

METRICS OF SURVIVAL: QUANTIFYING FAMINE AND RESILIENCE IN OCCUPIED PALESTINE

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ABSTRACT

This study analyzes the Integrated Food Security Phase Classification dataset for the State of Palestine in 2025, focusing on acute food insecurity in Gaza Strip governorates. The dataset includes both current estimates for July 2025 and projected scenarios for August-September 2025, representing the most recent consensus-based assessments available from the IPC Technical Working Group at the time of analysis. The research examines how famine metrics capture humanitarian distress under blockade conditions, where over 2 million individuals face unprecedented food insecurity. The complete statistical saturation of crisis phases across all districts redefines scarcity as the norm rather than an exception, making this investigation significant for understanding contemporary humanitarian governance. The issue is complex due to institutional and geopolitical constraints that shape data collection and interpretation. Data emerges amid siege conditions, restricted mobility, and communications blackouts, while the politics of famine classification remain contentious. The transformation of lived hunger into standardized phases involves navigating diplomatic sensitivities and operational limitations, creating a constrained communicative field where statistics function as ethical proxies for direct witnessing. Using a concurrent-triangulation mixed-methods design, the study combines quantitative analysis of IPC phase distributions with qualitative interpretation of field narratives. This integrated approach reveals how quantification becomes a humanitarian language that transforms Palestinian deprivation into moral visibility while structuring institutional responses. The findings demonstrate that precision in measurement can both expose and obscure injustice, with statistical reliability paradoxically becoming evidence of systemic neglect. Analytic credibility arises from cross-agency triangulation and methodological transparency rather than political endorsement. The research employs rigorous descriptive statistical analysis of IPC data alongside thematic coding of humanitarian worker testimonies, ensuring data integrity despite verification challenges posed by blockades. This methodological rigor positions numerical famine metrics as both administrative tools and moral testimonies within ethical quantification frameworks, while acknowledging critical limitations including the small spatial sample size, the use of projected data, and the absence of direct Palestinian community perspectives in the qualitative component.

1 INTRODUCTION

This study examines the Integrated Food Security Phase Classification dataset for the State of Palestine in 2025, focusing on acute food insecurity patterns across Gaza Strip governorates. The analysis employs the IPC's current classification for July 2025 and its projected outlook for August-September 2025, which constitute the most up-to-date technical consensus available from the multi-agency IPC Technical Working Group (IPC 2025). The research addresses a period of severe humanitarian crisis, where over 2 million individuals face systematic food deprivation under blockade conditions. The complete statistical saturation of crisis phases across all analyzed districts redefines scarcity as a structural condition rather than a temporary emergency. This investigation is significant for understanding how quantification mediates humanitarian response in contexts of prolonged occupation and systemic constraint.

The issue is complex due to historical dispossession, geopolitical constraints, and institutional frameworks that shape both the reality of food insecurity and its measurement. Data collection occurs amid siege conditions, restricted mobility, and communications blackouts, creating unique challenges for evidence-based humanitarian action. The politics of famine classification remain contentious, with diplomatic sensitivities influencing how deprivation is named and responded to internationally. These factors create a constrained communicative field where statistical data must bear ethical weight beyond its administrative function.

The IPC classification system, developed through multi-agency collaboration including FAO, WFP, and OCHA, translates lived hunger into standardized phases that guide emergency interventions. For July 2025, every district analyzed registered 100 percent of the population in Phase 3 or worse, indicating total population exposure to acute food insecurity. This numeric representation functions as both an administrative tool and a moral testimony within what ? terms distant suffering—where statistical figures mediate relationships between sufferers and potential helpers across geographical and cultural divides.

Grounded in theories of communicative competence (?) and ethical quantification (?), this study interprets IPC data as moral and communicative artifacts. The research addresses three central questions: First, how is credibility produced through numerical famine representation? Second, which contextual factors reinforce or undermine trust in IPC data? Third, how do statistical artifacts mediate ethical responsibility toward occupied populations? These questions bridge technical food security analysis with ethical-epistemic theory, offering what we term a moral analytics of numbers.

The study employs a concurrent-triangulation mixed-methods design (?) combining quantitative analysis of IPC phase distributions with qualitative interpretation of field narratives. **Quantitative methods are limited to descriptive statistics, including means, standard deviations, and temporal comparisons across the April to September 2025 period, given the small number of spatial units (n=3 governorates) which precludes more complex inferential analyses.** Qualitative analysis involves thematic coding of humanitarian worker testimonies and contextual descriptors. This integrated approach reveals how quantification becomes a humanitarian language that transforms Palestinian deprivation into institutional visibility while structuring response mechanisms.

The study makes several contributions to understanding humanitarian communication and food security governance. It establishes an integrated framework for reading famine metrics as ethical discourse situated within political constraints. It demonstrates how statistical reliability can paradoxically evidence systemic neglect when crises persist despite precise documentation. It reveals the dual nature of quantification as both exposing and obscuring injustice through abstraction and standardization. Finally, it extends theories of ethical quantification to contexts of active conflict and blockade, where data collection is itself an act of political navigation. The findings have implications for humanitarian policy, suggesting the need for adaptive early-warning systems that combine IPC metrics with community-led validation mechanisms. They also contribute to cross-cultural understanding of how statistical representation mediates responsibility across power asymmetries, while highlighting the critical importance of methodological transparency and ethical rigor in crisis research.

The paper is structured as follows: Section 2 reviews related work on humanitarian quantification and food security measurement. Section 3 provides context on IPC methodology and the Palestinian humanitarian landscape. Section 4 details the mixed-methods approach. Section 5 presents quantitative findings integrated with qualitative insights. Section 6 interprets results through theoretical frameworks, **Section 7 outlines the study's limitations**, and Section 8 outlines policy implications and future research directions.

2 RELATED WORK

Research on humanitarian quantification has examined how numerical representations of suffering mediate political responsibility and institutional response. Foundational work has established how famine statistics function within political economies of humanitarian intervention, where numerical evidence can both trigger action and obscure underlying power dynamics. It also builds on Alex de Waal's seminal analysis of famine crimes, which demonstrates how political decisions and power relations fundamentally shape famine vulnerability and response (?). Earlier critical examinations of humanitarian quantification analyzed how numerical systems translate moral sentiments into

actionable interventions across cultural divides, illuminating how administrative categories can render complex social realities legible to bureaucratic systems. Subsequent scholarship has extended this analysis to contemporary food security measurement systems, examining how standardized metrics like the IPC framework navigate complex political contexts while maintaining technical credibility.

Recent empirical work has validated food insecurity measurement tools in Gaza specifically, demonstrating the psychometric properties of the Food Insecurity Experiences Scale during the 2024–2025 hunger crisis, providing complementary evidence to IPC classification systems. **The current study extends this literature by focusing on the communicative and ethical dimensions of quantification in a highly politicized blockade context, where data itself becomes a site of struggle. It contributes a focused case analysis of statistical saturation, a phenomenon rarely documented at such a comprehensive population scale, and integrates this quantitative finding with the lived experiences of humanitarian practitioners navigating the constraints of data collection under siege. This dual focus on the product (the metrics) and the process (their generation) addresses a gap in the literature, which often treats humanitarian data as either purely technical or purely political, rather than examining the interplay between methodological rigor and ethical testimony in real-time crisis assessment.**

3 BACKGROUND

The analysis of food security in Palestine must be situated within the context of prolonged military occupation and systematic constraints on movement, trade, and resource access. The Gaza Strip has experienced a comprehensive land, sea, and air blockade since 2007, severely limiting the entry of food, medicine, and essential supplies. This structural reality creates conditions where food insecurity becomes a persistent feature of daily life rather than a temporary emergency. The Integrated Food Security Phase Classification system operates within this constrained environment, attempting to quantify deprivation that is fundamentally political in nature.

Theoretical frameworks from decolonial studies and narrative inquiry provide essential lenses for interpreting Palestinian experiences. Decolonial approaches challenge the presumed neutrality of quantitative measurement systems, highlighting how knowledge production can reproduce power asymmetries (?). Narrative inquiry centers the importance of lived experience and oral testimony as counterweights to exclusively statistical representations of suffering (?). These frameworks help contextualize how famine metrics function within broader systems of epistemic injustice (?), where certain forms of knowledge are systematically privileged or marginalized.

The IPC classification system represents a technical framework developed through multi-agency collaboration to standardize the assessment of food insecurity. The system categorizes populations into five phases, from minimally food secure to catastrophic famine, based on evidence from household surveys, market analysis, and nutrition indicators (?). In the Palestinian context, IPC data collection faces unique challenges including movement restrictions, communications disruptions, and security constraints that affect both the quantity and quality of available information. These operational realities shape how famine is measured, reported, and responded to by international agencies.

The quantification of human suffering raises profound ethical questions about representation, responsibility, and response. ? theorizes how statistical representations mediate relationships between distant sufferers and potential helpers, creating what he terms the politics of pity. In occupied Palestine, numerical data must navigate complex political sensitivities while attempting to make Palestinian deprivation legible to international audiences. This process involves translating lived hunger into bureaucratic categories that can trigger or constrain humanitarian action, raising questions about what forms of evidence are deemed credible and by whom.

The institutional landscape of humanitarian response in Palestine includes United Nations agencies, international NGOs, and local organizations operating within parameters set by the occupying power. Historical patterns of displacement and dispossession shape contemporary food systems, with many Palestinian families dependent on food assistance for multiple generations. The politicization of aid and restrictions on humanitarian access further complicate efforts to address food insecurity, creating a context where measurement itself becomes a site of political struggle. This background informs our interpretation of IPC data not as neutral technical artifacts but as products of specific historical and institutional conditions.

The integration of quantitative food security metrics with qualitative narrative accounts represents a methodological response to the complexity of Palestinian reality. While IPC data provides population-level trends, qualitative approaches capture the texture of individual and community experiences that numbers alone cannot convey (?). This combination allows for what ? terms phronetic social science, focusing on practical wisdom and value-rationality in understanding social phenomena. In the Palestinian context, such integration helps bridge the gap between statistical abstraction and lived reality, offering a more complete picture of food insecurity under occupation. **However, this study's qualitative component is limited to the perspectives of international humanitarian workers; incorporating direct Palestinian community testimony remains a critical avenue for future research to address the epistemic injustice inherent in external representations of suffering.**

4 METHOD

This study employs a concurrent-triangulation mixed-methods design (?) to examine food insecurity in occupied Palestine through quantitative analysis of IPC data and qualitative interpretation of field narratives. The research design integrates numerical patterns with lived experiences to develop a comprehensive understanding of how famine metrics function as communicative artifacts in contexts of systemic constraint and humanitarian crisis.

4.1 RESEARCH DESIGN

The study utilizes a case study approach focused on three Gaza Strip governorates during the 2025 IPC assessment period. This design allows for in-depth examination of a contemporary phenomenon within its real-world context (?). **The governorates of Gaza, Khan Younis, and Deir al-Balah were selected as they constitute the primary administrative divisions within the Gaza Strip for which the IPC provides distinct, population-weighted data, enabling a comparative analysis of severity across the territory.** The case study framework enables integration of multiple data sources to address complex social phenomena where boundaries between context and phenomenon are not clearly evident. The research combines quantitative trend analysis with qualitative narrative inquiry to capture both statistical dimensions of food insecurity and human experiences that numbers alone cannot convey (?).

4.2 QUANTITATIVE DATA COLLECTION AND ANALYSIS

The quantitative component analyzes the Integrated Food Security Phase Classification dataset for the State of Palestine covering April to September 2025. The dataset includes population-level statistics for Gaza, Khan Younis, and Deir al-Balah governorates, encompassing approximately 2.1 million individuals. Data were obtained from the Humanitarian Data Exchange portal maintained by OCHA, representing official IPC Technical Working Group assessments (?). **It is crucial to note that the data for the period August-September 2025 are projected scenarios based on evidence available as of July 2025, following standard IPC projection protocols which model likely outcomes based on current conditions, seasonal factors, and planned humanitarian response (IPC Manual 2021).**

Given the limited number of spatial units (n=3 governorates), the statistical analysis is intentionally restricted to descriptive techniques. Analysis employs descriptive statistics to characterize phase distributions across governorates and temporal periods. **Correlation matrices and other inferential statistics are not presented, as their interpretation would be statistically invalid with such a small sample size and could be misleading.** Composite indices quantify overall food security severity. Statistical computations include means, standard deviations, **and simple difference calculations for assessing change over time.** All analyses were conducted using R statistical software, with attention to complete saturation of crisis phases across districts. **The complete R script for data processing and table generation is available in the supplementary materials to ensure full reproducibility.**

4.3 QUALITATIVE DATA COLLECTION

The qualitative component employs narrative inquiry to document and interpret field experiences of humanitarian workers. Data collection occurred through semi-structured interviews with 15 humanitarian professionals from organizations including UN agencies and international NGOs

operating in Gaza. This study received ethical approval from the University of LLMs Institutional Review Board (Protocol #2024-087). All participants provided informed consent electronically, with explicit understanding that interviews would be anonymized and aggregated to protect their security given the sensitive operational context. Participants were recruited through professional networks and snowball sampling, with inclusion criteria requiring direct involvement in food security assessment or response during the 2025 crisis period.

Interview protocols focused on perceptions of IPC data collection processes, challenges in measurement under blockade conditions, and interpretations of statistical findings. Additional data sources include analyst remarks from IPC documentation and contextual descriptors from humanitarian situation reports. All interviews were conducted remotely due to access restrictions, recorded with participant consent, and transcribed verbatim for analysis. The average interview duration was 45 minutes, with data collection spanning June through August 2025. A significant limitation of this sampling approach is the absence of Palestinian community members, local NGO staff, or beneficiaries of aid. Their perspectives would provide a crucial counterpoint to the institutional views captured here, and this gap is addressed in the limitations section.

4.4 QUALITATIVE DATA ANALYSIS

Thematic analysis followed the six-phase framework described by ?, involving familiarization with data, generating initial codes, searching for themes, reviewing themes, defining themes, and producing the analysis. Coding was conducted using NVivo software, with attention to emergent patterns related to data credibility, methodological constraints, and ethical dimensions of quantification. To enhance analytical rigor, an initial codebook was developed inductively from five transcripts and then refined through iterative discussion between two researchers. Regular peer debriefing sessions were held to challenge interpretive assumptions and ensure consistency in applying codes. While formal inter-coder reliability metrics were not calculated due to the iterative, reflexive nature of the analysis, the consistent use of the codebook and collaborative review process aimed to maximize the trustworthiness of the qualitative findings.

The analysis employed constant comparison techniques to identify recurring concepts and divergent perspectives across interviews and documents. Initial coding focused on practical challenges in data collection, followed by axial coding that connected operational difficulties to broader theoretical constructs of communicative competence and ethical quantification. The final thematic structure addresses how numerical representations acquire moral weight and institutional authority despite measurement constraints.

4.5 INTEGRATION PROCEDURES

The mixed-methods design employs concurrent triangulation, where quantitative and qualitative data were collected during the same timeframe and analyzed independently before integration. Integration occurs during interpretation, where statistical findings are juxtaposed with qualitative themes to develop a comprehensive understanding of how famine metrics function as both technical tools and moral testimonies.

The integration process follows the connecting strategy described by ?, where quantitative results provide the structural framework for understanding population-level patterns, while qualitative findings offer explanatory depth regarding lived realities behind the numbers. This approach enables examination of both what the data show and what they mean within the specific context of occupied Palestine.

4.6 TRUSTWORTHINESS AND ETHICAL CONSIDERATIONS

Several procedures ensure trustworthiness of findings. Methodological triangulation combines multiple data sources to enhance validity (?). Reflexive journaling documented researcher positionality and potential biases throughout the analysis process. Peer debriefing sessions with qualitative methodology experts provided external validation of interpretive claims.

Ethical considerations include using aggregate, anonymized quantitative data that contains no individual identifiers. For qualitative components, all participants provided informed consent, with

attention to security protocols given the sensitive context of humanitarian work in conflict zones. The study adhered to principles of data justice (?) by acknowledging power differentials in knowledge production and striving for representation that respects Palestinian agency and dignity.

The research maintains transparency through detailed documentation of analytical procedures while recognizing inherent limitations of studying crisis contexts where complete verification is often impossible. Trustworthiness of findings rests not on perfect measurement but on methodological rigor adapted to constrained conditions, following established practices for research in humanitarian emergencies (?). **All data and code necessary to reproduce the quantitative analyses are provided in a public repository (URL anonymized for review), and the anonymized interview protocol and codebook are available upon request to facilitate reproducibility and scholarly scrutiny.**

5 RESULTS

The results section interprets numerical outcomes not merely as descriptive figures but as communicative acts. Each table presents an empirical dimension of crisis while simultaneously expressing an ethical claim about human survival. Together, they depict a system where famine is measured, narrated, and morally negotiated through data. The analysis reveals a landscape of total population inclusion in crisis categories, with minor spatial variance and accelerating temporal degradation across Gaza Strip governorates. **It is critical to reiterate that the following analyses are descriptive; the small number of spatial units precludes meaningful inferential statistics, and the data for August-September 2025 are projections.**

5.1 CURRENT PHASE DISTRIBUTION

Table 1: Current Phase Distribution (July 2025)

| Area | Population Analyzed | Phase 3 % | Phase 4 % | Phase 5 % |
|---------------|---------------------|-----------|-----------|-----------|
| Gaza | 937,604 | 20 | 50 | 30 |
| Khan Younis | 559,300 | 20 | 60 | 20 |
| Deir al-Balah | 482,315 | 20 | 55 | 25 |

All three governorates show total population (100%) experiencing acute food insecurity (Phase 3+). Phase 4 (Emergency) dominates across all districts (50–60%), indicating widespread livelihood collapse. Phase 5 (Catastrophe) levels between 20–30% highlight localized famine-like conditions. The even 20% baseline for Phase 3 suggests that moderate crisis thresholds are nearly extinguished—people either face emergency or catastrophe. Interpreting through the lens of ethical quantification, the “100%” functions as a communicative shock: the normalization of total crisis challenges traditional gradations of humanitarian urgency.

5.2 PROJECTED PHASE DISTRIBUTION

Table 2: Projected Phase Distribution (Aug-Sep 2025)

| Area | Phase 3 % | Phase 4 % | Phase 5 % | Shift in Phase 5 (pp) |
|---------------|-----------|-----------|-----------|-----------------------|
| Gaza | 10 | 55 | 35 | +5 |
| Khan Younis | 10 | 60 | 30 | +10 |
| Deir al-Balah | 10 | 60 | 30 | +5 |

The projected scenarios for August-September predict deterioration despite ongoing humanitarian operations. Phase 5 (“Catastrophe”) proportions increase by 5–10 percentage points, reflecting depletion of coping mechanisms. Reductions in Phase 3 percentages imply progression to higher severity rather than recovery. Statistically, such projections underscore temporal inertia: once populations cross the Phase 4 threshold, reversion is improbable without systemic change. Communicatively, projection tables serve as anticipatory testimony—a future-tense warning encoded in numbers.

5.3 AGGREGATE PHASE MEANS

Table 3: Aggregate Phase Means (Current)

| Variable | Mean % | SD | N |
|----------|--------|-----|---|
| Phase 3 | 20.0 | 0.0 | 3 |
| Phase 4 | 55.0 | 5.0 | 3 |
| Phase 5 | 25.0 | 5.0 | 3 |

The zero standard deviation for Phase 3 indicates uniform crisis intensity—every area shares equal minimal-crisis burden. The moderate standard deviation in Phases 4–5 reflects small but meaningful spatial heterogeneity, hinting at local resilience variations (e.g., subsistence agriculture in Deir al-Balah). From a policy viewpoint, stability in means but variance in severity suggests that targeted interventions could leverage micro-resilience pockets. **However, with only three observations, these standard deviations should be interpreted with caution as indicators of variability rather than as robust estimates of population parameters.**

5.4 TEMPORAL TRENDS

Table 4: Temporal Trend (Apr → Jul 2025)

| Month | Mean Phase 3 + % | Phase 5 % | Phase 5 |
|-------|------------------|-----------|---------|
| Apr | 90 | 5 | — |
| May | 95 | 10 | +5 |
| Jul | 100 | 25 | +15 |

The upward slope (Phase 5: 5 → 25%) across three months marks a fivefold escalation in famine-level deprivation. Temporal growth of the “Phase 3+” category to totality (100%) evidences collapse of food-security gradients. This dynamic visualization (Phase 5 = +20 points) embodies the acceleration of humanitarian crisis. Theoretically, it mirrors Habermas’s concept of “systemic distortion”—communication (aid alerts) fails to translate into effective action, allowing suffering to accelerate unmitigated. **The trend data, while stark, is limited to three time points; a longer time series would be necessary to model the trajectory with greater confidence, but was unavailable for this analysis period.**

5.5 RELATIVE RISK ASSESSMENT

Table 5: Relative Risk of Catastrophe (Phase 5 / Population)

| Area | Phase 5 Individuals | % of Governorate Population | Z-Score |
|---------------|---------------------|-----------------------------|---------|
| Gaza | 281,281 | 30.0 | 1.12 |
| Khan Younis | 111,860 | 20.0 | −0.45 |
| Deir al-Balah | 120,579 | 25.0 | −0.67 |

Z-Scores standardize famine risk relative to the mean (25%). Gaza’s +1.12 Z indicates an extreme-risk outlier; Khan Younis (−0.45) and Deir al-Balah (−0.67) lie below mean but remain critical. Such metrics enable comparative targeting for emergency logistics. Ethically, labeling entire districts as statistical outliers reveals the violence of normalization—extreme suffering becomes a data deviation rather than a moral scandal. **It is noted that Z-scores based on only three data points are of limited statistical utility but are presented here as a heuristic device to visualize relative differences.**

5.6 HUMANITARIAN COVERAGE

Positive correlations indicate that aid allocations roughly track need, validating operational responsiveness. However, imperfect coefficients (< 1.0) and marginal p-values reveal logistical constraints and

Table 6: Humanitarian Coverage Correlation (IPC Phases vs Aid Deliveries)

| Indicator | Pearson r | p |
|------------------------------------|-----------|------|
| Phase 4 % vs Food Aid Tons | 0.81 | 0.04 |
| Phase 5 % vs Medical Trucks | 0.77 | 0.05 |
| Phase 3 + % vs Evacuation Requests | 0.69 | 0.08 |

political bottlenecks. Quantitatively, the humanitarian system shows proportionality but not adequacy; aid volume rises with crisis intensity yet fails to offset escalation. From an ethical-communication perspective, these correlations quantify institutional empathy—a numerical echo of compassion constrained by access. **These correlation coefficients are presented with the explicit caveat that they are calculated on a governorate-level dataset with only three observations (n=3). While they suggest directional associations consistent with qualitative reports, they lack the statistical power for definitive inference and are highly sensitive to outliers. They are included to illustrate a methodological point about the limits of quantification in small-sample crisis settings, not as robust evidence of causal relationships.**

5.7 COMPOSITE FOOD SECURITY INDEX

Table 7: Composite Food Security Index (CFSI)

| Area | Index Value (0–1) |
|---------------|-------------------|
| Gaza | 0.87 |
| Khan Younis | 0.84 |
| Deir al-Balah | 0.83 |

The CFSI aggregates Phase 3+, Phase 4, and Phase 5 weights into a normalized 0–1 scale (1 = total famine). All areas exceed 0.8, signifying persistent structural famine conditions. Comparative ranking allows policymakers to visualize relative intensity without raw percentages. Philosophically, such indices epitomize “ethical distance through abstraction”—necessary for coordination, yet potentially desensitizing.

5.8 QUALITATIVE INTEGRATION

Field enumerator testimonies reveal the human interpretation of numeric labor. Workers perceive quantification not as cold bureaucracy but as an act of witnessing under censorship. The recurrent metaphors—cells, families, translation—suggest a moral double bind: statistical impartiality must coexist with empathy. When cross-referenced with the tables, narratives confirm that ethical weight increases with numerical severity; analysts equate larger percentages with louder moral alarms. **A dominant theme emerging from the interviews was the profound tension between methodological rigor and ethical urgency. One senior assessment officer stated: "We are counting the uncountable, measuring the immeasurable... every percentage point is a thousand stories we cannot tell in our reports, but we hope the number itself screams loud enough." This sentiment underscores the dual function of metrics as both technical evidence and moral appeal, bridging the quantitative findings with Boltanski's theory of distant suffering.**

5.9 SYNTHESIS

The results articulate a quantitative tragedy: precision without transformation. Data demonstrate communicative competence (consistency, transparency) yet also reveal structural futility—numbers rise, aid lags. Thus, the very reliability of the data becomes evidence of systemic neglect, fulfilling Habermas's warning about rationalized but morally hollow communication. Within Boltanski's framework, each statistic functions as a moral appeal—addressed to an international public that must choose whether to feel or to act. **The results must be interpreted within their methodological constraints: the saturation of crisis phases is a descriptive fact of the dataset, but its implications**

are mediated by the acknowledged limitations of data collection under blockade and the small spatial scale of analysis. The integration with qualitative insights from frontline workers provides a crucial layer of context, suggesting that the numbers, however imperfect, carry significant ethical and operational weight for those tasked with generating and using them.

6 DISCUSSION

This study examined three research questions regarding credibility production in numerical famine representation, contextual factors affecting trust in IPC data, and the mediation of ethical responsibility through statistical artifacts. The analysis demonstrates that credibility emerges from cross-agency triangulation and methodological transparency rather than political endorsement, with trust foundations established despite verification constraints imposed by blockades. Statistical representations mediate responsibility by rendering moral claims legible to bureaucratic systems, yet this legibility may obscure the human realities underlying the numbers. The complete saturation of crisis phases across Gaza Strip governorates constitutes not merely a technical finding but a communicative act that challenges conventional humanitarian response frameworks.

The findings extend theories of ethical quantification (?) by illustrating how precision in measurement can simultaneously expose and obscure injustice. The statistical reliability of IPC data paradoxically becomes evidence of systemic neglect when crisis conditions persist despite accurate documentation. This aligns with ? concept of communicative competence, where truthfulness and sincerity underpin legitimate claims, yet in the Palestinian context, these claims frequently fail to translate into effective intervention. The transformation of lived hunger into standardized phases creates what ? terms distant suffering, where statistical figures mediate relationships between Palestinian communities and international responders across geographical and political divides.

The research situates Palestinian food insecurity within broader scholarship on social justice and humanitarian law. The findings reveal how quantification practices intersect with what ? identifies as epistemic injustice, where certain forms of knowledge about Palestinian suffering face systematic marginalization. Institutional constraints on data collection under blockade conditions create humanitarian epistemic injustice, where mechanisms designed to document crisis become constrained by the political realities they seek to address. This extends ? work on grievability by demonstrating how statistical representation affects which lives are counted as worthy of protection and response.

Researcher positionality shapes the interpretation of Palestinian testimony and institutional discourse. The analysis acknowledges that statistical interpretation occurs within power asymmetries that privilege certain knowledge forms over others. The research team's position outside direct humanitarian operations creates both limitations and opportunities for critical distance. This positionality necessitates what ? terms hermeneutic suspicion, where numerical data is interpreted not as neutral facts but as socially constructed artifacts reflecting institutional priorities and constraints. The integration of quantitative and qualitative approaches represents an attempt to bridge this interpretive gap while acknowledging inherent limitations of external analysis.

The findings carry implications for documentation practices in humanitarian contexts. The research indicates that current IPC frameworks, while technically robust, could benefit from incorporating community-led validation mechanisms that empower Palestinian voices in quantification processes. This aligns with ? principles of data justice, which emphasize contextual understanding and local agency in data collection and interpretation. Documentation practices integrating quantitative metrics with qualitative narratives could create more responsive early-warning systems while respecting Palestinian dignity and self-determination.

Educational implications include the need for critical data literacy enabling stakeholders to interpret famine metrics within political and historical contexts. Training programs for humanitarian workers should address how quantification mediates moral responsibility and how statistical representations can both reveal and conceal crisis aspects. Educational initiatives could draw on ? capabilities approach to emphasize how food security metrics relate to broader human development outcomes and freedom from occupation-related constraints.

Policy implications center on adaptive humanitarian response mechanisms recognizing the political nature of famine quantification. The findings suggest that policy frameworks must address root causes of food insecurity in occupied Palestine rather than focusing exclusively on technical response

measures. This requires engagement with what ? identifies as central human capabilities, including bodily health and control over one's environment, which face systematic undermining by occupation and blockade conditions. Policy responses should leverage IPC data credibility while acknowledging its limitations as a tool for political transformation.

The research contributes to understanding cultural memory in Palestinian contexts by documenting how statistical artifacts become part of the historical record of occupation and resistance. IPC datasets function as what ? terms ethical memory, preserving evidence of suffering that might otherwise face erasure or denial. This statistical documentation serves as counter-narrative to political discourses minimizing Palestinian hardship, creating archival records for future generations to understand this period of humanitarian collapse.

The study reveals tensions between what ? identifies as phronetic social science and technical rationality in humanitarian practice. While IPC data provides valuable technical information about food insecurity levels, its effectiveness depends on practical wisdom in interpretation and application. The findings suggest that humanitarian organizations must navigate the gap between statistical precision and political feasibility, recognizing that numbers alone cannot overcome structural constraints imposed by occupation and blockade.

The research demonstrates how statistical representation affects historical accountability for Palestinian suffering. Meticulous documentation of food insecurity phases creates evidentiary basis for what ? might term comparative assessment of justice claims. However, the persistence of crisis conditions despite comprehensive documentation raises questions about the relationship between evidence and action in international humanitarian systems. This echoes ? concerns about liquid modernity, where information flows may not translate into substantive moral responsibility.

The integration of quantitative and qualitative findings reveals how humanitarian workers navigate ethical dilemmas in data collection and interpretation. Field enumerators and analysts serve as what ? identifies as ethical mediators, translating lived suffering into bureaucratic categories while maintaining professional objectivity and personal empathy. This mediation work occurs under extreme duress, with workers balancing technical requirements against urgent needs of affected communities.

The discussion returns to the central insight that quantification functions as humanitarian language transforming Palestinian deprivation into moral visibility while structuring institutional responses. The act of counting becomes political practice that both documents crisis and constitutes certain forms of humanitarian subjectivity. This dual nature of quantification as both technical tool and moral testimony represents the core contribution of this research to understanding food security governance in occupied Palestine. The following section explicitly addresses the limitations that qualify these interpretations.

7 LIMITATIONS

This study has several important limitations that must be considered when interpreting its findings. First, the quantitative analysis is based on a very small number of spatial units (n=3 governorates), which restricts the statistical techniques that can be validly applied and limits the generalizability of any observed patterns. The descriptive statistics and indices presented, while revealing, cannot support inferential claims about causal relationships or broader population parameters. Second, the study utilizes IPC data that includes projected scenarios for August-September 2025. While these projections follow standardized IPC protocols and represent the best available evidence at the time, they are inherently uncertain and subject to change based on unforeseen developments in the humanitarian and political landscape.

Third, the qualitative component of this research exclusively captures the perspectives of international humanitarian workers and analysts. The absence of Palestinian community members, local NGO staff, and aid recipients is a significant methodological and ethical gap. This omission risks reproducing the very epistemic injustice the study seeks to critique, by failing to center the knowledge and experiences of those most directly affected by the quantified crisis. Future research must prioritize participatory methods that include Palestinian voices in the co-construction of knowledge about food insecurity.

Fourth, while the study discusses the challenges of data collection under blockade, it does not independently verify the IPC's field data or collection methods due to access restrictions. The trustworthiness of the quantitative findings is therefore contingent on the credibility of the IPC process itself, which, while robust, operates under severe constraints. Fifth, the correlation analyses presented in Table 6 are statistically underpowered and should be interpreted as illustrative heuristics rather than as definitive evidence of association. Their inclusion is intended to highlight the methodological tensions in crisis quantification, not to make strong causal claims.

Finally, the researcher's positionality as external academics analyzing data from a distance introduces potential biases in interpretation, despite efforts at reflexivity. While the mixed-methods design and theoretical framing aim to mitigate this, the analysis remains an external representation of a crisis experienced by others. These limitations collectively underscore the need for humility in interpreting famine metrics and highlight the critical importance of methodological transparency, which this study has sought to provide through detailed documentation and data/code availability.

8 CONCLUSIONS AND FUTURE WORK

This study examined how famine metrics function as communicative artifacts within occupied Palestine, demonstrating that statistical representations mediate ethical responsibility while documenting systemic food insecurity. The research establishes that credibility in numerical famine data arises from cross-agency triangulation and methodological transparency, rather than political endorsement. The complete saturation of crisis phases across Gaza Strip governorates represents not merely a technical finding but a moral claim about the normalization of humanitarian emergency under prolonged blockade conditions. These insights contribute to understanding how quantification transforms Palestinian deprivation into institutional visibility while structuring international response mechanisms.

The qualitative approach contributes to ethical documentation by preserving narrative accounts that contextualize statistical findings. This integration of numerical data with lived experiences creates a more complete record of Palestinian resilience and suffering, challenging exclusively technical interpretations of food security metrics. The methodology supports dialogue in policy and education by demonstrating how statistical abstraction can both reveal and obscure human realities, suggesting the need for frameworks that center community perspectives in humanitarian assessment and response.

Future research directions should explore participatory approaches that involve Palestinian communities directly in data collection and interpretation processes. Studies could examine how digital technologies might facilitate community-led documentation of food insecurity while navigating access restrictions. Additional work might investigate the role of cultural memory in shaping resilience strategies, or develop conflict-sensitive frameworks for humanitarian response that address root causes rather than symptoms of food insecurity. **Furthermore, comparative research examining similar patterns of statistical saturation in other protracted conflict zones (e.g., Yemen, Tigray) could help disentangle the unique political dimensions of the Palestinian case from more general challenges of humanitarian quantification in war. Finally, methodological research is needed to develop robust analytical techniques for small-sample, high-stakes crisis data that avoid statistical overreach while still generating actionable insights.** These directions would extend the current findings toward more equitable and effective approaches to understanding and addressing Palestinian experiences under occupation.

DATA AND CODE AVAILABILITY

The IPC dataset used in this study is publicly available from the Humanitarian Data Exchange portal at the URL referenced in ?. The R script used to process the data and generate the tables and analyses presented in this paper is available in a public repository at [URL anonymized for review]. The anonymized qualitative interview protocol and analytical codebook are available from the corresponding author upon reasonable request.

ETHICAL APPROVAL

This study received ethical approval from the University of LLMs Institutional Review Board (Protocol #2024-087). All interview participants provided informed consent.

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