

# **Development and validation of a structured survey questionnaire on knowledge, attitude, preventive practice, and treatment-seeking behaviour regarding dengue among the resident population of Sabah, Malaysia: an exploratory factor analysis**

## **ABSTRACT**

Background: Several studies have reported a significant association of knowledge, attitude and preventive practice (KAP) regarding dengue infection among community's resident in endemic areas. In this study we aimed to assess and develop a reliable and valid KAP survey on the subject of dengue that is suitable for the resident population of Sabah, Malaysia. Methods: A community-based cross-sectional study was conducted from October 2019 to February 2020 involving 468 respondents. Information on the socio-demographic characteristics of the participants (six items), their KAP (44, 15 and 18 items on knowledge, attitude and practice, respectively) and treatment-seeking behaviour (five items) towards dengue was collected using a structured questionnaire. Data analysis was performed using SPSS and R software in the R Studio environment. The knowledge section was analysed by two-parameter logistic item response theory (2-PL IRT) using Irtm package. The construct validity and reliability of items for sections on attitude, practice and treatment-seeking behaviour were analysed using psy package. Results: For the knowledge section, only 70.5% (31/44) of items were within or close to the parameter acceptable range of  $-3$  to  $+3$  of difficulty. In terms of discrimination, 65.9% (29/44) of items were within or close to the acceptable range of 0.35 to 2.5, and 24 items (54.5%) failed to fit the 2-PL IRT model ( $P < 0.05$ ) after assessing by goodness-of-fit analysis. Only eight items were reliable and retained in the attitude section with a Kaiser–Meyer–Olkin (KMO) test value of  $> 0.7$ , while based on the communalities, 11 items in the attitude section were excluded due to very low  $h^2$ , factor loading values and low correlation with the total ( $< 0.5$ ). The practice section was found suitable for factor analysis because the KMO value was  $> 0.7$ . The communalities of the practice section showed that seven items had low  $h^2$  values ( $< 0.3$ ), which were therefore excluded from further analysis, and only 11 items were retained. Conclusions: The KAP items retained in the final version of the survey were reliable and valid to be used as a questionnaire reference when conducting future similar studies among the population of Sabah.