

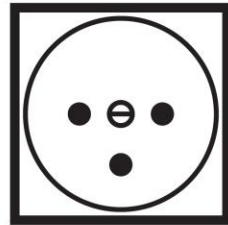
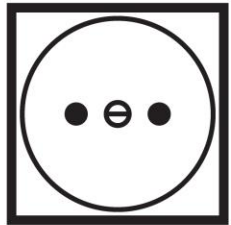
# Scaling up structured lifestyle interventions to improve the management of cardiometabolic diseases in low- and middle-income countries: A systematic review of strategies, methods, and outcomes

**Authors:** Abha Shrestha<sup>1,2,3</sup>, Lu Yang<sup>1,2,4</sup>, Getu Debalkie Demissie<sup>1,2</sup>, Rolina Dhital<sup>5</sup>, Jeemon Panniyammakal <sup>216</sup>, Ganeshkumar Parasuraman<sup>7</sup>, Sabrina Gupta<sup>1</sup>, Biraj Karmacharya<sup>3</sup>, Kavumpurathu R Thankappan<sup>8</sup>, Brian Oldenburg<sup>1,2</sup>, Tilahun Haregu<sup>1,2</sup>

1. School of Psychology and Public Health, La Trobe University, Melbourne, Australia
2. Baker Heart and Diabetes Institute, Melbourne, Australia
3. Kathmandu University School of Medical Science, Dhulikhel Hospital, Dhulikhel, Nepal
4. School of Sociology and Population Studies, Nanjing University of Posts and Telecommunications, China
5. Health Action and Research, Nepal
6. Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, India
7. ICMR - National Institute of Epidemiology, Chennai, India
8. Amrita Institute of Medical Sciences, Kochi, India

We declare no conflict of interest.

# Background



## Structured Lifestyle Interventions (SLIs) to prevent and control Cardiometabolic diseases (CMDs) – an urgent agenda

- CMDs- predominant cause of NCD-related death.
- SLIs- Capacity building group-based, patient-centred education sessions that support individuals, family members, and caregivers.
- Proven effective through randomized controlled trials
- Cultural, language, and people to fit adaptation

# Scaling up structured lifestyle intervention and gap

”Deliberate efforts to increase the impact of successfully tested health innovations to benefit more people and to foster policy and program development on a lasting basis”

(WHO)



The challenge lies in scaling up in LMICs



What strategies work?



What methods can be used to assess for the better outcome of the scale-up implementation study in LMICs?



# Objective

- To identify the strategies, methods and outcomes used in scaling up Structured lifestyle programs to improve cardiometabolic outcomes in LMICs



# Methodology

**Implementation scale-up strategies:** delivery approaches enhancing an intervention's adoption, implementation, and sustainability.

**Methods:** implementation scale-up theories, models, and frameworks (TMFs) guiding the process implementation scale-up.

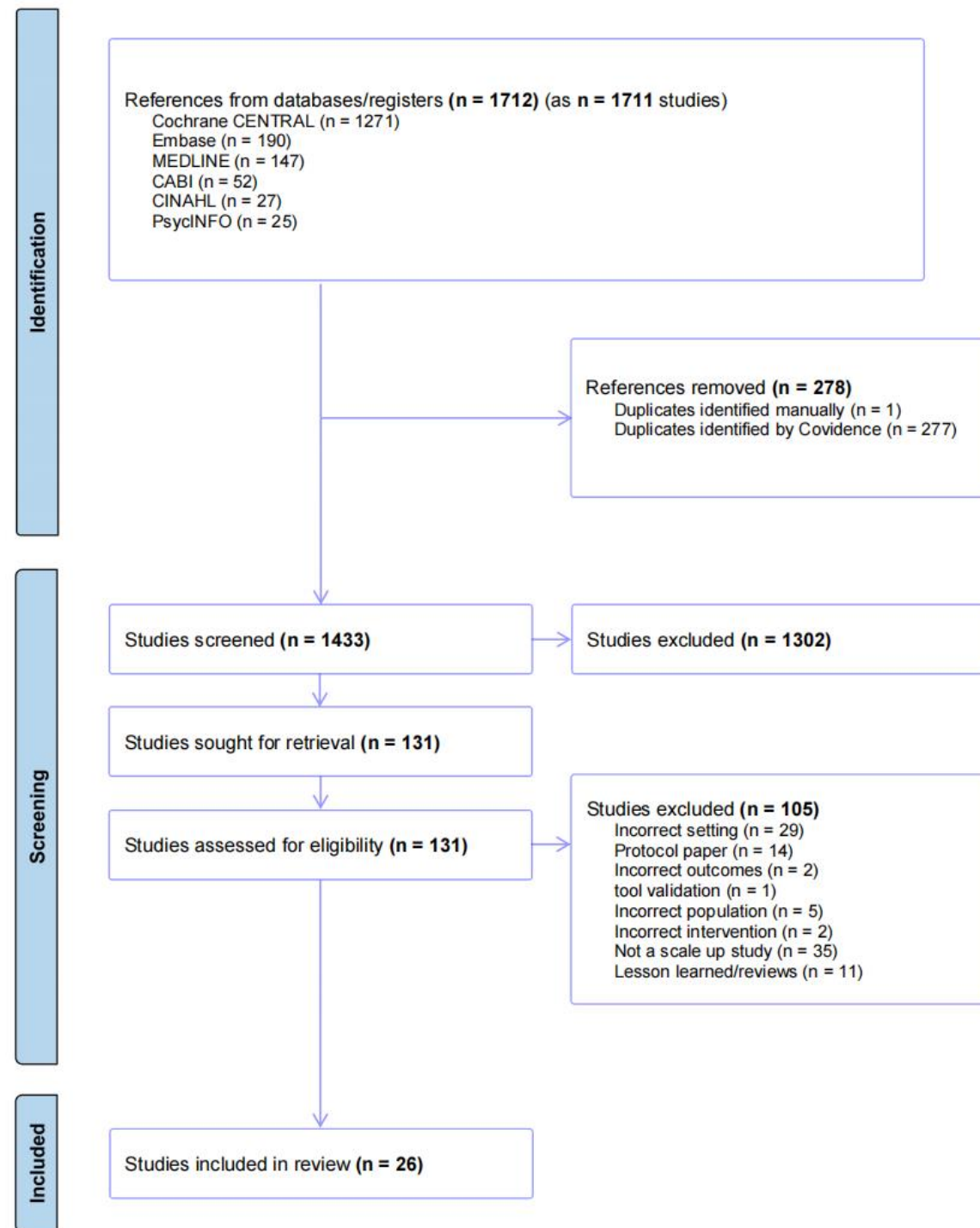
**Outcomes:** Proctor et al.'s taxonomy, feasibility, fidelity, and integration, success determinants, and challenges.

Registered with PROSPERO (ID: CRD42023416974).

# Methodology- PRISMA Guideline

| Database         | Framework                                       | Inclusion criteria  | Exclusion Criteria  |
|------------------|---|---|---|
| Medline          | <b>Setting:</b><br>Community                    | <p>All published studies that conducted scale up assessments on the structured lifestyle intervention for the prevention and control of cardiometabolic diseases</p> <p><b>Setting:</b> Low- and middle-income countries</p> <p><b>Time:</b> no restriction on time</p> <p><b>Studies:</b> randomized controlled trials (RCTs) and quasi-experimental, comparative, observational, longitudinal, and mixed-method studies</p> | <p>Not in the English language</p> <p>Case studies, commentaries, letters, perspectives, viewpoints, editorials, review papers and systematic reviews</p> |
| CINHAL           | <b>Perspective:</b><br>Cardiometabolic diseases |   |   |
| EMBASE           | <b>Intervention:</b><br>Structured Lifestyle    |   |   |
| CABI             | <b>Comparison:</b><br>usual care                |   |   |
| PsycInfo         | <b>Evaluation:</b> Scale up                     |   |   |
| Cochrane Library |   |   |   |

# Methodology



# Methodology

**Quality assessment:** the Cochrane risk-of-bias, National Institutes of Health, and Joanna Briggs Institute tools.

**Certainty of Evidence:** Grading of Recommendations Assessment, Development and Evaluation (**GRADE**) methodology to summarize the quality of the retrieved studies.

Given the heterogeneity of the outcome measures, we conducted a narrative synthesis of the extracted information.



# Results

---

Effectiveness  
study=12

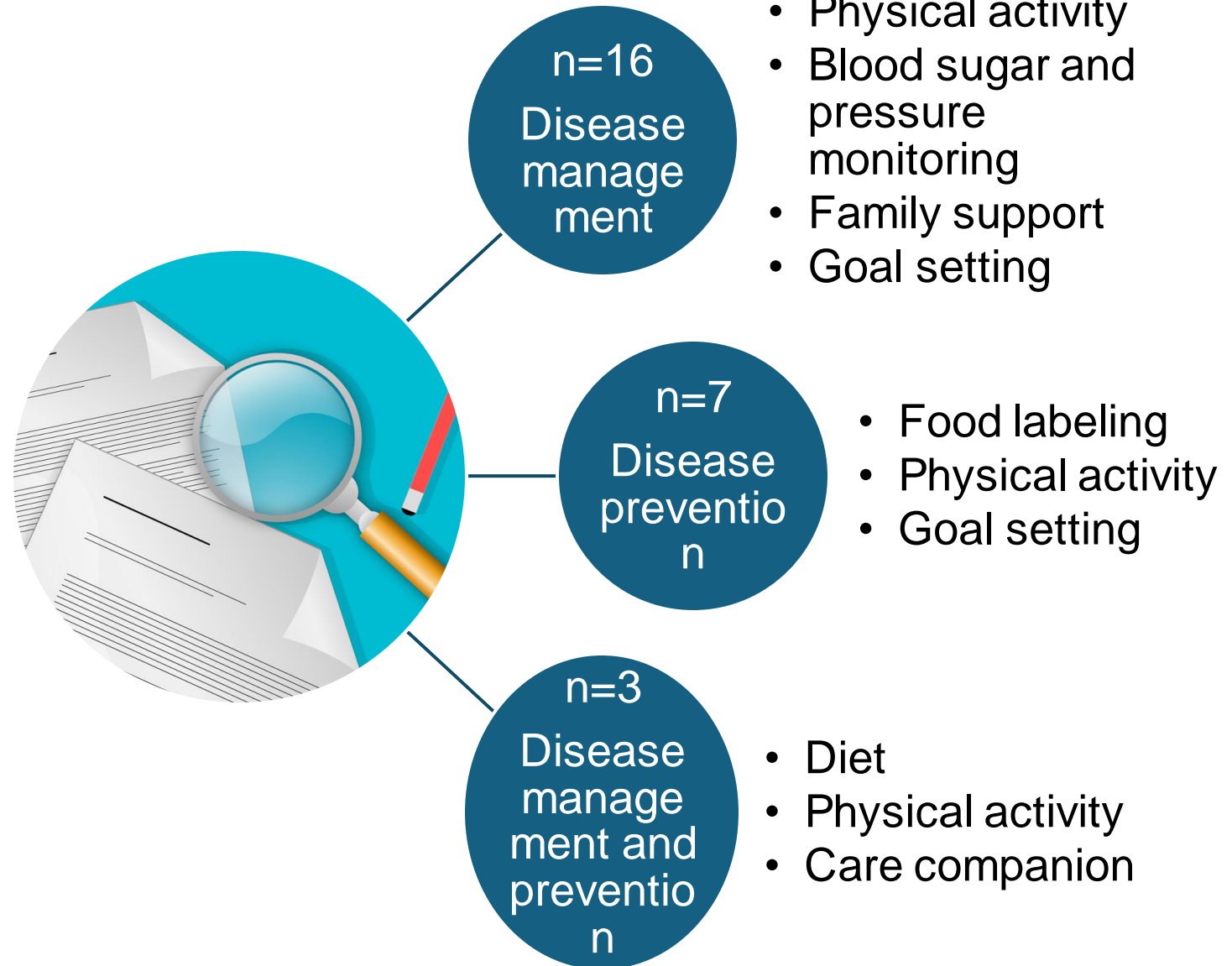
---

Hybrid type 1 =6  
Hybrid type 2= 1  
Hybrid type 3= 3

---

Implementation  
study=4

---



# Results

---

Eighteen studies (69%) adapted SLI interventions to suit local contexts during scale up.

---

50% were implemented through government and non-governmental organizations.

---

Fifteen (58%) reported the feasibility of their scale-up.

---

Seven (27%) reported no significant differences in lifestyle behaviors or CMD biomarkers.

---

Strategies: system integration, strengthening facility services, providing incentives, and training led to up to 100% attendance of participants.

---

Four (15%) utilized methods for the full scale-up process

---

## Strategies

- **Adaptation**
  - Modified- language
  - Health literacy
  - Considered background of trainers
  - Food and culture
- **Delivery**
  - Local NGO
  - National/Province/State government
  - Mothers and neighbors
  - Association and civil society
  - Social welfare
- **Others:**
  - Free for members
  - Glucometer and BP machine
  - Prescription by nurse
  - Free medications
  - Kitchen garden, Yoga, walking groups
  - Mobile messaging
  - Door to door screening
  - Providing lunch
  - Involving all family members

## Methods

- RE-AIM Framework
- MRC guideline and taxonomy of implementation outcome
- Detsky and Naglie cost-effectiveness analysis
- World Hypertension League monitoring and evaluation framework
- T5 instructional design model

## Outcomes

- **Feasibility**
  - Wide reach- through peer led- 15000 trained- 375000 educations
- **Fidelity-** recruitment, retention rate was high among the studies implemented with state/health system
- **Integration:**
  - State/health system-owned interventions
  - The trained providers implemented high retention rate 63%- 100%
- **Success:**
  - System integrated
  - Association, NGOs engagement
  - Adapted by local activities
  - Relevant language and culture-based information
- **Challenges**
  - Shortage of providers
  - Resources-out of stock
  - Low enrollment of male participants

## **Summary of the implementation strategies**

- Adaptation of the intervention and implementation strategies to the local context.
- Strong stakeholder engagement.
- Co-designing the scale-up process with key stakeholders.
- Intervening through community structures.
- Integrating the intervention into the health system.
- Strengthening the capacity of community health workers to implement SLI at the community level.
- Training and deploying peer leaders, volunteers, and other lay health workers.

# Conclusion

- **Developing good strategy:**
  - Early engagement of the community and local stakeholders.
  - Readiness assessments, adaptation of SLIs to the local context
- **Improved fidelity and effectiveness:**
  - Engaging family and community at the beginning of the study.
  - Training the providers and community volunteers
- **Improved retention:**
  - Mobile texts or other media, strengthening facility services, and access to medicine and bringing service close to their doorsteps



# Conclusion

- **Integration with successful outcomes:**
  - Integrated into an existing health system
  - Public-private partnership approach
- **Gap remains:**
  - Only 1 in 6 studies documented studies using frameworks -> crucial for policymakers and implementers
- **Use of a suitable framework** is recommended to guide the scale-up of SLIs to maximize the benefit for the population





## Brief Bio

- Dr. Abha Shrestha, lecturer at Kathmandu University School of Medical Sciences, HDR PhD candidate at La Trobe University under the School of Psychology and Public Health, Australia.
- She has a background in Community Medicine (BPKIHS), a fellow of Translational Research on Cardiovascular Diseases in Nepal (KUSMS, NHLBI), and a scholar of the Global Health Delivery, (Harvard T. H. Chan School of Public Health).
- She has a deep interest in implementation science research, community-based services in non-communicable diseases and health system strengthening and has been involved in various such projects in Nepal.