A Systems-Informed Framework for Integrating Obesity and Lifestyle-Related NCD Prevention into Universal Health Coverage: Insights from Nepal

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Background

NCD Burden

71% of all deaths in Nepal are due to NCDs.

❤️ Diabetes
🫀 Cardiovascular disease
🧠 Stroke
🫁 Chronic respiratory disease.

(WHO 2024)

Double burden still exists

⬇️ **Undernutrition persists**

⬆️ **Overweight & obesity are increasing**

Urbanization & Food System Transition

🏙️ **Urbanization**

🛵 **Food delivery**

🥤 **Ultra-processed foods**

📺 **Food marketing**

🚗 **Sedentary lifestyles**

Universal Health Coverage is expanding

🏥 **Primary health care strengthening**

👩 **FCHV network**

⚕️ **Essential health services**

Nepal is experiencing a nutrition transition where persistent undernutrition coexists with rapidly increasing obesity and NCDs. Universal Health Coverage provides a strategic opportunity to shift from treatment-focused care toward integrated prevention across the life course.

The Problem

Predominantly treatment-oriented health system

Limited integration of nutrition and NCD services

Prevention receives less attention

Weak multi-sectoral coordination

The challenge is not simply delivering more healthcare, it is aligning UHC with the upstream system drivers that shape obesity, nutrition, and NCD risk.

Framework Development Process

Study Objective

Develop a systems-informed framework for integrating obesity and lifestyle-related NCD prevention into UHC in Nepal.

Development Process

- Study objective
- Systems thinking approach
- Developed causal loop diagram
- Evidence synthesis
- Identified feedback loops & Leverage Points
- Translated into policy-oriented UHC framework

Why System Thinking

Multiple determinants interact

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System interactions & complexity

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Reinforcing feedback loops

↓

Single interventions are insufficient

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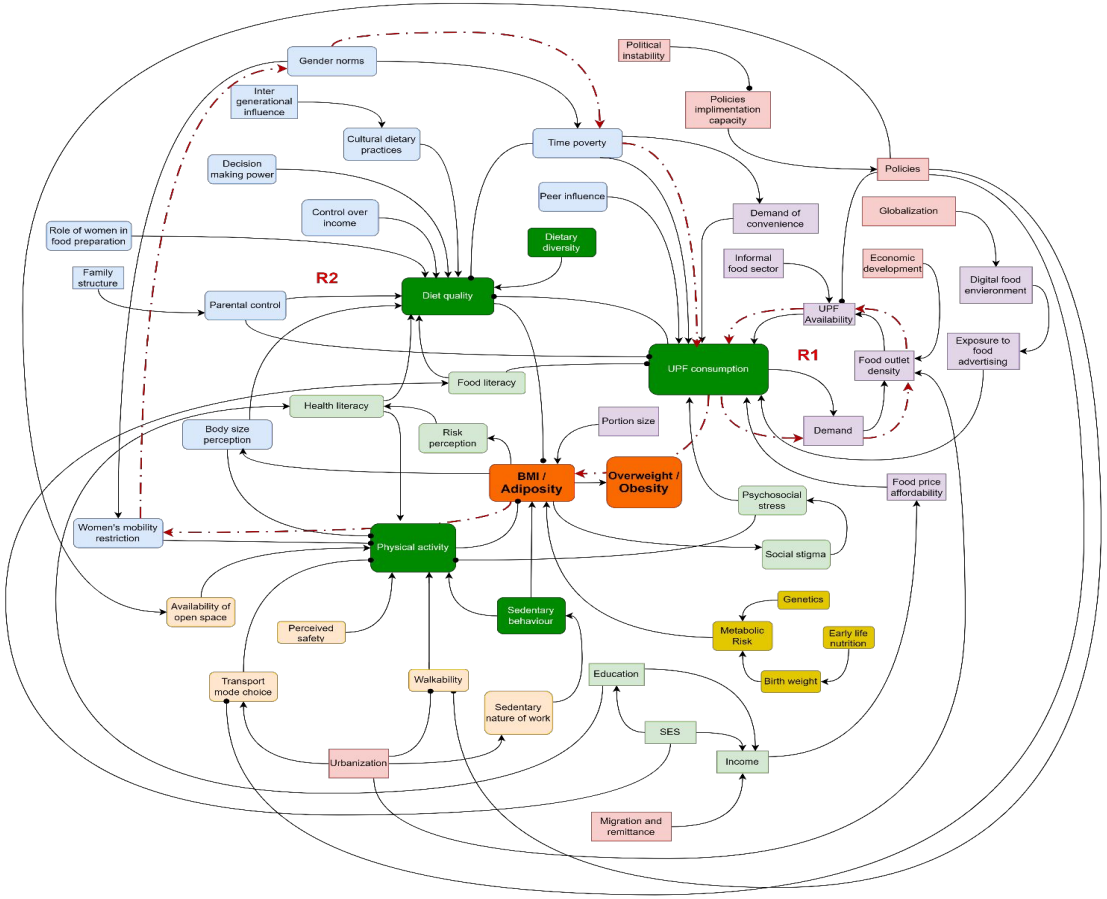
Systems thinking identifies leverage points

Systems thinking identifies leverage points for integrated prevention within Universal Health Coverage.

Obesity System Map in Nepal



Legend:

- Outcome variables
- Behavioral factors
- Food sytem
- Structural/Macro-level
- Biological factors
- Individual/psychosocial factors
- Built environment
- Social & family factors
- **Positive (+),** change in same direction
- **Negative (-),** change in opposite direction
- **Reinforcing loop** (self-amplifying feedback cycle)

The diagram represents a causal loop system showing interactions between multi-level determinants of overweight and obesity.

Key System Insights

1. Food Environment & Commercial Drivers

→ UPFs, marketing, and affordability drive unhealthy diets

2. Urbanization & Lifestyle Change

→ Sedentary living and changing food access increase obesity risk

3. Social & Psychosocial Influences

→ Stress, time poverty, and social norms shape behaviour

4. Reinforcing Feedback Loops

→ Obesity is sustained by self-reinforcing system dynamics

5. Prevention Leverage Points

→ Opportunities exist across health services, policy, and multisectoral action

System dynamics reveal leverage points for integrated UHC action.

When UHC falls short

- UHC focuses mainly on downstream treatment.
- Prevention opportunities identified by the system are underused.
- Health services are not integrated across the life course.
- Upstream determinants (food environments, urbanization, governance, commercial influences) remain largely outside the health response.

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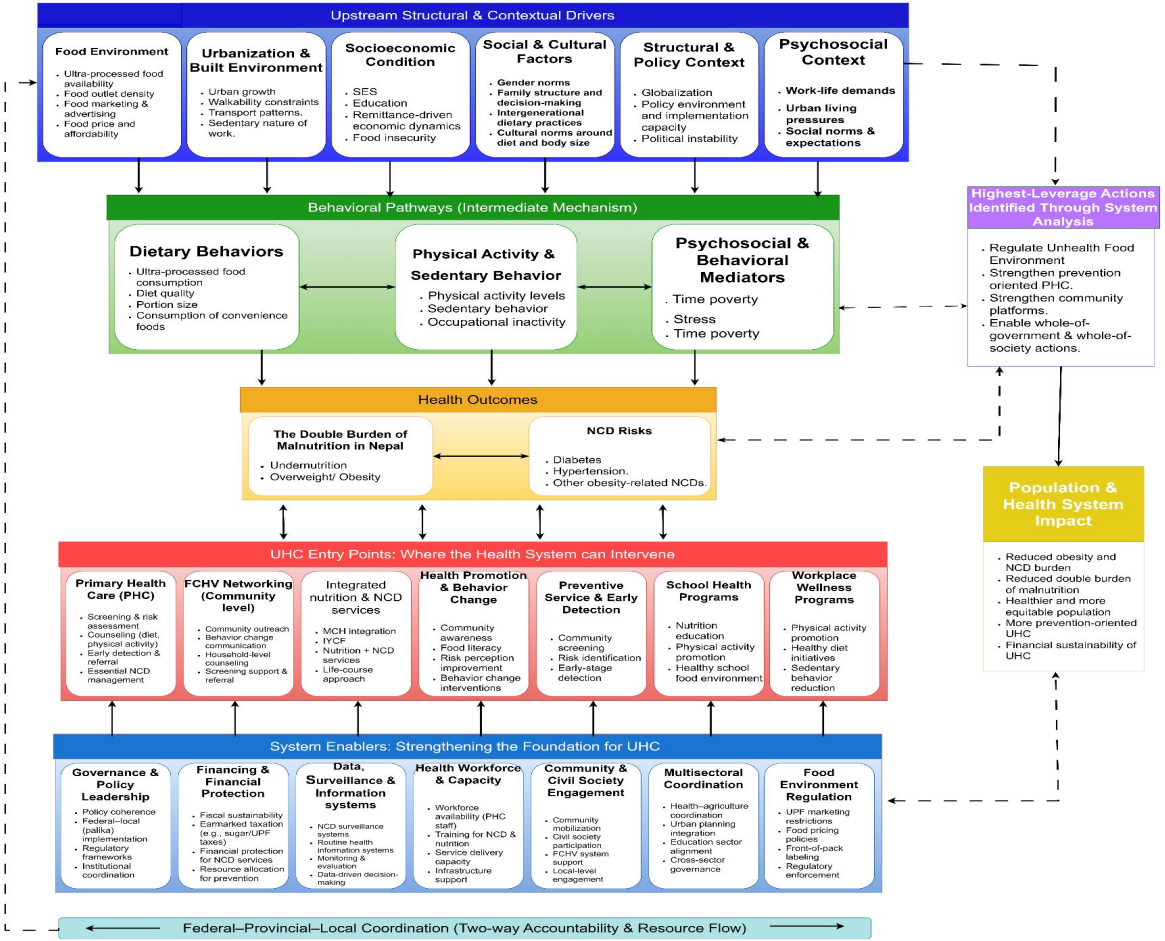
Translated from Causal loop analysis of obesity system dynamics in Nepal



Proposed Framework

Policy Implications for UHC in Nepal

The framework suggests that UHC should move beyond treatment-focused care by:

- Strengthening prevention-oriented primary health care
- Integrating nutrition and NCD services across the life course
- Regulating unhealthy food environments through multi-sectoral policy action
- Leveraging Nepal's FCHV network and community platforms
- Strengthening governance, surveillance, sustainable financing and multisectoral coordination to support long-term prevention.

Strength & Limitations of Framework

Strengths

- Integrates systems thinking with UHC implementation.
- Reflects Nepal's contextual determinants.
- Identifies actionable leverage points.

Limitations

- Conceptual framework derived from system mapping.
- Developed through evidence synthesis and causal loop analysis rather than prospective implementation evaluation.

Take Home Message

- Obesity is a systems problem.
- UHC should integrate prevention with treatment.
- Systems thinking translates complexity into actionable UHC strategies.

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THANK YOU

Any Questions?