

# The reliability and validity of the Malay version 17-item diabetes distress scale

## ABSTRACT

### Introduction

Diabetes-related distress (DRD) refers to patient's concerns about diabetes mellitus, its management, need of support, emotional burden and access to healthcare. The aim of this study was to translate and examine the psychometric properties of the Malay version of the 17-item Diabetes Distress Scale (MDDS-17) in adult patients with type 2 diabetes mellitus (T2D).

### Methods

A standard procedure was used to translate the English 17-items Diabetes Distress Scale into Malay language. We used exploratory factor analysis (EFA) with principal axis factoring and promax rotation to investigate the factor structure. We explored reliability by internal consistency and 1-month test-retest reliability. Construct validity was examined using the World Health Organization quality of life-brief questionnaire, Morisky Medication Adherence Scale, Patient Health Questionnaire and disease-related clinical variables.

### Results

A total of 262 patients were included in the analysis with a response rate of 96.7%. A total of 66 patients completed the test-retest after 1 month. EFA supported a three-factor model resulting from the combination of the regimen distress (RD) and interpersonal distress (IPD) subscales; and with a swapping of an item between emotional burden (EB; item 7) and RD (item 3) subscales. Cronbach's  $\alpha$  for MDDS-17 was 0.94, the combined RD and IPD subscale was 0.925, the EB subscale was 0.855 and the physician-related distress was 0.823. The test-retest reliability's correlation coefficient was  $r = 0.29$  ( $n = 66$ ;  $p = 0.009$ ). There was a significant association between the mean MDDS-17 item score categories ( $<3$  vs  $\geq 3$ ) and HbA1c categories ( $<7.0\%$  vs  $\geq 7.0\%$ ), and medication adherence (medium and high vs  $\geq$ low). The instrument discriminated between those having diabetes-related complication, low quality of life, poor medication adherence and depression.

### Conclusion

The MDDS-17 has satisfactory psychometric properties. It can be used to map diabetes-related emotional distress for diagnostic or clinical use.

**Keyword:** Validation; Diabetes distress; Type 2 diabetes mellitus; Primary care; Malaysia