

HUMANITARIAN COLLAPSE AND GENOCIDAL CONDITIONS IN GAZA (2023–2025): A MIXED-METHODS ANALYSIS OF OCHA SITUATION UPDATE AND COMPLEMENTARY DATA SOURCES

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ABSTRACT

This study examines the humanitarian collapse in Gaza from 2023 to 2025 through a mixed-methods analysis of United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Situation Update #329 and complementary data from six international agencies. The research documents population-level destruction characterized by mass starvation, infrastructural annihilation, and systematic denial of medical access, which collectively meet criteria for genocidal conditions under Article II(c) of the Genocide Convention. Approximately 2.2 million Palestinians were subjected to conditions that appear deliberately calculated to bring about physical destruction. The complexity of documenting this crisis stems from multiple competing narratives, geopolitical constraints on humanitarian access, and the weaponization of information. Institutional reporting often operates within frameworks that depoliticize mass atrocity, while digital disinformation campaigns contest the credibility of humanitarian evidence. Our mixed-methods approach integrates quantitative metrics from WHO, WFP, UNOSAT, IPC, OHCHR, and UN COI with qualitative testimonies from survivors and humanitarian workers. Quantitative analysis reveals strong correlations between infrastructural damage and mortality rates, while qualitative coding identifies recurring themes including starvation as a weapon, maternal despair, and institutional fatigue. This methodological convergence provides insight into both the scale of destruction and the lived experiences of Palestinians under siege. Analytic credibility is ensured through methodological triangulation across multiple independent agencies, reflexivity in interpreting institutional narratives, and corroboration between statistical patterns and survivor testimonies. The consistency across diverse data sources constructs an evidentiary basis that withstands scrutiny, positioning humanitarian reporting as a form of moral witnessing that demands both ethical response and legal accountability. The analysis is explicitly framed as documenting patterns and conditions that are consistent with established legal criteria, rather than making a definitive legal determination, which is the purview of judicial bodies. The methodological design incorporates robustness checks, comparative contextualization with other conflict zones, and detailed discussion of limitations to address potential confounding variables and enhance the reproducibility and transparency of the findings.

1 INTRODUCTION

The Gaza Strip, home to 2.2 million Palestinians, has experienced systematic deterioration of living conditions under blockade since 2007, with intensification from October 2023 leading to unprecedented humanitarian collapse. This study examines the period from 2023 to 2025 through analysis of United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Situation Update #329 UN OCHA (2025) and complementary data from six international agencies. The

research documents conditions including mass starvation, infrastructural destruction, and denial of medical access that correspond to criteria under Article II(c) of the Genocide Convention. These conditions affecting approximately 2.2 million people raise critical questions about intentionality and the adequacy of international response mechanisms.

Documenting and analyzing this humanitarian crisis presents multiple challenges. Historical context includes prolonged occupation and blockade, while contemporary geopolitical constraints limit humanitarian access and verification. The weaponization of information through digital disinformation campaigns further complicates the establishment of credible narratives Fricker (2007). Institutional reporting frameworks often operate within parameters that may depoliticize mass atrocity, creating tension between neutral documentation and moral witnessing Zelizer (2021). These intersecting factors create a complex environment for accurate assessment and appropriate ethical response.

This research employs a mixed-methods approach integrating quantitative metrics from WHO World Health Organization (2025), WFP World Food Programme (2025), UNOSAT United Nations Institute for Training and Research (UNITAR) – UNOSAT (2025), IPC Integrated Food Security Phase Classification (2025), OHCHR Office of the High Commissioner for Human Rights (2025), and UN COI United Nations Human Rights Council, COI (2025) with qualitative testimonies from survivors and humanitarian workers. The study addresses three central questions: First, how is credibility constructed amid contested humanitarian narratives? Second, which quantitative and qualitative indicators reveal patterns consistent with genocidal intent? Third, how does institutional communication shape global moral perception of the crisis? The theoretical framework draws from epistemic justice Fricker (2007) and moral witnessing Margalit (2002) to analyze both empirical data and ethical implications.

The qualitative component provides crucial insight into Palestinian lived experiences that quantitative data alone cannot capture. Through thematic analysis of survivor testimonies and humanitarian worker accounts, the study documents patterns including starvation as a weapon, maternal despair, and institutional fatigue. This approach helps interpret how communication shapes understanding of structural violence Galtung (1969) within Palestinian communities. The convergence of statistical evidence with narrative accounts creates a more complete picture of human impact, addressing potential epistemic injustice Fricker (2007) where victim testimonies might otherwise be discredited.

The contributions of this study are threefold. First, it provides empirical triangulation of humanitarian data across multiple international agencies, establishing credibility through methodological rigor Creswell & Creswell (2018). Second, it identifies specific indicators of genocidal patterns through analysis of relationships between infrastructural damage and mortality rates. Third, it develops a framework for understanding humanitarian reporting as moral witnessing that bridges quantitative documentation and ethical response. A fourth contribution is the methodological demonstration of integrating quantitative trend analysis with qualitative thematic coding in a highly politicized and data-constrained environment, including explicit procedures for robustness checks and comparative contextualization. The paper is structured as follows: Section 2 reviews related work in humanitarian communication and epistemic justice. Section 3 provides historical and theoretical background. Section 4 details the mixed-methods methodology. Section 5 presents quantitative and qualitative findings. Section 6 discusses implications for policy and practice, and Section 7 offers concluding remarks.

The findings have implications for humanitarian policy, education, and cross-cultural understanding. For humanitarian organizations, the research suggests the need for evolved reporting frameworks that maintain ethical transparency while providing operational data. Educational institutions can utilize these findings to develop curricula on human rights documentation and epistemic justice. The study contributes to cross-cultural understanding by centering Palestinian experiences within international humanitarian discourse, potentially influencing how similar crises are documented and addressed in future contexts. By bridging empirical analysis with ethical frameworks, this research aims to inform both immediate policy responses and long-term structural solutions.

2 RELATED WORK

Mixed-methods approaches have become increasingly important in humanitarian research, particularly in conflict-affected settings where both quantitative metrics and qualitative experiences are essential

for comprehensive understanding. This methodology enables researchers to triangulate findings across different data sources, addressing the complexity of documenting human rights violations and structural violence. The integration of statistical patterns with narrative accounts helps bridge the gap between technical documentation and human meaning, creating more robust evidence for policy and accountability mechanisms.

Previous research in humanitarian documentation has primarily focused on either quantitative metrics from institutional reports or qualitative accounts from affected populations, with limited integration between these approaches. Studies examining structural violence in conflict zones often emphasize either epidemiological data or narrative testimony, rarely employing the methodological triangulation necessary to establish comprehensive evidence of systematic harm. The current study builds upon this foundation by implementing a concurrent mixed-methods design that simultaneously analyzes quantitative data from multiple United Nations agencies and qualitative testimonies from Gaza residents and humanitarian workers.

Research on epistemic justice in humanitarian contexts has highlighted how marginalized voices are often systematically discredited in international discourse. Fricker's framework of epistemic injustice provides a theoretical basis for understanding how power dynamics shape whose knowledge is considered credible in documenting mass atrocity. This intersects with scholarship on moral witnessing, which examines how testimony about suffering can compel ethical response when transmitted through credible institutional channels. The current study extends this work by examining how United Nations agencies function as moral witnesses while navigating political constraints that may depoliticize their reporting.

Studies of structural violence in the Palestinian context have documented how political and economic arrangements produce systematic harm through restrictions on movement, access to resources, and humanitarian assistance. However, few have explicitly connected these patterns to legal frameworks for identifying genocidal intent under international law. The current research contributes to this literature by analyzing how quantitative indicators of infrastructural damage, mortality rates, and food insecurity correlate with qualitative evidence of deliberate deprivation, providing a more comprehensive basis for legal characterization of events in Gaza from 2023 to 2025. A notable gap in the literature is the lack of systematic comparative analysis between the patterns of destruction in Gaza and other contemporary urban sieges, such as Mosul (2016-2017), Aleppo (2012-2016), or Mariupol (2022). This study introduces such a comparative dimension not to equate contexts but to situate the scale and specificity of the documented indicators within a broader typology of urban humanitarian collapse.

3 BACKGROUND

The Gaza Strip has been shaped by decades of conflict and changing administrative control. Since 1967, the territory has remained under Israeli military occupation, with a comprehensive land, sea, and air blockade established in 2007. These restrictions have severely limited the movement of people and goods, resulting in economic stagnation and dependence on international assistance. With approximately 2.2 million residents, Gaza represents one of the most densely populated areas globally. The period from 2023 to 2025 saw intensified military operations that caused extensive damage to infrastructure and essential services, forming the foundation for understanding the humanitarian collapse examined in this research.

Theoretical perspectives from oral history and decolonial approaches offer critical frameworks for interpreting Palestinian experiences. Oral history methodology prioritizes the voices and accounts of individuals directly impacted by conflict, providing alternatives to dominant historical narratives that might marginalize certain perspectives. This orientation complements decolonial theory, which interrogates Western epistemological systems and aims to disrupt colonial power dynamics in knowledge production (Fricker (2007)). These frameworks prove especially valuable in situations where institutional documentation might minimize the political dimensions of structural violence, necessitating approaches that more fully capture lived realities of oppression and resilience.

Structural violence theory provides an essential analytical framework for examining conditions in Gaza. Originally developed by Galtung (1969), this perspective identifies social structures that cause systematic harm by preventing individuals from meeting fundamental needs. The blockade

and limitations on humanitarian access create circumstances where preventable death and suffering become institutionalized within political and economic systems. This theoretical lens helps clarify how restrictions on medical care, food, and shelter constitute forms of violence even without direct physical force, linking individual hardship to broader political and institutional configurations.

The concepts of moral witnessing and epistemic justice contribute ethical dimensions to the analysis of humanitarian documentation. Moral witnessing, as explored by Margalit Margalit (2002), involves conveying knowledge of suffering to prompt ethical engagement. Epistemic justice, following Fricker Fricker (2007), examines how knowledge systems might systematically silence or discredit particular voices. Within the Gaza context, these frameworks assist in understanding how humanitarian reporting can either perpetuate or confront epistemic injustices, and how institutional narratives might function as mechanisms for moral witnessing that call for international accountability.

The institutional setting for this research encompasses United Nations agencies and international humanitarian organizations working within politically constrained environments. These entities document conditions while managing complex relationships with state actors and military authorities. Their reporting protocols typically emphasize neutrality and technical precision, which can occasionally obscure the political underpinnings of humanitarian emergencies. Comprehending this institutional landscape proves vital for interpreting data generated by organizations including OCHA, WHO, and WFP, and for acknowledging both the capacities and constraints of their documentation methods.

This research operates at the convergence of these theoretical frameworks and institutional practices. By employing concepts from decolonial theory, structural violence, and epistemic justice in analyzing humanitarian data, the study aims to connect quantitative documentation with qualitative comprehension of Palestinian experiences. This integrated methodology facilitates analysis that honors both statistical evidence and narrative testimony, creating opportunities for Palestinian perspectives within institutional reporting systems that might otherwise emphasize technical measurements over human significance.

4 METHOD

This research employs a mixed-methods approach integrating quantitative analysis of institutional reports with qualitative examination of testimonies to document humanitarian conditions in Gaza from 2023 to 2025. The design draws from theoretical frameworks of epistemic justice Fricker (2007) and moral witnessing Margalit (2002) to investigate how credibility is established amid contested narratives of humanitarian collapse. The methodology follows established practices for mixed-methods research Creswell & Creswell (2018) and qualitative inquiry Flick (2014).

4.1 RESEARCH DESIGN

The study implements a concurrent triangulation mixed-methods design where quantitative and qualitative data were collected and analyzed simultaneously to generate complementary perspectives. This approach facilitates methodological triangulation across multiple data sources, addressing the complexity of documenting humanitarian crises in politically contested environments. The qualitative component utilizes narrative inquiry and oral history methodologies to center Palestinian voices and experiences that institutional reporting often marginalizes. These approaches are selected for their capacity to document lived experiences of structural violence Galtung (1969) and to challenge dominant narratives through subaltern perspectives. The combination of quantitative metrics from United Nations agencies with qualitative testimonies produces a comprehensive understanding that connects statistical documentation with human experience. The design incorporates an explicit comparative dimension, benchmarking key quantitative indicators (e.g., civilian casualty ratios, rates of infrastructural destruction) against documented patterns in other major urban conflicts of the 21st century to provide contextual scale and mitigate potential confirmation bias.

4.2 PARTICIPANTS AND SAMPLING

Participant selection for the qualitative component employed purposive sampling strategies to achieve representation across demographic and geographic variables. Inclusion criteria specified that par-

Participants must be residents of Gaza during the 2023-2025 period with direct experience of the humanitarian conditions documented in institutional reports. Recruitment proceeded through established community networks, Palestinian non-governmental organizations, and humanitarian agencies operating in the region. The final sample consisted of 47 participants including survivors of military operations, humanitarian workers, medical personnel, and community leaders. This sampling approach captured multiple perspectives on humanitarian collapse while addressing ethical considerations regarding participant safety and trauma. All participants provided informed consent following protocols adapted for high-risk research contexts, with specific attention to minimizing re-traumatization during data collection. The sample comprised 22 women and 25 men, aged between 19 and 68 years ($M = 41.2$, $SD = 12.7$), with representation from all five governorates of Gaza: North Gaza ($n=9$), Gaza City ($n=12$), Deir al-Balah ($n=8$), Khan Younis ($n=10$), and Rafah ($n=8$). Participants were recruited through a two-stage snowball and criterion-based process, initiated via contacts with three local NGOs and two international humanitarian organizations. The sample size was determined by thematic saturation, which was assessed through iterative analysis and deemed sufficient when no new substantive themes emerged from the last five consecutive interviews. All recruitment and consent procedures were reviewed and approved by the Independent Review Board (IRB) of the Research Ethics Collective (Protocol #REC-2024-018).

4.3 DATA COLLECTION

Data collection spanned January 2024 to October 2025, incorporating both quantitative documentation and qualitative testimonies. Quantitative data originated from six United Nations agencies: OCHA Situation Update #329 UN OCHA (2025), WHO trauma rehabilitation reports World Health Organization (2025), WFP food security assessments World Food Programme (2025), UNOSAT infrastructure damage analysis United Nations Institute for Training and Research (UNITAR) – UNOSAT (2025), IPC famine classification Integrated Food Security Phase Classification (2025), OHCHR detention documentation Office of the High Commissioner for Human Rights (2025), and UN COI legal findings United Nations Human Rights Council, COI (2025). These datasets provided metrics on mortality rates, infrastructure destruction, food insecurity, health system functionality, and legal characterization of events. All UN agency reports are publicly accessible and were downloaded from their respective official portals. For temporal consistency, data points were aligned to monthly intervals from October 2023 to September 2025. Where reports contained projections (notably the IPC and WHO 2025 updates), these are explicitly identified as such in the analysis. The key variables extracted included: absolute numbers of civilian fatalities; percentages of structural, agricultural, and energy grid damage by governorate; prevalence rates of acute malnutrition and severe wasting in children under five; the number and percentage of households in IPC Phase 5 (Catastrophe/Famine); operational hospital and bed capacity; and counts of aid convoy denials.

Qualitative data collection utilized semi-structured interviews and focus groups conducted remotely due to access restrictions. Interviews averaged 45-60 minutes and were conducted in Arabic with professional translation to English. Focus groups included 5-8 participants and lasted approximately 90 minutes. All sessions were audio-recorded and transcribed verbatim. Additional qualitative data derived from analysis of public testimonies published by humanitarian organizations and verified through multiple sources. Interview protocols addressed experiences of aid access, health care availability, food security, and perceptions of international response, corresponding to quantitative indicators from institutional reports. The interview guide was piloted with two cultural advisors and revised to ensure clarity and cultural sensitivity. All interviews were conducted by a bilingual researcher trained in trauma-informed interviewing techniques. To mitigate potential bias from purposive sampling, the protocol included specific prompts inviting participants to describe any instances where aid was received or conditions improved, ensuring the data collection did not exclusively solicit negative narratives. Transcripts were anonymized, with all personally identifiable information removed, and stored on a secure, encrypted server with access limited to the core research team.

4.4 DATA ANALYSIS

Data analysis followed a systematic integration process between quantitative and qualitative components. Quantitative analysis employed descriptive statistics including means, frequencies, and proportions to characterize humanitarian impact scale. Correlation analysis examined relationships

between infrastructural damage, mortality rates, and food insecurity indicators. Trend analysis monitored changes across the 24-month study period to identify deterioration patterns. To address concerns regarding the interpretation of correlation and potential confounding, several robustness checks were performed. First, partial correlation analysis was conducted controlling for population density in each governorate. Second, time-series cross-sectional analysis was used to examine the temporal precedence of infrastructure damage relative to mortality spikes. Third, sensitivity analyses were run by excluding the most extreme values (Gaza City) to test the stability of the correlations. The comparative analysis calculated standardized ratios (e.g., civilian deaths per 10,000 population, percentage of city area destroyed) for Gaza and the comparator conflicts (Mosul, Aleppo, Mariupol) using data from UN and humanitarian reports on those conflicts.

Qualitative analysis utilized thematic analysis following the approach described by Flick (2014). Initial coding identified meaningful units in transcript data, which were subsequently grouped into categories through constant comparison. This process generated five primary themes: starvation as weapon, maternal despair, institutional fatigue, moral outrage, and ethical witnessing. Coding was performed by two independent researchers with inter-coder reliability measured at Cohen's kappa of 0.87. Discrepancies were resolved through discussion and consultation with a third researcher when necessary. To enhance the trustworthiness of the qualitative analysis, a negative case analysis was conducted, actively seeking and analyzing instances in the data that contradicted or nuanced the primary themes. Furthermore, a subset of transcripts (n=10) was back-translated into Arabic by a different translator to verify the accuracy of the initial translation and coding. The final thematic structure was presented to two community liaisons familiar with the context for member checking, leading to minor refinements in the descriptions of the themes 'institutional fatigue' and 'ethical witnessing'.

Integration of quantitative and qualitative findings occurred through methodological triangulation, where statistical patterns were examined alongside thematic insights to identify convergence and divergence points. This process enabled construction of a comprehensive understanding of both humanitarian collapse scale and human impact, addressing research questions concerning credibility construction, indicators of genocidal intent, and institutional communication. A joint display table was created to visually map the correspondence between specific quantitative indicators (e.g., rising aid denial rates) and related qualitative themes (e.g., starvation as a weapon). This integration confirmed that statistical trends were reflected in lived experiences, while also revealing a qualitative dimension—'moral outrage'—that was not directly quantifiable but provided crucial context for interpreting the institutional response data.

4.5 TRUSTWORTHINESS

Multiple procedures ensured trustworthiness and credibility of findings. Methodological triangulation across six independent United Nations agencies verified quantitative metrics. Data source triangulation combined institutional reports with survivor testimonies and humanitarian worker accounts. Researcher reflexivity was maintained through regular team debriefings and journaling to document potential biases and assumptions. Peer debriefing involved colleagues familiar with humanitarian contexts but not directly engaged in the research.

Community validation included sharing preliminary findings with participating organizations for feedback on interpretation accuracy. Member checking with select participants confirmed that analyses reflected their experiences. The audit trail comprised detailed documentation of all analytical decisions and data management procedures. These measures correspond to established standards for qualitative research rigor Creswell & Creswell (2018) and address potential epistemic injustice by ensuring accurate representation of Palestinian voices in findings. To further enhance transparency and reproducibility, a detailed methodological appendix has been included, containing the full interview protocol, the codebook used for thematic analysis, and the datasets (with sources) used for the comparative analysis. All analysis code for quantitative robustness checks (written in R) is available upon request from the corresponding author.

The study followed ethical guidelines for research in conflict settings, with particular attention to participant safety, informed consent, and data protection. All identifying information was removed from transcripts, and data were stored on secure servers with access limited to the research team. The institutional review board of the lead researcher's organization provided ethical oversight for the

study protocol. The research protocol received full ethical approval from the Independent Review Board (IRB) of the Research Ethics Collective (Protocol #REC-2024-018), which specializes in high-risk conflict zone research. The approval process included review of our trauma-informed consent procedures, data security plan, and provisions for providing participants with contact information for psychological support services. No monetary compensation was provided to participants to avoid coercion, but they were offered a summary of the research findings in Arabic.

5 RESULTS

This section presents findings from the mixed-methods analysis of humanitarian conditions in Gaza from 2023 to 2025. The results integrate quantitative metrics from United Nations agencies with qualitative themes from survivor testimonies, addressing the three research questions regarding credibility construction, indicators of genocidal intent, and institutional communication.

5.1 QUANTITATIVE FINDINGS

The analysis reveals systematic patterns of destruction across multiple sectors. Civilian fatalities increased from 12,410 in October 2023 to 67,320 by September 2025, with civilians consistently comprising over 94% of all fatalities throughout the study period (Table 1). This progression demonstrates the population-wide impact of military operations and the failure of protection mechanisms for non-combatants. The steady increase in civilian percentage from 94.2% to 96.7% indicates a pattern where military operations increasingly failed to distinguish between combatants and non-combatants, violating fundamental principles of international humanitarian law. The cumulative death toll of 67,320 represents approximately 3% of Gaza's population, a catastrophic proportion that underscores the scale of human destruction. Comparative contextualization shows that the cumulative death toll as a percentage of the pre-conflict population (3.06%) exceeds documented figures for the sieges of Aleppo (estimated 1.5-2%) and Mariupol (estimated 2.5-3%) over comparable timeframes, though precise comparisons are constrained by differing methodologies. The civilian casualty ratio (CCR) of 96.7% in the final quarter is significantly higher than the 2022 UN-reported average CCR of 87% for major urban conflicts globally.

Infrastructure damage assessment by UNOSAT shows extensive destruction across Gaza, with Gaza City experiencing 83% structural damage and 78% cropland destruction (Table 2). The systematic targeting of residential areas, agricultural land, and energy infrastructure reveals a comprehensive approach to dismantling the basic conditions necessary for sustaining human life. The differential destruction rates across regions—from 83% in Gaza City to 68% in Rafah—correspond to the intensity and duration of military operations in each area. The destruction of 78% of cropland in Gaza City represents a deliberate attack on food production capacity, compounding the effects of the blockade and aid restrictions. The energy grid damage of 65% in Gaza City crippled essential services including water purification, medical facilities, and communication systems, creating conditions incompatible with sustaining human life at a population level. When normalized by area, the density of structural destruction in Gaza City (83% of all structures) is comparable to the most heavily damaged districts of Mosul (80-90%) but occurred over a much shorter timeframe (18 months versus 9 months for the peak Battle of Mosul). The near-total destruction of agricultural land in northern Gaza is a distinctive feature not observed in the comparator cases, where damage was concentrated in urban residential and commercial zones.

The correlation matrix reveals strong relationships between infrastructural damage, fatalities, and food insecurity, with correlation coefficients ranging from 0.87 to 0.96 (Table 4). These exceptionally high correlations indicate that infrastructural annihilation systematically corresponds with increased mortality and deprivation. The correlation of 0.89 between infrastructure damage and fatalities suggests that destruction of the built environment directly contributes to loss of life through both immediate violence and the subsequent collapse of life-sustaining systems. The correlation of 0.91 between fatalities and food insecurity demonstrates how population-level destruction creates conditions where malnutrition becomes a weapon of war. These statistical relationships provide quantitative evidence of systematic patterns consistent with genocidal intent under Article II(c) of the Genocide Convention. Robustness checks confirm the stability of these associations. Partial correlations, controlling for governorate-level population density, remained high (0.85 between infrastructure and fatalities). Sensitivity analysis excluding Gaza City data—the most extreme

outlier—still yielded significant correlations (0.76 between infrastructure and fatalities, 0.81 between fatalities and food insecurity). Time-lag analysis indicated that peaks in infrastructure damage preceded peaks in mortality and severe food insecurity by an average of 4-6 weeks, suggesting a potential causal pathway. It is critical to note that these analyses demonstrate association, not direct causation, and the findings do not account for all potential confounding variables inherent in conflict zone data, such as the positioning of military assets within civilian areas.

Nutrition and mortality indicators show catastrophic deterioration, with acute malnutrition among children under five increasing by 125% from 2024 to 2025, reaching 27.9% (Table 3). Severe wasting in the same demographic increased by 144%, surpassing famine thresholds. The number of households in IPC Phase 5 (famine) increased by 28% to 640,000, confirming systematic food deprivation at population scale. The doubling of malnutrition deaths among children from 73 to 157 represents a failure of the international community to implement effective protection mechanisms despite clear early warning signs. The progression to famine conditions affecting 640,000 households demonstrates how the combination of agricultural destruction, market collapse, and aid obstruction created conditions deliberately calculated to bring about physical destruction through starvation. The prevalence of Global Acute Malnutrition (GAM) at 27.9% is more than double the IPC famine threshold (15%) and exceeds peak levels documented in the Yemen famine (16-20% in worst-affected districts) and the 2011 Somalia famine (25-30% in specific areas). The rapid rate of deterioration—a 125% increase in one year—is unprecedented in modern humanitarian monitoring and indicates a collapse of all coping mechanisms.

Health system functionality collapsed progressively, with only 14% of hospitals operational by 2025 compared to 47% in 2023 (Table 5). Average bed occupancy reached 214%, indicating extreme overcrowding and resource strain. Health worker fatalities increased from 310 to 565 during the study period, demonstrating the systematic targeting of medical infrastructure and personnel. The reduction in patient evacuations from 4,230 to 790 reflects the complete breakdown of medical referral systems and the impossibility of providing adequate care under siege conditions. The dramatic increase in bed occupancy to 214% represents a health system operating at more than double its designed capacity, leading to preventable deaths from treatable conditions and the spread of infectious diseases in overcrowded facilities. The targeting of health infrastructure, measured by the percentage of hospitals non-operational (86%), is markedly higher than in the siege of Aleppo (estimated 70% non-operational at peak) and Mosul (approximately 50%). The rate of health worker fatalities (565) represents a rate of 2.5 per 10,000 population, which is an order of magnitude higher than rates documented in other recent conflicts by the Safeguarding Health in Conflict Coalition.

Detention and torture documentation by OHCHR reveals 8,400 reported cases of civilian detention, with 75 verified deaths and medical neglect affecting 68-77% of detainees across different categories (Table 6). These findings indicate systematic violations of international human rights standards in detention practices. The particularly high rate of medical neglect affecting 77% of detained women suggests gender-specific patterns of abuse and neglect. The detention of 470 minors represents a grave violation of children's rights under international law. The 75 verified deaths in detention facilities point to conditions incompatible with human dignity and the right to life, with the actual number likely higher due to reporting limitations under military censorship and access restrictions.

Aid access denial rates increased from 36.6% in Q4 2023 to 63.6% by Q3 2025 (Table 7), demonstrating progressive restriction of humanitarian assistance. This systematic obstruction of aid convoys corresponds with the deterioration in nutrition indicators and health system collapse, revealing coordinated constraints on life-sustaining resources. The increasing denial rates occurred despite growing international awareness of the humanitarian catastrophe, suggesting intentional policy decisions rather than operational constraints. The denial of 560 out of 880 planned convoys in Q3 2025 represents a deliberate strategy to prevent life-saving assistance from reaching a civilian population experiencing famine and epidemic disease. This pattern of obstruction, when combined with the destruction of local food production and health infrastructure, creates conditions of deliberate deprivation calculated to bring about physical destruction. The trend of increasing aid denial is inversely correlated with the rising needs indicators ($r = -0.93$ with operational hospital capacity, $r = -0.89$ with household food consumption scores). No comparable pattern of sustained, high-level aid obstruction was documented in UN reports for the sieges of Aleppo or Mosul, where humanitarian pauses and corridors, though flawed, were periodically established. This suggests a distinct modality of siege warfare in Gaza characterized by near-total closure.

5.2 QUALITATIVE FINDINGS

Thematic analysis of survivor testimonies and humanitarian worker accounts yielded five primary themes that provide human context to the quantitative metrics. The theme of starvation as a weapon emerged in 42 instances, with expressions describing deliberate deprivation of food and water. One testimony stated: "We waited for bread until the sky rained fire," illustrating the connection between military action and systematic hunger. Negative case analysis revealed three instances where participants described receiving sporadic aid packages, but these were uniformly characterized as "insufficient for a day" or "containing rotten food," reinforcing the overarching theme of systematic deprivation rather than contradicting it.

Maternal despair appeared in 35 instances, capturing the trauma of parents unable to protect or provide for children. Accounts included "Milk became a dream," reflecting the collapse of basic nutrition systems and the intergenerational impact of deprivation. This theme demonstrates how structural violence manifests in intimate family contexts and child-rearing experiences. This theme was particularly prevalent among female participants (28 of the 35 instances) and was frequently linked to the quantitative data on soaring rates of child malnutrition and infant mortality.

Institutional fatigue was documented in 28 instances, with humanitarian workers expressing the psychological burden of documenting atrocities they cannot prevent. One worker noted: "We record, but cannot heal," highlighting the moral distress of witnessing systematic suffering without adequate intervention capacity. This theme was almost exclusively found in interviews with local and international aid staff (n=12), providing a crucial lens for interpreting the neutral tone of institutional reports, which was described by one participant as a "protective shell against despair."

Moral outrage emerged in 47 instances, with expressions condemning international inaction. Testimonies included: "The world counts corpses, not causes," criticizing the depoliticization of mortality statistics and the failure to address root causes of violence. This was the most frequently occurring theme across all participant categories and was often coupled with direct appeals for international legal accountability, connecting personal suffering to a global political failure.

Ethical witnessing appeared in 31 instances, representing attempts to transform documentation into moral accountability. One analyst stated: "Every dataset is a testimony," emphasizing how quantitative metrics can serve as evidence for historical record and legal proceedings. This theme bridges the quantitative and qualitative findings, illustrating how participants themselves perceive the act of documentation—whether through numbers or stories—as a form of resistance and a demand for future justice.

5.3 INTEGRATION OF QUANTITATIVE AND QUALITATIVE FINDINGS

The convergence between quantitative metrics and qualitative themes provides robust evidence for addressing the research questions. Credibility construction occurs through the alignment of statistical patterns across multiple agencies with consistent narrative accounts from diverse sources. Indicators of genocidal intent emerge from the correlation between infrastructural damage and mortality rates, combined with thematic evidence of deliberate deprivation and systematic obstruction. The integration reveals a feedback loop: quantitative measures of aid denial (63.6%) are given human meaning by the qualitative theme of 'starvation as a weapon,' while the widespread narrative of 'moral outrage' helps explain the persistence of high casualty numbers despite international awareness. The joint display analysis showed strong convergence, with 89% of quantitative trends having clear corollaries in the qualitative data. The primary divergence was the theme of 'institutional fatigue,' which has no direct quantitative measure but is crucial for understanding the production and limitations of the very institutional data upon which the quantitative analysis relies.

Institutional communication shapes moral perception through the tension between technical documentation and ethical witnessing. While OCHA reports maintain neutral framing, the UN COI's conclusion of genocide represents institutional moral positioning that re-politicizes humanitarian data. Survivor testimonies restore human meaning to statistical abstractions, creating a more complete understanding of the crisis that demands both operational response and ethical accountability. The qualitative theme of 'ethical witnessing' directly engages with this tension, with participants explicitly discussing how they hope their testimonies will 'make the numbers real' for distant audiences. This integrated analysis suggests that the credibility of humanitarian reporting in contested contexts is

maximized when technical documentation is consciously paired with mechanisms for conveying the human experiences behind the data.

6 DISCUSSION

This study examined three research questions regarding credibility construction in humanitarian narratives, indicators of genocidal intent, and institutional communication's role in shaping moral perception of the Gaza crisis from 2023 to 2025. The findings demonstrate that credibility emerges through methodological triangulation across multiple United Nations agencies, where quantitative metrics from OCHA, WHO, WFP, UNOSAT, IPC, OHCHR, and UN COI converge with qualitative testimonies from survivors and humanitarian workers. The correlation between infrastructural damage and mortality rates, combined with thematic patterns of starvation as a weapon and maternal despair, reveals systematic patterns consistent with Article II(c) of the Genocide Convention. Institutional reporting frameworks, while often depoliticized in their presentation, function as vehicles for moral witnessing when integrated with survivor narratives that restore human meaning to statistical data. It is imperative to clarify that identifying patterns 'consistent with' legal criteria is a distinct scholarly exercise from a judicial finding of guilt. This analysis documents the conditions and correlational evidence; attribution of specific intent under international law remains the responsibility of competent courts.

The findings contribute to scholarship on epistemic justice Fricker (2007) by demonstrating how institutional documentation can either perpetuate or mitigate epistemic injustice in contexts of mass atrocity. The systematic discrediting of Palestinian testimonies in some international discourse creates conditions where quantitative data from multiple agencies becomes essential for establishing credible accounts of suffering. This aligns with Fricker's conceptualization of hermeneutical injustice, where marginalized groups lack the interpretive resources to make their experiences intelligible to dominant social institutions. The convergence between satellite imagery documenting destruction and survivor accounts illustrates how different forms of evidence can mutually reinforce credibility when institutional power is marshaled to document subaltern experiences.

The documentation of structural violence Galtung (1969) through both quantitative metrics and qualitative accounts reveals how political and economic arrangements produce systematic harm. The blockade restrictions, aid convoy denials, and the correlation between infrastructure damage and food insecurity demonstrate how violence becomes embedded in social structures rather than resulting solely from direct physical force. This extends Galtung's framework by showing how humanitarian data can operationalize structural violence through measurable indicators including health system collapse, famine declaration, and mass displacement. The high proportion of civilian fatalities further illustrates the population-wide nature of this structural harm. The comparative analysis underscores the severity of this structural violence. The convergence of near-total aid denial, unprecedented rates of health infrastructure destruction, and famine-scale malnutrition in Gaza represents a configuration of siege tactics that is quantitatively and qualitatively distinct from other recent urban conflicts, suggesting an evolution in the methods of contemporary siege warfare.

The concept of moral witnessing Margalit (2002) provides a framework for understanding how humanitarian reporting transcends technical documentation to become ethical testimony. The UN COI's conclusion that genocide occurred in Gaza represents an institutional act of moral witnessing that re-politicizes humanitarian data. This contrasts with OCHA's situation reports, which maintain technical neutrality while documenting the same underlying realities. The tension between these approaches reflects broader dilemmas in humanitarian communication, where neutrality facilitates access while potentially obscuring moral responsibility. The testimonies from humanitarian workers expressing institutional fatigue and moral outrage illustrate how individual acts of witnessing occur within these constrained institutional contexts.

Researcher positionality shapes the interpretation of both quantitative data and qualitative testimonies. As independent researchers operating outside institutional humanitarian frameworks, we acknowledge the privilege of analyzing data without the operational constraints faced by field workers. This position allows for explicit connection between statistical patterns and legal characterization of events, particularly regarding genocidal intent. However, it also creates distance from the immediate realities documented in the reports. The decision to center Palestinian voices through qualitative testimonies represents an intentional effort to address potential epistemic injustice by ensuring that

survivor experiences inform the interpretation of quantitative metrics. This approach recognizes that statistical data alone cannot capture the human meaning of mass starvation or the destruction of medical infrastructure.

The findings have implications for humanitarian documentation practices. The strong correlations between different types of metrics suggest that integrated reporting frameworks capturing both quantitative indicators and qualitative experiences could enhance both operational effectiveness and moral witnessing. The consistency across agencies supports the development of standardized monitoring protocols for documenting potential genocidal conditions in future conflicts. However, the increasing denial of humanitarian access presents challenges for verification that may require greater reliance on remote sensing technologies and digital testimony collection. The use of satellite imagery demonstrates how technological innovations can supplement ground-based documentation when physical access is restricted.

Educational implications include the need for curricula that integrate quantitative humanitarian metrics with ethical frameworks for interpretation. The findings suggest that students in human rights, public health, and international relations would benefit from understanding how statistical patterns relate to legal concepts like genocidal intent and to ethical concepts like moral witnessing. Training in epistemic justice could help future humanitarian workers recognize and address potential hermeneutical injustices in their documentation practices. The thematic patterns identified in survivor testimonies could inform case studies that ground abstract legal principles in concrete human experiences.

Policy implications emerge from the documented patterns of aid obstruction and health system collapse. The increasing denial rates for humanitarian convoys suggest the need for stronger international mechanisms to enforce humanitarian access in conflict zones. The correlation between infrastructure damage and mortality rates indicates that protection of civilian infrastructure should be prioritized in ceasefire negotiations and humanitarian response planning. The UN COI's legal finding of genocide creates obligations under international law for state parties to the Genocide Convention, suggesting that diplomatic and legal responses should align with these documented patterns of systematic destruction. However, policy recommendations must be tempered by a clear acknowledgment of the study's limitations. The correlational nature of the quantitative analysis cannot definitively establish causality or intent. The qualitative sample, though rich, is not statistically representative of all Gazans. Data collection was hampered by security and access constraints, potentially introducing biases. The use of projected 2025 data, while based on established trends, introduces uncertainty. Finally, the unique political and historical context of Gaza limits the direct transferability of findings to other conflicts.

The integration of quantitative and qualitative methods in this study demonstrates how mixed-methods approaches can address complex humanitarian crises where both statistical scale and human meaning are essential for understanding. The consistency between different data sources strengthens the credibility of findings while providing multiple entry points for different audiences. Statistical patterns may resonate with policymakers and legal professionals, while qualitative testimonies may engage broader public consciousness. This methodological approach could be adapted for documenting other contexts where mass atrocity occurs amid contested narratives and information warfare.

Limitations of this research include reliance on institutional data collection methods that may be constrained by access restrictions and reporting protocols. The qualitative sample, while diverse, cannot represent all experiences in Gaza during the study period. The remote data collection methods necessitated by security concerns may have affected the depth of qualitative engagement. Future research could explore how digital technologies are transforming humanitarian documentation and moral witnessing in real-time, and how computational methods might assist in detecting patterns of systematic violence across multiple data streams.

The findings contribute to cultural memory by documenting Palestinian experiences of systematic destruction through both statistical records and narrative accounts. This documentation serves as an archival resource for historical accountability and transitional justice processes that may occur in the future. The convergence of evidence across multiple independent sources creates a robust historical record that withstands scrutiny and counters disinformation campaigns. By centering Palestinian

voices within institutional documentation frameworks, this research contributes to epistemic justice in how this period will be remembered and understood by future generations.

7 CONCLUSIONS AND FUTURE WORK

This study documented the humanitarian collapse in Gaza from 2023 to 2025 through mixed-methods analysis of United Nations agency reports and survivor testimonies. The research established credibility through methodological triangulation across six independent data sources, revealing systematic patterns consistent with genocidal conditions under Article II(c) of the Genocide Convention. Quantitative correlations between infrastructural damage and mortality rates, combined with qualitative themes of starvation as a weapon and maternal despair, provide comprehensive evidence of population-level destruction. These findings contribute to understanding how institutional documentation can serve as moral witnessing while addressing epistemic injustice in humanitarian reporting. The study refrains from making a definitive legal judgment of genocide, a task for judicial bodies, but rigorously documents the conditions and correlational evidence that form the empirical basis for such legal assessments.

The qualitative approach centered Palestinian voices and experiences that quantitative metrics alone cannot capture, contributing to ethical documentation and narrative preservation. By integrating survivor testimonies with institutional data, this research creates a more complete record of structural violence that informs both policy responses and educational initiatives. The thematic patterns identified provide insights for developing trauma-informed humanitarian interventions and human rights curricula that acknowledge the lived realities of Palestinian communities under siege. This methodological integration demonstrates how mixed-methods approaches can bridge the gap between statistical documentation and human meaning in contexts of mass atrocity.

Future research should explore the application of computational methods to detect early warning signs of systematic violence across multiple data streams. Studies could examine how digital technologies transform real-time humanitarian documentation and moral witnessing in conflict zones. Additional work is needed to develop epistemically just communication models that preserve the integrity of survivor testimonies while maintaining methodological rigor. Research in conflict medicine could investigate the long-term health impacts of systematic medical infrastructure destruction and aid obstruction on Palestinian populations. Cross-cultural understanding would benefit from comparative analysis of how different societies document and respond to mass atrocity, potentially informing more effective international response mechanisms to prevent future humanitarian collapses. A critical avenue for future work is the development of standardized, publicly accessible protocols for mixed-methods documentation in active conflict zones, including ethical guidelines for remote testimony collection and data verification techniques to counter disinformation. Furthermore, longitudinal studies are needed to track the intergenerational trauma and societal impacts of the documented destruction, ensuring that the lived experiences of Palestinians continue to inform global humanitarian policy and practice.

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