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Psychometric Properties of the Malay Child Adjustment and Parent Efficacy Scale (CAPES)

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ABSTRACT

This study aims to evaluate the psychometric properties of the Malay version of the Child Adjustment and Parent Efficacy Scale (CAPES-Malay) and assess the relationship between parental self-efficacy (PSE) and adolescent mental health. CAPES was translated into Malay and administered to 478 parents of adolescents aged 10-14. Confirmatory factor analysis supported the robustness of the CAPES-Malay psychometric properties, demonstrating its reliability and validity. CAPES-Malay consists of two scales: 1) Parent Self-efficacy and 2) Child Adjustment, which comprises Emotional and Behavioural Problems (EBP) and Competence subscales. Pearson's correlation showed PSE had a strong negative correlation with adolescent EBP, but a moderate positive correlation with adolescent competence. Strengthening PSE in managing adolescent emotional and behavioural challenges and competence contributes to positive adolescent mental health and fosters a better family environment. Overall, CAPES-Malay demonstrates potential as an assessment tool to gauge the levels of PSE, EBP and competence of early adolescents. Further research is necessary to evaluate the psychometric properties of CAPES-Malay before its extensive implementation.

Keywords: Adolescent mental health, child adjustment, Malaysia, parental self-efficacy, psychometric properties, scale validation

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INTRODUCTION

In recent years, adolescent mental health has gathered increasing attention worldwide. Mental health among adolescents is usually reflected by the presence or absence of mental disorders, emotional and behavioural problems, and psychological well-being. In Malaysia, the National Health Morbidity Survey 2023 reported that the prevalence

of overall mental health problems among adolescents aged 10 to 15 years old increased to 16.5% in 2023, compared to 9.5% in 2019 (Institute for Public Health, 2024). The number of adolescents with experiences of suicidal ideation, planning, and attempts due to various mental health problems was at 13.1%, 10.0%, and 9.5%, respectively, which showed an increase since 2015 and 2017 (Institute for Public Health, 2022). Depressive symptoms and feelings of loneliness were also reported by Malaysian adolescents with 26.9% and 16.2% of them reporting the respective indications. These statistics suggest that mental health issues among adolescents in Malaysia have worsened but are still somewhat understudied, urging the need for comprehensive and improved mental health interventions (World Health Organisation, 2024). Recognising the symptoms of mental health problems promptly is crucial, as diagnoses often surface around the age of 14 (Solmi et al., 2022).

Parental factors are one of the significant microsystem factors affecting the mental health of adolescents (Eriksson et al., 2018). Parental self-efficacy (PSE), defined as parents' belief in their ability to influence their child's development, behaviour, and well-being, has emerged as a critical factor in mitigating these challenges (Albanese et al., 2019; Jones & Prinz, 2005). Rooted in Bandura's theory of self-efficacy, PSE is a modifiable factor that is responsive to psychological interventions and adaptive to situational contexts, thus making it a pertinent parental factor that needs to be further examined (Schuengel & Oosterman, 2019). Various studies from Western regions have corroborated the direct relationship between PSE and adolescent emotional and behavioural outcomes (Di Giunta et al., 2018; Dumka et al., 2010; Remondi et al., 2023; Salo et al., 2022; Steca et al., 2011). These studies reported that higher levels of PSE were related to fewer emotional and behavioural problems in adolescents.

The Child Adjustment and Parent Efficacy Scale (CAPES) is among the commonly used measures that assess PSE in relation to specific children's emotional and behavioural difficulties (Morawska et al., 2014). The CAPES consists of two primary scales: 1) the Intensity of Child Adjustment scale, which measures emotional maladjustments and behavioural problems, and 2) the Parent Self-Efficacy scale, which measures parents' level of parental self-efficacy in managing these challenging behaviours. Morawska et al. (2014) established robust reliability among English-speaking samples in Australia, reporting internal consistency coefficients of $\alpha = 0.74$ for the Emotional Maladjustment subscale, $\alpha = 0.90$ for the behavioural Problems subscale, and $\alpha = 0.96$ for the Parent Self-Efficacy scale. The CAPES was established to address the need for an assessment tool that is relevant for both public health and individual/group parenting intervention contexts. Beyond its initial development and validation, the CAPES has been translated into several languages to serve diverse populations. Several adaptations of the CAPES into

other languages, such as Spanish-Panama (Mejia et al., 2015), Spanish-Spain (Seijo et al., 2021), Chinese (Guo et al., 2018), and Indonesian (Sumargi et al., 2013) have been conducted and validated within their respective populations.

The Indonesian version demonstrated strong internal consistency with $\alpha = 0.86$ for the child adjustment scale and $\alpha = 0.97$ for the Parent Self-efficacy scale, supporting the original two-factor structure (Sumargi et al., 2013). In contrast, the Chinese, Spanish-Panama, and Spanish-Spain adaptations revealed a distinct three-factor structure for the Child Adjustment scale comprising: 1) Emotional and Behavioural Problems (EBP), and 2) Child Competencies, alongside the Parent Self-efficacy scale. These versions demonstrated robust reliability: the Chinese adaptation yielded construct reliability coefficients (Coefficient H) of $H = 0.88$ for EBP, $H = 0.92$ for Child Competence, and $H = 0.95$ for Parent Self-efficacy (Guo et al., 2018); the Spanish-Panama version showed $H = 0.93$ for EBP, $H = 0.87$ for Child Competence, and $H = 0.93$ for Parent Self-efficacy (Mejia et al., 2015); and the Spanish-Spain validation confirmed $\alpha = 0.84$ for EBP, $\alpha = 0.94$ for Child Competence, and $\alpha = 0.97$ for Parent Self-efficacy (Seijo et al., 2021).

This unique outcome of the Child Adjustment scale into problem-focussed and competence-focussed dimensions aligns with WHO's definition of mental health as encompassing both the absence of psychopathology and the presence of positive functioning, where an individual is able to effectively recognise their potential, regulate emotions and behaviour, learn and work productively, and engage meaningfully in their community (World Health Organisation, 2022). Despite these structural differences, all cross-cultural adaptations demonstrated robust psychometric properties across all subscales and populations.

The CAPES has been primarily translated and validated among parents of children aged 0 to 12 years. In these previous studies, the children's age range was relatively diverse, which can potentially underrepresent the unique developmental needs of specific age groups, such as early adolescents. The early adolescence stage represents a critical transitional phase from childhood to adolescence marked by rapid physical, psychological, and socioemotional changes. During this period, both adolescents and parents struggle as they learn to manage and navigate the difficulties that arise from or along these changes (Glatz & Buchanan, 2015). Emotional and behavioural difficulties often emerge or intensify during this period, potentially influencing long-term developmental outcomes (Scheiner et al., 2022).

While the original CAPES validation focussed on children aged 2-12 years (Morawska et al., 2014), the developmental indicators it assesses, such as social competence, emotional and behavioural problems, and prosocial behaviour, remain critical domains for assessing developmental progress throughout adolescence. However, the parenting tasks and challenges associated

with these domains may manifest differently during early adolescence compared to early or middle childhood. For instance, managing emotional regulations in a 10-year-old navigating peer pressure differs substantially from managing tantrums in a 4-year-old. Despite this, no previous research has specifically examined parenting self-efficacy using the CAPES exclusively among parents of early adolescents. The present study addresses this gap by focussing specifically on parents of children aged 10 to 14 years old, providing the first developmentally focussed examination of the CAPES during this critical transitional period.

Rationale of the Study

Despite its extensive use, a significant gap remains in the availability of a linguistically appropriate tool for measuring PSE in managing early adolescent emotional and behavioural difficulties within the Malaysian context. Psychometric validations of the CAPES in non-English-speaking contexts further substantiate the applicability of CAPES in diverse populations, reinforcing its relevance for non-Western communities. Hence, the availability of a translated Malay version of CAPES would facilitate inclusivity and accessibility, given that Malay is the national language and primary medium of communication in Malaysia. Extending CAPES to include Malay-speaking parents of early adolescents addresses the current absence of a validated, practical tool to assess and strengthen PSE in this demographic. Importantly, strengthening PSE during the critical period of early adolescence may improve parenting practices, support parental mental health, and thereby promote adolescent mental health and overall family functioning. This study offers valuable insights into how PSE is related to adolescent mental health outcomes, potentially guiding future research, and interventions aimed at promoting parental skills and adolescent mental health development.

Study Objectives

The objectives of the present study are: 1) to evaluate the internal consistency and composite reliability of the CAPES-Malay; 2) to evaluate the convergent and discriminant validity of the CAPES-Malay; and 3) to examine the relationship between PSE and early adolescent mental health using the CAPES-Malay.

METHODS

Study Design and Sample

This quantitative study employed a cross-sectional, correlational design to assess the reliability and validity of the CAPES-Malay through confirmatory factor analysis (CFA). Sample size determination for CFA followed established guidelines, with a minimum of 200 participants and adherence to the three-indicator rule per latent construct (Hair et al., 2014). Participants were recruited through purposive sampling via multiple online channels, including social media platforms (e.g., Facebook, Instagram), WhatsApp and Telegram groups, and school or institutional networks. The survey was

administered online using Zoho Survey, and the link was disseminated through these channels to reach eligible participants nationwide. Eligibility criteria included parents of at least one early adolescent child aged between 10 and 14 years and having sufficient proficiency in the Malay language to complete a self-administered questionnaire.

Participants

The sample comprised 478 parents of early adolescents recruited through a nationwide online survey conducted across Malaysia. Participants were predominantly mothers (n = 402) and Malays (n = 433). A detailed demographic profile is provided in Table 1, and implications of this composition are discussed in the Limitations section.

Table 1
Participants' demographics (N = 480)

Characteristic	Category	n	%	M (SD)
Parents' Profile				
Sex	Male	76	15.9	
	Female	402	84.1	
Ethnicity	Malay	433	90.6	
	Chinese	8	1.7	
	Indian	8	1.7	
	Bumiputera Sabah	24	4.8	
	Bumiputera Sarawak	6	1.3	
Marital Status	Married	450	94.1	
Number of Children				3.4 (1.4)
Monthly Household Income (MYR)				9,946.77 (8,696.35)
Focus Child's Profile				
Sex	Male	252	52.7	
	Female	226	47.3	
School Level	Primary school	298	62.3	
	Secondary school	180	37.7	
Age Group	10 years old	118	24.7	
	11 years old	86	18	
	12 years old	93	19.5	
	13 years old	95	19.9	
	14 years old	86	18	
Age (years)				11.88 (1.44)

Procedure

Ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects Universiti Putra Malaysia (Reference No: JKEUPM-2021-161). Data were collected from August 2021 to December 2021 through an online survey disseminated via various social media platforms and email invitations sent to governmental and non-governmental institutions across Malaysia. Participants read the study information sheet and provided consent before completing the survey.

Child Adjustment and Parent Self-efficacy Scale (CAPES)

The original version of the CAPES was developed based on a sample of Australian parents with children aged from 2 to 12 years old (Morawska et al., 2014). The CAPES comprises two subscales, which assess the intensity of child adjustment (emotional and behavioural problems) and PSE. The Intensity of Child Adjustment scale was used to assess the mental health of adolescents, with all ratings based on parent-reported observations of their adolescents' adjustment. The Behavioural Problems (BP) and Emotional Maladjustments (EM) scales consist of 24 and three (3) items, respectively. The EM scale comprises items 3, 11, and 18, while the rest make up the BP scale. Parents reported their adolescent's adjustment for the past 4 weeks from 0 (Not true at all) to 3 (True most of the time). Each total score of the BP and EM scales was summed up to yield the adolescent's total adjustment score. Higher scores indicate poorer adjustment, which reflects a poor mental health state.

Parental self-efficacy in managing their adolescent's challenging behaviours was assessed using the Parental Self-efficacy Scale. Parents rated their self-efficacy in successfully managing their adolescent's difficult behaviour from the range of 1 (Certain I can't do it) to 10 (Certain I can do it). The scale is composed of 20 items, and higher scores indicate higher levels of parental self-efficacy. Initial validation of the CAPES found that the internal consistency of EM ($\alpha = 0.74$), BP ($\alpha = 0.90$) (Morawska et al., 2014), Total Child Adjustment Intensity of EM and BP ($\alpha = 0.90$), and Parental Self-efficacy ($\alpha = 0.96$) all ranged from good to excellent (Morawska et al., 2014).

Translation of the CAPES

The original version of CAPES was translated into the Malay language using the forward-backwards translation method (Cruchinho et al., 2024). Initially, the instrument was translated from English into Malay by a bilingual translator. The Malay version was then backtranslated into English by an independent bilingual translator who was blinded to the original version to ensure that the translated items retained their original meaning. The original and back-translated versions were compared, and any discrepancies were resolved through discussion between the research team and expert panel to ensure semantic and conceptual equivalence by maintaining the

sociocultural terms used in the context of the Malaysian population. The CAPES-Malay is provided in Appendix A. Selected items that underwent expert revision are presented in Appendix B to illustrate the nature of the translation refinements made.

Content and Face Validity

Content validity of the Malay CAPES was evaluated by six experts (one academic in Psychiatry and five in Clinical and Developmental Psychology) via an online survey. Experts rated each item's relevance on a four-point Likert scale (1 = not relevant to 4 = highly relevant) (Yusoff, 2019a). Ratings were dichotomised (3-4 = relevant; 1-2 = not relevant), and the item-level content validity index (I-CVI), scale-level content validity index using the average method (S-CVI/Ave), and universal agreement (UA) were calculated. For panels of at least six experts, I-CVI ≥ 0.78 and S-CVI/Ave ≥ 0.90 were considered acceptable (Polit & Beck, 2006). All items in the Child Adjustment Scale achieved an I-CVI of 1.00 with universal agreement across all six experts (UA = 1.00), and an S-CVI/Ave of 1.00. For the PSE scale, 19 of 20 items achieved an I-CVI of 1.00 with universal agreement (UA = 1.00), while one item demonstrated an I-CVI of 0.83 (UA = 0). The overall S-CVI/Ave for the PSE scale was 0.99, indicating excellent content validity.

Face validity was assessed as part of a pilot study involving 30 parents of early adolescents recruited through the research team's networks. Ten participants (seven mothers and three fathers) agreed to participate in the face validity assessment via an online survey and were excluded from the main study. As representatives of the target population, parents were considered appropriate raters for evaluating item clarity and comprehensibility (Yusoff, 2019b). This procedure was carried out to gauge the clarity and comprehensibility of the CAPES-Malay to achieve approachability and user-friendliness (Lim, 2024). Participants rated item clarity and comprehensibility on a four-point Likert scale (1 = not clear to 4 = very clear) (Yusoff, 2019b). Ratings were dichotomised, and the item-level face validity index (I-FVI), scale-level face validity index (S-FVI/Ave), and universal agreement were computed. A value of ≥ 0.83 was considered acceptable for both indices with 10 rates (Yusoff, 2019a). All items in the Child Adjustment Scale demonstrated acceptable I-FVI values (≥ 0.80), with most items achieving universal agreement and an overall S-FVI/Ave of 0.98. All items in the PSE scale achieved universal agreement (UA = 1.00), with I-FVI and S-FVI/Ave values of 1.00.

Statistical Analysis

IBM Statistical Package for the Social Sciences (SPSS) Statistics was used to analyse the descriptive statistics for demographic background and study variables, as well as to examine the correlation between the variables. Pearson's correlation was employed to examine the relationship between PSE and adolescent mental health. IBM SPSS Amos was used

to examine the psychometric properties (i.e., the statistical qualities of a measurement tool such as reliability and validity) of the CAPES-Malay.

Confirmatory factor analysis (CFA) was employed to validate the hypothesised factor structure of the CAPES-Malay, as this study aimed to examine an existing theoretically established instrument in a new cultural context. CFA is a statistical technique used to verify the structure of a set of observed variables. The analysis was conducted to assess the psychometric properties and validity of the instrument. Model fit was evaluated using established criteria: relative chi-square (χ^2) < 5.0, comparative fit index (CFI) > 0.90, root mean square error of approximation (RMSEA) < 0.08, and standardised root mean square residual (SRMR) < 0.08 (Bentler, 1992; Byrne, 2016; Hair et al., 2014).

Modification indices were examined to identify areas of model misfit and were adjusted iteratively, with each modification theoretically justified, until acceptable fit indices were achieved. Internal reliability was assessed using Cronbach's alpha, and composite reliability was calculated to estimate the proportion of true score variance in the scale. Adequate internal and composite reliability was considered when values were greater than 0.7 (Hair et al., 2014). Convergent validity gauges the extent to which the same conceptual measures are correlated and was examined through three parameters: average variance extracted (AVE) ≥ 0.5, composite reliability (CR) ≥ 0.7, and standardised factor loadings ≥ 0.5 (Hair et al., 2014). Discriminant validity measures the extent of distinctiveness of two similar concepts, where the squared correlation (r^2) between two latent constructs (i.e., variables that are inferred from measured items) must not exceed the AVE estimates (Hair et al., 2014; Fornell & Larcker, 1981).

RESULTS

Assessment of Model Fit

Model Fit of Child Adjustment Scale

CFA was performed on the individual subscales of the Child Adjustment scale: Behavioural Problems (BP) and Emotional Maladjustments (EM). Initial BP model showed poor model fit ($\chi2(252) = 5.01$, CFI = 0.79, RMSEA = 0.09, SRMR = 0.07). Modification indices were carried out on the BP model to improve model fit, where a total of 13 correlated error terms were introduced for the final model to obtain adequate fit ($\chi2(239) = 3.23$, CFI = 0.90, RMSEA = 0.07, SRMR = 0.06). The CFA of the EM model resulted in a saturated model with zero degrees of freedom, making the computation of $\chi2/df$ and RMSEA irrelevant. As expected, SRMR showed no residuals (SRMR = 0.00), and CFI revealed a perfect fit (CFI = 1.00).

The model fit of both BP and EM combined as a 2-factor structure model has been continued examined. Results revealed that the initial 2-factor structure model was a poor fit to the data (Model 1: $\chi2(323) = 4.57$, CFI = 0.79, RMSEA = 0.09, SRMR = 0.07).

Next, modification indices were employed on the model, resulting in 18 correlated error terms (Model 2: $\chi2(305) = 2.87$, CFI = 0.90, RMSEA = 0.06, SRMR = 0.05) and standardised factor loadings ranging from 0.44 to 0.72. Model 2 demonstrated a good fit only after 17 modification indices were applied, which exceeded 50% of the total number of items in the Child Adjustment subscale. Consequently, we explored an alternative factor structure for the CAPES-Malay Child Adjustment scale to achieve more parsimonious results.

Following the factor structure of the Spanish CAPES that was validated by Mejia et al. (2015) and Seijo et al. (2021) and the Chinese CAPES by Guo et al. (2018), we attempted CFA on their subscales, which were Emotional and Behavioural Problems (EBP) and Competence. CFA was first performed separately for each subscale. The initial model of EBP revealed an unsatisfactory model fit ($\chi2(152) = 4.38$, CFI = 0.86, RMSEA = 0.08, SRMR = 0.06). Three pairs (e12 ↔ e19, e15 ↔ e17, and e2 ↔ e15) of correlated error terms were introduced to improve the model fit of the final EBP model ($\chi2(149) = 3.41$, CFI = 0.90, RMSEA = 0.07, SRMR = 0.05). The initial Competence model fit indices were $\chi2(20) = 5.86$, CFI = 0.94, RMSEA = 0.10, SRMR = 0.05; thus, correlation of error terms 24 and 25 was done to improve the final Competence model $\chi2(19) = 3.95$, CFI = 0.96, RMSEA = 0.08, SRMR = 0.04.

A two-factor model combining EBP and Competence (Model 3) was then examined and demonstrated inadequate fit ($\chi2(323) = 3.77$, CFI = .84, RMSEA = .08, SRMR = .06). Modification indices were reviewed, and theoretically justifiable correlated error terms were introduced to improve model fit, resulting in the revised Model 4. As shown in Table 2, correlated error terms in the EBP subscale reflected overlapping content among items assessing similar domains, including defiance toward authority, emotional dysregulation, anxiety-related symptoms, and aggressive or disruptive behaviours. In the Competence subscale, correlated errors indicated overlap in domains such as self-regulation and independence, compliance with routines, and prosocial or family-oriented behaviours.

The modified model (Model 4), which included 10 correlated error terms, demonstrated acceptable fit ($\chi2(313) = 2.92$, CFI = 0.90, RMSEA = 0.06, SRMR = 0.05). Standardised factor loadings ranged from .44 to .72, indicating adequate to good item performance. Overall, Model 4 provided the best fit to the data and was retained as the final model. The findings support a two-factor structure comprising (1) Emotional and Behavioural Problems and (2) Competence. This differs from the originally hypothesised structure separating Behavioural Problems and Emotional Maladjustment, suggesting a revised factor organisation for the Malaysian sample. Figure 1 illustrates the final two-factor model of the Child Adjustment scale for CAPES-Malay.

Table 2
Correlated error terms among Child Adjustment items

Error Terms	Item		Rationale
Emotional and Behavioural Problems (EBP)			
e2 ↔ e15	Item 2	Enggan melakukan pekerjaan di sekitar rumah apabila diminta	Oppositional defiance in response to adult directives
	Item 15	Bertindak menentang apabila diminta melakukan sesuatu)	
e3 ↔ e11	Item 3	Risau	Emotional problems related to anxiety and fear
	Item 11	Nampak takut	
e6 ↔ e13	Item 6	Berdebat atau bertengkar dengan anak-anak lain, saudara kandung lelaki atau perempuan	Aggressive and behavioural problems
	Item 13	Berteriak atau menjerit	
e10 ↔ e14	Item 10	Mengganggu ketika saya bercakap dengan orang lain	Disruptive or attention-seeking behaviours
	Item 14	Merengek atau mengadu	
e12 ↔ e19	Item 12	Mempunyai masalah untuk buat kerja sendiri tanpa perlu diperhatikan oleh orang dewasa	Difficulties in managing tasks independently and organising activities without external support
	Item 19	Mempunyai masalah dalam mengatur tugas dan aktiviti	
e14 ↔ e16	Item 14	Merengek atau mengadu	Difficulty managing emotions and handling frustration
	Item 16	Menangis lebih banyak daripada kanak-kanak lain seusianya	
e15 ↔ e17	Item 15	Bertindak menentang apabila diminta melakukan sesuatu	Defiance and disrespect toward parental authority
	Item 17	Membalas dengan kasar kepada saya	
Competence			
e20 ↔ e22	Item 20	Boleh buat kerja sendiri tanpa perhatian orang dewasa yang berterusan.	Self-regulation and independence
	Item 22	Boleh melakukan tugas yang sesuai dengan usia dengan sendirinya	
e21 ↔ e23	Item 21	Bekerjasama pada waktu tidur	Compliance with routine and structure
	Item 23	Ikut peraturan dan had	
e24 ↔ e25	Item 24	Baik dengan ahli keluarga	Prosocial and family-oriented behaviour
	Item 25	Baik dan suka menolong orang lain	

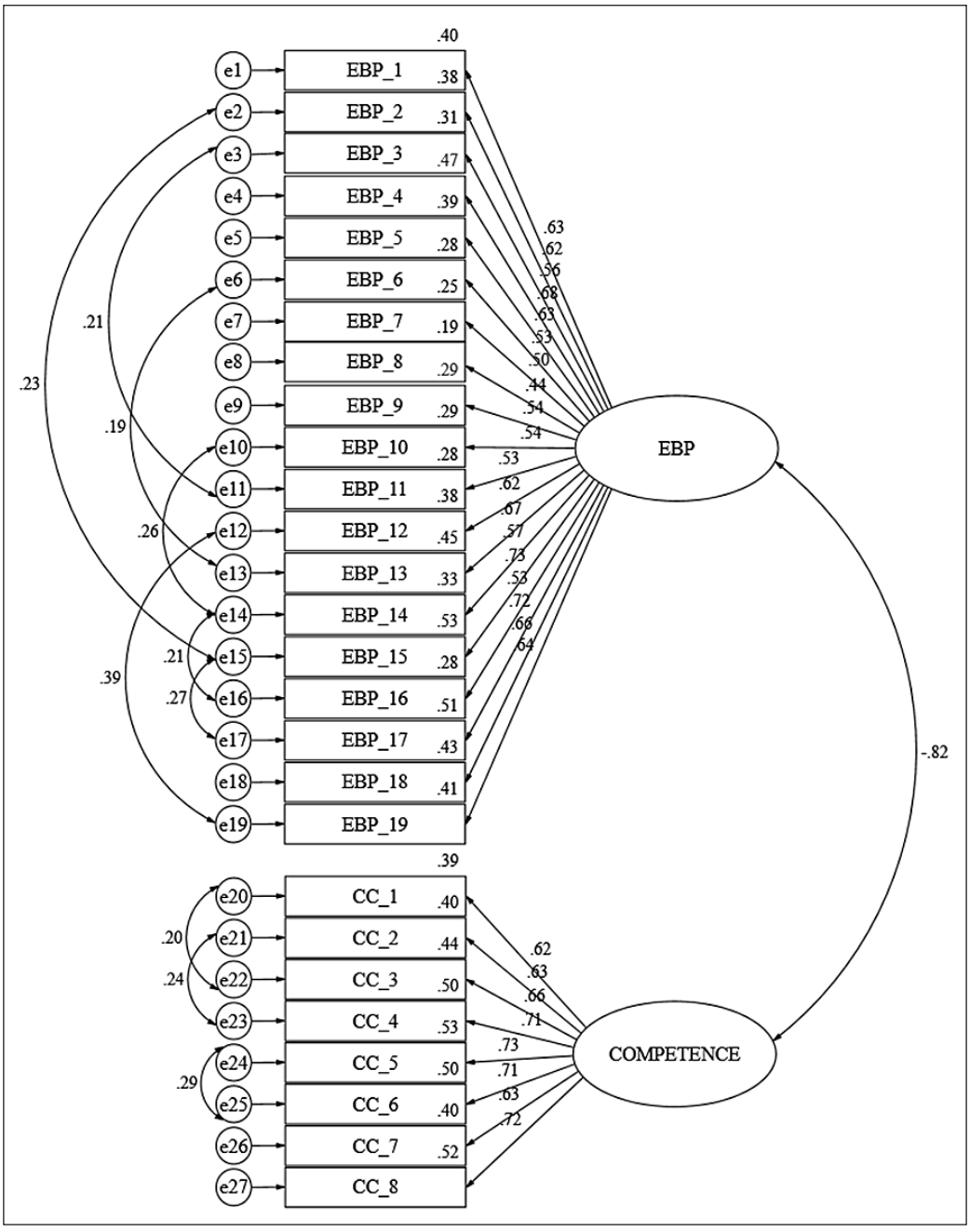

Figure 1. Factor structure of the Malay Child Adjustment scale

Note. Subscales: 1) Emotional and Behavioural Problems and 2) Child Competence as the subscales. Model fit: $\chi 2 = 2.92$; CFI = 0.90; RMSEA = 0.06; SRMR = 0.05; based on N = 478. All standardised factor loadings are significant at $p < 0.001$; correlations between error terms are significant at $p < 0.005$

Notably, the standardised factor loadings of the Child Adjustment scale, which comprises EBP and Competence subscales, were between 0.44 and 0.72. Only one item (Item 8) had a factor loading less than 0.5. After contextual evaluation, Item 8 ("Takes too long getting dressed") was retained in the model because clothing is associated with adolescents' self-esteem and identity formation, which influences the positive self-image of adolescents (Dubovitskaya et al., 2020). Adolescents who take a longer time to get dressed may struggle with self-image, which could be the underlying sign of body dysmorphia, low self-esteem, or social anxiety (Javaid & Ajmal, 2019; Kuck et al., 2021). The retention of Item 8 with a factor loading 0.44 was therefore justified due to its contextual importance to the EBP domain. Further, Item 8 was only 0.06 less than the preferred threshold and factor loadings of greater than 0.4 could still be accepted for interpretative reasons (Brown, 2015; Onde & Alvarado, 2018).

Model Fit of PSE Scale

CFA was performed on the 20-item CAPES PSE scale (Morawska et al., 2014). Initial analysis of the 1-factor model demonstrated inadequate model fit: $\chi2(170) = 5.00$, CFI = 0.93, RMSEA = 0.09, and SRMR = 0.03. Modification indices were examined to improve model fit, leading to the introduction of two theoretically correlated error terms (e1 ↔ e2 and e3 ↔ e4; Table 3). Item 1 and 2 reflect PSE in managing oppositional behaviour and emotional reactivity in response to demands, while Item 3 and 4 reflect PSE in managing emotional dysregulation involving worry and temper loss. Following these modifications, the result showed excellent model fit as indicated by $\chi2(168) = 4.37$, CFI = 0.94, RMSEA = 0.08, and SRMR = 0.03. Figure 2 illustrates the 1-factor model of the Self-efficacy scale for CAPES-Malay.

Assessment of Reliability

Reliability of Child Adjustment Scale

The EBP and Competence subscales both demonstrated excellent composite reliability with $CR_{EBP} = 0.91$ and $CR_{COMPETENCE} = 0.87$, and internal consistency with Cronbach's alpha, $\alpha_{EBP} = 0.92$ and $\alpha_{COMPETENCE} = 0.88$.

Reliability of PSE Scale

The internal consistency of the PSE scale was high ($\alpha = 0.98$). While very high Cronbach's alpha values have been associated with potential item redundancy, alpha alone is insufficient to determine scale quality and should be interpreted alongside item-level and structural evidence (Taber, 2018). To examine whether item reduction was warranted, item-level diagnostics were conducted. Item-level analyses indicated that all items contributed meaningfully to the construction, with corrected item-total correlations ranging from 0.70 to 0.86. The "Cronbach's alpha if item deleted" values ranged narrowly from 0.975 to 0.976, confirming that no individual item disproportionately inflated the reliability estimate and that removal of any item

Table 3
Correlated error terms among parental self-efficacy items

Error Terms		Item	Rationale
e1 ↔ e2	Item 1	Tidak puas hati atau marah apabila mereka tidak mendapat cara sendiri	Child's oppositional behaviour and emotional reactivity in response to demands.
	Item 2	Enggan melakukan pekerjaan di sekitar rumah apabila diminta	
e3 ↔ e4	Item 3	Risau	Child's emotional dysregulation, involving worry and temper loss.
	Item 4	Hilang sabar	

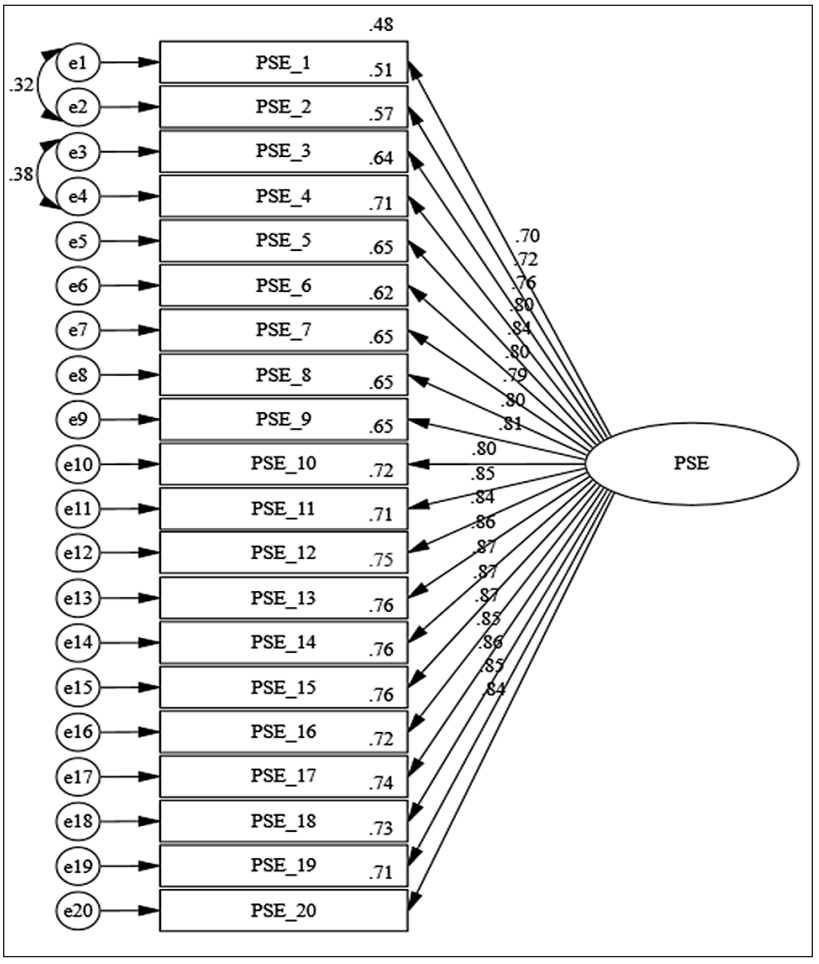

Figure 2. Factor structure of the Malay PSE scale

Note. Model fit: by $\chi 2 = 4.37$; CFI = 0.94; RMSEA = 0.08; and SRMR = 0.03; based on N = 478. All standardised factor loadings are significant at $p < 0.001$; correlated error terms are significant at $p < 0.005$

would not improve internal consistency. In addition, confirmatory factor analysis further supported a unidimensional structure, with all 20 items loading strongly on a single factor (0.70-0.87). Together, these findings support retention of the full item scale and indicate that the high internal consistency of 0.98 reflects construct coherence rather than redundancy.

Assessment of Convergent Validity

Convergent Validity of Child Adjustment Scale

The AVE estimates of EBP and Competence subscales were at 0.36 and 0.46, respectively. Although these values did not meet the conventional requirement of convergent validity (AVE > 0.5), Fornell and Larcker (1981) suggested that convergent validity can still be achieved provided that the CR is greater than 0.6. The calculations indicated that the CR of EBP and Competence exceeded the threshold of ≥ 0.6, with CR_{EBP} = 0.91 and $CR_{COMPETENCE}$ = 0.87. Additionally, the standardised factor loadings of both EBP and Competence subscales were between 0.44 and 0.72. These results indicate that the Child Adjustment scale of CAPES-Malay exhibited adequate convergent validity.

Convergent Validity of the PSE Scale

The AVE estimate for the PSE scale was 0.67, surpassing the conventional cutoff value of 0.50. The CR value was 0.98 surpassing the cut-off value of ≥ 0.7. In addition, the standardised factor loadings ranged from 0.70 to 0.88, all of which exceeded the recommended minimum threshold of 0.50, indicating that the individual items were strongly associated with the latent construct. These results demonstrate that the PSE items converged well in representing the underlying construct, thus providing evidence of adequate convergent validity.

Assessment of Discriminant Validity

Discriminative Validity of the Child Adjustment Scale

The inter-construct correlation between EBP and Competence was r = 0.67. The AVE estimates of EBP and Competence subscales were at 0.36 and 0.46, yielding √AVE of 0.60 and 0.68. The correlation between these constructs exceeded the √AVE value, suggesting that the Fornell-Larcker criterion was unmet, therefore, indicating limited discriminant validity between EBP and Competence subscales. To further assess discriminant validity, we employed a more flexible approach based on nested model comparison using the chi-square difference test (Hair et al., 2014). The unconstrained model, which consisted of a freely estimated correlation between EBP and Competence, demonstrated acceptable model fit: $\chi 2(313) = 913.86$, CFI = 0.90, RMSEA = 0.06. In contrast, the constrained model, in which the correlation between EBP and Competence was fixed to 1.0, demonstrated a substantially poorer model fit: $\chi 2(314) = 1797.16$, CFI = 0.74, RMSEA = 0.10. The chi-square difference was $\Delta\chi 2 = 883.30$, $\Delta df = 1$, $p < 0.001$, indicating that constraining the correlation significantly worsened model fit. This provides strong evidence of discriminant

validity between EBP and Competence despite the Fornell-Larcker criterion not being fully met.

Discriminant Validity of PSE Scale

Since PSE is an unidimensional scale, the inter-construct correlations were done between PSE, EBP, and Competence in a single model. The inter-constructing correlations between PSE and EBP and PSE and Competence were r = 0.29 and r = 0.26, respectively. The AVE estimate for the PSE scale was 0.67. These findings indicate that the scale demonstrates discriminant validity.

Descriptive Statistics of the CAPES-Malay

The descriptive statistics for the total scores of the CAPES-Malay subscales: Parental Self-efficacy (PSE), Emotional and Behavioural Problems (EBP), and Competence were examined. For the PSE scale, fathers reported an average score of 158.22 (SD = 39.81), while mothers had an average score of 157.81 (SD = 33.5). For the parent-reported measures of adolescent mental health, male adolescents had a mean EBP score of 20.48 (SD = 10.02) and female adolescents had a mean score of 20.21 (SD = 9.11). Female adolescents had a mean Competence score of 17.44 (SD = 3.65), while male adolescents had a mean Competence score of 17.27 (SD = 3.82).

Relationship between PSE and Adolescent Mental Health

The computation of Pearson's correlation coefficient was done to assess the linear relationship between PSE and adolescent mental health, which is reflected by adolescent EBP and competence. Both the relationships between PSE and EBP, as well as PSE and competence showed significant correlation at $p < 0.001$. There was a strong negative correlation between PSE and EBP ($r = -0.507$, $p < 0.001$), and a moderately positive correlation between PSE and competence ($r = 0.477$, $p < 0.001$).

DISCUSSION

The current study aimed to assess the psychometric properties of the CAPES-Malay and examine its practicality in evaluating the relationship between PSE and adolescent mental health. This is the first validation study of the CAPES conducted with parents of early adolescents aged between 10 to 14 years. In Erikson's theory of psychosocial development, early adolescence is related to the stage of industry vs. inferiority, during which children develop a sense of competence. Failure to achieve this sense of competence can lead to a sense of inferiority or incompetence. CAPES incorporates elements of mental health as defined by the World Health Organisation, which includes emotional and behavioural regulation, the ability to learn and work effectively, and the capacity to have meaningful interactions and contributions to society. Aligned with the psychosocial developmental construction of early adolescence, the CAPES is deemed an appropriate tool to measure early adolescent mental health by incorporating both measures of emotional and behavioural

regulation and competence as perceived by their parents.

The findings of the confirmatory factor analysis indicated that the 1-factor structure of the Parent Self-Efficacy scale of CAPES-Malay was consistent with the original CAPES study. On the other hand, the Child Adjustment scale of CAPES-Malay showed better model fit when the constructs were adapted from the CAPES-Spanish (Mejia et al., 2015; Seijo et al., 2021) and CAPES-Chinese (Guo et al., 2018), which separates the Competence subscale from the Emotional and Behavioural Problems (EBP) subscale. These results, however, did not align with the two-factor model originally developed in English (Morawska et al., 2014) and Indonesian (Sumargi et al., 2013) studies, which separates the subscales of Emotional Maladjustments from Behavioural Problems. The discrepancy in the factor structure of the Child Adjustment scale suggests that, while the bifactorial model demonstrates robustness across various language adaptations, cultural and contextual factors may influence how child adjustment is captured.

Mejia et al. (2015) highlighted that the discrepancy in factor structure could be due to the item-parcelling approach used by Morawska et al. (2014). The authors critiqued the application of item parcelling, which could oversimplify the underlying structure of data at the item level, leading to incorrect interpretations of the scale (Bandalos, 2002). Although the current study could have adopted the same parcelling method to achieve a significantly improved model fit, we opted to retain the individuality of each item, particularly because this is the initial validation of CAPES in the Malay language. Maintaining the items as distinct items provides the opportunity to identify any items that may be deemed unsuitable or irrelevant for Malaysian samples, by excluding items with factor loadings below 0.4 (Brown, 2015; Byrne, 2016; Onde & Alvarado, 2018). Thus, the present study performed the CFA for both the PSE and Child Adjustment scales without employing the item parcelling approach to maintain the integrity and contextual specificity of each item.

Regarding reliability, CAPES-Malay demonstrated robust composite reliability and internal consistency with Cronbach's alpha values above the acceptable threshold of 0.8 for the Parent Self-efficacy and Child Adjustment scales. These findings are consistent with the psychometric performance of the CAPES in other settings, such as in Australia, Panama, Spain, China, and Indonesia, where excellent reliability coefficients were reported. In terms of validity, the Parent Self-efficacy scale obtained satisfactory convergent and discriminant validity aligned with the specified threshold. In assessing the Child Adjustment scale, we adopted the less stringent approach suggested by Fornell and Larcker (1981) to obtain convergent validity by depending on the CR of the scale. While we acknowledge that this more lenient method may not be ideal, it was necessary given the circumstances. The non-optimal convergent validity observed

may be attributed to the limited variation in sample characteristics, which were predominantly of Malay ethnicity (Cheung et al., 2023). Though this was the case, the CR was highly robust with $CR_{EBP} = 0.91$ and $CR_{COMPETENCE} = 0.87$. The validation process of CAPES across various settings revealed that while cultural variations exist, the adequate validity and reliability of the scale demonstrate its potential as a reliable tool for assessing the mental health of children and adolescents in Malaysia. The findings also underscore the importance of continuous psychometric evaluation of CAPES-Malay to ensure the cultural relevance of the scale.

The present study identified a moderate to strong relationship between PSE and adolescent mental health, which highlights the fundamental role of parents and their beliefs in shaping their child's developmental outcomes. As expected, higher levels of PSE were associated with better adolescent mental health outcomes. This finding is consistent with previous studies, which persistently demonstrate a significant association between better PSE and lower emotional and behavioural problems (Di Giunta et al., 2018; Dumka et al., 2010; Remondi et al., 2023; Salo et al., 2022; Steca et al., 2011). This study found that higher PSE was positively correlated with greater adolescent competence, extending the previous study, which focussed on the influence of PSE on adolescent social competence (Junttila & Vauras, 2014). These findings also support Bandura's notion that one's belief may have an impact on others through underlying mechanisms such as one's behaviour and actions. For example, parents with higher levels of PSE are likely to engage in positive parenting behaviours which foster an environment that encourages children and adolescents to be capable of emotional and behavioural regulation and have a better socioemotional adjustment (Dumka et al., 2010; Hamovitch et al., 2019; Shumow & Lomax, 2002; Slagt et al., 2012). Further, competence as a component of adolescent mental health has been less explored in comparison to emotional and behavioural outcomes. The alternative factor structure which emerged from the study data implies that adolescent mental health or adjustment can be studied beyond the absence or presence of EBP as a lack of competence can result in poor self-esteem, low motivation, and overall well-being (Deci & Ryan, 2008). Therefore, including age-appropriate competence as a component of mental health may provide insights into understanding adolescent mental health better.

CONCLUSION

CAPES is a valid and reliable parent-reported tool for assessing PSE and early adolescent mental health for Malay language speakers in the Malaysian context. Its robust psychometric properties, including satisfactory model fit, excellent construct and internal reliability, as well as adequate convergent and discriminant validity, suggest its applicability among Malaysian parents. The relationship between PSE and adolescent mental health, while consistent with global trends, highlights the influence

of cultural factors on parent-adolescent dynamics. As such, culturally sensitive interventions aimed at improving PSE could be effective in promoting better adolescent mental health in Malaysia.

Implications

This study contributes to the growing body of research on psychometric evaluation and cross-cultural adaptation of the CAPES. The validated CAPES-Malay scale provides a linguistically relevant tool for assessing parental self-efficacy and early adolescent mental health in Malaysia. It enables parents to better understand their child's developmental and behavioural needs, potentially encouraging more proactive efforts to strengthen their parenting skills, particularly in managing challenging behaviours. The scale can be used in community and research settings to assess and support PSE, therefore contributing to broader family well-being by promoting more positive parenting practices and harmonious family dynamics. Its utility is particularly relevant in (1) research contexts examining how individuals interpret and respond to parenting situations in general populations, (2) psychoeducational initiatives aimed at increasing awareness of these processes among community members, and (3) informing population-level public health policy discussions. Accordingly, the CAPES-Malay supports timely and targeted population-level interventions and informed decision-making within these non-clinical contexts, as its applicability to clinical populations warrants further investigation.

Limitations and Recommendations

Despite the strengths and valuable insights of this study, several limitations must be acknowledged. First, the present study was a cross-sectional study, which did not allow us to examine the changes in PSE and adolescent mental health over time, nor can we assess the bidirectionality of these two factors. Future studies should explore longitudinal designs to examine how changes in PSE over time influence adolescent mental health in Malaysia. Second, although the sample size was sufficient for performing CFA, the generalisability of the findings may be limited, especially when parents who responded to the survey were predominantly mothers and of Malay ethnicity. The higher participation of mothers is likely reflective of their greater availability and primary caregiving responsibilities, as well as the likelihood that survey recruitment channels (e.g., parent-focussed online groups) tend to attract more maternal engagement in parenting-related research. Although ethnic diversity was considered during the planning stage, the Malay-language nature of the instrument and the recruitment approach resulted in a predominantly Malay sample. Additionally, although the survey was distributed nationally via an online platform, the geographical distribution of participants by state was not tracked, and it remains unclear whether the sample is representative of parents across all regions of Malaysia. Adaptation of the scale to a bigger and more diverse Malaysian sample could provide increased generalisability for the

CAPES-Malay, as well as reveal potential cultural variations and gendered parental roles within the Malaysian context.

Third, the study was regarded within the community setting as a whole and did not specifically recruit parents from the clinical setting. Researchers can consider incorporating samples within the clinical context to further expand the use of the scale beyond non-clinical settings. Fourth, this study adopted the less stringent approach in determining the Child Adjustment scale's convergent validity. While this does not invalidate the findings, future studies could involve participants of diverse profiles such as including more fathers and parents from other Malaysian ethnicities. This approach increases the variability in responses, which improves the factor loadings and ensures the attainment of the widely adopted AVE threshold of over 0.5, leading to more robust outcomes (Kline, 2016). Fifth, CFA was performed only at the item level but not the parcel level as previously done in the validation of CAPES in the English language. Future studies should compare the results obtained from both item-level and parcel-level confirmatory factor analyses to increase understanding of the methodological nuances. Item parcelling can provide a more parsimonious model by grouping related items into composites, potentially improving model fit indices, especially in cross-cultural research (Bandalos, 2002). However, item-level analysis, as employed in this study, can reveal finer details about the appropriateness of specific items for a given cultural context.

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APPENDIX A

The Malay version of Child Adjustment and Parent Self-efficacy Scale (CAPES)

Skala Penyesuaian Kanak-kanak dan Efikasi Diri Ibu Bapa

Sila baca setiap pernyataan dan pilih nombor yang menunjukkan seberapa benar pernyataan itu terhadap anak anda selama empat (4) minggu terakhir. Kemudian, dengan menggunakan skala yang disediakan, tandakan pada skala nombor yang paling menggambarkan bagaimana yakinnya anda pasti berjaya menangani tingkah laku anak anda, walaupun itu adalah tingkah laku yang jarang berlaku atau tidak membimbangkan anda. Tidak ada jawapan yang betul atau salah. Jangan menghabiskan terlalu banyak masa untuk sebarang kenyataan.

Efikasi Diri Ibu Bapa										
No.	**Anak saya:**	**Nilai keyakinan anda 1 = Pasti saya tidak dapat melakukannya 10 = Pasti saya boleh melakukannya**								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Tidak puas hati atau marah apabila mereka tidak mendapat cara sendiri										
2	Enggan melakukan pekerjaan di sekitar rumah apabila diminta										
3	Risau										
4	Hilang sabar										
5	Salah laku pada waktu makan										
6	Berdebat atau bertengkar dengan anak-anak lain, saudara kandung lelaki atau perempuan										
7	Enggan makan makanan yang dibuat untuk mereka										
8	Terlalu lama untuk berpakaian										
9	Menyakitkan saya atau orang lain (cth: pukul, tolak, cakar, gigit)										
10	Mengganggu ketika saya bercakap dengan orang lain										
11	Nampak takut										
12	Berkelakuan buruk di sekolah atau pusat jagaan										
13	Mempunyai masalah untuk buat kerja sendiri tanpa perlu diperhatikan oleh orang dewasa										

Skala Penyesuaian Kanak-kanak dan Efikasi Diri Ibu Bapa (*sambungan*)

Efikasi Diri Ibu Bapa											
No.	**Anak saya:**	**Nilai keyakinan anda 1 = Pasti saya tidak dapat melakukannya 10 = Pasti saya boleh melakukannya**									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
14	Berteriak atau menjerit										
15	Merengek atau mengadu										
16	Bertindak menentang apabila diminta melakukan sesuatu										
17	Menangis lebih banyak daripada kanak-kanak lain seusianya										
18	Membalas dengan kasar kepada saya										
19	Nampak tidak gembira atau sedih										
20	Mempunyai masalah dalam mengatur tugas dan aktiviti										

		Sangat tidak benar	**Tidak benar**	**Benar**	**Sangat benar**
1	Tidak puas hati atau marah apabila mereka tidak mendapat cara sendiri	0	1	2	3
2	Enggan melakukan pekerjaan di sekitar rumah apabila diminta	0	1	2	3
3	Risau	0	1	2	3
4	Hilang sabar	0	1	2	3
5	Salah laku pada waktu makan	0	1	2	3
6	Berdebat atau bertengkar dengan anak-anak lain, saudara kandung lelaki atau perempuan	0	1	2	3
7	Enggan makan makanan yang dibuat untuk mereka	0	1	2	3
8	Mengambil masa terlalu lama untuk berpakaian	0	1	2	3
9	Menyakitkan saya atau orang lain (cth: pukul, tolak, cakar, gigit)	0	1	2	3
10	Mengganggu ketika saya bercakap dengan orang lain	0	1	2	3
11	Nampak takut	0	1	2	3
12	Mempunyai masalah untuk buat kerja sendiri tanpa perlu diperhatikan oleh orang dewasa	0	1	2	3

Skala Penyesuaian Kanak-kanak dan Efikasi Diri Ibu Bapa (*sambungan*)

		Sangat tidak benar	**Tidak benar**	**Benar**	**Sangat benar**
13	Berteriak atau menjerit	0	1	2	3
14	Merengek atau mengadu	0	1	2	3
15	Bertindak menentang apabila diminta melakukan sesuatu	0	1	2	3
16	Menangis lebih banyak daripada kanak-kanak lain seusianya	0	1	2	3
17	Membalas dengan kasar kepada saya	0	1	2	3
18	Nampak tidak gembira atau sedih	0	1	2	3
19	Mempunyai masalah dalam mengatur tugas dan aktiviti	0	1	2	3
20	Boleh buat kerja sendiri tanpa perhatian orang dewasa yang berterusan.	0	1	2	3
21	Bekerjasama pada waktu tidur	0	1	2	3
22	Boleh melakukan tugas yang sesuai dengan usia dengan sendirinya	0	1	2	3
23	Ikut peraturan dan had	0	1	2	3
24	Baik dengan ahli keluarga	0	1	2	3
25	Baik dan suka menolong orang lain	0	1	2	3
26	Bercakap mengenai pandangan, idea, dan keperluan mereka dengan tepat	0	1	2	3
27	Melakukan apa yang disuruh oleh orang dewasa	0	1	2	3

APPENDIX B

Comparison of Original English Items, Initial Malay Translations, and Expert-revised CAPES-Malay Items

Item	Original (English)	Initial Malay Translation	Expert-revised Malay
5	Misbehaves at mealtimes	Berkelakuan buruk pada waktu makan	Salah laku pada waktu makan
12	Has trouble keeping busy without adult attention	Menghadapi masalah tanpa perhatian orang dewasa	Mempunyai masalah untuk buat kerja sendiri tanpa perlu diperhatikan oleh orang dewasa
14	Whines or complains (whinges)	Merengek atau mengeluh	Merengek atau mengadu
22	Can do age appropriate tasks by themselves	Boleh melakukan tugasan yang sesuai dengan umur dengan sendiri	Boleh melakukan tugas yang sesuai dengan usia dengan sendirinya