e-ISSN 2594-2166 Medicina y ética, vol. 37 núm. 2, April-June, 2026

Global Hunger as a Non-Communicable Pandemic An Agent-Neutral. Reconceptualization via Twaddle's Triad and the Biopsychosocial Model

El hambre mundial como pandemia no transmisible: reconstrucción conceptual neutral al agente desde la tríada de Twaddle y el modelo biopsicosocial

Israel Huerta Castillo*
Universidad de Santiago de Compostela

https://doi.org/10.36105/mye.2026v37n2.05

* Researcher at the Faculty of Philosophy, Universidad de Santiago de Compostela, Santiago de Compostela, Spain. Email: israel.huerta@rai.usc.es ORCID record:

Received:	Sent for review:	Accepted:	Published:
10.27.2025	10.27.2025	12.09.2025	04.02.2026

CÓMO CITAR: Huerta Castillo, I. (2026). Global Hunger as a Non-Communicable Pandemic An Agent-Neutral. Reconceptualization via Twaddle's Triad and the Biopsychosocial Model. *Medicina y ética, vol. 37, núm. 2.* DOI: https://doi.org/10.36105/mye.2026v37n2.05

This work is licensed under a Creative Commons Attribution-Noncommercial 4.0 International License.

Abstract

This article examines whether chronic hunger meets agent-neutral criteria for treatment as a non-communicable pandemic in global health. It integrates Twaddle's disease–illness–sickness triad with Engel's biopsychosocial model and operationalizes "pandemic" using six criteria (transnational spread, high burden, socioeconomic disruption, international coordination, externalities, and stable governance/funding). An explicit bioethical anchor is incorporated: right to food, distributive justice, structural non-maleficence, solidarity, and intergenerational responsibility. Verification is based on recent institutional evidence and literature on population nutrition, social determinants, syndemics, and governance. Multilevel packages (community, national, global) with countercyclical financing and integrated surveillance are derived, and objections (dilution, medicalization, terminology, thresholds) are addressed. The proposal is linked to SDG-2 and the 2030 Agenda. It is concluded that the agent-neutral pandemic framework does not dilute the term but rather refines it for decision-making when the burden and disruption so require.

Keywords: bioethics, food insecurity, syndemics, health justice, governance.

1. Introduction

The expression "hunger pandemic" has been used by officials from international organizations and leading media outlets, especially since 2020, with rhetorical or programmatic value to underscore the magnitude and urgency of the phenomenon (1–3). This paper, however, proposes a conceptual and operational reconstruction of "pandemic" in a neutral sense with respect to the agent: six aggregate criteria are specified —sustained transnational spread, high disease burden (direct and indirect), significant socioeconomic disruption, need for specific and prolonged international coordination, cross-border externalities, and stable governance/financing requirements— that

https://doi.org/10.36105/mye.2026v37n2.05

allow for the prioritization, coordination, and financing of sustained responses without confusing this framework with the logic of infectious outbreaks. The syndemic approach —reintroduced into the discussion by Horton at the onset of COVID-19— reinforces the focus on biological-social interactions in contexts of deprivation and conflict, and recent reviews consolidate it as a guide for multilevel interventions (4,5).

The empirical motivation is well known and still relevant. The most recent edition of *The State of Food Security* and *Nutrition in the World* (SOFI 2025) estimates that between 745 and 783 million people suffered from hunger in 2024 (midpoint: 764 million), levels still above those prior to COVID-19 (6). In turn, the *Global Report on Food Crises* 2025 documents that 281.6 million people faced acute food insecurity in 2024 in 59 countries/territories, with 705,000 in Catastrophe/Phase 5 (7). These updated series justify the conceptual clarification and institutional design effort proposed here.

On this basis, this manuscript analyzes whether chronic hunger can be conceptualized and treated as a non-communicable pandemic in an agent-neutral sense. The thesis is articulated with two consolidated frameworks in the philosophy of medicine: (i) Andrew Twaddle's disease–illness–sickness triad, developed and clarified in subsequent works (8), which analytically distinguishes biological pathology, subjective experience, and social-institutional inscription; and (ii) George L. Engel's biopsychosocial model, which integrates levels of explanation and intervention without reducing the social to the biological or vice versa. (9) The added twist is based on an explicit bioethical anchor: the right to food (FAO Guidelines and, complementarily, the CFS *Voluntary Guidelines on Food Systems and Nutrition*), distributive justice, structural non-maleficence, solidarity, and intergenerational responsibility (10,11,13). In *disease*, hunger is expressed in biomarkers and clinical outcomes (protein-energy malnutrition, anemia, micronutrient deficiencies, BMI below thresholds) and in its short- and long-term consequences; In *illness*, the subjective experience of food deprivation (stress, coping, stigma) is examined;

https://doi.org/10.36105/mye.2026v37n2.05

and in *sickness*, the roles, norms, and institutional mechanisms that determine access to rights, eligibility, and the configuration of food and social protection systems are analyzed (6,7,10,13). This mapping avoids confusing hunger (experience/structure), malnutrition (biological category), and food insecurity (access/household stability) and allows interventions to be assigned to the appropriate dimension. Overall, the proposed reconstruction does not replace classical epidemiology focused on contagion; it complements it when the decisive criterion is burden and disruption and when the causative agent is not biological or is not transmitted by contact, aligning coordination with SDG-2 (Zero Hunger) and the 2030 Agenda (6,7,12).

2. Methodology and scope

2.1. Analytical approach and strategy

What is presented here is a conceptual study in the philosophy of medicine and bioethics with a normative purpose aimed at global health governance (8,9,11,13,18–20). The objective is to reformulate the category "pandemic" in a neutral sense with regard to the agent and with operational criteria, and to apply it to the case of chronic hunger by integrating the triad of disease–illness–sickness (Twaddle) and the biopsychosocial model (Engel) (8,9). The argument is based on secondary evidence (institutional reports and databases; thematic reviews; peer-reviewed literature), prioritizing sources with methodological traceability, global coverage, and updated series (SOFI 2025; GRFC 2025) (6,7). From a bioethical perspective, the right to food (FAO Voluntary Guidelines), frameworks of health justice, solidarity, and intergenerational responsibility are incorporated (10,11,13).

https://doi.org/10.36105/mye.2026v37n2.05

2.2. Sources and selection of evidence

Institutional sources: priority is given to reports with temporal continuity and explicit methodology:

A) SOFI 2025 (FAO/IFAD/UNICEF/WFP/WHO) for hunger, food insecurity, and malnutrition (6).
B) GRFC 2025 (FSIN/GNAFC) for acute food insecurity, IPC methods, and hotspots (7).
C) WFP communications documenting the rhetorical-programmatic use of "hunger pandemic" and the operational dimension of the response (1,3).

Academic sources: for syndemics and their conceptual relevance, Horton and *The Lancet* Commission are considered (4,5); for social determinants and eco-social frameworks, established public health references (13); for maternal and child nutrition and population intervention packages, syntheses and reference guides (14–17); for governance and international health law, analysis of architecture, mandates, and coordinated standards (18–21).

2.3. Criteria and steps of the analysis

Conceptual clarification of "pandemic" and formulation of six agent-neutral criteria: (i) sustained transnational spread; (ii) disease burden (direct/indirect); (iii) socioeconomic disruption; (iv) need for specific and prolonged international coordination; (v) cross-border externalities; and (vi) stable governance/financing requirements (4,5,18–21).

Twaddle–Engel hunger mapping: assignment of indicators, experiences, and institutional arrangements to *disease, illness, sickness*, and derivation of interventions by dimension and level with support from nutrition literature and integrated programs (6,7,8,9,14–17).

Verification of compliance with the six criteria on hunger through institutional metrics and syntheses (SOFI 2025; GRFC 2025) and recent communications (1,3,6,7,21).

https://doi.org/10.36105/mye.2026v37n2.05

Discussion of objections (dilution, medicalization, terminology, thresholds) and normative derivation for institutional design, integrated surveillance, and countercyclical financing, situated within global health governance frameworks (11,13,18–21).

2.4. Scope, validity, ethical considerations, and limitations

Scope: no meta-analyses or original estimates are performed; figures are used to illustrate trends and burdens and to argue for the need for sustained coordination (6,7).

Validity: the strength of the argument is based on definitional clarity, inferential consistency, and compatibility with public health evidence standards and bioethical frameworks in global health (5,11,13,18–21).

Ethics: study without human or animal participation (exclusive use of public sources); the bioethical dimension is explicitly integrated (rights, justice, structural non-maleficence, solidarity, and intergenerational responsibility) to evaluate global health governance obligations (10,11,13).

Limitations: dependence on secondary sources; sensitivity to methodological revisions in global reports; need to empirically validate tentative thresholds (regional comparability, data availability/quality) and refine interoperable standards for surveillance and financial activation (6,7,14–17).

3. Theoretical framework

3.1. From the biomedical model to the biopsychosocial approach

The biomedical model has been decisive in identifying physiological mechanisms and supporting clinical interventions; however, it is insufficient for multicausal and sustained phenomena such as chronic hunger, whose etiology and course depend on biological, psychological, and social determinants. (9,13,14) Engel's biopsychosocial model

https://doi.org/10.36105/mye.2026v37n2.05

integrates these levels and enables operational bridges between primary care, clinical and population nutrition, education, and social protection policies (transfers, soup kitchens, price regulation, and food systems), reducing the risk of reductionism and improving intersectoral coordination (9,14–17). This approach is consistent with the literature on social inequalities in health and eco-social frameworks, which document how social structure, life trajectories, and material contexts translate into systematic gradients of health and vulnerability (13).

3.2. Disease–illness–sickness triad (Twaddle)

The triad distinguishes three analytical levels: *disease* (biological and functional alterations; for example, emaciation, stunted growth, anemia), *illness* (subjective experience and its psychosocial burden: anxiety about food availability, coping, stigma), and *sickness* (institutional roles and norms that mediate recognition, eligibility, and access to rights) (8). Applied to hunger, this mapping clarifies the assignment of indicators (biomarkers, food insecurity scales, social protection metrics) and intervention packages differentiated by dimension: nutritional therapies, fortification, and supplementation in *disease*; psychosocial support, food education, and school canteens in *illness*; and social protection, strategic reserves, price stabilizers, and multilateral coordination in sickness (6,7,10,11,14–17). The proposal converges with international syntheses that define integrated intervention packages in maternal and child nutrition and public health (14–17).

3.3. Conceptual clarification: hunger, malnutrition, food insecurity

To avoid overlapping, a distinction is made between hunger (experience and structure of deprivation), malnutrition (biological category that includes undernutrition and excess), and food insecurity (condition of access/stability at the household level) (6,10,17). When comparable indicators are required, malnutrition provides biomarkers

https://doi.org/10.36105/mye.2026v37n2.05

(e.g., wasting, stunting, anemia) (14–16) and food insecurity provides metrics of household access and stability (6,7,17); hunger operates as an integrating category that requires coordination and a rights-based approach (10–12). This distinction improves the allocation of interventions by dimension and the comparability of surveillance and evaluation.

3.4. Reconstruction of "pandemic" with agent-neutral criteria

The traditional definition of "pandemic" privileges biological transmissibility, partly codified by global health security regulations and frameworks (18–20). For the purposes of prioritization and financing in global health, we propose an agent-neutral approach based on six cumulative criteria: (1) sustained transnational spread (2); high burden (direct and indirect); (3) significant socioeconomic disruption (4); need for specific and prolonged international coordination (5); cross-border externalities; and (6) stable governance/funding requirements (4,5,18–21). The notion of syndemic helps contextualize biological-social interaction in contexts of deprivation and conflict, justifying integrated packages without reducing poverty to "pathology" (4,5,13,14). To implement these criteria in mandates, surveillance, and financial mechanisms, the literature on global health governance and international health law offers guidelines on institutional design, data interoperability, and predictable financing (18–21).

3.5. Bioethical framework: rights, principles, and responsibility

The agent-neutral pandemic framework requires an explicit bioethical anchor:

Rights and obligations: the right to adequate food and *entitlements* impose positive and negative duties on states and the international community (availability, access, adequacy, stability) and are reflected in the *sickness* pillar as enforceable institutional obligations (10–12).

Principles applied to structures: justice (distributive and recognition), structural non-maleficence (avoiding foreseeable harm resulting

https://doi.org/10.36105/mye.2026v37n2.05

from trade, pricing, or social protection decisions), public beneficence, and solidarity (transnational cooperation and intergenerational responsibility) guide the decision-making architecture (11,13).

Ethical justification for coordination: the syndemic reading reinforces the legitimacy of integrated packages (health–nutrition–social protection–education) and countercyclical mechanisms that prevent "peak fatigue" and ensure continuity in chronic contexts (4,5,11,13,18–21).

Global health governance: integrated surveillance standards, activation thresholds, and predictable funding aligned with SDG-2 are derived from robust governance frameworks and international health law (6,7,12,18–21).

4. Applied analysis: hunger and the triad of disease–illness–sickness

4.1. Disease dimension (biological and clinical)

In *disease*, hunger is expressed in measurable somatic alterations: acute malnutrition (emaciation), chronic malnutrition (stunting), underweight, anemia, and micronutrient deficiencies (6,7,14–16). Consolidated operational indicators include weight-for-height and height-for-age z-scores, prevalence of anemia (Hb < 11 g/dL in children aged 6–59 months; < 12 g/dL in women aged 15–49 years), and specific deficiencies (e.g., vitamin A) (14–16). The response with the strongest empirical support combines integrated management of acute malnutrition (RUTF), micronutrient fortification and supplementation, and strengthening of primary care (14–17). Tentative operational thresholds for high priority: wasting (6–59 months) ≥ 5% nationally or regionally sustained ≥ 2 years, or ≥ 10% in subnational hotspots; stunting ≥ 20% nationally or upward trend ≥ 3 p. p. in 5 years; anemia in women aged 15–49 years ≥ 30%. These thresholds are inspired by classifications and ranges used in SOFI and in population nutrition programmatic frameworks (6,7,14–16).

https://doi.org/10.36105/mye.2026v37n2.05

4.2. Illness dimension (experience and mental health)

Illness captures the subjective experience of food insecurity: anticipatory anxiety, negative coping strategies (e.g., skipping meals), stigma, and chronic stress, with known effects on mental health and executive functions that impact therapeutic adherence, school performance, and productivity (6,10,11,13,17). Instrumentally, household food insecurity scales allow experiential trajectories to be linked to biomarkers; their integration with clinical measurements favors a non-reductionist reading (6,7,14–17). Tentative thresholds for activating non-clinical responses with clinical and social impact: severe food insecurity ≥ 15% nationally (or ≥ 25% in subpopulations) maintained for ≥ 2 years; self-reported reduction in rations ≥ 20% of households for ≥ 12 months (6,7,17).

4.3. Dimension of sickness (roles, norms, and institutions)

Sickness addresses the institutional arrangements that mediate access to rights and resources: effective social protection coverage, strategic food reserves, price stabilizers, trade rules, and budgetary predictability (6,7,10–12). The literature on social determinants and eco-social frameworks documents gradients of class, gender, and territory; in syndemic contexts, hunger interacts with infectious and noncommunicable diseases, as well as with climatic and economic shocks, amplifying impacts (5,7,13–15). Operationally, interagency coordination and international health law arrangements offer lessons on surveillance, alerts, and financing: systems interoperability, reporting standards, and countercyclical funds (18–21). Tentative thresholds (*sickness*): effective social protection coverage < 30% of the poor population and/or transfers without 12-month budget predictability; volatility of staple food prices > 20% year-on-year with transmission to low-income households for ≥ 2 quarters; reserve deficit (capacity < 3 months of basic consumption) or sustained trade restrictions with risk of shortages (6,7,18–21).

https://doi.org/10.36105/mye.2026v37n2.05

4.4. Verification of the six "pandemic" criteria (agent-neutral)

Sustained transnational spread: severe food insecurity and malnutrition coexist in multiple regions with multi-year persistence and pockets of high severity (6,7).

High disease burden (direct/indirect): malnutrition contributes to mortality and DALYs through interaction with infections and long-term effects on development and productivity (14–16).

Significant socioeconomic disruption: impacts on productivity, human capital, and social cohesion, with peaks associated with conflict, climate shocks, and cost-of-living crises, as illustrated by recent communications and warnings from specialized agencies (1–3,6,7,21).

Need for specific and sustained international coordination: cross-border logistics, surveillance interoperability, and multilateral financing require clear mandates and governance architecture (6,7,18–21).

Cross-border externalities: volatility in international prices and forced displacement with regional spillovers (6,7,18–21).

Stable and predictable multilateral governance and financing: countercyclical and predictable mechanisms are warranted to avoid cycles of "peak fatigue" and ad hoc responses (18–21).

Table 1. Twaddle mapping applied to global hunger

Criterion	Suggested Threshold	Reason
Disease	5% > emaciation (nationwide) at 2 years or 10% in outbreaks; 20% growth retardation	SOFI series and severity classifications [6,10,11]
Illness	Severe insecurity ≥ 15% nationally and 10% regionally; growth slowdown ≥ 20%.	SOFI home modules; literature [6,10,11]
Sickness	Severe insecurity ≥ 15% nationally ≥ 220% reduction in rations ≥ 20% of households ≥ households ≥ 12 months	SOFI marking modules; program literature [6,10,11]
Coordination	Social protection <30% >volatility≥ 200% 2 months, lack of surveillance interoperability	GRFC 2024; governance reserves

Source: prepared by author.

https://doi.org/10.36105/mye.2026v37n2.05

Table 2. Tentative signals/thresholds for "pandemic" activation

Dimension	Illustrative indicators	Priority interventions	Key sources
Disease	Wasting, stunting, anemia, micronutrient deficiency	RUTI; management of acute malnutrition; fortification; supplementation; PHC	SOFI 2024 [6]
Illness	severe food insecurity, stress, stigma	Transfer; school cafeterias; psychosocial support; nutrition education	SOFI 2024 [6]
Sickness	Social protection coverage; price volatility; reserves	Social protection; regulation; reserves; multilateral coordination	GRFC 2024; governance [7,11-13]

Source: prepared by author.

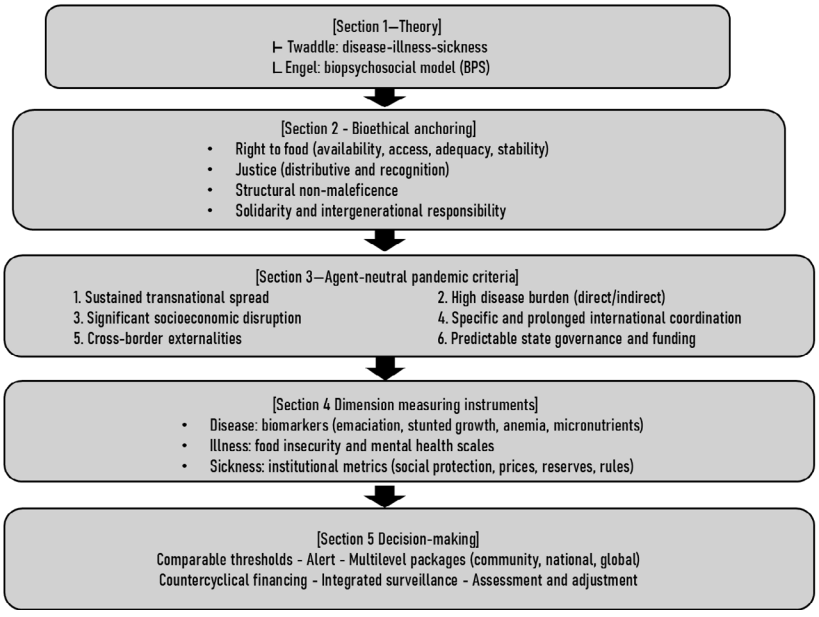
Table 3. Integrated intervention guide by entry points

Inputs (Signals)	Response Package	Expected Outcomes	References
Wasting ≥ 5%; severe food insecurity > 15%	RUTF; APS; safe water; psychosocial support; school feeding programs	↓ mobility; ↓ stress; ↑ adherence	[6,10,11]
Volatility > 20%; social protection coverage < 30%	Predictable transfers; reserves; price regulation	↑ resilience; stabilization of access	[7,6]
Lack of predictable financing; surveillance gaps	Countercyclical fund; common standards; logistics interoperability	↓ recurrence of crises; ↓ response times	[11–13,1,2]

Source: prepared by author.

https://doi.org/10.36105/mye.2026v37n2.05

Figure 1. Bioethical-health operationalization diagram



Source: prepared by author.

Twaddle–Engel mapping allows indicators and intervention packages to be assigned by dimension, avoiding fragmented solutions (8,9,14–17). Tentative thresholds translate the six *agent-neutral* criteria into verifiable signals, opening the door to warning mechanisms and predictable funding (6,7,14–17,18–21). The literature on social determinants and syndemics justifies the emphasis on interaction between levels, while governance studies guide the institutionalization of coordination and surveillance (4,5,13,18–21). Taken together, verification of the six criteria places chronic hunger among the problems that justify its treatment as a "non-communicable pandemic" in an agent-neutral sense, without diluting the specificity of infectious pandemics (4,5,18–21).

https://doi.org/10.36105/mye.2026v37n2.05

5. Discussion: similarities and differences; objections; bioethical and policy implications

5.1. Similarities and differences with infectious pandemics

Chronic hunger and infectious pandemics share four decisive features for collective action: (i) transnational presence with multi-year persistence, (ii) high disease burden—direct and indirect mortality and DALYs—(iii) sustained socioeconomic disruption to productivity, human capital, and social cohesion, and (iv) the need for stable international coordination over time (4–7,13–15,18–21). However, they differ in three aspects: (a) absence of biological contagion, (b) chronicity of the phenomenon with cyclical oscillations rather than acute peaks, and (c) lower media and political salience compared to highly transmissible epidemic shocks (3,4,18–21). Under agent-neutral criteria, these differences do not invalidate the pandemic framework; rather, they require a response regime adapted to persistence and structures (integrated surveillance, comparable thresholds, countercyclical financing, and multilevel governance), learning from global health architecture without uncritically transferring logic designed for pathogens (18–21).

5.2. Conceptual objections and responses

"Dilution" of the term pandemic: this is avoided by requiring six cumulative criteria and operational thresholds, restricting the scope to problems with extremely high impact and verifiable cross-border externalities (4–7,18–21).

"Medicalization" of poverty: the disease–illness–sickness triad (Twaddle) and the biopsychosocial model (Engel) shift the focus toward institutional and system design obligations (social protection, price stabilization, reserves, rules), along with clinical and psychosocial interventions, avoiding reducing hunger to an exclusively biomedical problem (8,9,11,13–17).

https://doi.org/10.36105/mye.2026v37n2.05

Terminological confusion: the distinction between hunger (experience/structure), malnutrition (biological category), and food insecurity (access/stability at the household level) assigns indicators and responsibilities at the correct level and improves comparability in monitoring and evaluation (6,7,10,17).

Absence of thresholds: verifiable signals by dimension (Tables 2–3) and their multicenter empirical validation are proposed, combining clinical, experiential, and institutional metrics and anchoring them in predictable governance and financing standards (6,7,14–17,18–21).

5.3. Bioethical and public policy implications

From the perspective of global health bioethics, recognizing chronic hunger as a noncommunicable pandemic neutral to the agent requires aligning three levels:

(i) Rights and principles: the right to adequate food, justice (distributive and recognition), structural nonmaleficence (avoiding foreseeable harm resulting from trade, pricing, or social protection decisions), solidarity, and intergenerational responsibility (10–13).

(ii) Institutional design: integrated surveillance with clinical, experiential, and institutional indicators; comparable thresholds for triggering alerts and disbursements; countercyclical and predictable financing that breaks the cycles of "peak-fatigue" between crises and demobilization (6,7,14–17,18–21).

(iii) Multilevel packages (community, national, global): combination of RUTF and malnutrition management, predictable cash transfers, school meals, psychosocial support, and nutrition education, along with strategic reserves, price stabilizers, and multilateral coordination mechanisms (6,7,10,11,14–18,21).

This framework prioritizes without medicalizing: it justifies positive and negative obligations of States and the international community,

https://doi.org/10.36105/mye.2026v37n2.05

translates SDG-2 into operational criteria, and stabilizes resource flows, integrating lessons from global health governance without losing sight of the non-infectious nature of the phenomenon (6,7,11–13,18–21).

5.4. Implications for evaluation and applied research

The "non-communicable pandemic" approach requires: (a) comparable protocols and alert thresholds with sensitivity analyses by region and productive structure; (b) evaluation of benefits in health, education, and productivity; (c) cost-effectiveness estimates of integrated packages according to level of implementation; and (d) empirical validation of thresholds and their performance under climate shocks, conflict, and macroeconomic crisis, relying on SOFI/GRFC series and governance frameworks to ensure data interoperability and automatic disbursements when agreed thresholds are exceeded (6,7,13–21).

6. Conclusions, limitations, and agenda for research and policy

6.1. Conclusions

Chronic hunger meets six agent-neutral conditions for treatment as a noncommunicable pandemic: (1) sustained transnational spread (2), high disease burden—direct and indirect—(3), significant socioeconomic disruption (4), need for specific and prolonged international coordination (5), cross-border externalities, and (6) requirements for stable and predictable multilateral governance and financing (4–7,18–21). The Twaddle–Engel framework allows for the operationalization of diagnosis and response in three dimensions—*disease, illness, sickness*—by assigning indicators and intervention packages with greater consistency and reducing fragmented approaches (8,9,14–17). The agent-neutral pandemic framework does not trivialize the term or "medicalize" poverty; it shifts the focus to

https://doi.org/10.36105/mye.2026v37n2.05

institutional and justice obligations, justifies countercyclical and stable financial mechanisms, and calls for integrated surveillance with comparable thresholds and rights-based interagency coordination (6,7,10–13,18–21). This reconceptualization aligns with SDG-2/Agenda 2030 by translating its programmatic horizon into operational criteria for alert, coordination, and financing: linking wasting/anemia (disease), severe food insecurity (illness), and social protection coverage/price stability (sickness) to activation thresholds facilitates forward-looking governance that is proportional to the burden (6,7,10–12,14–17).

6.2. Limitations

The study is conceptual and normative; it is based on secondary evidence subject to methodological reviews and updates of institutional series (6,7). The proposed thresholds are tentative and require empirical validation and regional calibration, considering data availability/quality and seasonality (6,7,14–17). The coverage of determinants (climate, conflict, financial shocks, productive structure, and import dependency) is necessarily partial; eco-social and syndemic frameworks guide future analytical extensions (4,5,13).

6.3. Research and policy agenda

1. Empirically validate comparable thresholds in the three dimensions (disease/illness/sickness) and their capacity to trigger countercyclical responses and disbursements (6,7,14–17,18–21).
2. Develop integrated surveillance with interoperable dashboards that combine clinical, experiential, and institutional indicators; agree on data standards and activation/deactivation rules (6,7,13,18–21).
3. Evaluate the cost-effectiveness and implementation of multilevel packages (community, national, global) and their co-benefits in health, education, and productivity (6,7,14–17).

https://doi.org/10.36105/mye.2026v37n2.05

4. Design stable governance and financing architecture: countercyclical funds, contingency windows, and clear mandates for interagency coordination, drawing on lessons from health law and security, adapted to food and nutrition security (18–21).

References

1. World Food Programme. WFP Chief warns of hunger pandemic as COVID-19 spreads: Statement to the UN Security Council. Rome: World Food Programme; 2020. Available at: https://www.wfp.org/news/wfp-chief-warns-hunger-pandemic-covid-19-spreads-statement-un-security-council
2. United Nations Secretary-General. Highlight 21 April 2020: Secretary-General's remarks to the Security Council on the protection of civilians affected by conflict-induced hunger. New York: United Nations; 2020. Available at: https://www.un.org/sg/en/content/highlight/2020-04-21.html
3. Reuters. UN food agency warns of deepening hunger crisis as funding falls short. *Reuters*. 2025. Available at: https://www.reuters.com/world/un-food-agency-warns-deepening-hunger-crisis-funding-falls-short-2025-11-18/
4. Horton R. Offline: COVID-19 is not a pandemic. *Lancet*. 2020; 396(10255):874. https://doi.org/10.1016/S0140-6736(20)32000-6
5. Swinburn BA, Kraak VI, Allender S. The Global Syndemic of obesity, undernutrition, and climate change: The Lancet Commission report. *Lancet*. 2019; 393(10173):791–846. https://doi.org/10.1016/S0140-6736(18)32822-8
6. Food and Agriculture Organization (FAO); International Fund for Agricultural Development (IFAD); United Nations Children's Fund (UNICEF); World Food Programme (WFP); World Health Organization (WHO). *The State of Food Security and Nutrition in the World 2025*. Rome: FAO; 2025. Available at: https://www.fao.org/publications/sofi
7. Food Security Information Network (FSIN); Global Network Against Food Crises (GNAFC). *Global Report on Food Crises 2025*. Rome/Brussels: FSIN/GNAFC; 2025. Available at: https://www.fsinplatform.org/grfc-2025-september-update
8. Hofmann B. On the triad disease, illness and sickness. *J Med Philos*. 2002; 27(6):651–673. https://doi.org/10.1076/jmep.27.6.651.13793
9. Engel GL. The need for a new medical model: a challenge for biomedicine. *Science*. 1977; 196(4286):129–36. https://doi.org/10.1126/science.847460
10. Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO). Derecho a la alimentación (Internet). Roma: FAO; [cited 2025 Nov 25]. Available at: https://www.fao.org/right-to-food/en
11. Powers M, Faden R. *Social Justice: The Moral Foundations of Public Health and Health Policy*. Oxford: Oxford University Press; 2021. https://doi.org/10.1093/oso/9780195375138.001.0001

12. United Nations General Assembly. Transforming our world: the 2030 Agenda for Sustainable Development. Resolution A/RES/70/1. New York: United Nations; 2015. Available at: https://digitallibrary.un.org/record/3923923?v=pdf
13. Krieger N. *Ecosocial Theory, Embodied Truths, and the People's Health*. New York: Oxford University Press; 2021. https://doi.org/10.1093/oso/9780197510728.001.0001
14. Black RE, Victora CG, Walker SP. Maternal and child undernutrition and overweight in low- and middle-income countries. *Lancet*. 2013; 382(9890):427–51. https://doi.org/10.1016/S0140-6736(13)60937-X
15. Victora CG, Christian P, Vidaletti LP, Gatica-Domínguez G, Menon P, Black RE. Revisiting maternal and child undernutrition in low-income and middle-income countries: variable progress towards an unfinished agenda. *Lancet*. 2021; 397(10292):1984–2001. https://doi.org/10.1016/S0140-6736(21)00394-9
16. World Health Organization (WHO). *Guideline on complementary feeding of infants and young children 6–23 months of age*. Geneva: WHO; 2023. Available at: https://www.who.int/publications/i/item/9789240081864
17. Fondo de las Naciones Unidas para la Infancia (UNICEF). Nutrición (Internet). Nueva York: UNICEF; [cited 2025 Nov 25]. Available at: https://www.unicef.org/nutrition
18. Frenk J, Moon S. Governance challenges in global health. *N Engl J Med*. 2013; 368(10):936–42. https://doi.org/10.1056/NEJMra1109339
19. Gostin LO, Katz R. The International Health Regulations: The governing framework for global health security. *JAMA*. 2016; 316(15):1543–4. https://doi.org/10.1001/jama.2016.14472
20. World Health Organization. *International Health Regulations (2005): as amended in 2014, 2022 and 2024*. Geneva: World Health Organization; 2025. Available at: https://apps.who.int/gb/bd/pdf_files/IHR_2014-2022-2024-en.pdf
21. Global Preparedness Monitoring Board. *The New Face of Pandemic Preparedness: 2025 GPMB report*. Geneva: World Health Organization; 2025. Available at: https://www.gpmb.org/reports/report-2025