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System Dynamics of Non-Communicable Diseases (NCD) Prevention, Diagnosis and Control in Greater Beirut – Lebanon: An Analysis using Group Model Building (GMB)

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Introduction

- Lebanon is facing substantial NCD burden with continuous challenges in implementing prevention strategies and in providing adequate care to all communities through its fragmented health system.
- These challenges arise from the complex nature of NCD care provision that requires long-term follow-up within supportive health and community systems.
- The dynamics of those systems around NCD prevention and control need to be studied in order to identify their ways to strengthen systems (leverage points)
- This study elaborates a comprehensive model exploring the complexities in preventing and managing NCD in the urban region of Greater Beirut, Lebanon.

Methods

- Systems modelling methodology using 34 semi-structured interviews and 3 Group Model Building (GMB) workshops with health providers, Lebanese community members and Syrian refugees residing in Greater Beirut.
- Interview data was analysed using a thematic analysis approach and causal loop diagrams were elaborated using Vensim software.

Results

- Causal loop diagrams developed by participants and interview data revealed causal linkages between a challenging socio-political environment in Lebanon and increased NCD risk exposure (pollution, tobacco use, physical inactivity).
- Health-seeking behaviour among communities is triggered by the occurrence of NCD symptoms (severe ones in major cases) rather than by the need to ask for counselling about healthy living or NCD screening options.
- Health-seeking is influenced by the financial affordability of NCD care – which remains very challenging especially among people without formal health coverage – and trust in selected providers (like the NGO sector).

- Determinants of NCD control include providers' skills (such as their training levels and communication skills) but also patients' motivation and health literacy (to understand the importance of disease control in reduction of disability and premature mortality) as well as current health system policies (like the absence of a personal gatekeeper to provide continuous NCD care).
- Participants identified key leverage points in their models, including individuals' economic situations, health coverage, health providers' capacities and Lebanon's governance features.

Conclusion

- Systems modelling seems promising to investigate the prevention and control of complex disease categories like NCD.
- Our research work resulted in models that provide an overview of health and community systems' features and allow the identification of needed actions.

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