

Article

Assessing Modern-Type Depression Traits in a Predominantly Young Malaysian Convenience Sample: A Preliminary Psychometric Evaluation of the Malay Tarumi's Modern-Type Depression Trait Scale

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Abstract

Background: Modern-type depression (MTD), first described in Japan, reflects a sociocultural form of depression characterized by avoidance of social roles, complaint tendencies, and low self-esteem. While increasingly recognized across Asian societies, no Malay-language adaptation of the TACS-22 has previously undergone psychometric evaluation. **Objectives:** This study aimed to translate and culturally adapt the Tarumi's Modern-Type Depression Trait Scale (TACS) into Malay and to evaluate the reliability, factorial structure, discriminant validity, and convergent associations of the Malay version among Malaysian adults. **Methods:** Following standardized forward and backward translation and expert review, the TACS-22-Malay was administered to convenience sample of 250 predominantly young Malaysian adults together with the Malay Depression, Anxiety, and Stress Scale. Internal consistency was examined using Cronbach's alpha, ordinal McDonald's omega, and the Greatest Lower Bound (GLB). Because the TACS items comprise five ordered-response categories and multivariate nonnormality was present, the primary confirmatory factor analysis used the weighted least squares mean and variance-adjusted estimator with ordered indicators. The complete 22-item-correlated three-factor model was evaluated, with robust maximum likelihood and conventional maximum likelihood models used as sensitivity analyses. A one-factor model was also examined. Convergent associations were evaluated using Spearman's ρ with bootstrap confidence intervals. **Results:** Internal consistency was high for the total score ($\alpha = 0.804$, ordinal $\omega = 0.839$, GLB = 0.877), but varied across Avoidance of Social Roles ($\alpha = 0.617$, $\omega = 0.677$), Low Self-Esteem ($\alpha = 0.711$, $\omega = 0.760$), and Complaint ($\alpha = 0.412$, $\omega = 0.496$). The primary three-factor WLSMV model showed poor fit, chi square (206) = 794.922, $p < 0.001$, CFI = 0.587, TLI = 0.537, RMSEA = 0.117, 90% CI [0.110, 0.125], SRMR = 0.108, and produced an inadmissible latent covariance matrix. Latent correlations were 0.748, 0.959, and 1.050, with the Low Self-Esteem and Complaint correlation exceeding 1. The one-factor WLSMV model also fit poorly. Robust and conventional maximum likelihood sensitivity analyses led to the same substantive conclusion. All TACS scores were positively associated with



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DASS 21 Depression, Anxiety, and Stress, with Spearman's ρ ranging from 0.235 to 0.644. Conclusions: The Malay TACS-22 demonstrates useful internal consistency at the total score level and meaningful associations with psychological distress, but the hypothesized three-factor measurement model was not supported and discriminant validity between factors was inadequate. The poor fit of the one-factor model also indicates that high total score reliability should not be interpreted as evidence of unidimensionality. The present findings therefore support the Malay version as a provisional adaptation requiring further item refinement and independent validation rather than as a fully validated instrument.

Keywords: modern-type depression; TACS-22; psychometric validation; confirmatory factor; Malaysia; cultural adaptation

1. Introduction

Modern society has witnessed a shifting landscape of depressive experiences that deviate from classical notions of melancholic depression. In Japan, this phenomenon has been described as modern-type depression (MTD), a socioculturally situated presentation reported particularly among younger generations [1–4]. MTD is characterized by avoidance of expected social roles, complaint regarding interpersonal or occupational stressors, low self-esteem, hypersensitivity to social evaluation, and a tendency toward externalization of blame [2,5]. In contrast to traditional melancholic or endogenous depression, its depressive symptoms may be more situationally triggered and socially embedded, with relatively preserved functioning outside the stress-inducing context [4,6–8]. MTD has also been associated with neuroticism, interpersonal sensitivity, maladaptive coping, depressive and anxiety symptoms, work-related distress, and interpersonal conflict [9,10].

Although MTD-related features may overlap with symptoms of major depressive disorder, individuals exhibiting these traits may show greater situational variation in depressive symptoms and relatively preserved functioning outside the stress-inducing context, suggesting that MTD may also reflect a trait-like vulnerability rather than a categorically distinct depressive condition [6,8].

MTD has been associated with neuroticism, interpersonal sensitivity, and maladaptive coping, as well as elevated depressive and anxiety symptoms [9]. In Japan, studies suggest MTD is particularly common among younger adults and correlates with work-related distress and interpersonal conflict [10].

1.1. Cross-Cultural Perspectives and Relevance to Malaysia

Although MTD was first identified in Japan, sociocultural analogues have been observed elsewhere [11–15]. The emphasis on interpersonal harmony, respect for authority, and role fulfillment is common in many Asian societies, including Malaysia. At the same time, Malaysian youth increasingly face globalization, digitalization, and shifting employment norms that foster values of self-expression and autonomy. These transitional dynamics may predispose individuals to conflicts between personal and societal expectations—conditions that mirror the psychosocial background of MTD [16,17].

From a psychological standpoint, Malaysia's collectivist orientation and religious-cultural values may shape the manifestation of MTD traits [9,15]. The *Avoidance of Social Roles* dimension may manifest as social withdrawal or reluctance to conform, while *Complaint* may be suppressed due to norms emphasizing deference and harmony. *Low Self-Esteem* may resonate more universally, reflecting internalized self-criticism [18]. Therefore, a culturally adapted scale is necessary to capture both shared and culturally distinctive aspects of MTD expression.

1.2. Psychometric Studies on TACS-22

To operationalize the traits associated with MTD, Kato et al. (2019) developed and validated the 22-item Tarumi's Modern-Type Depression Trait Scale (TACS-22), drawing on the premorbid personality and symptom characteristics of MTD originally described by Tarumi [18]. The TACS-22 comprises three dimensions: Avoidance of Social Roles, Low Self-Esteem, and Complaint [18].

The original Tarumi's Modern-Type Depression Scale (TACS-22) demonstrated robust internal consistency ($\alpha = 0.83$) and a stable three-factor structure. Cross-sectional analyses revealed strong positive correlations with depressive and anxiety symptoms, supporting convergent validity [18]. Beyond the original Japanese version, preliminary cross-cultural adaptations of the TACS-22 have begun to emerge [12,19,20]. For example, a Mandarin Chinese version has undergone translation and pilot reliability testing among Taiwanese nonclinical young adults [19]. However, evidence from comprehensive linguistic and psychometric validation across other languages and cultural settings remains limited.

In adapting psychological instruments across cultures, equivalence at semantic, conceptual, and metric levels must be ensured. Linguistic translation alone is insufficient; cultural adaptation must account for language nuances, response styles, and social desirability biases [21,22]. Hence, rigorous translation, expert review, and psychometric evaluation are crucial for valid use in Malaysia.

1.3. Study Objectives

The present study was conducted to address this gap by translating and culturally adapting the TACS-22 into Malay and by evaluating the psychometric performance of the resulting TACS-22-Malay. The specific objectives were:

1. Translate and culturally adapt the TACS-22 into Malay following standardized cross-cultural validation procedures.
2. Evaluate its internal consistency using Cronbach's α , McDonald's ω , and Greatest Lower Bound (GLB).
3. Assess construct validity through confirmatory factor analysis (CFA) of the three-factor model (Avoidance of Social Roles, Low Self-Esteem, Complaint).
4. Examine external criterion-related associations between the TACS-22-Malay scores and the DASS-21 Depression, Anxiety, and Stress subscales.

It is hypothesized that the Malay TACS-22 will demonstrate good internal consistency ($\alpha > 0.70$), acceptable model fit indices (CFI > 0.90 , RMSEA < 0.08), and significant positive correlations with DASS-21 dimensions.

2. Methodology

2.1. Study Design

The study population comprised Malaysian adults representing a nonclinical community sample. Participants were recruited primarily among university students and young working adults across various regions in Malaysia. This demographic was selected to capture modern-type depression traits within the younger generation, who are considered more susceptible to psychosocial conflicts between traditional role expectations and contemporary individualistic values [3,11,23].

A convenience sampling approach was employed to facilitate broad participation through online recruitment. The survey link was disseminated via social media platforms, institutional mailing lists, and university networks between late August and September 2025.

2.2. Inclusion and Exclusion Criteria

Eligible participants were required to be Malaysian citizens aged 18 years and above and fluent in the Malay language to ensure comprehension of the translated items. Individuals were excluded if they were currently receiving psychiatric treatment, to maintain the intended nonclinical sampling framework; however, this criterion did not imply absence of significant psychological symptoms among included participants.

2.3. Instrument Translation and Adaptation

The translation and cultural adaptation of the *Tarumi's Modern-Type Depression Trait Scale* (TACS-22) into Malay followed standardized guidelines for cross-cultural validation of self-report instruments as proposed by Beaton et al. (2000) [21]. The process aimed to achieve semantic, conceptual, and experiential equivalence between the original and translated versions to ensure cultural appropriateness within the Malaysian context.

Two independent bilingual translators—one with a background in psychology and another with no clinical training—independently translated the original English version of the TACS-22 into Malay. The research team synthesized both forward translations into a single reconciled version through consensus discussion, resolving discrepancies in terminology, idiomatic expression, and conceptual interpretation to ensure linguistic clarity and cultural suitability. The reconciled Malay version was then independently translated back into English by two additional bilingual translators who were blinded to the original scale.

The pre-final version was reviewed by an expert panel comprising 5 members: 2 psychiatrists, 1 language specialists, and 2 bilingual translators involved in the translation process. The panel reviewed each item for semantic equivalence, conceptual relevance, cultural appropriateness, and comprehensibility. Disagreements regarding terminology or item wording were discussed collectively and resolved by consensus, with revisions made until agreement was reached among the panel members. Formal item-level or scale-level content-validity indices were not calculated because the expert review was conducted as a qualitative consensus-based component of the cross-cultural adaptation process [24]. This is acknowledged as a methodological limitation.

The pre-final version was pilot tested among 20 Malaysian adults representing varied educational backgrounds to assess clarity, readability, and comprehension. Participants provided feedback on ambiguous or culturally incongruent items, leading to minor wording refinements. The finalized Malay TACS-22 was then used in the main validation study.

2.4. Measures

2.4.1. Tarumi's Modern-Type Depression Trait Scale (TACS-22)

The TACS-22 is a 22-item self-report instrument developed by Kato et al. (2019) to assess personality and behavioural traits associated with modern-type depression [18]. Each item is rated on a 5-point Likert scale ranging from 0 (Disagree) to 4 (Agree). Following appropriate reverse scoring, the Avoidance of Social Roles subscale (10 items) has a possible score range of 0–40, while the Low Self-Esteem (6 items) and Complaint (6 items) subscales each have possible score ranges of 0–24. The total TACS-22 score ranges from 0 to 88, with higher scores indicating greater endorsement of modern-type depression traits [18].

The 22-item TACS-22 demonstrated robust psychometric properties across Japanese clinical and community samples. Factor analysis reports good internal consistency ($\alpha = 0.80$ overall; 0.64–0.75 for subscales) and strong test–retest reliability ($r = 0.69$ – 0.78 , $p < 0.001$). Convergent validity was supported by significant positive correlations with measures of narcissistic and avoidant personality traits, harm avoidance, depression, and anxiety.

The TACS-22 is a reliable and valid instrument for assessing premorbid personality traits characteristic of modern-type depression [18].

For this study, no empirically validated clinical cut-off scores have been established for the TACS-22-Malay. Scores were analyzed as continuous measures, and no clinical severity categories or diagnostic thresholds were applied in the present study.

2.4.2. Depression, Anxiety, and Stress Scale (DASS-21)

The DASS-21 is a widely used self-report instrument designed to measure symptoms of depression, anxiety, and stress in both clinical and community populations. The scale contains 21 items, divided equally into three subscales corresponding to these constructs. Each item is rated on a 4-point frequency scale ranging from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much or most of the time*). Subscale scores are summed and multiplied by two to yield comparable values to the original 42-item version [25].

The *Bahasa Malaysia (BM) version* of the DASS-21, validated by Musa et al. (2007), has demonstrated excellent psychometric robustness in Malaysian populations [26]. In the original Malaysian validation, internal consistency was $\alpha = 0.84$ for Depression, 0.74 for Anxiety, and 0.79 for Stress [26]. Reliability was additionally evaluated in the present sample, with current-sample coefficients reported in the Results and Supplementary File S3. Confirmatory factor analysis supported the original three-factor structure, with most items displaying satisfactory factor loadings above 0.40, indicating good construct representation. Furthermore, intercorrelations among the subscales ranged from $r = 0.54$ to 0.68, suggesting that while the domains are related, they capture distinct aspects of affective distress.

2.5. Sample Size

The sample size for this study was determined based on established recommendations for factor analytic studies, which suggest a minimum subject-to-item ratio ranging from 5:1 to 10:1 to support stable parameter estimation [27]. As the TACS-22-Malay comprises 22 items, a conservative 10:1 participant-to-item ratio was adopted, resulting in a minimum required sample size of 220 participants (22 items $\times$ 10 participants per item). The DASS-21 items were not included in this calculation because the DASS-21 was administered as an external measure of psychological distress for examining criterion-related associations.

Although the participant-to-item ratio provided a pragmatic basis for the initial sample-size target, adequacy for CFA also depends on factors such as model complexity, the number of freely estimated parameters, item distributions, factor loadings, and the estimator used [28]. The present sample should therefore be regarded as sufficient for an initial psychometric evaluation rather than as definitive evidence of sample adequacy for the proposed measurement structure.

To provide an additional margin above the minimum requirement and to account for the possibility of incomplete or unusable responses, a target sample of 250 participants was established. Recruitment ceased once the prespecified target of 250 complete and eligible responses had been reached. The final dataset comprised 250 complete responses, thereby exceeding the minimum recommended sample size for the planned confirmatory factor analysis and reliability assessments.

2.6. Field Testing

Field testing of the Malay version of *Tarumi's Modern-Type Depression Trait Scale* (TACS-22) was conducted through an online survey designed to evaluate the instrument's clarity, comprehensibility, and psychometric properties within a Malaysian population.

A convenience sampling approach was employed, with participants recruited through online and university-based networks. Participants were recruited using convenience sampling through online and university-based networks in Malaysia, including social media

platforms, institutional mailing lists, university networks, and dissemination through the Reserve Officer Training Unit (ROTU). Recruitment was conducted between late August and September 2025. Participation remained voluntary, and all respondents were required to fulfil the study eligibility criteria irrespective of the recruitment channel.

For recruitment through the Reserve Officer Training Unit, the unit assisted only with dissemination of the online study invitation. Instructors and commanding officers were not involved in deciding who participated or in monitoring individual participation. Participation or non-participation had no effect on trainees' assessment, standing, training, or other ROTU activities. The contribution of the ROTU represented one of several convenience-based recruitment pathways rather than a predefined sampling stratum. The specific number or proportion of participants recruited through this channel was not separately recorded.

Participants were first presented with a brief description of the study objectives, confidentiality assurance, and estimated time for completion. Only individuals who consented electronically proceeded to the survey. The questionnaire consisted of three main sections: (1) sociodemographic information such as age, gender, educational level, and occupational status; (2) the Malay-translated TACS-22 assessing modern-type depression traits; and (3) the DASS-21, included to examine external associations with psychological distress. Participants' state or region of residence and specific recruitment institution were not recorded systematically; therefore, the geographic distribution of the final sample could not be quantified.

The average time required to complete the survey was approximately 15–20 min. Responses were automatically stored in a password-protected database accessible only to the research team. Upon completion, participants were thanked and provided with brief educational information on mental health awareness and available support resources in Malaysia.

All procedures have been approved by the appropriate local research ethics committee and are compliant to the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2013.

2.7. Statistical Analyses

Statistical analyses were conducted using IBM SPSS Statistics Version 29 for initial data management and R for the psychometric analyses. The analytic dataset contained 250 complete cases with no missing TACS-22 or DASS-21 item responses; therefore, no missing-data imputation was required. No participants were excluded from the final analytic dataset because of missing TACS-22 or DASS-21 item data [29]. Additional response-quality indicators, such as duplicate submissions, unusually short completion times, or repetitive response patterns, were not systematically assessed. TACS item distributions were summarized using the mean, standard deviation, median, interquartile range, skewness, kurtosis, observed response range, and floor and ceiling proportions. Multivariate normality of the 22 TACS items was examined using Mardia's skewness and kurtosis statistics.

Internal consistency was evaluated separately for Avoidance of Social Roles, Low Self-Esteem, Complaint, and the total TACS-22 score using Cronbach's alpha, ordinal McDonald's omega, and the Greatest Lower Bound. Cronbach's alpha and item rest diagnostics were computed using the psych package. Ordinal omega was calculated from standardized one-factor WLSMV loadings and residual variances using lavaan package, and GLB was estimated using polychoric correlation. Item rest correlations below 0.30 were treated as weak [30]. Reliability of the DASS-21 Depression, Anxiety, and Stress subscales was also estimated in the present sample. Items 4 and 9 were reverse scored before

scale scoring and all psychometric analyses, using the verified transformation reversed score = 4 minus original score.

Construct validity was examined with the complete 22-item measurement model. Because the indicators are ordinal with five response categories and multivariate normality was not supported, the primary CFA treated all TACS items as ordered categorical indicators and used the weighted least squares mean and variance-adjusted estimator in lavaan, which models the ordinal association structure through polychoric correlations. This approach was selected in preference to conventional maximum likelihood for the primary analysis because categorical estimators are generally more appropriate for ordered indicators [31]. The prespecified model contained three correlated latent factors: Avoidance of Social Roles, Low Self-Esteem, and Complaint. Robust maximum likelihood and conventional maximum likelihood models were fitted as sensitivity analyses, and a one-factor model was examined to assess whether a unidimensional total score structure was supported.

For model identification, the scale of each latent factor was established by fixing its variance to 1, with the three latent factors allowed to correlate freely. Each item loaded only on its prespecified factor, and no cross-loadings or correlated residuals were specified in the primary model. For the ordinal CFA, the theta parameterization was used.

Separate one-factor CFAs for each subscale were retained only as supplementary analyses to characterize the within-subscale performance of the originally proposed dimensions and to permit comparison with the earlier analytical approach. These models were not considered substitutes for the complete three-factor CFA, which constituted the primary test of the hypothesized TACS-22 measurement structure.

The heterotrait–monotrait ratio of correlations (HTMT) was calculated as a supplementary assessment of discriminant validity between the three proposed factors. HTMT compares the average correlations between items from different constructs with correlations among items measuring the same construct. Values below 0.85 are generally considered indicative of adequate discriminant validity, although 0.90 may be accepted as a more liberal threshold. HTMT values approaching or exceeding 1 indicate substantial overlap and inadequate empirical distinction between factors. Given the inadmissibility of the three-factor CFA solution, HTMT was interpreted as a supplementary diagnostic rather than as an independent confirmation of construct validity.

Model evaluation included chi square, degrees of freedom, CFI, TLI, RMSEA with 90% confidence interval, and SRMR. Standardized and unstandardized factor loadings, item residual variances, item R squared values, latent factor correlations, model convergence, post estimation admissibility checks, and eigenvalues of the latent covariance matrix were examined. Negative residual variances, standardized loadings above 1, or factor correlations above 1 were treated as improper estimates. Discriminant validity was evaluated primarily from latent factor correlations and supplemented by the heterotrait–monotrait ratio. Composite reliability (CR) and average variance extracted (AVE) were calculated as supplementary diagnostic indices. Because the three-factor model produced an inadmissible solution, these estimates were not interpreted as evidence of reliability, convergent validity, or construct validity [32,33]. No post hoc model modifications were introduced; modification indices were reviewed only as diagnostics.

Convergent associations were evaluated using Spearman's ρ between each TACS-22-Malay subscale, the total score, and the DASS-21 Depression, Anxiety, and Stress scores. Percentile bootstrap 95% confidence intervals were obtained using 2000 resamples. The number of participants included in each correlation was reported explicitly. Correlation magnitudes were interpreted using Cohen's conventional benchmarks of approximately 0.10, 0.30, and 0.50 for small, medium, and large associations, respectively, while recognizing that these thresholds are general guidelines rather than absolute criteria [34].

Interpretation emphasized the magnitude, confidence interval, consistency, and construct specificity of the associations rather than statistical significance alone.

No formal Bonferroni or false discovery-rate adjustment was applied to the 12 convergent-association tests because these represented a limited set of prespecified, hypothesis-driven comparisons between the four TACS-22-Malay scores and the three established DASS-21 domains rather than an exploratory search across a large number of outcomes. Interpretation therefore emphasized effect sizes, bootstrap confidence intervals, and consistency across domains rather than statistical significance alone. Cronbach's alpha, ordinal McDonald's omega, GLB, and associated item diagnostics were treated as psychometric estimates rather than as a family of null-hypothesis significance tests and were therefore not subjected to multiplicity correction. CFA parameter estimates were interpreted within the prespecified measurement model together with global fit and admissibility diagnostics rather than through isolated significance testing.

All inferential tests were two-sided with statistical significance set at $p < 0.05$. Exact p values are reported where informative, with $p < 0.001$ used for very small values.

2.8. Ethical Considerations

Ethical approval for this study was obtained from the Research Ethics Committee of Universiti Malaysia Sabah, Malaysia (Approval No. JKEtika 4/25 (20); approved on 22 August 2025). Electronic informed consent was obtained from all participants prior to participation.

3. Results

The study sample consisted of 250 participants with a mean age of 28 years. A majority were in the 21–25 age group (48.8%), followed by those over 30 years old (30%), 20 and below (16.8%), and a smaller proportion aged 26–30 (4.4%). Most respondents were female (68.4%) and held at least a bachelor's degree (52%), with others reporting high school (28%), diploma (8%), master's (4.8%), and doctoral qualifications (7.2%). In terms of marital status, most participants were single (74.4%), with 23.2% married and 2.4% divorced. Regarding work experience, the majority (60.4%) had less than one year of work experience or were students, while 31.2% had more than four years of experience, and smaller groups had worked 1–2 years (4%) or 3–4 years (4.4%) (See Table 1).

Descriptive statistics for the TACS-22-Malay items are presented in File S2. Item means ranged from 0.932 to 3.188 and standard deviations from 0.927 to 1.218. Skewness ranged from negative 1.010 to 1.109 and kurtosis from negative 0.896 to 0.402. Although all 22 items used the full observed response range from 0 to 4, several items showed marked concentration at response scale endpoints. TACS M22 had the largest floor proportion at 47.2%, while TACS M13 had the largest ceiling proportion at 46.4%; TACS M1 also showed a ceiling proportion of 43.6%. These distributional features supported treating the item responses as ordered categorical indicators rather than relying on normality assumptions. Multivariate normality was not supported by Mardia's skewness test, chi square (2024) = 3773.546, $p < 0.001$, or Mardia's kurtosis test, $z = 23.856$, $p < 0.001$.

Table 1. Sociodemographic characteristics of the respondents (N = 250).

		Mean	Count	%
	Age (Years)	28		
Age group	20 and below		42	16.8%
	21–25 years old		122	48.8%
	26–30 years old		11	4.4%
	More than 30 years old		75	30.0%
Gender	Female		171	68.4%
	Male		79	31.6%
Educational Level	High School		70	28.0%
	Diploma Degree		20	8.0%
	Bachelor's Degree		130	52.0%
	Master's Degree		12	4.8%
	Doctoral Degree		18	7.2%
Marital Status	Single		186	74.4%
	Married		58	23.2%
	Divorced		6	2.4%
Length of work (years)	Less than 1 years (or student)		151	60.4%
	1–2 years		10	4.0%
	3–4 years		11	4.4%
	More than 4 years		78	31.2%

3.1. Reliability Analysis

Reliability differed substantially across the three substantive TACS dimensions. Avoidance of Social Roles showed $\alpha = 0.617$, 95% CI [0.549, 0.686], ordinal omega = 0.677, and GLB = 0.745. Within this subscale, TACS M9 had a negative item rest correlation of negative 0.180 and alpha increased to 0.684 when it was deleted. TACS M13 also showed a weak item rest correlation of 0.182.

Complaint showed the weakest internal consistency, with $\alpha = 0.412$, 95% CI [0.300, 0.523], ordinal omega = 0.496, and GLB = 0.596. TACS M4 had an item rest correlation of 0.028 and TACS M8 had an item rest correlation of 0.105, indicating weak alignment with the remaining Complaint items.

Low Self-Esteem showed the strongest subscale reliability, with $\alpha = 0.711$, 95% CI [0.656, 0.765], ordinal omega = 0.760, and GLB = 0.822. Most items contributed positively, although TACS M1 showed a weak item rest correlation of 0.166 and TACS M6 was marginal at 0.286.

At the total score level, alpha was 0.804, 95% CI [0.770, 0.838], ordinal omega was 0.839, and GLB was 0.877. These coefficients indicate strong internal consistency but do not establish unidimensionality. Reliability of the DASS-21 subscales in the present sample was also high: Depression $\alpha = 0.923$ and omega = 0.955, Anxiety $\alpha = 0.876$ and omega = 0.918, and Stress $\alpha = 0.881$ and omega = 0.919 (see Table 2).

Table 2. Reliability estimates and key item diagnostics for the TACS-22-Malay (N = 250; full results in File S3).

Scale	Cronbach Alpha	95% CI	Ordinal Omega	GLB	Key Item Diagnostics
TACS-22-Malay Total Score	0.804	[0.770, 0.838]	0.839	0.877	M9 total item rest = negative 0.121; M4 = negative 0.007
Avoidance of Social Roles	0.617	[0.549, 0.686]	0.677	0.745	M9 item rest = negative 0.180; M13 = 0.182
Low Self-Esteem	0.711	[0.656, 0.765]	0.760	0.822	M1 item rest = 0.166; M6 = 0.286
Complaint	0.412	[0.300, 0.523]	0.496	0.596	M4 item rest = 0.028; M8 = 0.105

Subscale specific item diagnostics are reported in File S3. The revised analyses confirm that the principal reliability concerns are concentrated in TACS M9 within Avoidance of Social Roles and TACS M4 and TACS M8 within Complaint. Importantly, the reliability coefficients should be interpreted together with the CFA results because high internal consistency alone cannot establish the intended dimensional structure.

3.2. Construct Validity

The primary full three-factor WLSMV CFA converged but did not produce an admissible measurement model. Global fit was poor, chi square (206) = 794.922, $p < 0.001$, CFI = 0.587, TLI = 0.537, RMSEA = 0.117, 90% CI [0.110, 0.125], and SRMR = 0.108. The lavaan post estimation check failed because the latent covariance matrix was not positive definite, with a minimum eigenvalue of negative 0.103.

Standardized WLSMV loadings for Avoidance of Social Roles ranged from negative 0.144 to 0.651. TACS M9 loaded negatively, standardized loading = -0.144 , $p = 0.025$, and TACS M13 had a weak nonsignificant loading of 0.106, $p = 0.144$. Low Self-Esteem loadings ranged from 0.341 to 0.810 and were all statistically significant. Complaint loadings ranged from 0.033 to 0.616; TACS M4 was essentially unrelated to the factor, standardized loading = 0.033, $p = 0.589$, while TACS M8 was weak at 0.309. No negative item residual variances or standardized loadings above 1 were observed.

The latent factor correlations were 0.748 between Avoidance of Social Roles and Low Self-Esteem, 0.959 between Avoidance of Social Roles and Complaint, and 1.050 between Low Self-Esteem and Complaint. The last correlation exceeded 1 and its confidence interval also extended above 1, indicating an improper solution and inadequate discriminant validity. Supplemental HTMT values were 0.816, 0.981, and 1.073 for the same factor pairs, respectively. For descriptive diagnostic purposes, CR and AVE were 0.668 and 0.210 for Avoidance of Social Roles, 0.785 and 0.395 for Low Self-Esteem, and 0.483 and 0.161 for Complaint. Because these estimates were derived from an inadmissible three-factor solution, they should not be interpreted as evidence supporting factor reliability or convergent validity. Rather, the generally low AVE values and weak CR for some factors provide additional diagnostic indications of poor factor definition.

Robust maximum likelihood and conventional maximum likelihood sensitivity analyses likewise failed the post estimation admissibility check, indicating that the structural problem was not resolved by estimator choice (see Table 3).

Table 3. Full confirmatory factor analysis model fit and admissibility for the TACS-22-Malay (N = 250; full parameter results in File S4).

Model and Estimator	N	Chi Square (df)	CFI	TLI	RMSEA (90% CI)	SRMR	Admissibility
Three-factor WLSMV	250	794.922 (206), $p < 0.001$	0.587	0.537	0.117 [0.110, 0.125]	0.108	Post check failed; latent covariance not positive definite; factor correlation above 1
Three-factor MLR	250	464.636 (206), $p < 0.001$	0.719	0.685	0.078 [0.068, 0.087]	0.086	Post check failed; latent covariance not positive definite
Three-factor ML	250	564.109 (206), $p < 0.001$	0.691	0.654	0.083 [0.075, 0.092]	0.086	Post check failed; latent covariance not positive definite
One-factor WLSMV	250	824.866 (209), $p < 0.001$	0.551	0.504	0.121 [0.114, 0.129]	0.110	Admissible

3.3. Convergent Validity

All prespecified TACS-22-Malay scores showed positive associations with DASS 21 Depression, Anxiety, and Stress. Avoidance of Social Roles correlations ranged from $\rho = 0.235$ to 0.338 , Low Self-Esteem from 0.469 to 0.519 , Complaint from 0.600 to 0.644 , and the TACS-22 Total Score from 0.485 to 0.564 . All correlations were based on $N = 250$ and were statistically significant at $p < 0.001$. Bootstrap confidence intervals are presented in Table 4 and File S5. Because Complaint showed poor reliability and inadequate factorial distinctiveness, its relatively strong DASS associations are interpreted as evidence of association with general psychological distress rather than as sufficient evidence of construct validity.

Table 4. Criterion-related associations between TACS-22-Malay scores and DASS-21 domains with bootstrap 95% confidence intervals (N = 250).

DASS-21 Domain	Avoidance of Social Roles	Low Self-Esteem	Complaint	TACS-22 Total Score
Depression	0.312 [0.185, 0.424]	0.519 [0.411, 0.616]	0.641 [0.555, 0.710]	0.564 [0.463, 0.653]
Anxiety	0.235 [0.106, 0.363]	0.469 [0.363, 0.569]	0.600 [0.507, 0.679]	0.485 [0.381, 0.578]
Stress	0.338 [0.217, 0.453]	0.494 [0.384, 0.592]	0.644 [0.560, 0.718]	0.564 [0.459, 0.647]

Note: Values are Spearman ρ with bootstrap 95% confidence intervals. $N = 250$ for every correlation; all $p < 0.001$.

4. Discussion

The analyses provide evidence of internal consistency- and criterion-related associations, but they do not support the hypothesized measurement structure of the TACS-22-Malay in this sample. This distinction is important. Reliability coefficients describe score consistency, whereas construct validity requires evidence that the proposed latent structure is adequately represented and that the intended dimensions are empirically distinguishable [27].

4.1. Reliability and Internal Consistency

The total TACS-22 score showed high internal consistency, with $\alpha = 0.804$ and ordinal $\omega = 0.839$. However, the one-factor WLSMV model fit poorly. The total score therefore cannot be regarded as a validated unidimensional measure solely because its

reliability coefficients are high. Strong total score reliability may arise when heterogeneous but correlated item clusters share broad variance without forming a single coherent latent factor [35].

At the subscale level, Low Self-Esteem showed the strongest internal consistency, with $\alpha = 0.711$ and ordinal $\omega = 0.760$. Its diagnostic AVE estimate was nevertheless only 0.395, and the full model showed extremely high overlap with Complaint. Avoidance of Social Roles showed suboptimal reliability and included the negatively functioning TACS M9, whereas Complaint showed poor reliability and weak item performance for TACS M4 and TACS M8. As the three-factor model was inadmissible, the CR and AVE estimates cannot be regarded as evidence of reliability or convergent validity and are reported only to characterize the sources of model inadequacy.

4.2. Construct Validity

The central construct validity finding is that the prespecified three-factor model was not supported. Under the primary ordinal WLSMV analysis, global fit was poor and the latent covariance matrix was not positive definite. The Low Self-Esteem and Complaint correlation exceeded 1, while the Avoidance of Social Roles and Complaint correlation approached unity. Supplemental HTMT values likewise indicated inadequate separation involving Complaint. These results are stronger evidence of structural overlap than the earlier separate one-factor subscale CFAs, because the full model evaluates all 22 indicators and all three latent dimensions simultaneously [32].

The sensitivity analyses reinforce this interpretation. MLR produced CFI = 0.719 and TLI = 0.685 with RMSEA = 0.078 and SRMR = 0.086, while conventional ML produced CFI = 0.691 and TLI = 0.654 with RMSEA = 0.083 and SRMR = 0.086. Both models failed the post estimation admissibility check and produced a Low Self-Esteem and Complaint correlation close to 1. Thus, the poor structural performance is not adequately explained by the choice of WLSMV alone. The one-factor WLSMV model also fit poorly, indicating that collapsing all items into a single latent factor does not resolve the dimensionality problem [31,33].

4.3. Associations with Psychological Distress

The positive correlations indicate that higher TACS-22-Malay scores were associated with greater psychological distress. However, these findings represent external criterion-related associations and should not be interpreted as establishing convergent validity, particularly because the hypothesized internal measurement structure was not supported.

A plausible interpretation is that several Complaint items capture broad negative affect or distress that overlaps with the wording and content of the DASS-21 domains, rather than a clearly separable Complaint trait. This may explain why the observed external correlations remained strong despite the attenuation ordinarily expected from a measure with weak internal consistency. The high intercorrelations among the DASS-21 subscales in this sample, ranging from 0.787 to 0.849, further indicate that the external criterion domains share substantial general-distress variance. Item heterogeneity may also have contributed to this pattern: TACS M12 showed the strongest standardized loading within Complaint, whereas TACS M4 and TACS M8 performed weakly. However, item-level correlations with the DASS-21 were not examined; therefore, it cannot be determined whether TACS M12 or another individual item disproportionately drove the observed associations. Consequently, the strong Complaint correlations should be treated as preliminary external associations rather than evidence that Complaint is a reliable or psychometrically distinct TACS factor.

The current analysis was intentionally confirmatory. Although modification indices suggested several residual correlations and cross-loadings that could improve numerical fit,

no post hoc modifications were added because doing so in the same sample would risk capitalizing by chance. Any revised factor structure should be developed through substantive item review and exploratory modelling, then tested in an independent validation sample.

4.4. Cultural and Conceptual Implications

Item-level findings identify several priorities for cultural and linguistic reassessment. TACS M9 remained problematic after verified reverse scoring, showing a negative item rest correlation and negative standardized loading. This rules out a simple computational recoding error and instead points toward semantic interpretation, response style, or conceptual mismatch [36]. TACS M4 also remained weak after verified reverse scoring, and TACS M8 contributed weakly to Complaint. TACS M13 showed a very weak loading and a pronounced ceiling concentration. These patterns indicate that the difficulties are not confined to one reversed item or one factor.

Future refinement should include independent retranslation and expert linguistic review of both reverse-worded items, followed by cognitive debriefing with a new pilot sample to examine respondents' interpretation of negation, item direction, and intended meaning [37]. TACS M4 and TACS M8 should be prioritized for targeted linguistic and conceptual review and potential rewriting. If revised versions continue to demonstrate poor item–rest relationships and weak loadings in an independent validation sample, their removal from the Complaint subscale may then be considered [38,39]. If semantic clarity cannot be achieved while retaining the reversed format, positively worded alternatives should be developed and tested alongside the original formulations. Any revised items should undergo item-level psychometric assessment and evaluation within the complete measurement model in an independent validation sample before being incorporated into the TACS-22-Malay. Revised wording should be evaluated before statistical item deletion is considered [21,38,40].

Because the current full CFA did not support adequate factor separation, item removal based solely on modification indices or alpha if deleted values would be premature. A stronger development strategy would first clarify item meaning qualitatively, then examine alternative structures using exploratory-factor analysis or exploratory-structural equation modelling in a development sample, followed by CFA in a separate validation sample [35]. Bifactor modelling may also be informative if a broad general-distress component is theoretically plausible [41]. In this study, a higher-order model was not pursued because such a model presupposes adequately distinguishable first-order factors; the very high latent correlations and inadmissible three-factor solution observed in the present data did not provide an adequate basis for fitting a higher-order structure [42].

4.5. Limitations and Future Directions

This study has several limitations. Although multidisciplinary expert review and pilot testing were conducted during cultural adaptation, formal quantitative content-validity indices were not calculated.

The sample was obtained through convenience recruitment and was predominantly young, single, female, and university-affiliated or early in employment, limiting generalizability to the wider Malaysian adult population. Recruitment through university-based networks, including dissemination support from the Reserve Officer Training Unit of Universiti Malaysia Sabah, may have further increased the representation of students and younger adults connected to university or officer-training environments, and may therefore be susceptible to response biases, including social desirability and common-method bias. Because the number of participants recruited through each channel was not separately recorded, the magnitude of this recruitment-channel bias cannot be quantified. Accordingly,

the present sample should not be considered nationally representative, and the reported score distributions should not be interpreted as population norms for Malaysian adults.

In addition, response-quality indicators such as duplicate submissions, unusually short completion times, and repetitive response patterns were not systematically assessed, which should be considered when interpreting the findings. The study was cross-sectional and did not assess test–retest reliability or predictive validity. The same sample was also used to examine item diagnostics and the prespecified factor model; therefore, any future model refinement requires independent replication.

The strong endpoint concentrations for several items suggest possible response style, wording, or content specificity that should be examined qualitatively. In addition, the present sample was nonclinical; therefore, the results cannot establish performance in patients with depressive disorders or determine diagnostic thresholds [40,43].

Future studies should recruit larger and more demographically and geographically diverse Malaysian samples through broader community-based recruitment and, where feasible, stratified or probability-based sampling. Recruitment sources should be documented so that potential channel-specific selection bias can be evaluated.

Future refinement should include structured expert ratings and report item- and scale-level content-validity indices. The design should include a qualitative or mixed-methods sub-study using cognitive interviews which examine how respondents understand Complaint-related wording, whether overt expressions of dissatisfaction or vulnerability are perceived as socially undesirable, and whether norms concerning deference, interpersonal harmony, and emotional restraint influence item endorsement. The qualitative findings should inform targeted item revision, followed by psychometric testing of the revised items in an independent sample. This approach would allow the proposed collectivist-culture interpretation to be empirically evaluated rather than retained as an untested explanation [44,45].

5. Conclusions

The Malay adaptation of the Tarumi's Modern-Type Depression Trait Scale showed high internal consistency for the total score and significant positive associations with depression, anxiety, and stress. However, the complete ordinal three-factor CFA did not support the hypothesized measurement structure, the latent covariance matrix was inadmissible, and discriminant validity between Low Self-Esteem and Complaint was not established. The one-factor model also fit poorly, so the high reliability of the total score should not be interpreted as evidence of a validated unidimensional construct.

Accordingly, the present study should be interpreted as a psychometric evaluation of a provisional Malay adaptation rather than confirmation of a fully validated scale. Routine independent interpretation of the three subscales, and strong substantive interpretation of the total score, are not recommended until problematic items and factor overlap have been addressed and the revised structure has been replicated in an independent sample. The present results provide a clear empirical basis for targeted linguistic, conceptual, and psychometric refinement.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/psychiatryint7050212/s1>, File S1: Tarumi Clinical Form; File S2: Descriptive Statistics for TACS-22-Malay Items and Item Translation Listings; File S3: Reliability Analysis; File S4: Construct Validity and Full Confirmatory Factor Analysis; File S5: Convergent Associations Between TACS 22 Malay and DASS 21; File S6: List of Abbreviations.

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Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to ethical/privacy issues.

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