

Title: Community-based management of non-communicable disease in Nepal (COBIN): Center of excellence in community-based NCD research

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Background: Non-communicable disease (NCD) constitutes Nepal's major public health problem, accounting for 66% of total deaths and 59% of disabilities in Nepal. However, we lack high-quality evidence on the burden and appropriate strategies to address these problems. Nepal has pioneered in successfully implementing community-based public health initiatives by mobilizing facility-based community health workers and Female Community Health Volunteers particularly related to maternal and child health over the past 25 years. However, little effort has been made on what type and level of services they can provide for NCDs. To fulfill this gap, we have established community-based management of non-communicable diseases in Nepal (COBIN) project since 2013. The objectives of this project are a) to conduct high-quality epidemiological studies on NCDs and their risk factors, b) to design and evaluate high-quality cluster randomized trials on NCDs, c) to explore the cost-effective & sustainable intervention for NCD management in a low-resource setting, and d) to build the capacity of Nepali health science researchers.

Methods: We conduct periodic surveys in our cohort located in the Kaski district using survey questionnaires, physical measurements, and biochemical analysis. We use these data to study the epidemiology of NCDs and their major risk factors. After assessing the burden of the problem, we design and implement a community-based intervention to prevent and control such diseases and their risk factors using an implementation research approach.

Conclusion/Perspectives: We successfully completed hypertension, diabetes, cervical cancer, and chronic obstructive pulmonary disease (COPD) trials. All trials showed that community-based interventions effectively reduce blood pressure and blood glucose, enhance cervical cancer screening uptake, and improve the knowledge and quality of life of people living with COPD. We are promoting evidence-based decision-making through epidemiological and interventional studies to prevent and control NCDs, contributing to convergence into sustainable development goals & universal health coverage.

Keywords: Hypertension, Diabetes, COPD, Cervical Cancer, risk factors, Nepal

Table 1: Number of participants in COBIN Cohort

| Projects | Number of Participants |
|-------------------|------------------------|
| COBIN Wave I | 2815 |
| COBIN Wave II | 2310 |
| COBIN Wave III | 2360 |
| COBIN Wave-C | 729 |
| COBIN Wave-P | 1459 |
| COBIN-Salt Survey | 451 (Completed) |
| COBIN-H Trial | 1638 (Completed) |
| COBIN-D Trial | 244 (Completed) |
| COBIN-C Trial | 690 (Completed) |
| COBIN-P Trial | 1143 (Completed) |



Figure 1: Female community health volunteers providing health education on the prevention and management of COPD in the community.