

# Translation And Validation Study Of The Bahasa Malaysia Version Of Lower Extremity Functional Scale (LEFS)

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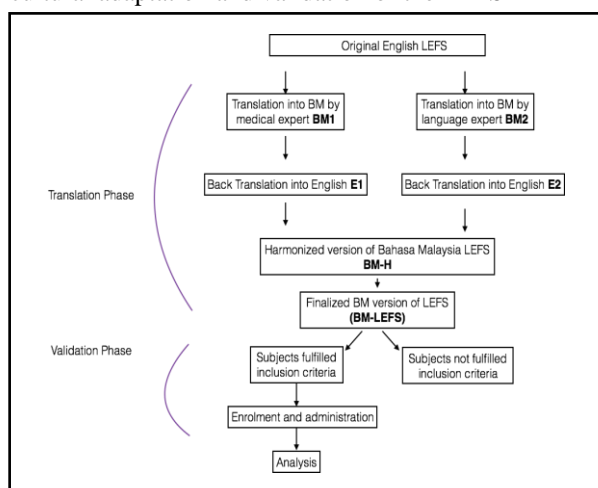
## INTRODUCTION:

LEFS is a self-report measure of lower limb functional status<sup>1</sup>. It has been translated in various languages and broadly used across the globe as a research tool to measure broad spectrum of lower-extremity orthopaedic problems. This is due to the fact that it's convenient and practical to administer easy to administer and score. To date, there is a lack of questionnaires in Bahasa Malaysia to evaluate patient-reported lower limb function following orthopaedic injuries, either in clinical or research settings. The purpose of this study is to translate and culturally adapt the Lower Extremity Functional Scale (LEFS) into a Bahasa Malaysia version, and to test the construct and content validity and reliability of this version.

## MATERIALS & METHODS:

A written approval was obtained from the original author of LEFS (Dr Jill M Binkley) prior to commencement of the study. The process of translation and validation study is summarized in figure 1.

**Figure 1:** Overview of the whole process of cross-cultural adaptation and validation of the LEFS



The process of translation of English version of LEFS was performed according to a guideline proposed by Guillemin et al<sup>2</sup>. Reliability in this study is determined by good Chronbach alpha values, while validity is determined by good factor analysis of all 20 items in the questionnaire (Factor loadings of 0.4 or more were considered good)<sup>3</sup>. Criterion validity is

determined by testing this scale against the clinical judgment as our gold standard. The adequacy of sample size, which is 208, is tested using SPSS software by means of Keiser-Meyer-Olkin value.

208 participants were enrolled in this study, consisting of 101 participants with various lower limb injuries, and 107 participants with normal lower limbs as the control group. These participants include patients and their relatives, nurses, medical students and doctors present in orthopaedic clinic in Hospital Tengku Ampuan Afzan.

## RESULTS:

**Table 1** showing demographic data of all participants

	Number	%	Total
Healthy	107	51.4	208
Lower limb problems	101	48.6	
Male	95	45.7	208
Female	113	54.3	
Malay	184	88.5	208
Chinese	12	5.8	
Indian	10	4.8	
Others	2	1.0	

Kaiser-Meyer-Olkin value obtained was 0.96, which is statistically significant ( $p=0.0001$ ) and indicates the adequacy of sample size in this study. Cronbach's alpha with (95% confidence intervals) of  $R=0.98$  was obtained signifying good scale reliability. Almost all 20 items in questionnaire scored  $> 0.4$  factor loading implying good construct validity. In terms of criterion validity, we are testing this scale against the clinical judgment as our gold standard. Those scored high total LEFS score were considered having normal lower limb function.

## CONCLUSION:

The BM version of LEFS has been translated with good quality and it is validated for this small group of participants. However more extensive studies are required in order to generalize it to Malaysian population whereby various ethnic groups involvement may be considered.