

SHAPING LEAN HEALTHCARE WITH TRAINING NEED ANALYSIS: A TOOL FOR TAILORED TRAINING IN MOH

Nur Nadia RA^{1*}, Ku Anis Shazura IP¹, Kah Yee L¹, Intan Syafinaz S¹

¹Institute for Health Management; National Institutes of Health

*Corresponding author: Nur Nadia Renu Abdullah, Centre of Organisation Excellence Development (COED); Institute for Health Management (IHM), National Institutes of Health (NIH) Complex, Jalan Setia Murni U13/52, Seksyen U13 Setia Alam, 40170 Shah Alam, Selangor, Malaysia. Email: nurnadiarenu.a@moh.gov.my / nadiarenu@gmail.com

Introduction

Over a decade, the Ministry of Health (MOH) Malaysia has implemented Lean healthcare initiatives to enhance service delivery, supported by extensive staff training in Lean. A standardized tool to assess Lean training needs within MOH is essential. This study aims to develop and validate the Lean Self-Assessment for Training Need Analysis (Lean-SATNA) tool to evaluate practitioners' understanding, needs, and competencies in Lean practices.

Methods

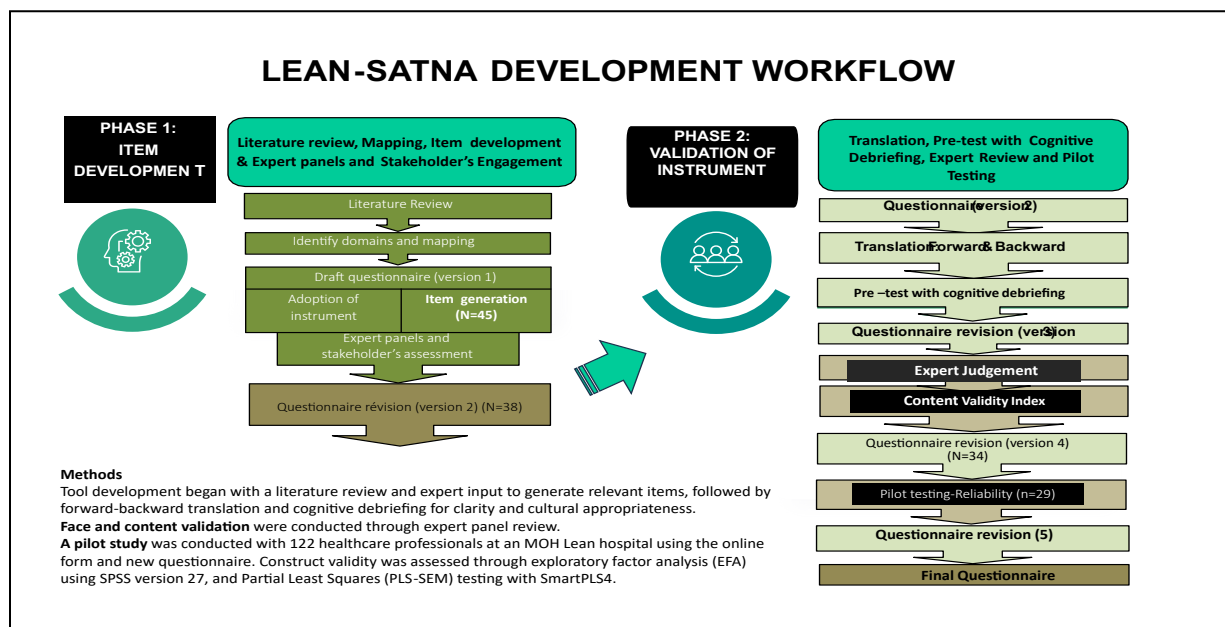


Figure 1. LEAN-SATNA development workflow

The LEAN-SATNA instrument was developed using a structured, two-phase methodology (see Figure 1). Phase 1 involved item generation through a comprehensive literature review, construct mapping, expert consultation, and stakeholder input to create relevant, context-specific items and refine the questionnaire. Phase 2 focused on validation through forward and backward translation, cognitive debriefing, and expert evaluation to ensure linguistic clarity and cultural appropriateness. Face and content validity were assessed using expert judgment and the Content Validity Index (CVI), followed by iterative revisions and pilot testing for reliability. A pilot study with 122 healthcare professionals at a Lean-accredited public hospital under MOH Malaysia assessed preliminary performance. Construct validity was examined via Exploratory Factor

Analysis (EFA) in SPSS v27, while reliability and model fit were evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4.

Results

The final Lean-SATNA tool consists of two sets of 29 items each, measuring Frequency and Importance across five domains: (1) Lifelong Learning, (2) Competency in Own Work Process, (3) Ability to Identify Problems Using Lean, (4) Values of Lean, and (5) Client Focus. Content validity indices demonstrated strong agreement ($I-CVI \geq 0.78$; $S-CVI/Ave = 0.95$). EFA and PLS-SEM modeling showed robust internal consistency with high corrected item-total correlations. Reliability testing revealed excellent consistency (Cronbach's alpha: 0.96 for Frequency; 0.97 for Importance). For TNA-A (Frequency), Average Variance Extracted (AVE) exceeded 0.5, Cronbach's Alpha ranged from 0.877 to 0.956, and Composite Reliability from 0.916 to 0.959, indicating excellent reliability. TNA-B (Importance) showed stronger results with an AVE of 0.607, Cronbach's Alpha between 0.926 and 0.974, and Composite Reliability from 0.948 to 0.976, all exceeding recommended thresholds. The outer loadings of all indicators exceeded 0.70, confirming strong indicator reliability. Additionally, the AVE values for all constructs were above 0.50, indicating good convergent validity.

Discussion

The Lean-SATNA is a valid and reliable tool for identifying Lean-related training needs in MOH healthcare settings. Its strong psychometric properties support targeted training interventions. Well-developed and validated questionnaires will be successful in collecting accurate facts and opinions. Further studies are recommended to explore its generalizability and long-term impact.

Keywords: Lean, Training Need Analysis, reliability, validity