Plenary 4: Nutrition and Food Security for People Living with Diabetes (PLWD) in Emergencies

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Plenary Objectives

1. Map the nutrition related challenges faced by PLWD in humanitarian contexts

2. Highlight operational realities, research experience, and lived experiences through field case studies

3. Bridge research, policy, and practice by identifying gaps and opportunities across humanitarian food assistance, diabetes care, and nutrition support.

4. Catalyze cross-sector dialogue to define a forward-looking agenda that addresses research priorities, policy gaps, and operational opportunities

Plenary Agenda

- Introductions & Background
- Case Studies & Field Realities – Lebanon, Maysaa Hellani (MSF, Lebanon)
- Case Studies & Field Realities – Somalia, Omar Haji (IRC, Somalia)
- Evidence and Research Priorities, Lamis Jomaa (UNC-Chapel Hill)
- Policy and Action, Caroline Wilkinson (Independent)
- Moderated Discussion and Q&A

Defining Food Security and Food Assistance

Food Security

All six dimensions are implicit in the definition of food security – we need to explicitly recognize all dimensions

HLPE Report 2020: http://www.fao.org/3/ca9731en/ca9731en.pdf

- **Food assistance** is required when the quality and quantity of available food or access to food is not sufficient to prevent excessive mortality, morbidity or malnutrition.
  - A wide range of tools can be used in food assistance programmes, including: general food distributions (provision of in-kind food, cash-based assistance for purchase of food)

Sphere Association. *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*. 4th ed. Geneva: Sphere Association; 2018. Available: https://handbook.spherestandards.org/en/sphere/#ch010

Nutrition and Targeting Vulnerable Groups

- **Nutrition** is a broad term referring to processes involved in eating, digestion and utilization of food for growth and development, reproduction, physical activity and maintenance of health
- The term '**malnutrition**' technically includes undernutrition and over-nutrition
- **In emergencies, the primary focus is on acute malnutrition (prevention and treatment)**
- Chronic malnutrition is often prevalent but is not a major focus of emergency response
- **Overnutrition** is not prioritized

PLWD is not noted as a vulnerable group to target; people living with NCDs are also not acknowledged more broadly in most programming

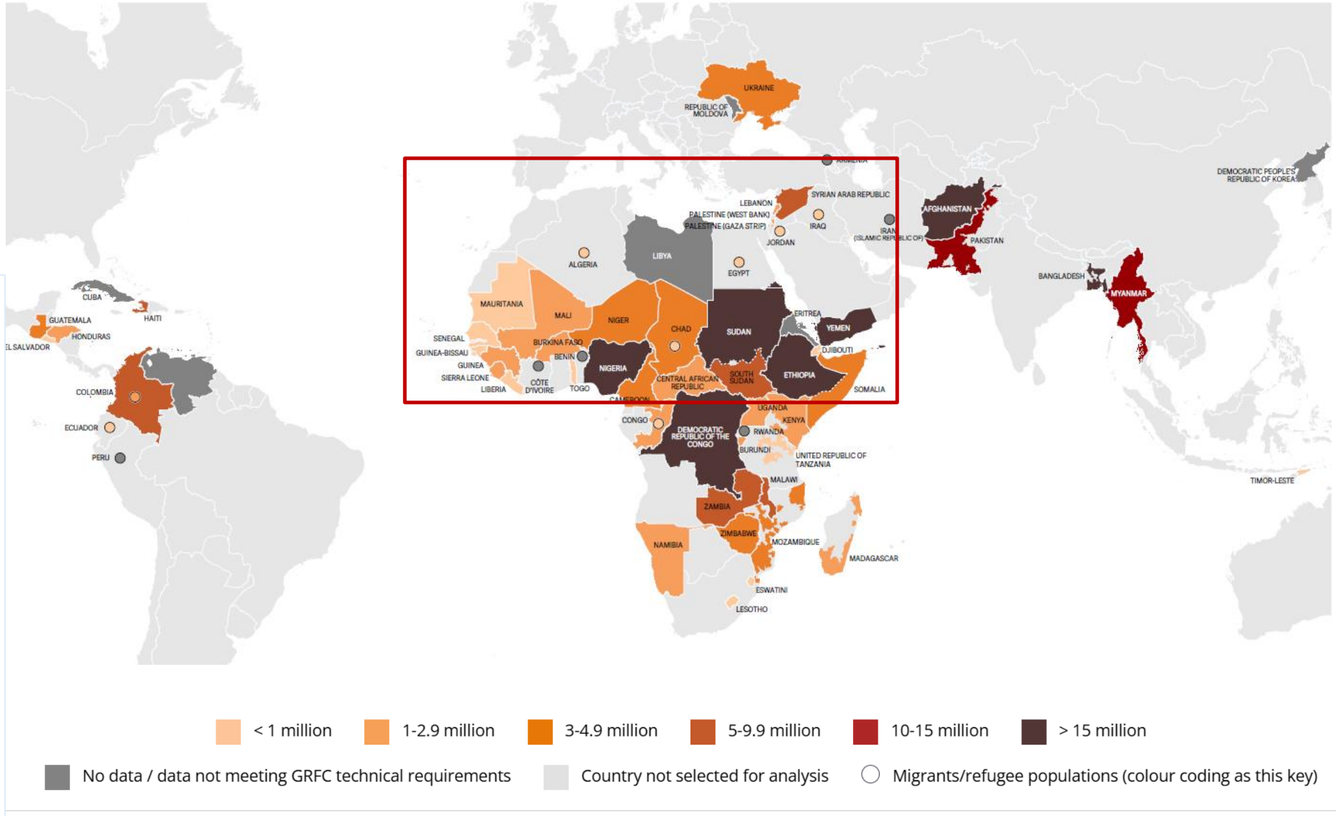
Nutrition crises worsen amid intensifying conflict and funding cuts

People experiencing high levels of acute food insecurity

Famine was confirmed in the Sudan – the first time since 2020 globally.

- **Conflict, economic shocks and weather extremes**, underpinned by **structural fragilities**, continue to drive food crises.
- The four most severe food crises are in the **Gaza Strip, the Sudan, Yemen and South Sudan.**
- **About 80% of refugees and displaced populations experience food insecurity**
- Abrupt and **substantial funding reductions in early 2025** put at risk lifesaving operations in some of the worst food and nutrition crises.

Number of people facing high levels of acute food insecurity, 2024 peak.



Source: GRFC Food Security TWG, 2025.

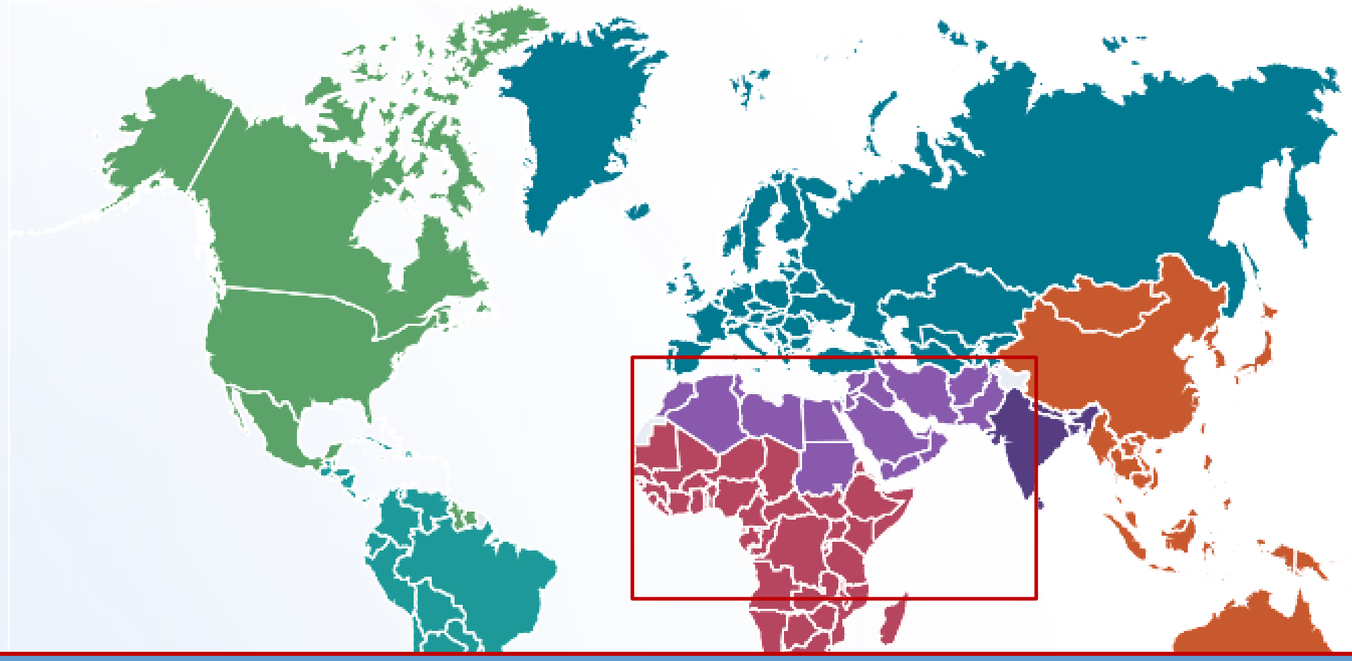
Diabetes around the world - 2024

Number of adults (20–79 years) with diabetes worldwide

International Diabetes Federation

75 YEARS 1950 - 2025

World			Africa (AFR)			Europe (EUR)			Middle-East and North Africa (MENA)		
2050	852.5 Million	45% increase	2050	59.5 Million	142% increase	2050	72.4 Million	10% increase	2050	162.6 Million	92% increase
2024	588.7 Million		2024	24.6 Million		2024	65.6 Million		2024	84.7 Million	



Highlights

- 589 million adults (20-79 years) are living with diabetes worldwide – 1 in 9.
- The total number of adults with diabetes is predicted to rise to 853 million by 2050 - 1 in 8.
- 4 in 5 adults with diabetes (81%) live in low and middle-income countries.
- Diabetes caused 3.4 million deaths in 2024 – 1 every 6 seconds.
- An estimated 43% of adults living with diabetes (252 million people) are undiagnosed. Almost 90% live in low and middle-income countries.
- Diabetes was responsible for an estimated USD 1.015 trillion in global health expenditure in 2024. This represents a 338% increase over the past 17 years.
- 635 million adults worldwide (1 in 8) have impaired glucose tolerance and 488 million have impaired fasting glucose (1 in 11) placing them at high risk of type 2 diabetes.

The same countries and regions with the greatest food insecurity are also the ones expected to have the greatest increase of diabetes from 2024-2050-Africa (142% inc.) and MENA (92% inc.)

2024	56.2 Million	21% increase	2024	35.4 Million	45% increase	2024	106.9 Million	73% increase	2024	215.4 Million	18% increase

A wicked problem: Extreme food insecurity and nutritional vulnerabilities in settings occurring alongside growing numbers of PLWD

Why is nutrition and food security important for PLWD in humanitarian settings?

- Type 1 Diabetes:
  - **Food is a safety device:** Insulin without food can lead to hypoglycemia, seizures, coma; food without insulin can lead to DKA; Regular meal timing and enough carbohydrate/protein are literally lifesaving.
  - **Dose matching needs predictability:** erratic rations or skipped meals make safe dosing nearly impossible.
  - **Adequate macro and micronutrients:** Adequate protein, iron, zinc, B vitamins support growth/immunity
- Type 2 Diabetes:
  - **Glycemic control depends on food access, diet quality and routine:** Humanitarian rations and low-cost food that are accessible to people who are food insecure are more likely to be rich in sodium and carbohydrates and be low in fiber, whole grains/legumes/veg and protein
  - **Irregular meals → glycemic swings**
  - **Adequate macro and micronutrients:** Adequate protein, iron, zinc, B vitamins support growth/immunity
- Gestational Diabetes:
  - Irregular access (and quality) to food can lead to poor glycemic control->**mother and child health outcomes**
  - **Greater nutrition needs during pregnancy**; calories, iron and folic acid, calcium, iodine, etc.
- Diabetes Prevention: malnutrition during important stages of growth early in life increase the risk of T2DM

What are the common approaches used in emergency nutrition programs?

What Types of Food Assistance are Provided? **The Food Basket**

The size and composition of the food basket is tailored to local preferences, demographic profile, activity levels, climatic conditions, local coping capacity and existing levels of malnutrition and disease.

General in-kind food distribution in **emergencies or refugee situations**; the main components of the **food basket** are:

- a staple such as wheat flour or rice;
- lentils, chickpeas or other pulses;
- vegetable oil (fortified with vitamin A and D);
- sugar; and

Food assistance designed for acute emergencies and typical food baskets high in starch, oil, and sugar with minimal fruits and vegetables

Daily Individual Ration Examples

Rice Based Ration	Maize Base Ration
400g medium grain white rice	375g maize meal, white whole grain
70g dried beans	125g lentils
25g dried skim milk (fortified)	100g raw yam
10g black tea	20g coffee
30g vegetable oil (2¼ tablespoons)	25g vegetable oil (1¾ tablespoons)
20g sugar	15g sugar
5g iodized salt	5g iodized salt
Energy: ~2,116 kcal	**Energy:** ~2,207 kcal
Protein: ~50.5 g	**Protein:** ~67.8 g
Fat: ~33.4 g	**Fat:** ~45.3 g
Carbohydrate: ~397 g	**Carbohydrate:** ~392 g

What Types of Food Assistance are Provided? **Cash and Voucher Assistance (CVA)**

- More recently, cash transfers are being used in humanitarian settings for delivering assistance across all sectors, either on their own or in conjunction with in-kind provision of goods or services.
- **Cash transfers** in humanitarian settings have been defined as "the provision of money to individuals or households,…" (ECHO, 2009).
  - The defining characteristic of cash-based approaches is that choice resides with the beneficiary and not with implementing organization, as is the case with in-kind transfers
- **Vouchers** can be exchanged for specific commodities or services.
  - The instruments of exchange in voucher programs may include tokens, coupons or

CVA can promote dietary diversity but is based on food availability/market functionality

Developing and testing strategies to improve access to and consumption of healthy foods for Somalis living with diabetes, hypertension

Key Insights from the Somalia Formative Study

Dr Omar Haji , IRC Somalia

17 October 2025

Background & Rationale

Somalia faces overlapping crises: conflict, displacement, and recurrent droughts.

Health system primarily focused on infectious and acute malnutrition programs. Nutrition programs have historically focused on acute malnutrition.

The rising burden of non-communicable diseases (NCDs), including diabetes and hypertension, requires new approaches

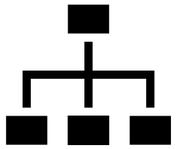
Absence of national guidelines for supporting people with diabetes and hypertension, particularly regarding their nutritional needs.

Food assistance is often high in refined carbohydrates and low in protective nutrients.

Objectives of the Formative Work

Understand dietary practices, barriers, and coping with mechanisms.

Understand service delivery, perceptions of healthy eating and health-seeking behavior.



Identify policy, governance, and system gaps.

Inform culturally appropriate nutrition and lifestyle strategies.

Study Setting & Methods

A formative, qualitative, and participatory study was carried out in Mogadishu, Somalia to understand how individuals with diabetes and hypertension find, afford, and manage healthy food options, and to uncover related system and policy challenges. **Approach Used Include:**

- **Stakeholder Workshops:** Involved the Ministry of Health, WHO, NGOs, and community leaders to discuss barriers, opportunities, and to co-develop culturally relevant tools.
- **Key Informant Interviews (KIIs):** Conducted with policymakers, clinicians, and nutrition managers to assess gaps in services and NCD programming.
- **Focus Group Discussions (FGDs):** Held separately with men and women living with diabetes or hypertension to capture personal experiences, dietary choices, and coping strategies.
- **Market & Food Environment Assessment:** Evaluated the cost, availability, and accessibility of foods suitable for diabetic and hypertensive patients, highlighting local price and supply issues.
- **Data Analysis:** Thematic analysis was used to identify recurring patterns and themes across all data sources.

Key Findings- KII

Role of Stakeholders: involved in monitoring, evaluation, research, health system strengthening, community awareness, capacity building, and policy integration. Limited engagement in nutrition policy, advocacy, and resource mobilization. Reflects a diverse network influencing NCD-related strategies and service delivery.

Perspectives on Dietary Messaging: Dietary challenges include high fat, sugar, and salt intake with generic advice; there is a need for practical, affordable, and culturally tailored guidance using visual, community channels to promote healthier Somali traditional foods

Gender-Responsive Messaging: Men lead decisions; women need empowerment and resources; shared household decision-making and framing nutrition as a shared family responsibility can enhance dietary adherence and equity

Physical Activity & Exercise: residents face sedentary lifestyles, with barriers like safety, stigma, and limited facilities for women. Promote walking, home-based routines, and safe community activities using local champions and peer motivators.

Key Findings- KII

Leadership, Governance & Financing Challenges:

- Weak NCD data, fragmented policies, no dedicated funding.
- Priorities: establish NCD budget lines, integrate into national plans, apply fiscal tools (e.g., sugar tax).
- MOH is pivotal for coordination and partnerships.

Surveillance & Data Systems:

- DHIS2 needs NCD indicators (screening, diagnosis, follow-up).
- Requires capacity building, real-time dashboards, digital harmonization, and complementary community/private sector data.

Dietary Evidence Gaps:

- Culturally tailored interventions are scarce.
- Research gaps: fasting, affordability, traditional diets.
- Traditional foods (sorghum, maize, camel milk) are healthier but underused;
- **barriers include** cost, seasonality, and supply chains.

Key Findings- KII

Policies, Partnerships & Community Initiatives:

- Weak integration of NCDs into nutrition/food policies.
- Need multisectoral collaboration (Health, Agriculture, Food),
- adapted NGO food aid, and empowered CHWs/community programs.

Food System Strengthening & Research:

- Support local production and women farmers
- Improve market access for nutritious crops, regulate imports.
- Research priorities: implementation studies, rural/IDP populations, dietary behavior, and service access.

Cross-Cutting Recommendations:

- Develop Somalia-specific diabetes/hypertension guidelines.
- Ensure patient-centered, culturally appropriate interventions
- Strengthen government ownership, women's empowerment, health literacy, and community leadership

Key Findings- FGDs

Theme 1 – Service Delivery & Quality of Advice: Clinicians provide consistent counseling on reducing sugar, salt, white rice, pasta, and fried foods. Advice is valued but often hard to follow due to cost and access barriers. Key challenges: lack of monitoring devices, night-time access, limited finances.
Preference: practical, locally adapted, affordable guidance.

Theme 2 – Food Environment (Access & Affordability): Healthy foods exist but are largely unaffordable. Families often prioritize children's needs, compromising patient diets.
Economic constraints → reliance on cheaper staples like rice. Droughts, floods, unemployment worsen food insecurity. Traditional foods (millet, sorghum, camel milk) preferred but imported staples dominate.

Theme 3 – Social Norms & Cultural Beliefs: Household norms and gender roles shape dietary practices. Maintaining separate diets is challenging; social pressure encourages conformity. Hospitality culture makes refusing shared meals difficult. Religious beliefs coexist with medical care ("illness is from Allah").Stress and family conflict directly affect blood sugar and blood pressure.

Key Findings- FGDs

Theme 4 – Policy & Governance: Government support for NCD patients is limited. Reliance on NGOs and donors for medicines and basic care. Participants request: financial/food assistance, support for local agriculture, home monitoring devices. Need for structural support: subsidies, supply chain strengthening, policy integration.

Synthesis & Key Implications

Synthesis of Findings: High individual motivation exists, but systemic barriers (economic, social, policy) limit adherence. Economic constraints, social norms, weak policies interact to restrict healthy behavior. Health system strengthening and community support are essential.

Programmatic & Policy Implications:

- Integrate dietary counseling into primary care.
- Provide subsidies/vouchers for local healthy foods.
- Strengthen community health education to shift norms.
- Support local agriculture for NCD-sensitive foods.
- Include NCDs in national nutrition & resilience policies.

Recommendations, Limitations & Next Steps

Recommendations:

- Develop Somalia-specific NCD nutrition guidelines.
- Expand community NCD screening.
- Enhance training for MCH/PHC providers on diet counseling.
- Promote local healthy food markets through agricultural support.
- Establish multi-sectoral coordination: Health, Agriculture, Social Protection.

Limitations & Strengths:

Limitations: Urban focus, qualitative design, small sample.
Strengths: Rich contextual insights, gender-balanced FGDs, policy-relevant data.

Next Steps:

- Co-design intervention pilots with community & Ministry of Health.
- Test simplified dietary counseling tools.
- Advocate for NCD-sensitive actions in national policies.

INTERNATIONAL RESCUE COMMITTEE

Thank you

Patient Experiences of Diabetes Management in Somalia

Food and Nutrition Security for People Living with Diabetes – Research Priorities and Gaps

5th Symposium on Diabetes in Humanitarian Crises

Nutrition and Food Security for People Living with Diabetes (PLWD) in Emergencies

Oct 17th, 2025

Lamis Jomaa, PhD

Assistant Professor, Department of Nutrition

University of North Carolina at Chapel Hill

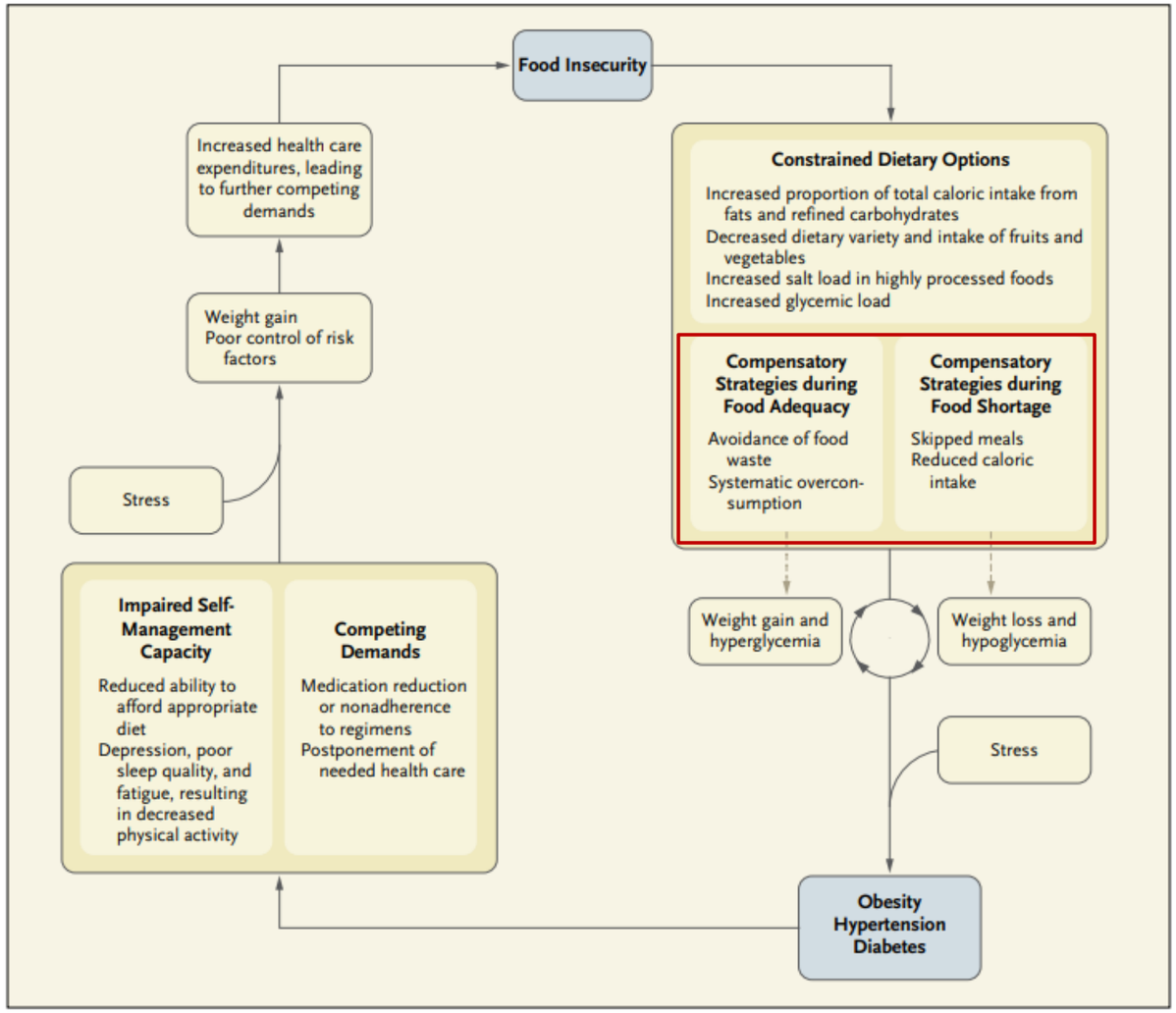
UNC | GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH

Diabetes in Humanitarian Settings

- Crisis-affected populations with diabetes face great constraints including limited access to food (quality and quantity) and accessing care --high medical costs.
- Disruption of food and health systems – impacting underlying and immediate determinants of health and nutrition for PLW diabetes
- Limited prioritization of NCDs and diabetes in humanitarian settings on the global , regional and national agendas
- **Need for a shifting narrative that focuses on food insecurity across the lifespan including disease-specific and sensitive interventions**.
- Simplified, cost-effective models of care needed to improve the delivery of diabetes care during humanitarian crises.

Kehlenbrink et al Lancet Diabetes and Endocrinology 2019

Limited global frameworks focusing on the intersection of food security and chronic diseases



The Cycle of Food Insecurity and Chronic Disease.

Seligman H and Schillinger D. NEJM 2010

- Associations between food insecurity and diabetes have important implications for the quality, safety, and utilization of health care
- Dietary intake and quality are key components of diabetes prevention and management
- Stress and other factors contributing to weight gain, impaired self-management capacity and understudied.

Shifting lens - Intersection of food and nutrition security with health status and chronic diseases

- Current interventions and frameworks for nutrition sensitive and nutrition specific interventions are focused on maternal and child health.
- Need to develop and examine impact of multisectoral (direct health care and indirect health care interventions) affecting NCD & diabetes management in conflict-affected settings and emergencies
- Expand our definitions of how we assess vulnerability and then target social safety net programs and food assistance programs aimed at PLW with chronic diseases.

Nutrition-specific interventions

Nutrition-sensitive interventions

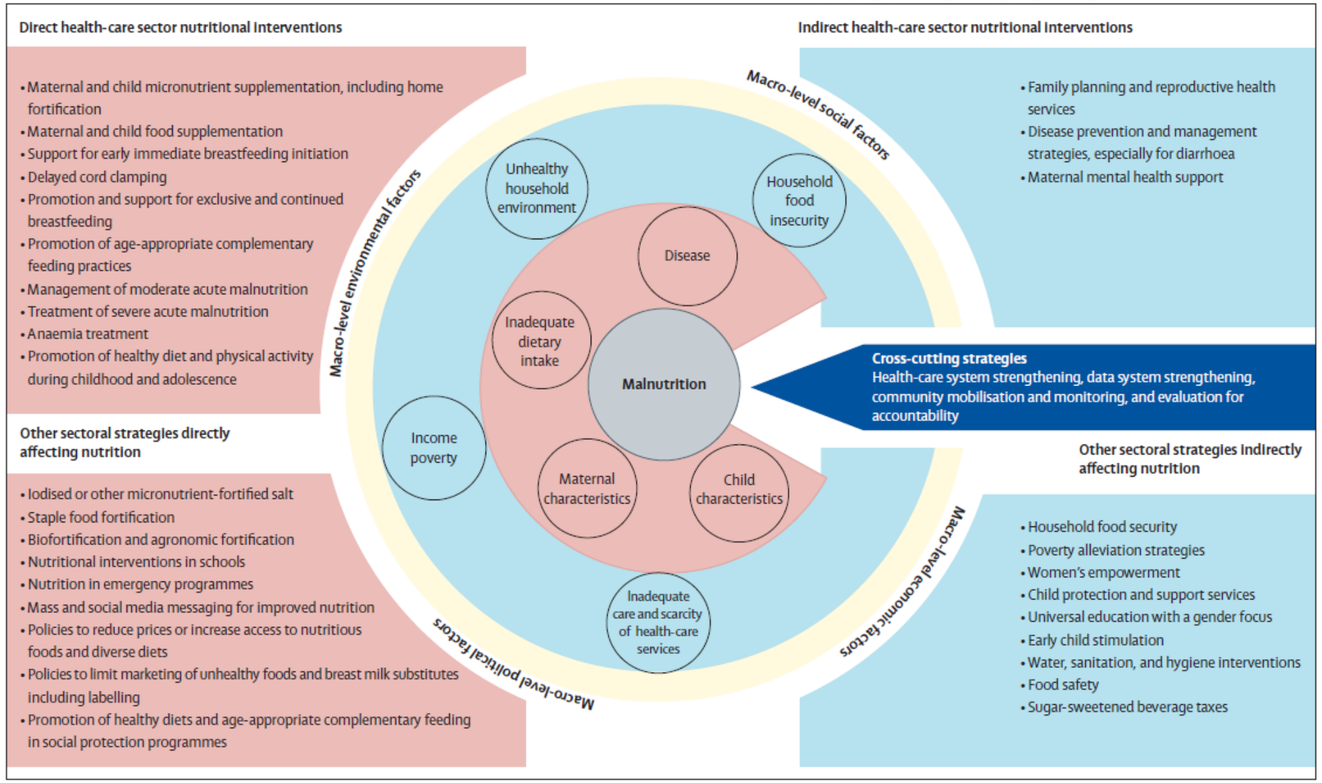


Figure 1: **Revised framework for the classification of nutrition actions**

Keats et al Lancet Child & Adolescent Health 2021

Other Gaps in Guidelines for Diabetes Management in Humanitarian Settings

- Food insecurity and nutrition needs to be positioned within recommendations for diabetes prevention and management in crises.

TABLE 2. Recommendations for Diabetes Management During Humanitarian Crises

Short Term (Days to Weeks)
Systematically identify patients with type 1 diabetes and prioritize insulin for this group.
Prioritize diabetes care for other vulnerable populations (pregnant women, the elderly, and those with complications from diabetes).
Ensure continuous access to essential medications.
Ensure that health centers and emergency kits are equipped with essential diabetes medications and diagnostic supplies. (See Table 1.)
Train humanitarian health care workers to handle insulin administration and diabetes emergencies.
Provide diabetes education for patients with a focus on hypoglycemia, sick-day guidelines, and medication management.
Long Term (Weeks to Months)
Ensure continuous access to essential medications.
Ensure that health centers have essential medications, supplies, and laboratory testing for A1C, lipids, creatinine, and microalbumin.
Provide comprehensive care for diabetes, hypertension, and CVD in primary health centers.
Provide comprehensive and culturally appropriate diabetes education for patients and their families.
Build local capacity by training HCPs on diabetes care.
Include access to insulin and diabetes care in national emergency response plans.
Further develop clinical guidelines for diabetes care during humanitarian crises.

Khan et al 2019

“Blind spots” of diabetes management

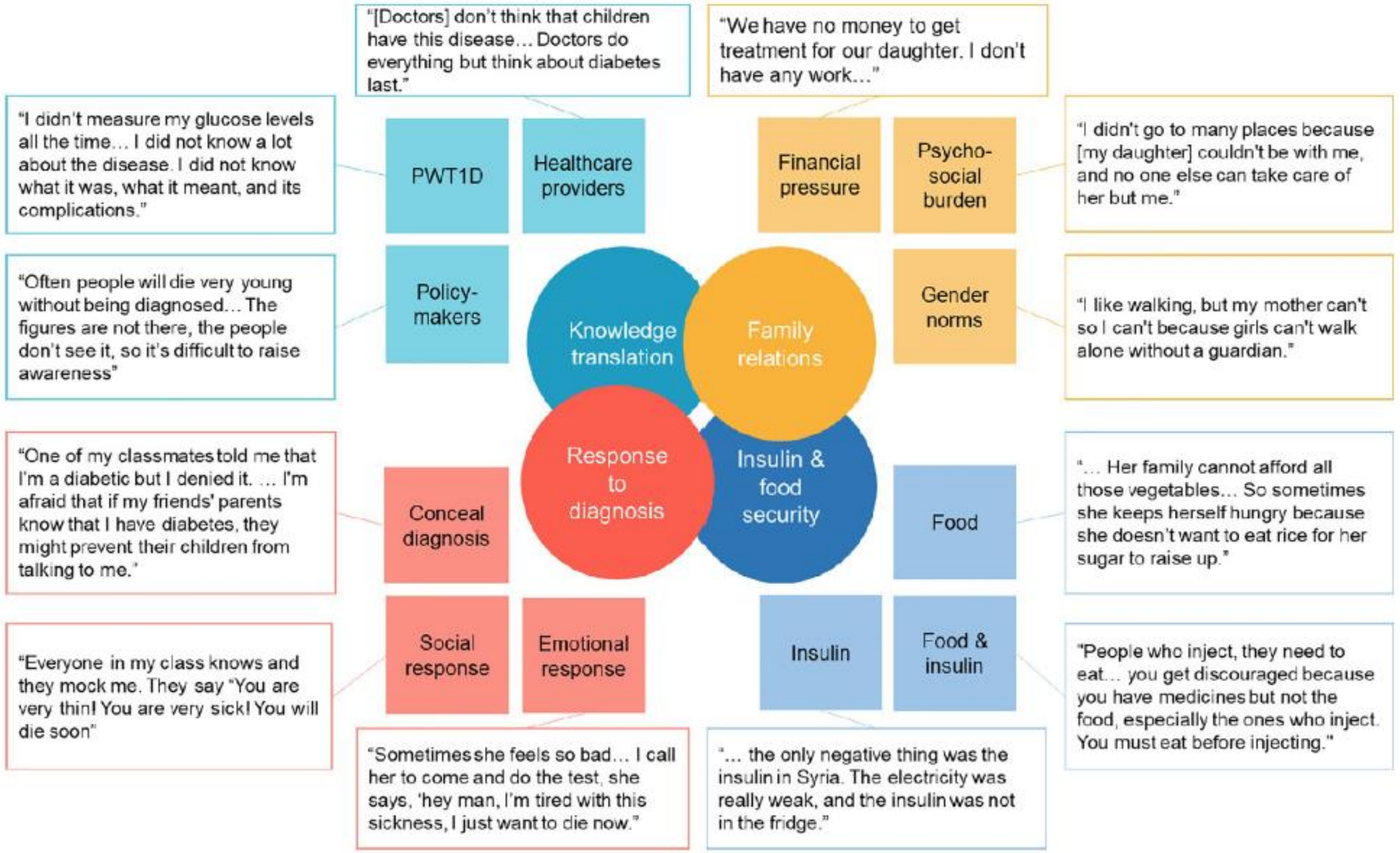


Fig 2. Illustrative quotes from thematic analysis.

https://doi.org/10.1371/journal.pgph.0003027.g002

James et al 2024

Research and Evidence-based Practice Gaps

- Traditional food assistance modalities and cash transfer programs in humanitarian contexts need to consider other forms of malnutrition (overnutrition/NCDs and other micronutrient deficiencies)

- Possible food assistance adaptations for chronic diseases: vouchers for specific foods, diabetes-sensitive food baskets, or conditional food/cash packages that prioritize low-glycemic options and more stable meal patterns.

- Research on context-specific dietary interventions needed including impact of conditional and unconditional cash and “cash plus” (SBCC tailored for chronic disease management) on health outcomes.

Lash et al 2023 Frontier Public Health doi: 10.3389/fpubh.2023.1035554

Cash transfer Programs – Evidence and Gaps

- Cash transfers are overall positive.
- Minimal studies focused on diabetes (glucose monitoring and related outcomes).
  - Combined conditional cash and health education shown to be effective in improving expenditures, health service utilization, medication adherence, blood pressure, and diabetes control amongst Syrian refugees in Jordan (Lysles et al 2021)
- Few studies reporting potential negative or unintentional effects of cash transfer programs.

Table 3 Qualitative data analysis

	Abu-Hamad *et al.* 2014[29]	Falb *et al.* 2020[36]	Freccero *et al.* 2019[37]	Gros *et al.* 2019[40]	Hagen-Zanker *et al.* 2018[41]
Country	Palestine	Syria	Afghanistan; Cameroon	Bangladesh	Jordan
Humanitarian setting	Man-made crises	Man-made crises	Man-made crises	Environmental	Man-made crises
Mental health					
Financial security	x	x	x		x
Personal security and autonomy			x		
Mental well-being		x		x	
Access to Health					
Cost of healthcare	x				x
Logistics and physical accessibility	x				x
Challenges of cash transfers					
Financial dependence and insecurity	x	x			
Exploitation and harm			x		
Logistic challenges			x		
Social stigma	x		x		
Sexual health			x		

van Daalen KR 2022

Research and Evidence-based Practice Gaps (Cont')

- Rigorous **comparative research** needed for different cash modalities (unconditional cash transfers vs conditional cash transfers and cash plus) – **on specific diabetes and NCD related outcomes and health care costs**
  - Unconditional cash transfers and vouchers improve or maintain household food security and improve household savings in crises – lead to better dietary diversity and food quality.
  - Efficiency: UCTs are cheapest per beneficiary, followed by vouchers, then food aid
  - What about cost effectiveness? health care cost savings that go beyond the efficiency of the operations.

Doocy and Tappis 2017, van Daalen KR 2022

Other Research Gaps & Opportunities

- Patient-centered research on barriers, stigma, and psychosocial needs warranted – qualitative work exists but more mixed-methods studies are needed.
- Studies on community engagement strategies can enhance efforts to build trust and cooperation with local populations, thereby improving the relevance and acceptance of humanitarian interventions.
- Psychosocial stress and stigma, and low health literacy reduce engagement with self-management and adherence to diabetes management.
- Targeted family and community-based interventions to enable better diabetes coping and management in humanitarian settings.
- Diabetes distress as an understudied phenomenon in humanitarian settings.

James et al. PLOS Global Health 2024; James et al Conflict Health 2025

Considering challenges with research in humanitarian settings – balancing practicality and rigor

- Inherent challenges in humanitarian settings pose unavoidable threats to evidence generation
  - Shift in research mindset to match aspirations with practicality
  - Research collaborations (academia, implementing agencies, community members) needed at the inception of projects – co-production and co-creation of research studies that examine real-life challenges
  - Building long term collaborations and trust takes time.
  - Balance the conventional level of research evidence considering resource-intense constraints (HR, time, cost) and consider adapted research tools, methods, and procedures.

Asgary et al. Prev Med 2022

Concluding Remarks