

Workshop

**Joint SEAR-WPR workshop
to plan the accelerated
implementation of
new WHO policies**

**1-4
APRIL
2025**

**Hanoi,
Viet Nam**

**Title: Nutritional Interventions
for people with TB and
their household
in LAO PDR**

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Background (1)

- National TB Programme (NTP) in Lao PDR conducted the first national TB patient cost survey in 2018-2019. Overall, 62.5% of TB affected households faced catastrophic costs, DR-TB patients (84.8%) and TB-HIV coinfecting patients (81.0%).
- The survey found one of the major cost drivers was “nutritional supplements”.
- The survey recommended systematic nutritional assessment and counselling for TB patients, such nutrition services are not provided for TB patients in this country.

Background (2)

PLOS ONE

RESEARCH ARTICLE

First national tuberculosis patient cost survey in Lao People's Democratic Republic: Assessment of the financial burden faced by TB-affected households and the comparisons by drug-resistance and HIV status

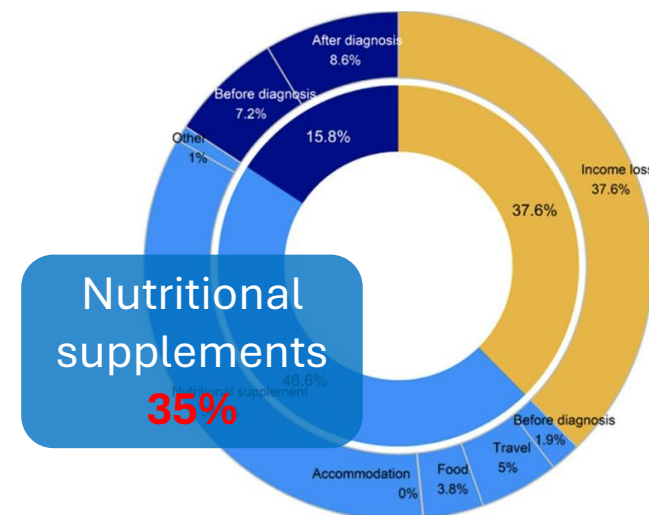
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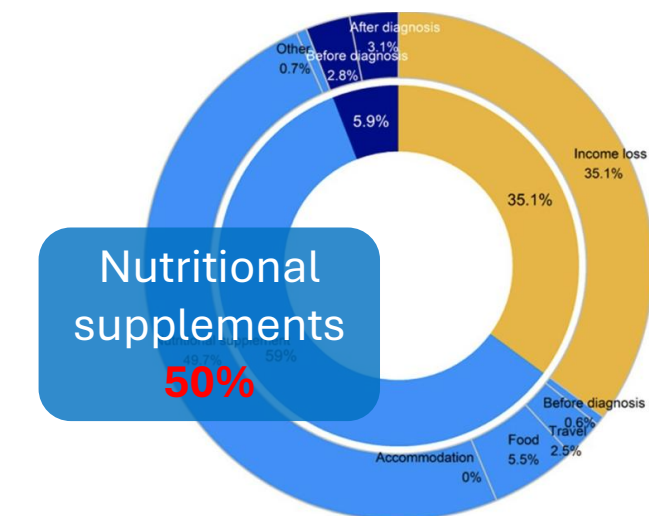


OPEN ACCESS

All national samples (n = 725)

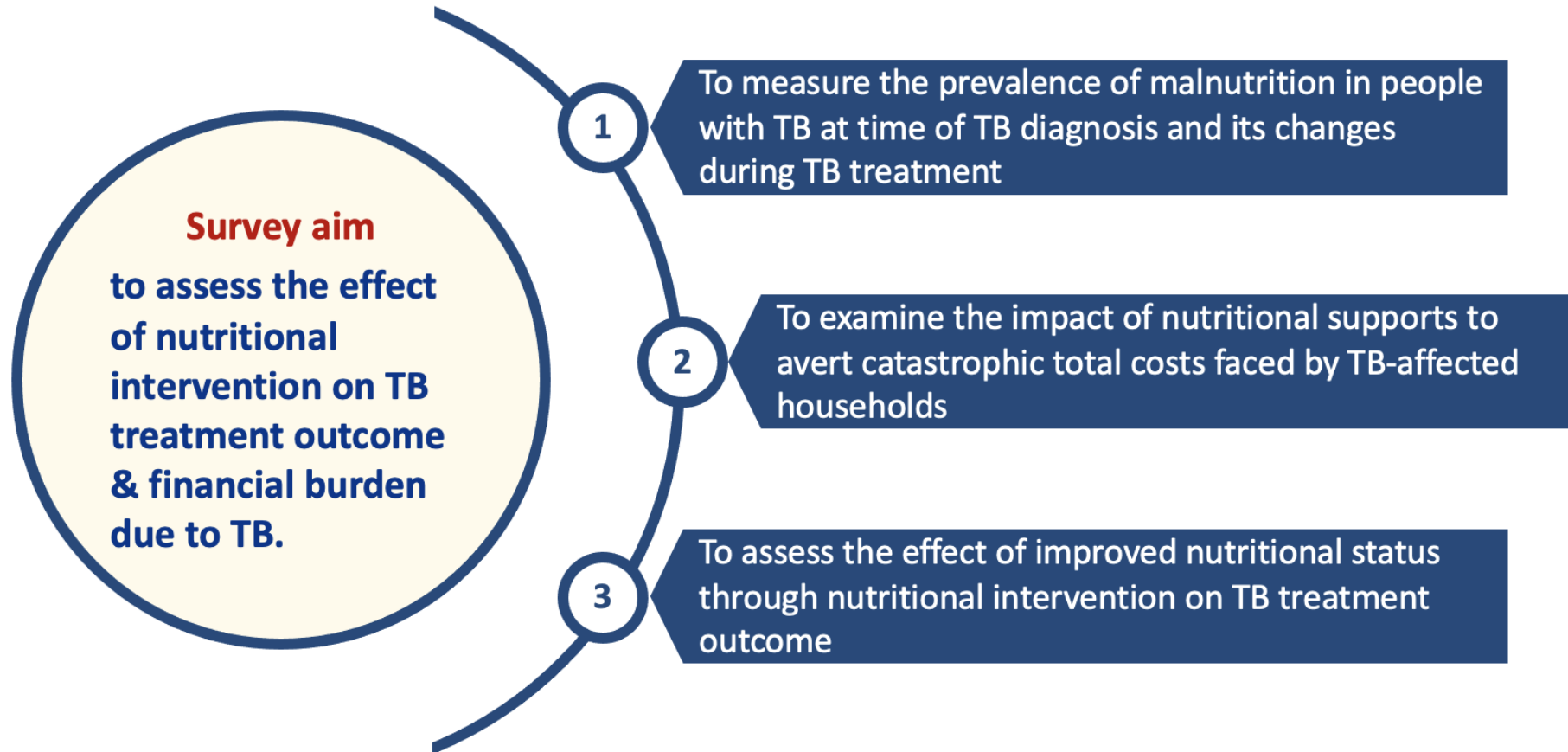


DR-TB (n = 30)



TB-nuts study: Objectives

In 2022-2023 the NTP and National Nutrition Center (NNC) conducted the TB nutrition intervention (TB-nuts) study.



TB-nuts study: Methods

Study Design

- Facility-based before-and-after trial:
- intervention starts for a cohort enrolled from 4th month

Study duration

- 15 months:
- 6 months enrolment & 9 months follow-up.

Sample size

- 325 people with TB
- 314 DS-TB: 157 for observational & 157 for intervention
- 11 DR-TB in intervention group

Data collection

- Patient costs, nutritional factors, and TB clinical information.
- Require 4 times interviews per patient.

Study site

- 6 central and provincial hospitals with a large number of TB case notifications

TB-nuts study: Intervention

Intervention:

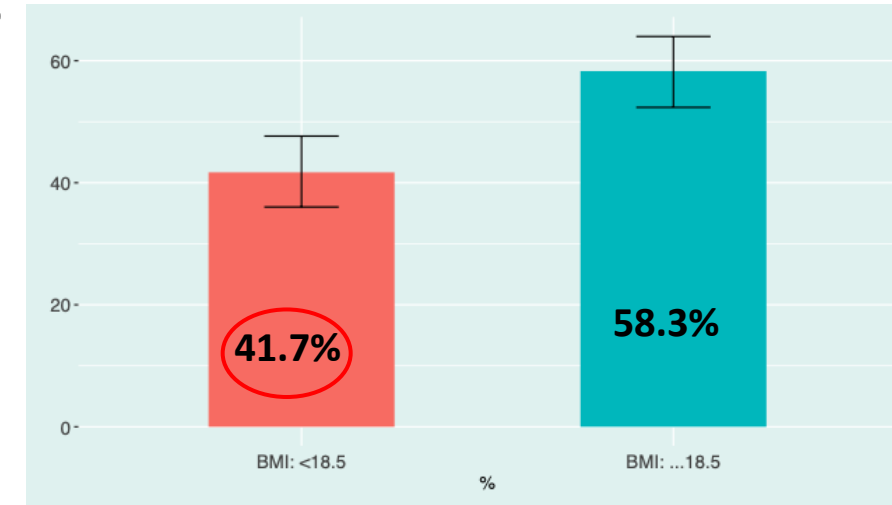
- **Nutritional counselling** by clinical dietician trained by national nutrition centre
- Therapeutic **feeding by Ready-to-Use Therapeutic Food (RUTF) such as Plumpy Nuts** for severe malnutrition ($\text{BMI} \leq 16.5$)
- **Supplementary feeding by meals, drinks, and/or snacks** for moderate malnutrition ($16.5 < \text{BMI} \leq 18.5$)



TB-nuts study: Results (1)

1. Prevalence of undernutrition in people with TB

- More than 40% of people diagnosed with TB were with BMI <18.5
- Factors associated with undernutrition were:
 - Drug-resistant TB
 - Experienced hospitalization(s) during care seeking
 - With self-reported weight loss
 - Under poverty line
- People with TB in rural area (which was not included in this study) may have a higher % of undernutrition, given its higher prevalence of undernutrition in rural area in the country.



TB-nuts study: Results (2)

2. Effect of nutritional intervention on TB treatment outcomes

- Nutritional intervention was **NOT** associated with TB treatment success rate 90.9% (intervention group) vs 90.3% (observation group).
 - Our study was not enough powered to detect the difference. This be further assessed within routine TB surveillance.
- Nutritional intervention was associated with **early BMI normalization** i.e. recovery of BMI <18.5 to BMI ≥18.5.
 - The end of the TB intensive phase, the intervention group showed a greater reduction two times compared to in the observation group.
- Factors associated with high TB treatment success were:
Sex (female), HIV negative, younger age group (<45 years)

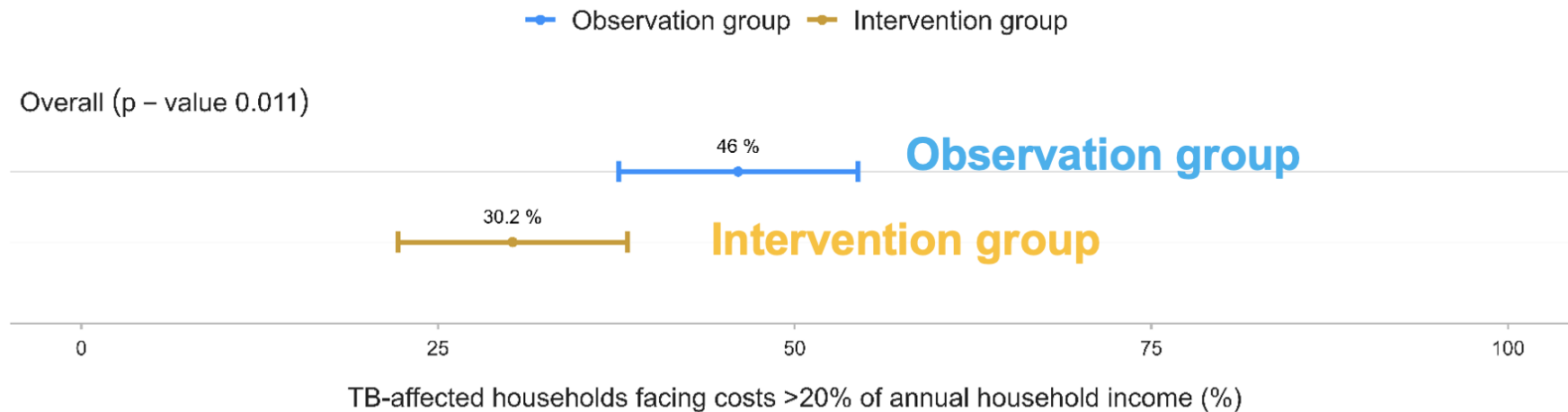
TB-nuts study: Results (3)

3. Impact of nutritional intervention on catastrophic total costs due to TB

- Intervention group had a lower costs compared to observation group:
 - Nutritional supplement after TB diagnosis: US\$ 108 vs US\$ 169 (p=0.010)
 - Total direct non-medical costs: US\$ 169 vs US\$ 251 (p=0.004)
- Income loss accounted for 65% of total costs (main cost driver)
- Factors associated with lower % of catastrophic costs were:
 - Early TB diagnosis (odds ratio: 0.48)
 - High BMI at TB diagnosis (odds ratio: 0.31)
 - **Nutritional counselling and support (odds ratio: 0.49)**
 - High household income before TB (odds ratio: 0.11)

TB-nuts study: Results (4)

- TB nuts interventions, providing nutritional assessment, counselling and nutritional support were associated with:
 - Lower nutritional supplement costs
 - Lower total direct non-medical costs
 - Lower catastrophic total costs: 30% vs 46%



- Early TB diagnosis was associated with lower catastrophic total costs

Country action plan (1):

- Include systematic nutritional assessment and counselling for people with TB and their household when updating the national TB guidelines
- Capacity building for healthcare workers to provide nutritional assessment and counselling
- Invest in necessary tools and equipment (weight and height scales)
- Ensure BMI data are recorded for all TB patients in TB DHIS2 system to monitor and evaluate the impact of the intervention

→ ↻ 📄 laos-his.gov.la/dhis/dhis-web-tracker-capture/index.html#/dashboard?tei=o7M9w3wJzZ9&program=Lt6P15ps7f6&ou=FV43JisquSm

Health Information System - Lao PDR Search apps

| | | | |
|------------------------------------|------------------|-----|------|
| Initial treatment regimen ^ | | | |
| Date of treatment initiation * | 2025-02-27 | | |
| Treatment regimen * | First line X v | | |
| First line Treatment category | X v | | |
| Expected date of treatment due | 2025-08-27 | | |
| Weight - Symptom ^ | | | |
| Weight (Kg) | 59 | BMI | 26.2 |

Date of birth * year(s) 50 [Age between Enrollment](#)

Sex * Female

Height (cm) 150

Birth province 18 PHO X

UIC * ໐໘໘໘218

Current pro 18 PHO X

Country action plan (2):

- Strengthen high-level advocacy for policy dialogue to enhance the national TB and nutritional policy and to update national strategic plan and action plan
- Implement joint interventions with national nutrition and disease programmes (e.g. nutritional assessment during household contract tracing)
- Increase collaboration and coordination with other sectors to expand social protection schemes for people affected by TB, especially for those working in informal sector
- Engage communities/CSOs to encourage TB-affected households to adopt good nutrition practices, gardening, and food security measures.
- Expand active case finding activities for early detection of TB.

Aacknowledgement

- Ministry of Health and staff at Central, Provincial or District level and particularly:
 - Department of Communicable Diseases Control (DCDC);
 - Department of Hygiene and Health Promotion (DHHP);
 - Department of Health Rehabilitation (DHR);
 - Provincial TB Coordinators and District TB managers and;
 - Nutritionists and the health care workers.
- All the TB patients who accepted to participate in this study
- WHO: headquarter (HQ), regional office (WPRO) and WHO Lao local teams for their technical support and funding

THANK YOU FOR YOUR ATTENTION