PUBLIC HEALTH RESEARCH

Construct Validity and Reliability of the Malay Version of Rosenberg Self Esteem Scale (RSES) among youth in Southern Malaysia: A Confirmatory Factor Analysis

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ABSTRACT

Introduction	The Rosenberg Self-Esteem Scale (RSES) is widely used to measure self-esteem among adults and youth. This study aims to determine the construct validity and reliability of the Rosenberg Self-Esteem Scale Malay version (RSES-M) among Malaysian youth using Confirmatory Factor Analysis (CFA).
Methodology	We administered the Malay-language RSES to 378 Form Four students in the Kota Tinggi District, selected through multistage sampling. The construct validity of RSES-M was assessed using confirmatory factor analysis (CFA), while internal consistency was measured using Cronbach alpha. AMOS version 26 and SPSS version 20 were used for statistical analysis. We compared three measurement models of the RSES-M for the best relative fit: one uni-dimensional model and two different two-domain models (with different items assigned to each domain for each model).
Results	The findings indicate that the best model for the RSES-M was a two-domain model, with domain one representing positive self-esteem and domain two representing negative self-esteem. The item "I wish I could respect myself more" demonstrated a strong fit within the CFA model when included under the positive domain of self-esteem (Model 3) compared to negative domain ((Model 2) (Chi-Square/degree of freedom (df) = 3.341, goodness of fit (GFI) = 0.967, Comparative Fit Index (CFI) = 0.905, Incremental Fit Index (IFI) = 0.906, and the Root Mean Squared Error of Approximation (RMSEA) = 0.079 and substantial reliability (Cronbach's alpha for domain one = 0.765, and domain two = 0.648). This finding diverges from the original RSES developed by Morris Rosenberg in 1965, which conceptualised the RSES as a unidimensional construct, and other studies that categorised the item "I wish I could respect myself more" under the negative self-esteem domain.
Keywords	Rosenberg Self-Esteem Scale Malay (RSES-M); Malaysian youth; construct validity; reliability

INTRODUCTION

The Rosenberg Self-Esteem Scale (RSES) was developed by Morris Rosenberg in 1965,[1] and is frequently used to measure self-esteem across various fields such as social science, psychiatry, mental health and psychology.[2-5] The RSES consists of 10 items, each rated on a 4-point Likert scale (ranging from strongly disagree to strongly agree). Out of the 10 items, some are positively worded, such as "On the whole, I am satisfied with myself", while others are negatively worded, such as "Sometimes I feel that I am not good at all". The total RSES score ranges from 10 to 40; a higher score indicates a higher level of self-esteem.[1]

The RSES has been translated into various languages, including Nepalese,[6] Urdu,[7] Chinese,[8] Thai,[4] Bangladesh,[9] Greek,[10] Swedish,[11] and Malay.[12-14] Some studies have determined the RSES to be uni-dimensional,[1,10,11] while others have documented it to be two-dimensional.[4,12,13,15] The debate over the dimensionality of self-esteem measurement is longstanding. Some studies suggested that the RSES is a two-dimensional construct, with one dimension reflecting positive self-esteem and the other reflecting negative self-esteem.[16] However, it is generally accepted that the RSES, regardless of its dimensionality, is a globally valid tool for evaluating self-esteem.[3]

The interpretation of one of the items in the RSES, "I wish I could respect myself more" is confusing. This item was interpreted positively in Thai,[4] Malay [12,13,15] and Chinese[7] translations, whereas it is initially negative. For instance, a study by Tinakon and Nahathai found a low inter-item correlation for this item among students in Thailand.[4] Similarly, Beeber and colleagues reported low item-total correlations for this item in studies among young women in the USA and Thailand.[17]

Several validation studies of the RSES-M have been conducted in Malaysia, with mixed findings regarding the scale's dimensionality. Some studies have used Exploratory Factor Analysis (EFA),[12,13] while others have deleted the problematic item during analysis.[15] These inconsistencies highlight the need for further investigation into the validity of the RSES-M using more comprehensive analysis methods, such as Confirmatory Factor Analysis (CFA), which is the focus of this study. Therefore, this study aims to determine the construct validity and reliability of the Rosenberg Self-Esteem Scale Malay version (RSES-M) among Malaysian youth using Confirmatory Factor Analysis (CFA).

Table 1 Items of RSES

No	Item
1	On the whole, I am satisfied with myself.
2	At times, I think I am no good at all.
3	I feel that I have several good qualities.
4	I can do things as well as most other people.
5	I feel I do not have much to be proud of.
6	I certainly feel useless at times.
7	I feel that I'm a person of worth, at least on an equal plane with others.
8	I wish I could have more respect for myself.
9	All in all, I am inclined to feel that I am a failure.
10	I take a positive attitude toward myself.

Table 2 A Validated Malay version of RSES (RSES-M)

Bil	Kenyataan
1	Selalunya saya berpuas hati dengan diri saya
2	Adakalanya saya rasa diri saya ini tidak berguna langsung
3	Saya rasa yang saya ada beberapa kualiti yang baik
4	Saya boleh melakukan tugas sama baiknya seperti orang lain
5	Saya boleh merasakan yang tidak banyak yang boleh saya banggakan
6	Adakalanya saya rasa diri saya ini tidak berguna langsung
7	Saya rasa saya seorang yang mempunyai nilai, sekurang-kurangnya sama seperti orang lain.
8	Hajat saya ialah saya lebih menghormati diri saya
9	Saya selalu rasa yang saya ini seorang yang gagal
10	Saya mengambil sikap yang positif terhadap diri saya

METHODS

This study was conducted among Form 4 secondary school students in the Kota Tinggi District of Johor, Malaysia, after obtaining approval from the Medical Research and Ethics Committee (MREC) of the Ministry of Health, Malaysia (Approval number: NMRR-12-1210-12399) and Malaysian Ministry of Education. Students were selected using stratified

cluster sampling. The first stratification divided schools into urban and rural areas, and the second stratification randomly selected schools. Form 4 classes were randomly chosen from the selected schools, and all students in the selected classes were invited to participate. Based on guidelines from Tabachnick & Fidell,[18] the required sample size was 390, accounting for a 30% non-response rate. Active parental consent was obtained for all participants.

The data was collected using paper-and-pencil methods, and the study's objective was explained to the participants, which was to identify the most suitable model of the Malay version of Rosenberg Self-Esteem Scale using Confirmatory Factor Analysis (CFA) within the local context. The participation was voluntary, and all information collected was used solely for the study.

Data cleaning was conducted before analysis. Descriptive statistics were used to summarise the characteristics of the respondents. Three different models of the RSES-M were tested using CFA:

- **Model 1**: A uni-dimensional model where all ten items were loaded onto one domain. Negative items were recoded before the analysis.[9,11,12]
- **Model 2**: A two-factor model, with items Q1, Q3, Q4, Q7, and Q10 were loaded on the positive self-esteem domain and items Q2, Q5, Q6, Q8, and Q9 were loaded on the negative self-esteem domain, based on findings by Rizwan et al and Gnambs et al.[6,19]
- **Model 3**: A two-factor model based on previous studies by Jamil, Lim et al, Tinakon & Nahathai and among others.[4,6,12,13] CFA model fit was evaluated using multiple fit indices: Chi-Square/df which should be no more than 5,[20] Comparative Fit Index (CFI $\geq$ 0.90),[20] Root Mean Square Error of Approximation (RMSEA $\leq$ 0.08),[21] and Incremental Fit Index (IFI $\geq$ 0.90).[20] Reliability was assessed using Cronbach's alpha. AMOS version 26 and SPSS version 20 were used for statistical analysis.

RESULTS

The response rate was 96.9% (378 out of 390). Most respondents were Malay (80.2%), 45.2% were male, and 59.8% of them were schooling in rural areas. The CFA results showed that the uni-dimensional model (Model 1) and the two-domain model (Model 2) did not fit well according to the specified indices with Relative chi-square $\geq$5, CFI<0.9, RMSEA>0.08 and IFI<0.9.

Table 3 Socio-demographic characteristics of respondents (N = 378)

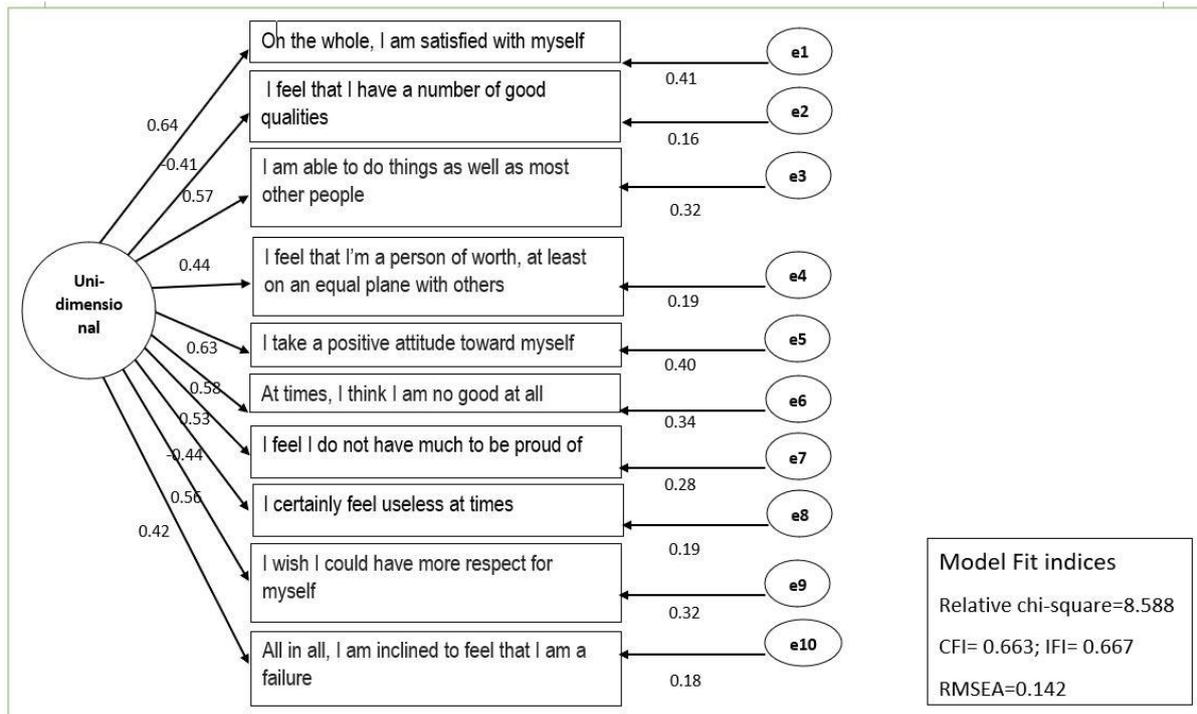| Variable	Number	Percentage
Gender		
Male	171	45.2
Female	207	54.8
Schooling area		
Urban	162	40.2
Rural	216	59.8
Ethnicity		
Malay	303	80.2
Chinese	44	11.6
Indian	30	7.9
Others	1	0.3

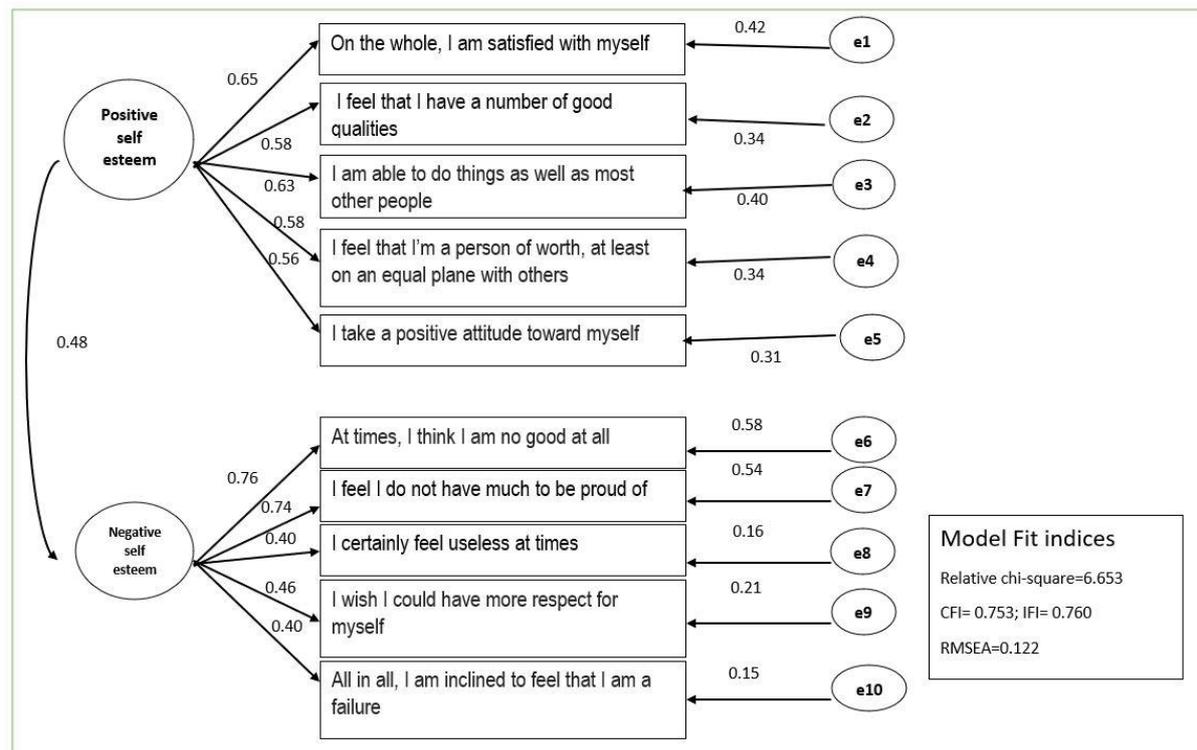**Figure 1** Model 1: Unidimensional model of RSES-M

Figure 2 Model 2: Two domains of RSES-M according to Rizwan [7]

However, Model 3, based on the two-domain structure, had a good fit (Chi-Square/df = 3.341, CFI = 0.905, IFI = 0.906, RMSEA = 0.078) and acceptable internal consistency reliability (Cronbach's alpha of 0.765 for positive self-esteem and 0.648 for negative self-esteem).
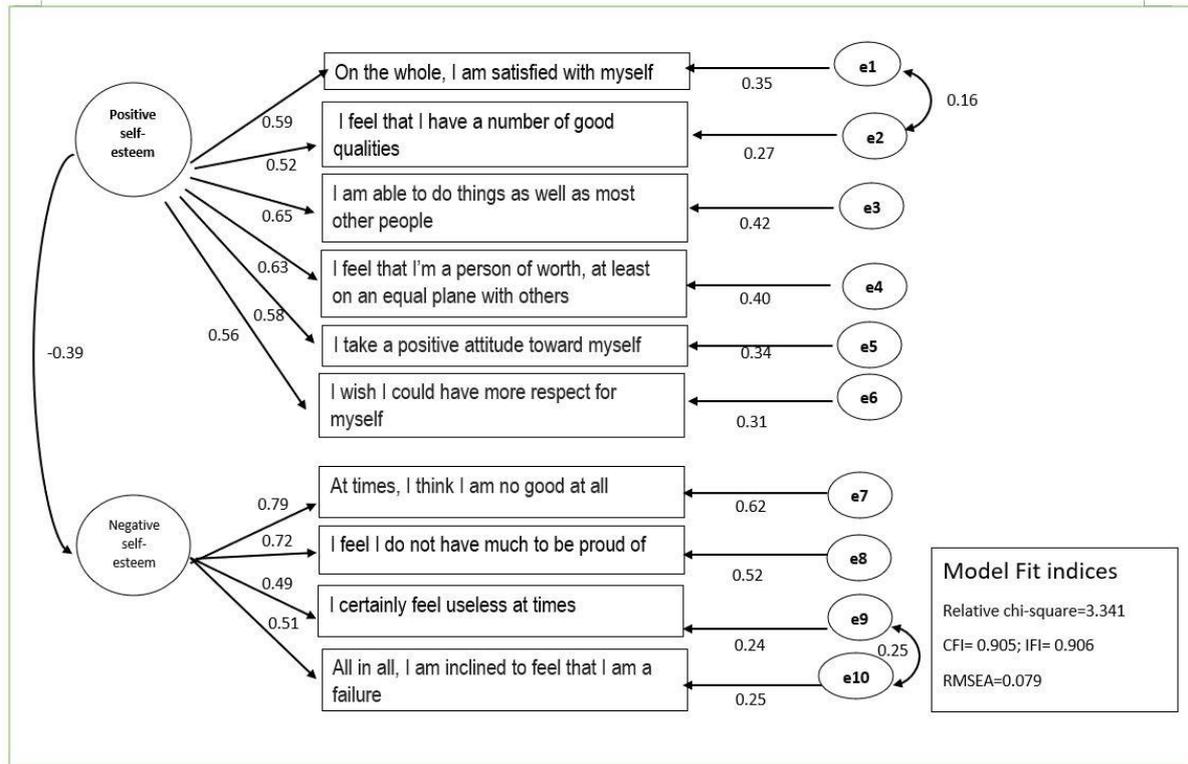

Figure 3 Model 3: Two domains of RSES-M according to Gnambs et al.[19]

DISCUSSION

The CFA results indicated that a two-domain model (Model 3) provided the best fit for the data, which was in consistent with findings from studies in other countries.[4,7,12,13,15] This model aligns with previous EFA results in Malaysia and Thailand,[12,13] which also found the RSES-M to be bi-dimensional, and divided into positive and negative self-esteem domains. However, the results contradict those of studies suggesting a uni-dimensional RSES.[1,10,11] The variation might influence the differences in such findings in linguistic or interpretational and cultural backgrounds. The information within the item "I wish I could respect myself more" might be perceived by people differently linguistically or interpretationally as some might view it as a desire to grow, reflecting motivation to improve, while some might perceive it as an expression of dissatisfaction. Moreover, in some cultural norms, acknowledging a desire for improvement is seen as a positive trait, while some might not interpret it as a sign of inadequacy. Therefore, a similar cognition, behaviour, or event can be interpreted differently depending on one's linguistic, interpretational and cultural differences. As for the present study, the information within the item "I wish I could respect myself more" could be perceived, processed and responded differently.[22]

The internal consistency for both domains (positive self-esteem: 0.765; negative self-esteem: 0.648) is similar to results reported in other countries, although slightly lower than those reported by Rosenberg and others.[1,3] Nonetheless, these values still exceed the minimum acceptable threshold of 0.60, ensuring the reliability of the RSES-M. These acceptable internal consistencies are important to ensure items are correlated and consistently measure the intended concept.[23]

In conclusion, the Malay version of the Rosenberg Self-Esteem Scale (RSES-M) demonstrated satisfactory construct validity and internal consistency in this study. These findings support the employment of RSES-M to assess self-esteem among Malaysian youth.

This study's findings are limited to secondary school students in the Kota Tinggi District and may need to be more generalisable to other regions of Malaysia. Test-retest reliability was not assessed, which would further strengthen the results.

CONCLUSION

The study suggests that the RSES-M can be used to assess self-esteem among school-going adolescents in Malaysia. Moreover, the psychometric properties

of each item are determined using CFA which enhanced the validity of RSES-M.

ACKNOWLEDGEMENT

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