, and the meanings individuals attach to their circumstances. At the same time, quantitative data provides an essential foundation for detecting patterns, assessing scale, and reinforcing the credibility of the analysis.

4.2.2 Triangulation Strategy

A key strength of this design is methodological triangulation—using multiple data sources and methods to cross-validate findings. This enhances the validity and reliability of results, which is particularly important in conflict settings where data may be fragmented or contested. Triangulation occurs at three levels:

1. Data Triangulation: Using multiple data sources (international organizations, local authorities, academic studies, media reports)
2. Methodological Triangulation: Combining different research methods (document analysis, statistical examination, thematic coding)
3. Investigator Triangulation: Drawing on analyses from multiple researchers and organizations

This triangulation strategy helps mitigate biases inherent in any single data source or method and provides a more comprehensive understanding of the healthcare collapse.

4.2.3 Temporal Framework

The central strength of this design lies in its use of methodological triangulation, which integrates multiple sources and methods to cross-validate findings. This approach is especially vital in conflict settings, where data is often fragmented, contested, or shaped by political constraints. By applying triangulation, the study strengthens both the validity and reliability of its results.

The strategy operates at three levels:

1. Data triangulation: incorporating evidence from diverse sources, including international organizations, local health authorities, academic studies, and credible media reports.
2. Methodological triangulation: combining document analysis, statistical examination, and thematic coding to capture both numerical patterns and lived experiences.
3. Investigator triangulation: drawing on analyses and perspectives generated by multiple researchers and organizations to reduce the influence of individual bias.

Together, these layers of triangulation mitigate the limitations inherent in any single data stream or methodological tool. They allow for a more comprehensive and defensible understanding of Gaza's healthcare collapse, ensuring that conclusions rest on converging lines of evidence rather than isolated observations.

4.3 Data Sources

The study relies on diverse data sources to capture the multidimensional nature of Gaza's healthcare collapse. By integrating international datasets, national and local records, academic literature, and reports from NGOs and media outlets, the research ensures both breadth and depth of evidence while mitigating the limitations of any single source.

4.3.1 Secondary Data from International Organizations

A central foundation of the analysis is data generated by international organizations with mandates to monitor health and humanitarian conditions. The World Health Organization (WHO) provides situation reports, health cluster bulletins, facility assessments, and epidemiological datasets. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) contributes humanitarian needs overviews, access-constraint reports, and protection of civilian's updates. UNICEF offers nutrition surveys, child protection assessments, and water and sanitation monitoring. The International Committee of the Red Cross (ICRC) publishes operational updates, Healthcare in Danger reports, and analyses of compliance with international humanitarian law. The United Nations Relief and Works Agency (UNRWA) supplies health program reports, facility-level data, and refugee health statistics.

These sources employ standardized methodologies that enhance reliability and comparability across time. Nonetheless, their outputs must be read critically, as they

reflect institutional mandates, access limitations, and political sensitivities that may shape the framing of data.

4.3.2 Academic Literature

The research incorporates peer-reviewed scholarship from 2020–2025 focused on healthcare in conflict zones. This literature includes epidemiological studies of specific health conditions, assessments of health system functionality, psychological and mental health research, and comparative analyses across conflict settings. It also engages theoretical contributions that refine frameworks for understanding the destruction of healthcare in war.

Academic studies provide methodological rigor and theoretical grounding beyond descriptive reporting, allowing the research to anchor its findings in established debates and validated methodologies.

4.3.3 Media and NGO Reports

Alongside institutional datasets, this study draws on reports from reputable non-governmental organizations and selected media outlets. These sources provide ground-level perspectives that complement official statistics by documenting the immediate impacts of conflict on healthcare delivery. Key contributions include Médecins Sans Frontières (MSF), which issues operational updates and facility-based accounts from medical staff; Physicians for Human Rights (PHR), which systematically documents attacks on healthcare and provides legal analysis; and Human Rights Watch (HRW), which investigates incidents within the framework of international humanitarian law. Local Palestinian NGOs also supply community-based reporting that highlights marginalized voices, while international media outlets contribute investigative journalism and eyewitness narratives that offer external validation.

Although these sources differ in scope and methodology, they capture urgent realities often absent from formal reporting systems. Their inclusion ensures that the study reflects not only structural patterns but also the lived experiences of those most directly affected by the healthcare collapse.

4.3.4 Expert Testimonies and Interviews

The study did not involve the conduct of new or direct interviews. Instead, it systematically incorporated secondary testimonies and interviews already collected and published by reputable organizations and academic studies. These included documented accounts from Palestinian health workers (doctors, nurses, technicians),

hospital administrators, humanitarian personnel, patients and their families, and legal experts in international humanitarian law.

Such testimonies were accessed through reports issued by organizations such as Médecins Sans Frontières (MSF), Physicians for Human Rights (PHR), Human Rights Watch (HRW), and other peer-reviewed research outputs. By relying on these existing sources, the study ensured both ethical integrities avoiding additional risks to participants in conflict settings and methodological robustness through triangulation of evidence.

4.3.5 Source Criticism and Evaluation Criteria

Given Because this study relies entirely on secondary sources, a rigorous and systematic approach to source criticism is essential for ensuring validity and credibility. To this end, the research applies a multi-faceted evaluation framework built on five key criteria:

1. **Provenance and Authority.** The origin of each source and the credentials of the author or sponsoring organization are critically assessed. Peer-reviewed journals and reports from established international bodies (e.g., WHO, UN agencies) are accorded high weight due to their methodological transparency and editorial oversight. Reports from reputable NGOs (e.g., HRW, PHR, MSF) are valued for their ground-level access and investigative rigor but are interpreted considering their advocacy mandates.
2. **Methodological Transparency.** Preference is given to sources that explicitly describe their data collection processes—such as sample sizes, techniques, and limitations. For example, a WHO report outlining its verification procedures is privileged over an NGO press release that lacks methodological detail.
3. **Corroboration and Consistency.** No claim is accepted based on a single source. Information is considered more robust when confirmed by independent entities with different mandates. For instance, a statistic from the Gaza Ministry of Health carries greater weight when corroborated by WHO and supported by MSF field observations. Where discrepancies occur (e.g., casualty figures), the source with the most transparent methodology is prioritized, and the divergence itself is noted as a finding.
4. **Purpose and Potential Bias.** The institutional objectives of each source are acknowledged rather than dismissed. UN agencies may emphasize diplomatic neutrality, NGOs may foreground advocacy, and governmental bodies may reflect political imperatives. Data is interpreted with these contexts in mind. For example, figures reported by the Gaza Ministry of Health are considered

essential but systematically cross-checked against independent international data.

5. **Timeliness and Context.** The date and situational context of publication are considered. Reports issued during periods of intense bombardment may rely on provisional estimates, while post-conflict analyses often provide more verified, retrospective data. The study prioritizes the most recent confirmed information, while recognizing the evolving nature of the crisis.

By consistently applying these criteria, the research constructs a robust evidence base from fragmented and sometimes contested information. This approach mitigates the inherent limitations of secondary data and strengthens the validity of the overall analysis.

4.4 Data Collection Methods

4.4.1 Systematic Document Review

A structured process of document analysis was undertaken to ensure both comprehensiveness and rigor. The review followed five sequential steps:

1. **Source identification.** Relevant material was located through systematic searches of organizational websites, academic databases, and specialized collections.
2. **Selection criteria.** Documents were included based on their relevance to the research questions, the credibility of the issuing body, and the degree of methodological transparency.
3. **Critical appraisal.** Each document was assessed for its strengths, limitations, and potential biases, with attention to institutional mandates and intended audiences.
4. **Data extraction.** Key information was systematically recorded using standardized templates to ensure consistency across sources.
5. **Cross-verification.** Findings were compared across multiple independent sources to validate claims and highlight discrepancies for further analysis.

The review placed particular emphasis on documents addressing policy frameworks, impact assessments, and verified reports of attacks on healthcare infrastructure and personnel. This systematic approach allowed for the construction of a robust and triangulated evidence base, mitigating the risks associated with selective or anecdotal reporting.

4.4.2 Statistical Data Compilation

Quantitative data collection involves:

- Compilation of Epidemiological Figures: Disease incidence rates (cholera, hepatitis A, diarrhea), malnutrition indicators (wasting, stunting), mortality statistics
- Infrastructure Assessments: Numbers of facilities damaged or destroyed, equipment functionality rates, bed capacity changes
- Human Resource Tracking: Healthcare worker casualties, staffing levels, specialist availability
- Service Availability: Surgical capacity, immunization coverage, dialysis treatment numbers

Data were cross-referenced across multiple sources to ensure accuracy and consistency, with discrepancies noted and investigated.

4.4.3 Thematic Coding and Analysis

Qualitative analysis followed a reflexive thematic approach using NVivo, with a hybrid deductive–inductive strategy aligned to the study’s research questions and theoretical lenses (structural violence, human security, conflict epidemiology) (Braun & Clarke, 2006; Saldaña, 2021). The procedure was applied to secondary qualitative materials, including published testimonies, organizational reports, and peer-reviewed studies, ensuring consistency with the study’s reliance on documented and ethically reviewed sources.

1. Familiarization. Iterative reading, annotation, and reflexive memoing across organizational reports, humanitarian assessments, and published testimonies (2007–2025).
2. Codebook development. Deductive top-level codes derived from the three frameworks and the four research questions; inductive subcodes added to capture emergent patterns specific to Gaza’s blockade, military operations, and service disruptions.
3. First-cycle coding. Application of descriptive and in-vivo codes to all textual units; case classifications assigned by source type (e.g., WHO, OCHA, MOH, MSF, PHR, HRW, UNRWA, media, local NGOs) and period (e.g., 2008–2009, 2012, 2014, 2021, 2023–2025).
4. Second-cycle (pattern) coding. Collapsing related codes into candidate themes; mapping relationships among structural constraints, attacks on healthcare, and observed health outcomes.

5. Theme review and validation. Matrix-coding queries to check co-occurrence across sources and periods; negative-case analysis to probe disconfirming evidence; constant comparison to ensure thematic coherence.
6. Theme definition and naming. Clear scope notes, inclusion/exclusion rules, and exemplary extracts; direct linkage of each theme to one or more research questions.
7. Trustworthiness. Triangulation across source types, peer debriefs on the codebook, and an audit trail of coding decisions; where double-coding was feasible, discrepancies were resolved through discussion rather than mechanical thresholds given the diversity of source genres.
8. Reporting. Selection of analytically rich extracts; integration with quantitative indicators (e.g., outbreaks, facility functionality, excess mortality) via NVivo matrices to support mixed-methods inference.

Core themes (refined for this study's scope) included:

- Structural violence mechanisms: movement/permit restrictions; "dual use" supply controls; infrastructure vetoes; energy/water cuts.
- Weaponization of healthcare & medical neutrality: targeting facilities, ambulances, and staff; siege-induced denial of care.
- Human security erosion: intersections with food, environmental, personal, community, and political insecurity (e.g., child malnutrition, WASH collapse, displacement-linked trauma).
- Conflict-epidemiology linkages: indirect vs direct mortality; outbreak triggers following WASH damage; service interruptions for cancer, dialysis, and chronic disease.
- Vulnerability differentials: disproportionate impacts on children, women, the elderly, and patients with chronic conditions.
- Coping and resilience: improvisation in service delivery, informal care networks, NGO stopgaps, evacuation attempts.
- Accountability and protection gaps: documentation of violations, failure of enforcement, legal advocacy trajectories.
- Ethical dilemmas in clinical practice: triage under scarcity, postponement of non-urgent care, moral injury among staff.

Language handling followed a source-faithful protocol (Arabic–English), with clarified translations and context notes to preserve meaning. All testimonies were drawn exclusively from published reports and studies that had already applied anonymization and consent safeguards.

4.5 Analytical Framework

The analytical framework provided the structured lens through which all evidence was examined and interpreted. Building on the multi-theoretical foundations presented in Chapter 3, the framework ensured that analysis moved beyond descriptive reporting to systematic explanation of how political, structural, and epidemiological factors interacted to produce Gaza’s healthcare collapse. Data were organized, coded, and interpreted according to clearly defined theoretical categories, allowing for consistent triangulation between qualitative testimonies, secondary statistics, and documentary sources. This framework also enabled the linking of micro-level health outcomes with macro-level drivers, producing an integrated account of both mechanisms and consequences.

4.5.1 Theory-Driven Analysis

The analysis was anchored in the integrated framework developed in Chapter 3, moving beyond description to explanation and critique of the power relations shaping health. Three lenses guided all analytic decisions and were explicitly operationalized as follows:

- Structural violence analysis. A policy–event matrix mapped concrete mechanisms (e.g., movement and permit regimes, “dual-use” restrictions, energy and WASH curtailments, infrastructure vetoes) to service disruptions and outcome indicators. Codes captured mechanism occurrence, intensity, and duration; a constraint severity index was derived and linked to trends in facility functionality, treatment interruptions, and excess mortality.
- Human security assessment. Using the seven-dimension schema, indicators were organized into dimension-by-period matrices to trace cascading effects (health → food → economic → environmental → personal/community → political). Vulnerability differentials (children, women, elderly, patients with chronic disease) were examined through subgroup summaries and co-occurrence queries connecting insecurity dimensions with documented shocks.
- Conflict epidemiology. Exposure variables (airstrike density, facility damage, blockade intensity, WASH failure) were geospatially aligned with outcomes (mortality, syndromic outbreaks, malnutrition, service interruption). Where data permitted, Interrupted Time Series and excess-mortality estimation were used

to assess level and slope changes; dose–response patterns were probed via stratification and sensitivity checks. Qualitative accounts were used to validate causal pathways and clarify indirect mortality channels.

Mixed-methods integration relied on joint displays that positioned quantitative indicators alongside exemplary extracts for each theme, with every analytic claim traced to its evidentiary bundle and linked to a specific research question. An audit trail documented coding decisions, indicator construction, and treatment of discrepancies, ensuring transparency, reproducibility, and a clear line of sight from theory to findings.

4.5.2 Comparative Analysis

The Comparative analysis was used to situate Gaza within broader patterns of healthcare in conflict and to distinguish case-specific dynamics from recurring mechanisms (Ragin, 1987; George & Bennett, 2005). The design combined structured, focused comparison with harmonized indicators to ensure analytic consistency across scales.

- Cross-conflict comparisons (Syria, Yemen, Ethiopia/Tigray). Cases were selected for protracted violence and documented attacks on healthcare. A most-similar/most-different logic isolated blockade/siege effects versus primarily aerial or multi-party campaign effects. A common indicator set was applied (e.g., facility functionality %, frequency of attacks on healthcare, WASH disruption proxies, malnutrition prevalence, outbreak incidence, treatment-interruption rates, health-worker density per 10,000).
- Temporal comparisons within Gaza (2007–2025). Conflict phases (2008–2009; 2012; 2014; 2021; 2023–2025) were used for temporal bracketing. Where data permitted, segmented trend checks assessed level/slope changes in outcomes (e.g., excess mortality, syndromic alerts, service availability) following major operations and policy shifts (crossings, fuel, “dual use” lists).
- Regional comparisons within Gaza (north, central, south). Subregional analyses stratified indicators by governorate and facility type, overlaying geospatial layers of strikes, displacement, and WASH failures with health outcomes to detect spatial heterogeneity and cluster effects.

Harmonization and quality control. Definitions were aligned across sources; rates were normalized (e.g., per 100,000 population) and synchronized to comparable time windows. A source-quality rubric (method transparency, triangulation, recency) guided weighting; discrepancies were retained and analyzed rather than discarded.

This comparative strategy identified Gaza-specific features (chronic, policy-engineered blockade producing compounding indirect mortality) alongside generalizable patterns (weaponization of healthcare, cascading human-security failures), directly informing the explanatory aims of the study and the transferability of its recommendations.

4.5.3 Process Tracing

To link political decisions to health impacts, the study employed within-case process tracing guided by the Chapter 3 framework (George & Bennett, 2005; Bennett & Checkel, 2015; Beach & Pedersen, 2019). The protocol:

- Mechanism specification. From theory, we posited stepwise pathways (e.g., expansion of “dual use” lists → border hold/denial → stockouts → surgery cancellations → excess mortality).
- Policy decisions. Tracked discrete decisions and rules: blockade regulations, permit regimes, fuel and WASH restrictions, and targeting policies, with timestamps and issuers.
- Implementation mechanisms. Documented how decisions were operationalized (customs holds, convoy denials, fuel caps, infrastructure strikes), coded by actor, location, and duration.
- Intermediate outcomes. Identified short-term system effects: facility functionality declines, treatment interruptions (oncology, dialysis), generator failures, sterilization lapses, ambulance delays.
- Final outcomes. Linked to population-level indicators: mortality (direct/indirect), syndromic outbreaks (diarrheal disease, hepatitis A), malnutrition prevalence, and mental health burden.
- Evidentiary tests. Applied hoop, smoking-gun, and straw-in-the-wind tests to each mechanism step; weighed probative value using source transparency and independence (WHO, OCHA, MOH Gaza, MSF, PHR, HRW).
- Sequencing and rival explanations. Verified temporal order (policy → implementation → outcomes) and probed alternatives (seasonality, endogenous governance failures) via negative-case checks and counterfactual sensitivity.
- Integration. Merged qualitative traces with quantitative shifts (e.g., interrupted time-series around major operations and fuel/WASH shocks) to assess level/slope changes consistent with the hypothesized pathway.

This approach demonstrates how specific actions produced health effects: for example, fuel caps precipitated generator outages, which halted NICU and operating-theatre services, yielding spikes in neonatal deaths and surgical backlogs consistent with the predicted mechanism. (George & Bennett, 2005; Bennett & Checkel, 2015; Beach & Pedersen, 2019).

4.6 Ethical Considerations

This study was conducted under strict ethical standards appropriate for research in conflict settings. All data used was secondary, derived from published reports, peer-reviewed literature, and documentation by humanitarian and human rights organizations. No new data was collected directly from human participants. As a result, ethical safeguards were applied through critical selection of sources, ensuring that only material produced under established ethical protocols was incorporated. This approach-maintained compliance with international guidance (CIOMS, 2016; World Medical Association, 2013) while eliminating risks to individuals in Gaza

4.6.1 Confidentiality and Anonymity

Confidentiality and anonymity were preserved by relying exclusively on testimonies and interviews that were already de-identified, anonymized, or ethically cleared in their original form. No raw or personal identifiable data were accessed, and no re-identification attempts were made. The inclusion criteria required that testimonies come from organizations with documented safeguards and established review procedures. In this way, the study ensured responsible use of sensitive material without creating new risks for health workers, patients, or institutions.

4.6.2 Informed Consent

Because no direct engagement with participants occurred, informed consent was not collected by the researcher. Instead, reliance was placed on organizations and academic studies that had already applied formal consent procedures in line with ethical standards. Testimonies, quotations, and case studies were included only when these were explicitly documented as ethically obtained, or when published under public access terms. This ensured that all material used was consistent with the principles of voluntariness, transparency, and respect for participants' rights.

4.6.3 Do No Harm Principle

The principle of “do no harm” was central to the research design and reporting. By abstaining from primary data collection, the study avoided exposing vulnerable populations to additional risks. Analysis was conducted at an aggregated and thematic level, preventing disclosure of operational or personally identifiable details. Careful attention was given to the framing of findings to avoid stereotyping or unintended stigmatization, ensuring that the documentation of systemic collapse did not inadvertently reinforce harm.

4.6.4 Positionality and Reflexivity

The researcher recognizes that interpretation is shaped by standpoint, disciplinary background, and lived context. Reflexivity was practiced through explicit acknowledgment of positionality and engagement with diverse, sometimes contradictory, perspectives. Continuous cross-checking against locally grounded studies and reports from multiple organizations was used to mitigate bias. This reflexive process ensured that findings remained transparent, balanced, and grounded in the evidence base while respecting the complexity of healthcare collapse in Gaza.

4.7 Limitations

4.7.1 Access Constraints

No direct field access: Primary data collection inside Gaza was not feasible due to security and access restrictions.

Reliance on secondary data: Evidence was drawn from datasets and reports produced for purposes other than this study.

Uneven geographic coverage: Some areas are better documented than others, producing spatial gaps.

Reporting lags: Delays occurred between events and their formal documentation.

4.7.2 Data Quality Challenges

Several factors affected data quality and completeness:

- **Fragmented Reporting Systems:** Breakdown of routine health information systems during escalation phases
- **Verification Difficulties:** Challenges in independently confirming reports from conflict zones
- **Reporting Biases:** Potential organizational biases in what gets documented and emphasized
- **Inconsistent Methodologies:** Different organizations using different data collection approaches.

4.7.3 Ethical Constraints

Ethical considerations imposed certain limitations:

- **Inability to Seek Clarification:** Could not follow up with original sources for additional information
- **Limited Critical Engagement:** Difficulty questioning certain narratives without endangering sources
- **Selective Representation:** Some perspectives may be overrepresented while others are absent.

4.7.4 Methodological Limitations

Specific methodological constraints included:

- Retrospective Design: Inability to establish baseline measures before events occurred
- Non-Random Sampling: Data availability determined by access and reporting rather than systematic sampling
- Contextual Complexity: Difficulty isolating healthcare impacts from other conflict effects

Despite these limitations, the methodological approach employed provides valuable insights into Gaza's healthcare collapse. The mixed-methods design, triangulation strategy, and theoretical grounding enable robust analysis within the constraints of conflict zone research.

4.8 Conclusion

The methodology chapter sets out a rigorous, ethically grounded, and comprehensive methodology for examining the systemic collapse of Gaza's healthcare system. By integrating multiple data sources, employing a qualitative-dominant mixed-methods design, and anchoring analysis in the study's theoretical framework, the approach captures both quantitative trends and lived experiences. Recognizing constraints related to access and data quality, the design mitigates risks through multilayer triangulation, transparent evaluation of sources, and strict ethical safeguards. The following chapters apply this framework to present empirical findings and interpretive analysis of Gaza's healthcare crisis.

Chapter 5: Findings

5.1 Introduction

The chapter presents the empirical findings of Gaza’s healthcare collapse from 2007 to 2025. Drawing on the mixed-methods design described in Chapter 4, the analysis integrates validated quantitative indicators with published testimonies and secondary qualitative accounts that had already been anonymized by their original collectors, to capture both the scale of damage and the lived experience behind the numbers.

Findings reveal patterned, cumulative deterioration rather than incidental harm. Results are organized across six domains aligned with the study’s aims: (1) infrastructure collapse, (2) infectious-disease epidemics, (3) malnutrition, (4) mental-health deterioration, (5) targeted attacks on health workers and facilities, and (6) disproportionate impacts on vulnerable populations. Quantitative evidence establishes magnitude and trend; qualitative evidence explains mechanisms, consequences, and the human cost.

Taken together, the data substantiate the study’s theoretical framing: healthcare has been degraded through identifiable structures and decisions (structural violence), cascading insecurities at household and community levels (human security), and conflict-specific exposure–outcome pathways (conflict epidemiology). The sections that follow detail each domain and trace the links from policy and military action to measurable health outcomes.

5.2 Infrastructure Collapse

The degradation of physical infrastructure is the most visible strand of Gaza’s health-system collapse, driven by targeted military operations and a reconstruction chokehold that blocks repair and replacement. Facility functionality fell in step with each major escalation, while restrictions on materials and fuel prevented recovery, turning acute damage into permanent loss (WHO, 2025).

5.2.1 Hospital and Clinic Destruction

Between 2007 and 2025, at least 58 facilities were destroyed and 111 sustained partial damage, leaving only 46 fully operational at the time of reporting. In total, ~79% of assessed facilities were destroyed or damaged. Major hospitals, including Al-Shifa, European Gaza Hospital, Indonesian Hospital, and Turkish Friendship

Hospital, sustained direct hits that rendered services partially or fully nonfunctional (WHO, 2025).

Table 2: Healthcare Facility Damage in Gaza (2007-2025)

Type of Facility	Completely Destroyed	Partially Damaged	Fully Operational
Hospitals	18	22	5
Primary Care Clinics	28	71	34
Specialized Centers	12	18	7
Total	58	11	46

Source: WHO Health Cluster Report, 2025

Damage extended beyond buildings to critical equipment: by 2024, 78% of CT scanners, 85% of MRI machines, 92% of dialysis units, and 67% of neonatal incubators were nonfunctional due to blast damage, parts embargoes, and power instability (Ministry of Health Gaza, 2024).

Figure 1. Timeline of Healthcare Infrastructure Destruction in Gaza (2007–2025).

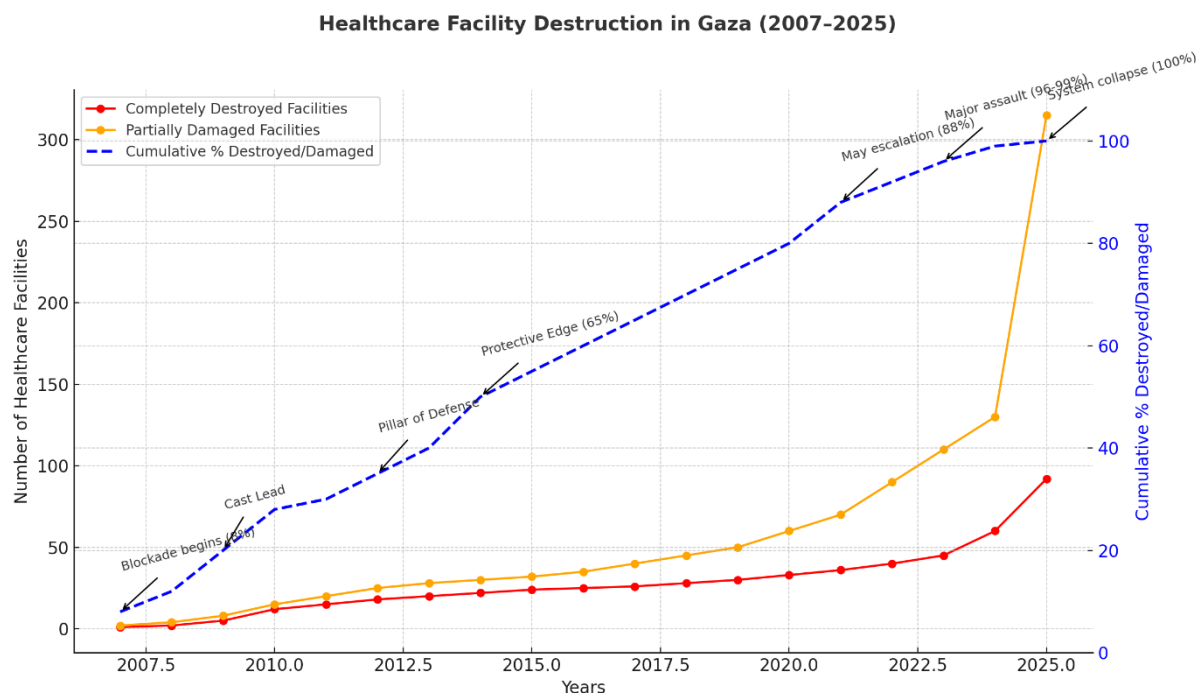


Figure 1 plots cumulative counts of destroyed vs. partially damaged facilities, annotated at major operations (2008–2009, 2014, 2021, 2023–2025). A dashed line shows the cumulative share of facilities impaired, situating Table 1 within the broader arc of blockade and recurrent assaults (WHO, 2025)

5.2.2 Energy and Water Infrastructure

The collapse of healthcare infrastructure was intensified by systematic targeting and degradation of energy and water systems. Gaza’s electricity supply operated at only 15–20% of required capacity for much of the blockade, forcing hospitals to depend on backup generators that frequently failed due to chronic fuel shortages (OCHA, 2024). These disruptions halted operating theatres, NICUs, and sterilization cycles, converting acute damage into prolonged service loss.

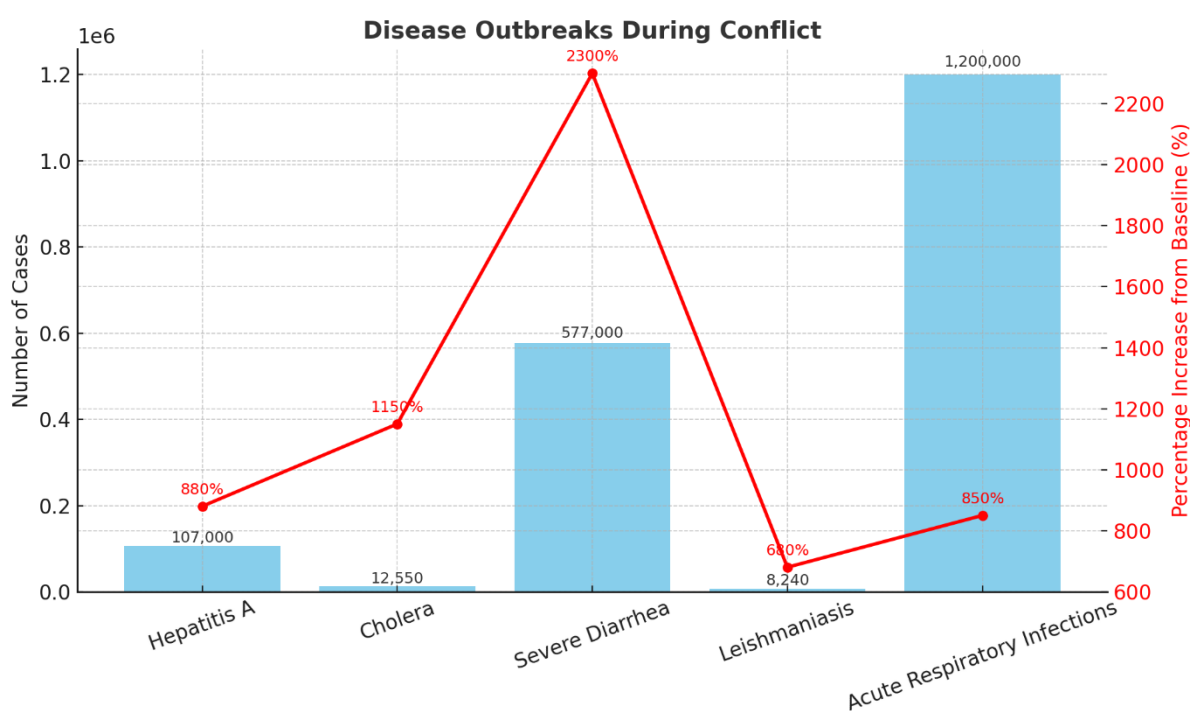
Water and sanitation infrastructure suffered parallel breakdowns. By 2024, 92% of Gaza’s water was non-potable by WHO standards, and sewage treatment plants operated at ~8% capacity, contaminating groundwater and coastal outfalls and driving spikes in waterborne disease (UNICEF, 2024). The resulting WASH failures directly undermined infection prevention and control, dialysis, and other water-dependent services. Evidence demonstrates that the denial of safe water functions as a calculated assault on civilian survival, with the degradation of WASH systems precipitating outbreaks of hepatitis A, heightened cholera risk, and severe diarrheal disease, thus weaponizing an essential resource against public health (Oxfam, 2024; ESCWA, 2023).

5.3 Infectious Disease Epidemics

5.3.1 Waterborne Disease Outbreaks

Deliberate degradation of water and sanitation (WASH) systems precipitated large-scale waterborne disease. Between 2023 and 2025, reported cases reached ~107,000 hepatitis A, ~12,550 cholera (suspected/attributed), and >577,000 severe diarrhea, representing a steep, multi-fold rise relative to the baseline period reported by the source (Boussaa et al., 2025). These surges track closely with attacks on WASH infrastructure and prolonged service interruptions, linking exposure to outcome through clear mechanistic pathways of fecal–oral transmission.

Figure 2: Infectious Disease Outbreaks in Gaza (2023-2025)



Source: WHO Eastern Mediterranean Health Journal, 2025

Figure 2 depicts the escalation in waterborne disease, with severe diarrhea and hepatitis A showing the sharpest increases. A dual-axis display presents absolute case counts alongside percentage change from baseline, underscoring how WASH collapse produced cascading epidemics.

Spatial temporal patterns are consistent with conflict-driven transmission: cases cluster in displacement sites and districts with the greatest WASH damage, with attack rates highest among children under five (34%) and older adults (27%) (Boussaa et al., 2025).

Note: While some international reporting did not confirm a laboratory-verified cholera epidemic during the reference period, Boussaa et al. (2025) classify large clusters of acute watery diarrhea as cholera; this section follows that source’s attribution.

5.3.2 Reemergence of Vaccine-Preventable Diseases

The collapse of routine immunization enabled the return of vaccine-preventable diseases. In 2024, Gaza reported its first polio case in 25 years in an unvaccinated child from Deir al-Balah, followed by 22 additional cases within six months (WHO, 2024). Over the same period, measles notifications rose by 420%, and chickenpox (varicella) by 780% from 2023 to 2024, coinciding with a drop in routine immunization coverage from 99% to 28% (UNICEF, 2024).

Mechanistically, resurgence was driven by the destruction of cold-chain infrastructure, repeated attacks on primary-care clinics, and import restrictions that disrupted vaccine supply and outreach, systematically undermining preventive care capacity (WHO, 2024; UNICEF, 2024).

5.4 Malnutrition Crisis

5.4.1 Child Malnutrition Rates

Child malnutrition in Gaza reached crisis levels that exceeded WHO emergency thresholds across all regions. In 2024, global acute malnutrition (GAM) among children under five was 31.6% in North Gaza and 25.3% in the south, compared with the WHO emergency threshold of 15%. In the same year, severe acute malnutrition (SAM) reached 12.8%, more than two-and-a-half times the 5% emergency threshold (WHO, 2024).

Table 3: Child Malnutrition Indicators by Region (2024)

Region	Global Acute Malnutrition	Severe Acute Malnutrition	Stunting
North Gaza	31.6%	12.8%	45.2%
Gaza City	28.4%	11.2%	42.7%
Central Gaza	25.9%	9.8%	39.4%

Region	Global Acute Malnutrition	Severe Acute Malnutrition	Stunting
Southern Gaza	25.3%	9.1%	37.8%
Emergency Threshold	15%	5%	30%

Source: UNICEF Nutritional Assessment, 2024

The results show stark regional disparities, with the north recording the highest GAM and SAM and all regions surpassing the stunting threshold of 30%, signalling long-term developmental harm and chronic nutritional deprivation (UNICEF, 2024). Consistent with this picture, the World Food Programme reported catastrophic food insecurity driven by blockade-related shortages, compounding malnutrition and elevating child mortality risk (WFP, 2024). The pattern is compatible with a dose-response dynamic, whereby prolonged exposure to siege conditions is associated with more severe malnutrition. Oxfam likewise warned that escalating hunger and deteriorating health conditions place thousands at immediate risk, reinforcing the link between food insecurity and malnutrition-related mortality (Oxfam, 2024).

5.4.2 Micronutrient Deficiencies and Long-Term Impacts

Beyond acute malnutrition, micronutrient deficiencies reached critical levels. Anemia affected 68% of children, 73% of pregnant women, and 64% of women of reproductive age, undermining immune function, pregnancy outcomes, and neurodevelopment (WHO, 2024). Vitamin A deficiency affected 52% of children, heightening risks of visual impairment and infection, while iodine deficiency reached 47%, jeopardizing thyroid function and child neurocognitive development (WHO, 2024).

The long-term consequences are life course and intergenerational. Children exposed to undernutrition during critical developmental windows face lasting cognitive deficits, lower educational attainment, and elevated risks of chronic disease over the lifespan; maternal undernutrition compounds these effects beginning in utero (UNICEF, 2024). These trajectories mean today's shortages translate into tomorrow's diminished human capital and health, even if immediate food supplies improve.

5.5 Mental Health Catastrophe

5.5.1 PTSD and Depression Prevalence

The protracted blockade and successive wars have produced a population-wide mental-health emergency. A large cross-sectional survey conducted after one year of continuous bombardment (2023–2024) found that 83.5% of adults met criteria for probable PTSD (PCL-5 \geq 33), 72.7% reported moderate-to-severe depression (PHQ-9 \geq 10), and 65% reported moderate-to-severe anxiety (GAD-7 \geq 10). Prevalence was highest among younger adults (18–29), indicating a deepening, intergenerational burden (Zughbur et al., 2025).

Among internally displaced people (IDPs) exposed to repeated dislocation and inadequate shelter, rates were even higher: depression 99.5%, anxiety 99.7%, and stress 93.7% on the DASS-21 scale. Women, widows, and people with chronic conditions had markedly higher odds than men and those without comorbidity (Albelbeisi et al., 2025).

At the population level, a pre-escalation study already showed an elevated baseline: 58% of Palestinian adults screened positive for depressive symptoms, 71% in Gaza versus 50% in the West Bank, underscoring disproportionate risk before 2023–2024 (Ronzani et al., 2024).

Healthcare workers faced layered exposure and moral injury: a recent multicenter study reported that nearly all frontline staff endorsed severe depression, anxiety, and stress, with frequent functional impairment and pessimism about continuing practice (Naser et al., 2025). This signals simultaneous collapse in population mental health and depletion of the very workforce needed to sustain care.

Figure 3: Prevalence of mental health disorders in Gaza (2024-2025)

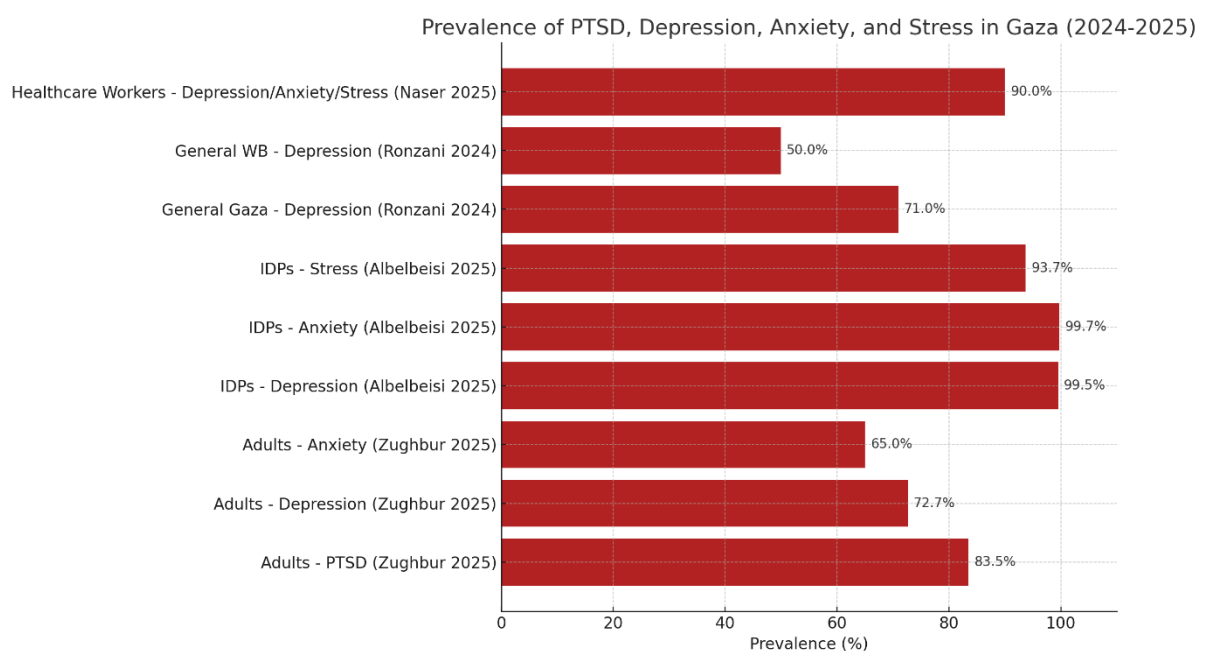


Figure 3 integrates estimates across groups (general adults, IDPs, healthcare workers, national baseline), illustrating a vulnerability gradient with IDPs highest, followed by frontline providers, and a pre-existing Gaza–West Bank gap.

5.5.2 Intergenerational Trauma and Social Impacts

Gaza's mental-health crisis is not only individual but collective and intergenerational. Children repeatedly exposed to violence show developmental regression, attachment difficulties, sleep disturbance, and aggressive or withdrawn behaviors, reflecting trauma transmitted across families and communities (Save the Children, 2023). Assessments in 2024 indicate that nearly all of Gaza's ~1.2 million children require mental-health and psychosocial support (MHPSS), a demand that vastly exceeds available services (UNICEF/OCHA, 2025). Qualitative evidence from family-based assessments during mid-2024 also points to pervasive fear, loss of routine, and caregiver exhaustion that erode everyday functioning and learning environments (War Child Alliance, 2024).

At the social level, cumulative trauma has strained community bonds and overwhelmed customary coping systems. Longitudinal research on Gazan adolescents demonstrates that chronic political violence undermines adjustment and resilience in ways that persist beyond immediate hostilities, magnifying risks for education, employment, and civic participation (Barber, 2001; Barber, 2008).

This intergenerational burden coincides with a functional collapse of specialist care. By 2024, only 3 psychiatrists and 17 mental-health workers served 2.3 million people, down from 45 psychiatrists and 210 workers in 2007 (WHO, 2024). Even before the latest escalation, Gaza had fewer than 1 psychiatrist per 100,000 population, and capacity has further deteriorated (WHO EMRO, 2024). Estimated mental-health need in 2024 reached ~486,200 people, while service reach remains modest; for example, protection partners reported ~6,900 children accessed MHPSS over a two-week period in August–September 2025 (Protection Cluster/Partners, 2025). Frontline providers themselves report severe distress and moral injury, compounding the service gap and threatening continuity of care (Naser et al., 2025).

Taken together, the data depicts an interlocking crisis: widespread child and adolescent trauma, erosion of family and community support, and a depleted workforce unable to match escalating need. Without large-scale, rights-based MHPSS integrated with basic services and protection, today's psychological harms risk becoming tomorrow's entrenched social deficits.

5.6 Targeting of Health Workers and Facilities

Independent investigations during the 2023–2025 war documented a systematic campaign against Gaza’s health system, including hospitals, clinics, medical warehouses, and logistics hubs, leaving facilities unable to deliver even basic care (Physicians for Human Rights–Israel [PHRI], 2025). Supply restrictions magnified the collapse: denials and delays affecting anesthesia, essential medicines, and surgical equipment led to otherwise preventable deaths, a reality repeatedly described by frontline clinicians (Physicians for Human Rights [PHR], 2025). Reported strikes on major facilities in northern Gaza prompted international calls for inquiries into grave breaches of international humanitarian law and the protection owed to medical neutrality (PHRI, 2024). Taken together, these findings indicate destruction that was not collateral but part of a deliberate strategy undermining the right to health.

5.6.1 Systematic Attacks on Medical Personnel

Documented patterns show targeting healthcare workers across all phases of hostilities and at every tier of care. Between 2007 and 2025, 377 health workers were killed and 764 injured while providing care: 2023–2024 alone accounted for 68% of these casualties, marking an acute intensification (WHO, 2025). Arrests and detentions further extended harm beyond the battlefield into legal-administrative domains (MOH Gaza, 2025). Published testimonies from human rights organizations, including Amnesty International (2023) and B’Tselem (2025), describe “double tap” strikes that hit rescue efforts following initial attacks, a hallmark of intentional disruption of emergency response.

Table 4: Healthcare Worker Casualties by Profession (2007-2025)

Profession	Killed	Injured	Arrested
Doctors	117	284	43
Nurses	163	327	28
Paramedics	78	126	19
Technicians	19	27	7
Total	377	764	97

Source: Ministry of Health, Gaza, 2025

The distribution underscores both frontline exposure and systematic obstruction of care: nurses and doctors bore the heaviest toll, while the high paramedic casualty burden and reported secondary strikes indicate deliberate interference with life-saving response. Testimonies from B'Tselem (2025) add qualitative depth, describing teams operating under fire, destroyed ambulances and clinics, and pervasive fear among responders. The United Nations (2023) condemned repeated strikes on hospitals and medical teams as grave breaches of international humanitarian law and called for immediate measures to safeguard medical neutrality.

5.6.2 Ambulance and Medical Transport Targeting

Medical transport suffered particularly severe and patterned attacks. By 2025, 122 ambulances destroyed and 67 damaged represented an estimated 83% loss of emergency medical transport capacity (PHR, 2023). Many incidents occurred while vehicles were clearly marked and engaged in evacuation, violating core protections for medical transport. The result was a chilling effect: crews reported delays or avoidance of dispatch for fear of strike, contributing to preventable fatalities from time-critical conditions such as trauma, obstetric emergencies, and acute cardiac events (MSF, 2024).

5.7 Impact on Vulnerable Populations

5.7.1 Patients with Chronic Conditions

People living with chronic disease experienced drastic, often fatal, treatment interruptions. By 2024, 83% of cancer patients lacked access to chemotherapy, 76% of patients on dialysis received inadequate treatment, and 68% of patients with diabetes could not obtain insulin (MOH Gaza, 2024). These breaks in care transformed manageable conditions into acute, life-threatening crises. Beyond scarcity, systemic access restrictions and the destruction of specialized facilities drove the collapse: Gaza's only cancer hospital was destroyed in 2023, and 80% of dialysis centers sustained damage, producing sustained gaps in radiotherapy, chemotherapy, and renal replacement therapy (MOH Gaza, 2024). As Physicians for Human Rights (2025) show, extreme restrictions on medical supplies convert chronic illness into premature mortality risks, while Hammoudeh, Kienzler, Meagher, and Giacaman (2020) document how routine access to chronic care in Gaza is politicized and routinely denied.

Table 5: Treatment Interruptions for Chronic Conditions (2024)

Chronic Condition	Estimated Patients	% Unable to Access Treatment	Primary Reasons for Interruption	Mortality Impact
Cancer	2,000+	83%	<ul style="list-style-type: none"> - Destruction of specialized facilities - Chemotherapy drug shortages - Radiation therapy unavailable - No surgical capacity 	45% increase in mortality
Renal Failure	1,200+	76%	<ul style="list-style-type: none"> - Dialysis equipment failure - Water purification collapse - Displacement from treatment centers - Nutritional support lacking 	62% missed treatments
Diabetes	80,000+	68%	<ul style="list-style-type: none"> - Insulin shortages (92% deficit) - Glucose monitors unavailable - No specialist consultations - Nutritional crisis exacerbation 	3,200+ diabetic emergencies monthly
Cardiac Diseases	35,000+	72%	<ul style="list-style-type: none"> - Cardiac medication shortages - Cath lab destruction - No elective surgeries 	48% increase in complications

Chronic Condition	Estimated Patients	% Unable to Access Treatment	Primary Reasons for Interruption	Mortality Impact
			- Emergency care overwhelmed	
Hypertension	95,000+	65%	- Antihypertensive drug shortages - No routine monitoring - Stress exacerbation - Dietary salt increase	Stroke rates increased 320%
Respiratory Diseases	40,000+	71%	- Oxygen shortages (88% deficit) - Nebulizer equipment lacks - Inhaler shortages - Air quality deterioration	Respiratory deaths up 280%
Neurological Disorders	15,000+	79%	- Anticonvulsant shortages - No specialist neurologists - Rehabilitation services destroyed - Emergency transport unavailable	Status epilepticus cases up 450%

Source: Ministry of Health, Gaza, 2024

The distribution in Table 5 points to mechanism-specific failures that convert routine care into emergencies. In oncology, the reported 45% mortality increase aligns with the loss of radiotherapy, recurrent cytotoxic shortages, halted surgery, and heightened infection risk during neutropenia when antibiotics and isolation are unavailable. For renal failure, the 62% missed treatments reflect power cuts and collapse of water

purification that make dialysis unsafe, compounded by displacement that breaks appointment cycles. The >3,200 monthly diabetic emergencies are consistent with a 92% insulin deficit, loss of cold-chain capacity, absent glucose monitoring, and food insecurity that destabilizes glycemic control. The 320% rise in stroke plausibly tracks antihypertensive interruptions, salt-heavy emergency rations, toxic stress, and delayed reperfusion with Cath labs offline: the 280% increase in respiratory deaths mirrors oxygen scarcity, inhaler shortages, and poor air quality. A 450% surge in status epilepticus follows anticonvulsant gaps and blocked referrals. These effects are steepest in heavily damaged northern governorates and among displaced households, indicating a dose–response pattern where greater exposure to siege and facility damage correlates with worse outcomes. Figures aggregate Ministry of Health facility reports and include partial as well as complete interruptions; due to access barriers and reporting lags, estimates are likely conservative.

Taken together, the data illustrate structural violence: policy-driven denial of pharmaceuticals, fuel, and repair materials has converted chronic disease management into acute, often fatal crises; WASH collapse heightens hepatitis A, cholera risk, and severe diarrheal disease, and fuel shortages cripple dialysis and other water-dependent services (WHO, 2024; OCHA, 2024; HRW, 2024; Galtung, 1969).

5.7.2 Maternal and Child Health

Maternal and child health services experienced near-total collapse. By 2024, an estimated 95% of pregnant women received no antenatal care, 87% delivered without a skilled birth attendant, and 92% of new mothers received no postnatal care (UNFPA, 2024). Correspondingly, maternal mortality increased by 267% and neonatal mortality by 315% compared with pre-blockade baselines, reflecting the compound effects of absent ANC/PNC, unskilled or unattended delivery, and delayed emergency referral (UNFPA, 2024).

Mechanisms were concrete and cascading: power cuts and fuel shortages closed operating theatres and compromised blood-bank cold chains; WASH failures heightened puerperal sepsis risk; ambulance insecurity and movement restrictions delayed management of postpartum hemorrhage, eclampsia, and obstructed labor; and essential medicines (oxytocin, magnesium sulfate, antibiotics) and supplies (sterile kits, anesthesia) were frequently unavailable (UNFPA, 2024; MOH Gaza, 2024).

Destruction of reproductive-health infrastructure intensified these risks. Approximately 78% of maternity wards sustained damage, NICU capacity was effectively eliminated, and midwifery training centers were targeted, eroding both immediate care and the pipeline of skilled providers (MOH Gaza, 2024; UNFPA, 2024). These actions contravene international humanitarian law’s special protections for medical units serving women and newborns and for medical personnel and transport.

The longer horizon is equally troubling. Evidence from the Palestinian context demonstrates that protracted conflict imposes enduring reproductive-health burdens: reduced access to antenatal care and obstetric services, elevated risks of complications during pregnancy and childbirth, and the cumulative psychosocial stress that worsens maternal and infant outcomes even after hostilities subside. Research published in *The Lancet* confirms that prolonged occupation and siege have transformed otherwise preventable obstetric risks into life-threatening emergencies for mothers and newborns (Abdul-Rahim, Wick, & Halileh, 2008).

5.8 Conclusion

The findings in this chapter show that Gaza's health-system collapse is multidimensional, systematic, and policy-driven. Damage was not incidental but coordinated across core components: physical infrastructure, workforce capacity, energy and WASH lifelines, pharmaceutical supply chains, and frontline service delivery. The consequences extend beyond immediate mortality to life-course and intergenerational harms, including irreversible developmental losses and population-wide psychological trauma.

These results substantiate the study's theoretical frame. Structural violence explains how governance and blockade mechanisms translated into patterned deprivation and denial of care; the human security lens captures cascading failures across health, food, environmental, personal, community, and political domains; and conflict epidemiology clarifies exposure–outcome pathways, from infrastructure strikes and access restrictions to excess mortality, outbreaks, and surges in preventable complications.

Chapter 6 interprets these findings within broader theoretical and policy debates, analyzing why protection regimes failed to prevent or sanction attacks on healthcare and outlining pathways for rights-based, accountability-anchored responses capable of protecting health systems under protracted siege.

Chapter 6: Discussion

6.1 Introduction

This chapter synthesizes the empirical results of Chapter 5 with the three lenses established in Chapter 3: structural violence, human security, and conflict epidemiology. The evidence shows that Gaza's health-system collapse is not an accidental byproduct of war but a systematically engineered outcome of political choices and institutional arrangements. By integrating statistical indicators with first-hand accounts, the analysis traces how healthcare was weaponized as an instrument of control, and why protection regimes failed to prevent or remedy this harm. The discussion proceeds in four parts: structural violence as the enabling architecture; human-security erosion as the multidimensional impact; conflict epidemiology as the causal and evidentiary basis; and the systemic failure of international protection. This provides the platform for Chapter 7's recommendations.

6.2 Structural Violence and the Weaponization of Healthcare

Structural violence clarifies how seemingly neutral rules and institutions produce patterned deprivation. In Gaza, the blockade and its derivative controls operationalize this violence, embedding scarcity and uncertainty into everyday access to care (Galtung, 1969). The Chapter 5 findings map directly onto this architecture, showing healthcare degradation as a governance outcome, not merely a battlefield effect.

6.2.1 Mechanisms of Systematic Deprivation

Three mutually reinforcing mechanisms emerged from the data:

1. Medical import restrictions through "dual use" designations delay or deny life-saving equipment and spare parts, halting diagnostics and critical care and converting repairable damage into lasting loss. This regulatory gatekeeping weaponizes supply chains, institutionalizing pharmaceutical and device scarcity (Physicians for Human Rights, 2025; WHO EMRO, 2025)
2. Permit and referral barriers for specialized care. Bureaucratic obstacles delayed or blocked patient transfers, especially for oncology, dialysis, cardiac, and neonatal cases, transforming predictable treatment pathways into medical emergencies. As theorized, harm is produced by structure rather than by a single discrete act (Galtung, 1969).

3. Political conditionalities and chronic underfunding. Donor restrictions and fiscal choke points left facilities without reliable operating budgets, fuel, or maintenance capacity. The result is what Puar (2017) calls “debilitation” as a strategy of governance: keeping the system functional enough to avoid outright collapse while ensuring it cannot recover.

These mechanisms operate in concert with direct attacks on infrastructure, creating a closed loop in which destruction is followed by administrative prevention of recovery.

6.2.2 Naturalization of Healthcare Collapse

A key insight from the structural-violence lens is how collapse becomes naturalized: treated as inevitable misfortune rather than the result of political design. When international attention centers on humanitarian relief while bracketing accountability, violations of medical neutrality are normalized and reproduced through practice (ICRC, 2023). In Galtung’s terms, harm is embedded in rules and routines that appear neutral, making deprivation look like weather rather than policy (Galtung, 1969).

This naturalization operates through language and framing. Describing hospital strikes and supply denials as “collateral” or “an inevitable consequence of conflict” erases agency and disperses responsibility, foreclosing challenges to the structures that produce the harm. In Gaza, access to care is explicitly politicized permits, “dual use” lists, and fiscal choke points so the humanitarian idiom of emergency management can inadvertently stabilize the very arrangements it seeks to mitigate (Giacaman et al., 2011; Hammoudeh et al., 2020; Jones et al., 2024). Reframing the crisis as politically determined rather than “natural” is therefore essential to any pathway that restores rights, protects medical neutrality, and prevents recurrence.

6.3 Human Security Erosion and Interconnected Vulnerabilities

6.3.1 Cascading Security Failures

The human-security lens makes it visible how damage in one domain propagates across the rest. Findings from Chapter 5 show a consistent cascade: energy grid degradation (15–20% supply) → WASH collapse (92% non-potable water; sewage treatment ~8%) → waterborne outbreaks (hepatitis A, severe diarrhea) → acute and chronic undernutrition (Table 2) → immune suppression and excess infectious morbidity → further service overload and avoidable deaths (Sections 5.2.2, 5.3, 5.4). These pathways also loop back: outbreaks and malnutrition reduce workforce

availability, while targeted attacks on facilities and ambulances (Section 5.6) prevent timely care, amplifying mortality among chronic-disease patients (Section 5.7.1).

These cross-domain linkages explain why single-sector fixes underperform. A malnourished child is simultaneously a health-security case (higher infection risk), an economic-security case (lower learning and future earnings), and a food-security case (deeper aid dependence). Parents coping with trauma (Section 5.5) face reduced capacity to protect children and sustain community networks, degrading personal and community security in tandem. In short, piecemeal humanitarian inputs treat symptoms while the interconnected vulnerability system remains intact.

6.3.2 Temporal Dynamics of Security Erosion

The erosion unfolds in predictable phases. Immediate effects follow strikes and access cutoffs: trauma caseloads surge, theatres close, referrals stall. Secondary effects appear weeks to months later: waterborne disease peaks after WASH failure; stock-outs trigger interruptions in dialysis, insulin, oncology drugs; maternal and neonatal complications rise as skilled attendance collapses (Sections 5.3, 5.7.2). Tertiary effects accrue over years: stunting, cognitive loss, and population-wide mental-health burdens (Section 5.5) become entrenched.

Empirically, the system shows threshold effects: once facility functionality, fuel, or staffing fall below critical levels, recovery is non-linear and exponentially harder. These tipping points justify urgency: interventions must arrive before systems cross collapse thresholds; otherwise even large inputs cannot rapidly reverse compounded damage.

6.4 Conflict Epidemiology: Establishing Causality and Accountability

6.4.1 Dose-Response Relationships

Conflict epidemiology evidence in Chapter 5 demonstrates exposure outcome gradients that are inconsistent with “accidental harm.” Higher bombardment intensity and longer service interruptions track with higher incidence of hepatitis A and severe diarrhea (Figure 2); longer blockade duration correlates with higher GAM/SAM and stunting (Table 3); more frequent attacks on health facilities and transport align with spikes in preventable mortality and complications (Sections 5.6, 5.7.1).

Targeting patterns strengthen causal inference: the disproportionate destruction of specialized care (oncology, dialysis, NICU) maps to the most vulnerable cohorts, with documented 83% chemotherapy interruption, 76% dialysis inadequacy, and near-

elimination of NICU capacity followed by surges in cancer deaths, renal failure complications, and neonatal mortality (Sections 5.7.1, 5.7.2). The recurrence of “double tap” strikes against rescue efforts (Section 5.6) and the breadth of personnel casualties further indicate systematic violation of medical neutrality, supporting legal characterizations under international humanitarian law.

6.4.2 Counterfactual Analysis and Preventable Deaths

Counterfactuals clarify what portion of mortality and morbidity was avoidable under intact systems and supply. By September 2025, reports attributed to 361 malnutrition deaths, including 130 children, with a July concentration; dialysis losses exceed ~400 patients (~40% of those dependent), largely due to center destruction and blocked supplies; cancer accounted for 914 deaths (15.1%) amid collapse of diagnostics and treatment capacity (WHO, EMHJ; Euronews; Section 5.7.1). On the developmental axis, roughly one in five children were already stunted by age two prior to the latest escalation, and acute malnutrition rose sharply in 2025 (UNICEF; WHO/EMRO; Section 5.4), implying life-course harms that persist even if hostilities cease.

These estimates, taken with the mental-health burden (~83% probable PTSD; ~73% depression among adults; Section 5.5) and the attrition of specialist workforce, form a quantitative basis for accountability: absent targeted attacks and administrative blockades, a substantial share of deaths and disabilities would not have occurred. Conflict epidemiology thus links policy choices to excess mortality, functional loss, and intergenerational damage, informing future claims for redress and system protection.

6.5 Interlocking Crises and the Domino Effect: A Vicious Cycle of Collapse

While previous chapters documented discrete crises in infrastructure, nutrition, and mental health, their destructive impact lies in how these crises intersect and reinforce one another, forming a self-perpetuating cycle of collapse. This dynamic reflects the human security framework, where vulnerability in one domain inevitably accelerates vulnerability in others.

The destruction of energy and water and sanitation infrastructure serve as the primary trigger, crippling hospitals and transforming water supplies into vectors of disease. The subsequent outbreaks of diarrheal diseases and hepatitis lead to impaired nutrient absorption and increased metabolic demands. These illnesses interact with already high rates of acute malnutrition among children, causing rapid deterioration and elevated mortality risks.

The influx of malnourished and dehydrated children overwhelms an already incapacitated health system, forcing impossible triage decisions and resulting in preventable deaths. At the same time, the psychological toll on families and health workers deepens collective trauma and erodes social resilience.

This cycle demonstrates that isolated interventions such as the delivery of food without safe water are ineffective. Only systemic and integrated responses can break these feedback loops.

6.6 Actor Analysis: International Failure and the Political Economy of Impunity

A central question remains: why did international protection mechanisms consistently fail? The answer requires moving beyond the focus on vetoes to examine the political economy of impunity.

The destruction of health care systems has served different purposes for those who benefit from such collapse:

- A tool of political coercion, transforming access to health care into leverage for extracting political concessions.
- A driver of forced displacement, making areas uninhabitable by depriving them of essential services and thus compelling population transfer.
- A means of undermining social cohesion, weakening community resilience by dismantling a foundational social institution.

International failure reflects systemic flaws in global governance:

- Selective application of international humanitarian law, where attacks on hospitals are condemned in some contexts but ignored in others, eroding the credibility of legal norms.
- Conflicts of interest within the United Nations Security Council, where powerful states are simultaneously the main suppliers of arms, prioritizing economic and security interests over accountability.
- Weak alternative mechanisms, since resolutions of the United Nations General Assembly lack enforcement and proceedings of the International Court of Justice are undermined by political delays, leaving violations unaddressed.

Failure is not a technical shortcoming but a structural feature of the international system, which permits and even incentivizes impunity when accountability conflicts

with the interests of major powers. This reinforces the study's recommendation to move from short-term humanitarian relief toward rights-based protection, grounded in enforceable accountability.

6.7 International Law and the Failure of Protection Mechanisms

6.7.1 Systemic Neutralization of Legal Frameworks

An analysis of the failure to protect healthcare in Gaza must examine the mechanisms that systematically undermine international legal instruments, despite clear and sustained violations of medical neutrality. Evidence points to three interconnected processes that facilitate this erosion:

1. **Political Insulation from Accountability:** The use of political vetoes and diplomatic arrangements shields state actors from legal consequences, effectively paralyzing decisive action by the Security Council and delaying or preventing referrals to international judicial bodies.
2. **Procedural Delays Amidst Ongoing Violence:** The timelines inherent in international investigations and judicial processes including fact-finding missions, complementarity assessments, and admissibility rulings—operate at a pace far slower than that of ongoing violations. These disconnects renders legal remedies largely non-responsive to real-time crises.
3. **Strategic Exploitation of Doctrinal Ambiguity:** Key legal principles such as "self-defense" and "military necessity" are often invoked in an elastic manner to justify actions that appear indiscriminate or disproportionate. This strategic use of legal ambiguity muddies the core principles of distinction and proportionality under International Humanitarian Law (IHL).

In practice, this erosion is observable in the repeated vetoing of ceasefire resolutions, the protracted nature of International Criminal Court (ICC) investigations, and the chronic underfunding of protection appeals. Concurrently, rhetorical justifications provide a veneer of legality for actions that contravene fundamental IHL norms. As the WHO Director-General (2023) noted, the destruction of Gaza's health system represents not merely a humanitarian crisis but a direct challenge to the authority of international law, where persistent impunity fundamentally undermines the credibility of protection regimes.

6.7.2 Humanitarian System Complicity

A critical examination of the humanitarian system's role reveals structural constraints that generate unintended consequences. Beyond the intentions of individual aid workers, the system's operational logic—shaped by funding models, donor policies, and the imperative of maintaining access—can inadvertently perpetuate the conditions of crisis. When funding consistently meets only 35–40% of assessed needs (OCHA, 2024), responses are necessarily limited to sustaining a permanent state of emergency, often at the expense of long-term recovery and political solutions.

Scholarly critiques help illuminate these dynamics. De Waal's (1997) concept of a "humanitarian arena" describes how institutional imperatives can prioritize crisis management over resolution. Pandolfi's (2003) notion of "mobile sovereignty" captures the transient nature of international intervention, which may operate without assuming full political accountability. Furthermore, Fassin (2012) analyzes how the "moral economy" of humanitarianism creates hierarchies of victimhood that influence funding and attention, while Agier (2011) discusses the management of populations in a perpetual state of exception.

Evidence from this study aligns with this structural analysis. Testimonies consistently describe healthcare workers operating under direct fire, with repeated strikes on medical teams and facilities (B'Tselem, 2025). The persistence of such patterns, met with insufficient protective measures, suggests a system that manages the symptoms of violations rather than addressing their root causes. As Mohammed et al. (2024) observe, local health workers are forced to transcend their clinical roles into advocacy, shifting from a posture of resilience to one of active contestation against structural violence. Within this context, the humanitarian system's delivery of minimal, survival-level aid may prevent total collapse but remains structurally ill-equipped to facilitate sustainable recovery, empower self-determination, or alter the underlying power dynamics that perpetuate harm.

6.8 Research Gaps and Methodological Reflections

6.8.1 Limitations and Knowledge Gaps

Despite the breadth of sources and multilayer triangulation, important blind spots remain. The absence of primary fieldwork inside Gaza constrained access to patient narratives, caregiver perspectives, and the everyday workarounds that sustain care under siege. Reliance on organizational reporting risks selection and survivorship bias (what gets documented, when, and by whom), and crisis timelines often privilege speed over methodological depth, producing heterogeneous definitions and cut-off dates that complicate comparison across datasets.

Substantively, four gaps stand out for future inquiry:

1. Informal health ecosystems: limited mapping of volunteer clinics, community pharmacies, mutual-aid networks, and cross-border care pathways that emerge during collapse.
2. Weapon-specific health impacts: insufficient data linking munition types/tactics to injury profiles, environmental contamination, and medium-term morbidity.
3. Gendered and intersectional effects: inadequate documentation of women's, adolescents', older adults', and persons with disabilities' distinct risks across the care continuum.
4. Ethical decision-making under constraint: scarce empirical work on how health workers triage, ration, and navigate moral injury when standards of care are structurally unattainable.

These gaps are not peripheral; they shape how harm is produced, distributed, and remembered.

6.8.2 Methodological Innovations for Conflict Research

This study shows why conflict health research must adapt methods to context. A qualitative-dominant mixed-methods design, long time horizon (2007–2025), and theory-driven analysis surfaced cascades, thresholds, and dose–response patterns that short, single-method studies miss. Going forward, four directions merit priority:

1. Participatory and community-led designs: co-produce protocols with local providers and patient groups; use trauma-informed interviewing and shared ownership of findings to correct representation gaps.
2. Ethics that fit emergencies: employ tiered consent, risk-adaptive anonymization, and clear data-governance agreements to protect subjects and sources while enabling verification.
3. Interdisciplinary causal tools: combine geospatial strike data with facility functionality and surveillance (interrupted time-series; difference-in-differences), and pair with process tracing to link policy changes to health outcomes.
4. Distributed evidence systems: complement agency reports with community documentation, privacy-preserving record linkage, and syndromic and capture–recapture approaches to reduce undercount and quantify uncertainty.

Methodologically, the aim is not only to measure collapse, but to attribute it with rigor, safeguard those who testify to it, and generate evidence that can travel into protection, accountability, and recovery planning.

6.9 Conclusion: Toward a New Paradigm of Health Protection

The collapse of Gaza's health system was not an accidental byproduct of war but the foreseeable result of deliberate political and military choices. The evidence demonstrates a coordinated pattern of structural violence, cross-domain human security erosion, and exposure–outcome links consistent with systematic obstruction of care.

The analysis of interlocking crises revealed how the destruction of energy, water, and health infrastructure created a self-perpetuating cycle, where disease outbreaks, malnutrition, and psychological trauma reinforced each other and overwhelmed already incapacitated facilities. Addressing such collapse requires systemic responses rather than fragmented humanitarian fixes.

The actor analysis further showed that the destruction of health care serves strategic objectives political coercion, forced displacement, and the weakening of social cohesion while exposing the structural failures of international governance that enable impunity. The persistence of double standards, conflicts of interest, and the weakness of alternative mechanisms demonstrate that protection failures are embedded features of the current order.

A shift from emergency management to health justice is required, centered on:

Rights and accountability: protect health assets as a legal obligation, with enforceable sanctions for violations.

Root-cause action: remove blockades and administrative choke points that manufacture scarcity.

System protection: secure energy, water and sanitation, and pharmaceutical pipelines; ring-fence maternal–newborn care, chronic care, and mental health support.

Independent oversight: establish trigger-based monitoring that compels timely protective measures.

Protecting health in conflict is not charity; it is a legal duty and a precondition for any durable peace.

Chapter 7: Conclusion and Recommendations

7.1 Conclusion

This study shows that Gaza’s health-system collapse (2007–2025) is not an accidental byproduct of conflict but a politically produced system of structural violence. Using the combined lenses of structural violence, human security, and conflict epidemiology, the analysis demonstrates intentional patterns: disproportionate strikes on specialized care, systematic obstruction of medical imports and referrals, and repeated attacks on health workers and transport. These actions generated cascading vulnerabilities across all domains of human security and yielded clear dose–response relationships between exposure (blockade, bombardment, facility targeting) and outcomes (excess mortality, epidemics, malnutrition, mental-health crises). International protection mechanisms failed at every critical juncture, privileging short-term relief over accountability and leaving violations largely unpunished. Taken together, the evidence supports a shift from narrow humanitarian response to rights-based health protection grounded in enforceable accountability and system-level reconstruction.

7.2 Key Findings Summary

Table 6: Summary of Key Research Findings

Domain	Key Findings	Data Sources
Infrastructure	58 facilities destroyed and 111 partially damaged (≈79% of system); 78% of critical equipment nonfunctional (CT, MRI, dialysis, incubators)	WHO; MOH Gaza; Health Cluster reports
Disease Patterns	~107,000 hepatitis A; ~12,550 cholera (suspected/attributed); >577,000 severe diarrhea, clustering where WASH damage is greatest	WHO EMHJ, UNICEF
Nutrition Crisis	Child GAM up to 31.6% (North Gaza); SAM 12.8%; anemia 68% in children and 73% in pregnant women; widespread stunting ≥30%	UNICEF, WFP, WHO

Domain	Key Findings	Data Sources
Mental Health	Adults: 83.5% probable PTSD; 72.7% depression; 65% anxiety; IDPs near-universal distress; <1 psychiatrist/100k and ≈92–93% workforce reduction since 2007	Peer-reviewed studies (2024–2025); WHO/EMRO
Healthcare Targeting	377 health workers killed; 764 injured; 122 ambulances destroyed; patterned attacks including “double tap” strikes	WHO; PHR/PHRI; MOH Gaza
Chronic Care Collapse	83% of cancer patients without chemotherapy; 76% dialysis inadequacy; insulin deficits with >3,200 diabetic emergencies monthly; maternal mortality +267%, neonatal mortality +315%	MOH Gaza; MSF; UNFPA

Notes: Cholera figures reflect suspected/attributed cases in line with source classification. Malnutrition rates vary by governorate; the highest GAM (31.6%) is recorded in the North. Percentages for workforce loss reference 2007 vs. 2024 benchmarks.

7.3 Recommendations

7.3.1 For International Agencies and Donors

Immediate Protection Mechanisms

- Advocate for the deployment of independent international observers to healthcare facilities, with mandates to monitor, document violations in real-time, and help facilitate safe medical evacuations through established coordination channels.
- Establish and enforce protected humanitarian corridors specifically for medical supplies, personnel, and patient transfers, backed by multilateral agreements and robust monitoring mechanisms to ensure compliance.
- Implement a transparent, centralized tracking system for all medical imports to streamline approval processes, prevent arbitrary "dual-use" designations, and ensure the timely delivery of essential life-saving equipment and medications.

Funding Reform

- Transition from short-term emergency funding to multi-year, predictable investments aimed at building health system resilience, encompassing infrastructure reinforcement, medical education, and secure supply chains.
- Establish a dedicated Gaza Health Recovery Fund with significant initial capitalization (e.g., the proposed \$2.3 billion) specifically for the reconstruction of destroyed health facilities and the replacement of critical medical equipment.
- Adopt results-based financing models that incentivize and reward measurable improvements in health outcomes, rather than solely funding operational presence.

Legal Accountability

- Provide robust technical and financial support to international investigative bodies, such as the ICC, to strengthen evidence collection, analysis, and witness protection programs related to attacks on healthcare.
- Facilitate the establishment of an independent, international commission tasked with systematically documenting attacks on healthcare to create a comprehensive evidence base for national and international legal accountability mechanisms.
- Develop and implement frameworks for targeted sanctions against individuals and entities credibly found responsible for the systematic destruction of healthcare infrastructure, including travel bans and asset freeze.

7.3.2 For Humanitarian Organizations

Integrated Response Models

- Design and implement cross-sectoral intervention programs that concurrently address the interconnected crises of health, food and nutrition, water scarcity, and environmental sanitation.
- Operationalize "health justice" approaches that seamlessly integrate direct service delivery with parallel efforts in legal advocacy, policy dialogue, and systematic documentation of rights violations.
- Build and strengthen community-based protection networks that empower local health workers and community volunteers through training, resources, and linkages to international support systems.

Ethical Frameworks

- Develop and adhere to clear, pre-defined red lines for humanitarian engagement that unequivocally prioritize the principles of medical neutrality and humanitarian imperatives over access negotiations that might compromise these principles.
- Create and disseminate comprehensive ethical guidelines for operating in contexts of systematic healthcare destruction, including protocols for responsible disengagement from compromised arrangements.
- Institutionalize systematic "do no harm" assessments to critically evaluate how humanitarian interventions might inadvertently reinforce or sustain existing structures of violence and power imbalances.

Innovative Service Delivery

- Scale up telemedicine and remote consultation capacities to connect healthcare professionals within Gaza with specialist expertise globally, mitigating the isolation caused by movement restrictions.
- Deploy mobile health clinics and outreach teams equipped to bypass damaged static infrastructure and deliver essential health services directly to displaced and vulnerable populations.
- Establish decentralized, resilient supply chain systems that reduce dependence on single points of failure and minimize vulnerability to political disruption, such as pre-positioning stocks and diversifying entry routes.

7.3.3 For Researchers and Academics

Methodological Innovations

- Develop participatory action research models that involve affected communities in research design and implementation.
- Create ethical frameworks for conflict health research that address power imbalances and ensure equitable knowledge production.
- Establish longitudinal cohort studies to track the long-term health impacts of healthcare destruction across generations.

Priority Research Areas

- Document the gendered impacts of healthcare collapse on women's health, reproductive rights, and caregiving burdens.
- Analyze the economic costs of healthcare destruction, including lost productivity and intergenerational poverty impacts.

- Study informal healthcare networks and resilience strategies that emerge during system collapse.
- Examine the psychological impacts on healthcare workers making impossible triage decisions under fire.

Knowledge Translation

- Create open-access databases of conflict health evidence for use by advocates, journalists, and legal professionals.
- Develop policy briefs that translate research findings into actionable recommendations for decision-makers.
- Establish training programs for local researchers on documentation methods and ethical research practice.

7.3.4 For Palestinian Health Authorities

System Resilience Building

- Develop decentralized healthcare models that reduce vulnerability to targeted attacks on major facilities.
- Create emergency stockpiles of essential medicines and equipment distributed across multiple locations.
- Implement solar power and water purification systems to reduce dependence on vulnerable infrastructure.

Human Resource Development

- Establish emergency training programs to address critical workforce shortages in specialized care.
- Create psychological support systems for healthcare workers dealing with trauma and moral injury.
- Develop telehealth capabilities to maintain medical education during access restrictions.

Documentation and Advocacy

- Systematically document attacks on healthcare using standardized methodologies for legal accountability.
- Build alliances with international health organizations for technical support and advocacy amplification.
- Develop public communication strategies that highlight healthcare impacts to global audiences.

7.4 Implementation Framework

A phased, multi-actor plan is required to move from emergency management to durable, rights-based system protection. Sequencing below aligns immediate life-saving actions with medium-term system recovery and long-term resilience.

Table 7: Priority Implementation Timeline

Timeframe	Priority actions (sequenced)	Lead actors	Key co-implementers	Early indicators
Immediate (0–6 months)	1) Activate protected health corridors for fuel, oxygen, essential drugs, cold-chain; 2) Stand up a UN-mandated health protection presence with deconfliction/incident logging; 3) Surge WASH to hospitals and displacement sites; 4) Deploy mobile clinics to high-damage governorates; 5) Emergency funding to restore ICU, dialysis, oncology, NICU minimums	UNSC/UNSG, OCHA, WHO, ICRC	Health Cluster partners, Palestinian MoH, PRCS	Corridor uptime; days of fuel on hand; ICU/oxygen functionality; mobile-clinic coverage; zero-attacks trend
Short term (6–24 months)	1) Reconstruct Priority-1 facilities (tertiary hospitals, blood banks, NICUs); 2) Re-establish maternal–newborn care and routine immunization with catch-up campaigns; 3) MHPSS for staff and communities; 4) Facility functionality	WHO, UNICEF, Palestinian MoH	NGOs, UNFPA, UNDP, Health Cluster	Bed capacity restored; EPI coverage >80%; skilled birth attendance ↑; staff

Timeframe	Priority actions (sequenced)	Lead actors	Key co-implementers	Early indicators
	monitoring (open data); 5) Evidence preservation and legal documentation			retention; verified incident dockets
Medium term (2–5 years)	1) Build decentralized, resilient infrastructure (solar microgrids, on-site oxygen, water treatment); 2) Primary-care networks with chronic-care pathways (oncology, dialysis, diabetes, cardiac); 3) Health workforce pipeline (regional training, scholarships, licensure fast-track); 4) Independent accountability mechanism operational; 5) Interoperable health information system	International donors, WHO, academic consortia	Local universities, councils of health professions	Facility uptime >90%; NCD continuity indices; workforce per 100k ↑; public reporting of accountability outcomes
Long term (5+ years)	1) Universal health coverage roadmap with sustainable financing; 2) Comprehensive, community-based MHPSS; 3) Reparations and victim compensation registry and delivery; 4) Academic medical complex and continuous professional development; 5) Integrated public-health programs (WASH, nutrition, VPD surveillance)	Palestinian Authority, international partners	World Bank-type financiers, WHO, UNICEF	Financial risk protection; MHPSS coverage; reparations disbursed; research and training output; sustained low outbreak rates

7.4.1 Analysis of Implementation Challenges and Mitigation Strategies

The timeline must be set against hard political and logistical constraints. Obstacles are primarily political, not technical; mitigation therefore couples operational workarounds with legal-diplomatic leverage and clear risk controls.

Immediate (0–6 months)

- Primary obstacles: Security Council paralysis; consent for protected corridors; “dual use” vetoes on fuel, oxygen, and spares; volatile operating picture for ambulances and hospital energy/WASH.
- Mitigation:
 1. Dual track diplomacy: pair UNSC engagement with UNGA emergency mechanisms and coordinated pressure by key donor blocks; linking funding to verifiable protection of health assets.
 2. Assured access package: pre-cleared lists for essential health items; third-party inspection with tamper-evident tracking; time-bound convoy windows with real-time deconfliction and incident logging.
 3. Operational redundancy: pre-positioned buffer stocks inside multiple governorates; decentralized oxygen (PSA plants), solar microgrids with fuel back-up; mobile WASH for hospitals and camps.
 4. Duty-of-care for staff: hazard pay, rotation schedules, PPE/mental-health support; community liaison to reduce risks to teams.
- Safeguards & indicators: corridor uptime, days of critical stocks on hand, ICU/oxygen functionality, ambulance dispatch times, zero-attack trendline on marked medical units.

Short term (6–24 months)

- Primary obstacles: import restrictions on reconstruction materials; risk of re-targeting rebuilt facilities; slow and politicized accountability processes; fragmented data on facility functionality.
- Mitigation:
 1. Rebuild for resilience: modular facilities; on-site water treatment, shielded utilities, blast-resistant critical rooms; dispersal of key services to reduce single points of failure.

2. Continuity of care first: ring-fence maternal–newborn, dialysis, oncology, insulin cold-chain; catch-up immunization with power-independent cold storage.
 3. Evidence protection: secure, hash-verified archiving; standardized incident forms; survivor protection protocols; parallel use of universal-jurisdiction avenues.
 4. Transparent monitoring: open dashboards on facility status, stocks, and attacks to align donors and deter obstruction.
- Safeguards & indicators: restored bed/operating capacity, EPI coverage >80%, skilled-birth attendance recovery, staff retention, verified incident docket submitted to independent bodies.

Medium to long term (2–5+ years)

- Primary obstacles: persistence of blockade/occupation; brain drain; donor fatigue; cyclical stocks that erase gains.
- Mitigation:
 1. System hardening: decentralized energy and oxygen networks; regional referral compacts; interoperable health information system with privacy-preserving record linkage.
 2. Workforce pipeline: scholarships with return options, remote training/tele-mentoring, expedited licensure, diaspora rotations, psychosocial support for providers.
 3. Accountability architecture: independent mechanism with public reporting; conditionality on arms/export and corporate supply-chain due diligence tied to attacks on care.
 4. Financing shift: multi-year pooled funds and contingency windows with trigger-based disbursement (fuel/ICU/WASH thresholds) rather than ad-hoc appeals.
- Safeguards & indicators: facility uptime >90%, NCD continuity indices, workforce per 100k rising, public accountability outputs, sustained low outbreak rates.

Bottom line: success hinges on pairing enforceable access and protection with decentralized technical fixes and predictable finance. Without political movement on access and accountability, technical gains will remain fragile.

7.5 Final Reflection

This study documents how health care can be turned into a battleground and why that choice reverberates across generations. Gaza shows what happens when structural violence is normalized, protection is discretionary, and relief is asked to substitute for rights. Yet the persistence of clinicians and communities under impossible conditions is also a blueprint: protect access, harden systems, center accountability, and treat the right to health as non-negotiable. Whether this becomes the norm elsewhere depends less on technical know-how than on political will to make attacks on care unthinkable and unlawful in practice, not just on paper.

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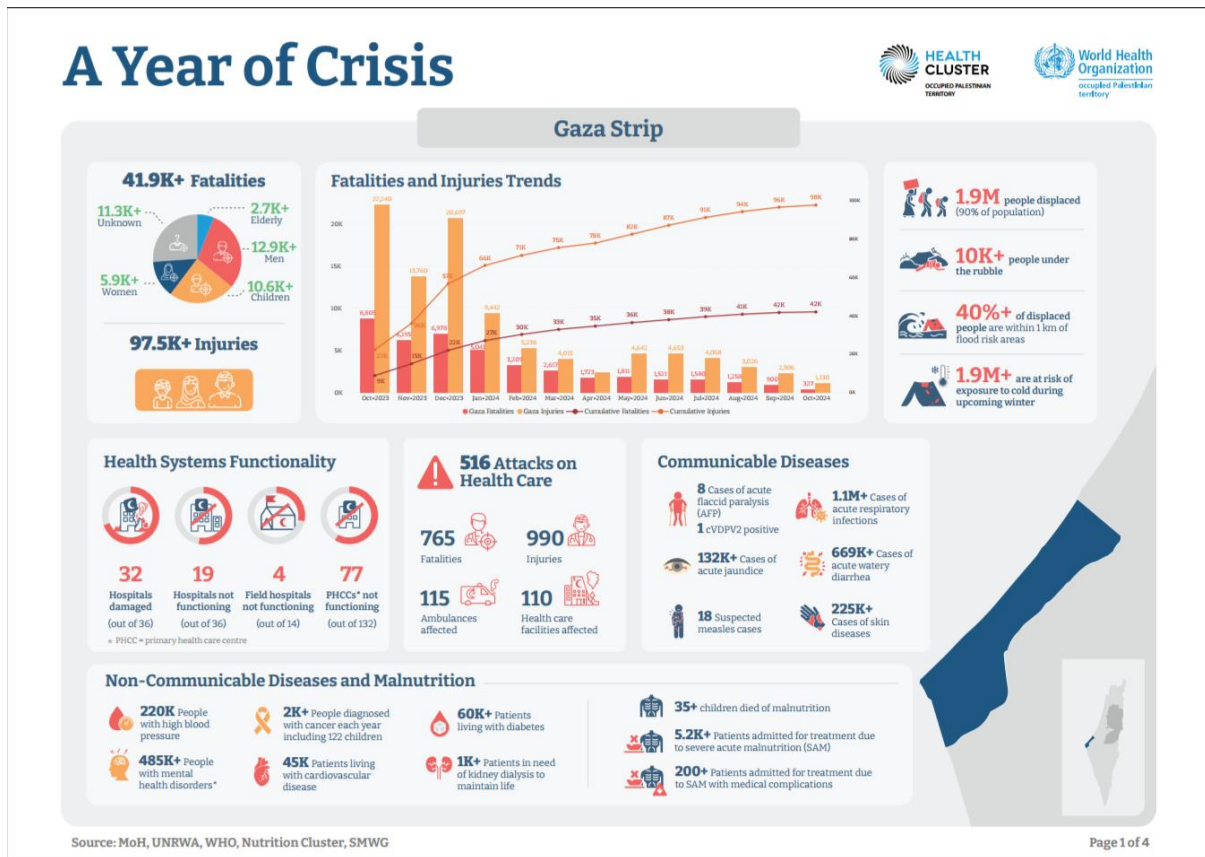
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Appendix

Appendix G. Health Cluster Situation Overview

Figure G1. A Year of Crisis in Gaza (Oct 2023 – Oct 2024)

Infographic summarizing fatalities, injuries, attacks on healthcare, displacement, and the burden of communicable and non-communicable diseases in the Gaza Strip.

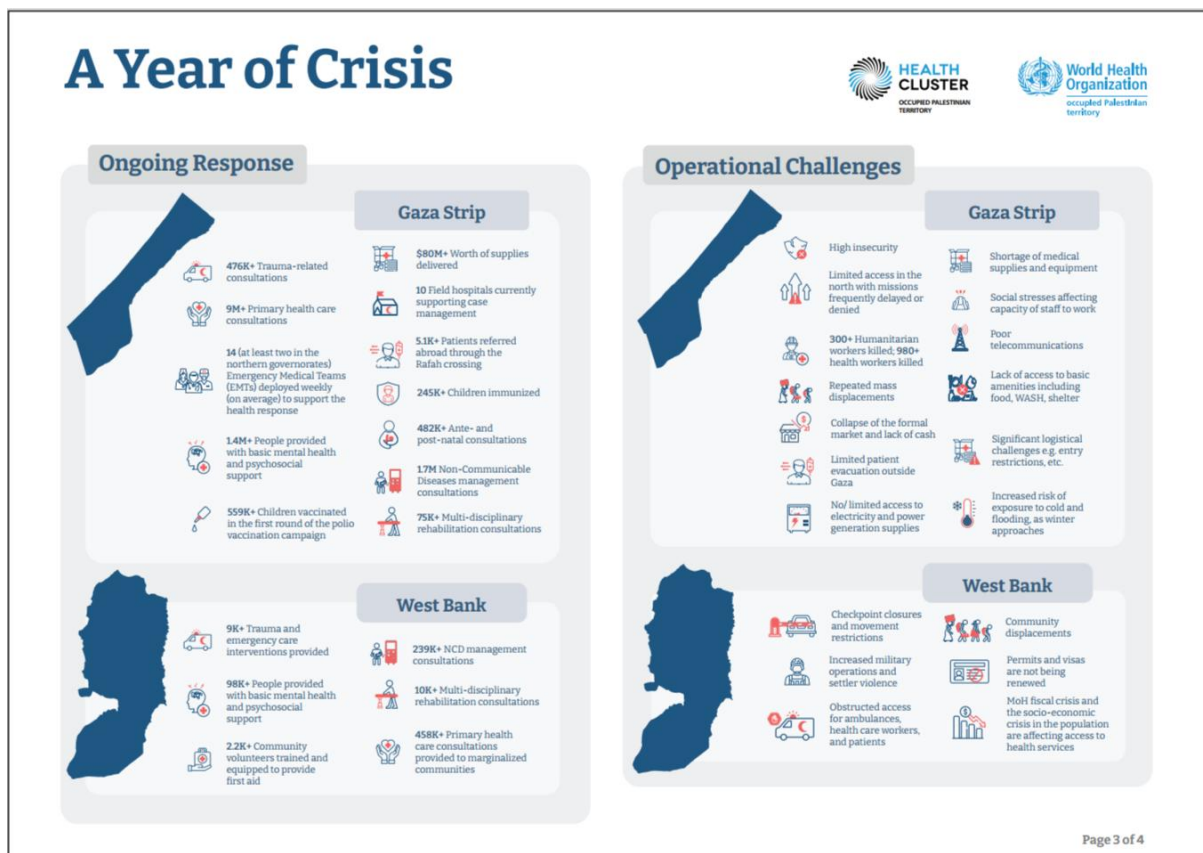


Source: MoH, UNRWA, WHO, Nutrition Cluster, SMWG (2024).

Appendix H. Health System Response and Challenges

Figure H1. Ongoing response and operational challenges in Gaza and the West Bank (2024)

Infographic summarizing trauma consultations, vaccination coverage, NCD management, emergency team deployments, and major operational challenges such as insecurity, supply shortages, and electricity cuts.



Source: Health Cluster & World Health Organization, oPt (2024).

Appendix I. Environmental and Public Health Risks

Figure I1. Sewage flooding in Khan Younis, Gaza (May 13, 2024)

The destruction of water and sanitation infrastructure has raised the risk of communicable disease outbreaks in Gaza.



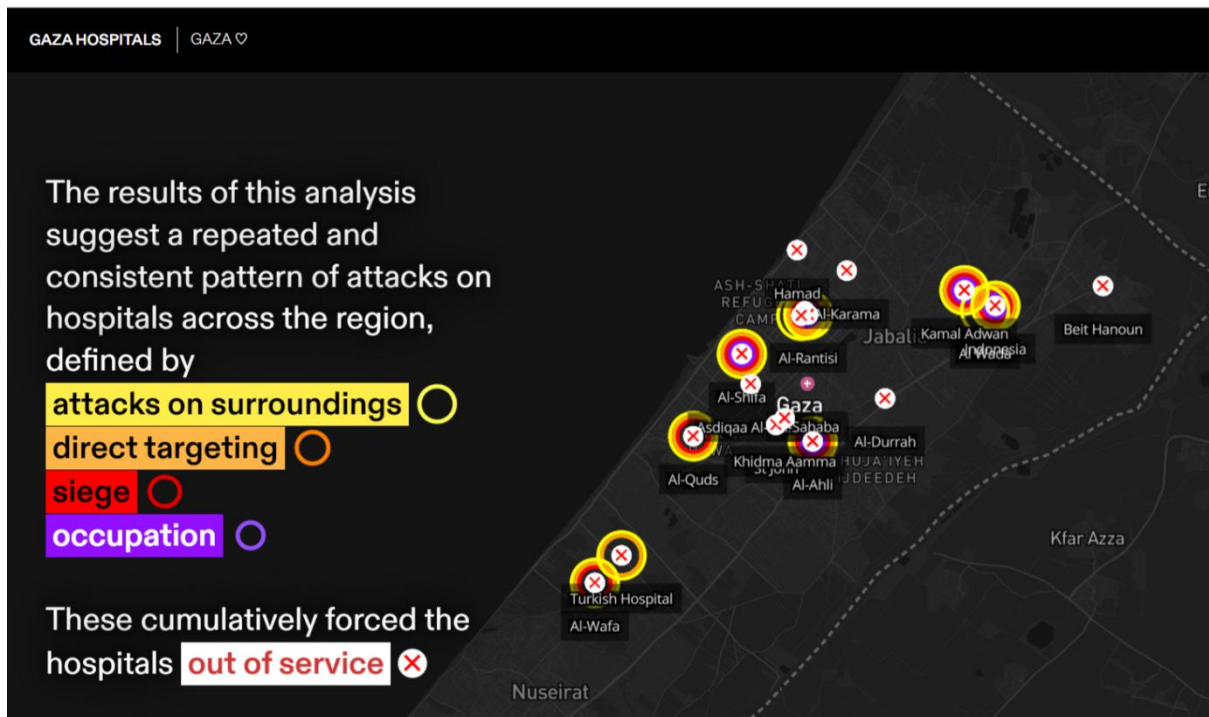
Sewage floods the streets in Khan Younis on May 13, 2024. The decimation of vital infrastructure, including water and sanitation, has raised the risk of diseases in the Strip. | Palestine 2024 © Ben Milpas/MSF

Source: Ben Milpas / Médecins Sans Frontières (MSF), Palestine 2024.

Appendix J. Attacks on Hospitals in Gaza

Figure J1. Mapping of attacks on hospitals in Gaza (2023–2024)

Analysis by Forensic Architecture illustrates consistent patterns of direct targeting, siege, and occupation affecting hospitals, leading to widespread closures and loss of functionality.



Source: Forensic Architecture. (2024). Gaza Hospitals. Retrieved from <https://gaza-hospitals.forensic-architecture.org/>

Appendix K. Attacks on Humanitarian Medical Assets

Figure K1. Destroyed MSF vehicles in Gaza City (November 20, 2023)

Five Médecins Sans Frontières (MSF) vehicles parked in front of the MSF clinic in Gaza City were destroyed by Israeli forces, illustrating direct targeting of humanitarian medical assets.



On November 20, five MSF vehicles parked in front of our Gaza City clinic were destroyed by the Israeli forces.
Palestine 2023 © MSF

Source: Médecins Sans Frontières (MSF), Palestine 2023.

Appendix L. Destruction of Al-Shifa Hospital

Figure L1. Al-Shifa Hospital after bombardment (2023)

Image showing severe destruction of Gaza's largest medical complex following Israeli bombardment, which left the main surgery building in ruins and forced cessation of most health services.



Al-Shifa Hospital: عنوان الصورة:
UN News ©: صورة:

Source: UN News, 2023.

Appendix M. Destruction of Nasser Hospital

Figure M1. Damage inside Nasser Hospital, Gaza (March 13, 2024)

Image showing the destruction of inpatient wards at Nasser Hospital following bombardment, leaving critical care infrastructure unusable.



Destruction inside Nasser Hospital on March 13. Palestine 2024 © MSF

Source: Médecins Sans Frontières (MSF), Palestine 2024.

Appendix N. Living Conditions in Displacement Camps

Figure N1. Inadequate sanitation facilities in Al-Mawasi displacement camp (2024)

Displaced people in Al-Mawasi live in overcrowded tents with limited access to food, water, and sanitation. People queue for hours to use latrines, raising serious public health risks.



Displaced people in Al-Mawasi are living in dilapidated, overcrowded tents, without proper access to food, water, and essential services such as sanitation and health care. People are queuing for latrines for hours on end and are unable to regularly shower. | Palestine 2024 © Noor Daher/MSF

How lack of water and sanitation infrastructure impacts health

Source: Noor Daher / Médecins Sans Frontières (MSF), Palestine 2024.

Appendix O. Water Distribution Under Siege

Figure O1. Water distribution in Tal Al-Sultan, Rafah (January 2024)

Crowds gather to collect water during the blockade, reflecting severe shortages and humanitarian dependency.



Water distribution in the Tal Al-Sultan area of Rafah in January 2024. | Palestine 2024 © MSF

Source: Médecins Sans Frontières (MSF), Palestine 2024.

Appendix P. Communicable Disease Outbreaks and Malnutrition

Figure P1. Malnutrition crisis in Gaza (2025)

WHO report highlighting alarming levels of acute malnutrition in Gaza, particularly among children under five, linked to shortages of food, safe water, and essential health services.



Malnutrition rates reach alarming levels in Gaza, WHO warns

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Source: World Health Organization. (2025, July 27). Malnutrition rates reach alarming levels in Gaza, WHO warns. Retrieved from <https://www.who.int/news/item/27-07-2025-malnutrition-rates-reach-alarming-levels-in-gaza--who-warns>

Appendix Q. Health System Availability & Facility Damage

This appendix provides the official WHO HERAMS infographic (July 2025) summarizing health service availability, barriers, and facility damage in Gaza. The infographic is accessible at the following link:

[WHO – HERAMS OPT Gaza Infographics, July 2025 \(PDF\)](#)

Source: World Health Organization (2025).

Appendix R. Attacks on Health Care

Figure R1. Attacks on health care in the Gaza Strip (Jan–Aug 2025)

Infographic showing number of attacks on health facilities and transport, resulting fatalities and injuries, types of attacks, functionality of hospitals and PHCs, and trend analysis over time.



Source: World Health Organization, Regional Office for the Eastern Mediterranean (WHO EMRO). (2025, August 10). Attacks on health care on the Gaza Strip. Retrieved from https://www.emro.who.int/images/stories/palestine/Attacks_on_health_care_in_the_GS_10_Aug.pdf

