ORIGINAL ARTICLE

Construct Validity and Reliability of Rosenberg Self-Esteem Scale-Malay (RSES-M) Among Upper Secondary School Students in Malaysia

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ABSTRACT

Introduction: Self-esteem is important for the development of adolescent's psychological well-being. The Rosenberg Self-Esteem Scale (RSES) is the most commonly used instrument for measuring self-esteem. However, the Malay-language version of the RSES (RSES-M) has not been validated among upper secondary school students in Malaysia. **Methods:** We administered the RSES-M to 3349 students who participated in the Malaysia Adolescent Health Risk Behavior (MyAHRB) study. The construct validity of the RSES-M was assessed using exploratory factor analysis while internal consistency was evaluated by Cronbach alpha. **Results:** The study identified two factors in the RSES-M. The variance for the first and second factor was 30.32% and 19.91%, respectively, Item 7 (I wish I could have more respect to myself) which showed a positive correlation with the positive wording contrasted with the original RSES. Such contrary may be due to social and cultural background difference. **Conclusion:** The translated version of RSES-M can be considered as a valid tool to measure self-esteem in upper school going adolescents in Malaysia. However, future studies to determine the psychometric properties of item 7 in the Malaysian setting are strongly recommended to enhance the validity of RSES-M.

Keywords: Rosenberg self-esteem scale, School going adolescents, Construct validity

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INTRODUCTION

Self-esteem is a person's overall evaluation of his or her value as a human being and it is important in the development of psychological well-being (1). High self-esteem had been considered as an important shield against anxiety (2) and had been shown to be associated with better mental health outcomes, good adaptability to cope with stress (3,4) lower incidence of depression (5,6) ,increased happiness (6), better quality of life (7) , increased academic performance in adolescents (6,8) ,better adjustment to social environment and emotional stability (9). In contrast, anxiety, and somatic complaints such as physical pain and fatigue had been shown to be associated with low self-esteem (10). Apart from mental health, inverse relationship was observed between lower self-esteem with health risk behaviors such as early sex initiation, having risky partners (6,11) ,alcohol consumption, smoking (12,13) ,juvenile delinquency (14) , suicide ideation (6) loneliness (15) and alienation (16). Therefore, the level of self-esteem and its potential impact on psychological well-being is particularly important during adolescence at which they are undergoing a period of personality and identity formation (17). Regarding this, a valid tool for measuring self-esteem is a pre-requisite to establish the profile of self-esteem among adolescents so as appropriate intervention and preventive measures can be undertaken.

Several instruments have been developed to measure self-esteem, but the Rosenberg Self-esteem Scale is the most common and popularly used instrument (18) because it is short, uncomplicated, easy to understand and administer, and had a long history of use (19). It consists of 10 items, which are divided equally into positive and negative items. For instance, "I am able to do things as well as most other people" is a positive item, whilst "I certainly feel useless at times" falls under the negative item. It is developed as one-dimensional instrument with a Likert scale ranged from "strongly

agreed" to "strongly disagree". The total score ranges from the lowest of 10 to 40, whereby a higher score indicated a higher level of self-esteem. The RSES has been translated into many languages such as German (20), Japanese (21), Thailand (22), Portuguese (23), and Spanish (24) and have, on average, been found to be reliable and valid. Recently, Schmitt and Allik (2005) (25) reported a reliability of 0.75 for RSES in their multicultural study which involved 53 countries. Nonetheless, such validation of RSES in the Malay language has not been determined.

Therefore, it is timely to validate the Malay version of the RSES (RSES-M). This study aims to determine the construct validity and reliability of RSES-M among upper secondary school adolescents in selected secondary schools in Peninsular Malaysia.

MATERIALS AND METHODS

The data on Rosenberg Self Esteem Scale (RSES-M) was derived from the Malaysian Adolescent Health Risk Behaviour Study (MyAHRB). A detailed description of the methodology of the MyAHRB study has been described by Lim et al (2017) (26). In brief, the sample size of the MyAHRB study was 3578, determined based on: prevalence of SHS exposure of 3% from the pre-test, design effect of 3, 1.5% precision and 20% rate of expected non-response. Two-stage proportionate-to-size sampling was used to select a sample of students from forty secondary schools distributed throughout twenty districts in Peninsular Malaysia. All upper secondary school students in the selected schools were invited to participate in the study. The Ministry of Education, Malaysia, and education department of the respective states approved the study, while ethical approval was granted by the Medical Research and Ethics Committee of the Ministry of Health of Malaysia. Only respondents whose parents/guardian gave consent were allowed to participate in the study. The study questionnaire, which included the RSES-M (27), were distributed to the students for self-administration. Before administration of the questionnaire, research team members explained each item in the questionnaire.

In this study, 3222 students responded to the RSES-M. This sample size is adequate for performing the validation study (28). Descriptive statistics was used to describe the characteristics of the respondents and the mean score for each item on the RSES-M. Exploratory factor analysis using principal component analysis was performed to establish construct validity. The ideal number of factors was determined by eigenvalue criteria above 1 from the scree plot. Factor loading of ≥0.3 was selected as criterion for item inclusion in each factor. Adequacy of the data was assessed by the Kaiser Mayer-Olkin test and Bartlett's test. Item-total correlations and the impact of removing an item on the internal reliability was used to determine the reliability of the RSES-M. The internal consistency of each factor was examined using Cronbach's alpha. All analysis was carried out the SPSS statistical software version 16. The overall flow of the study is presented in Figure 1.

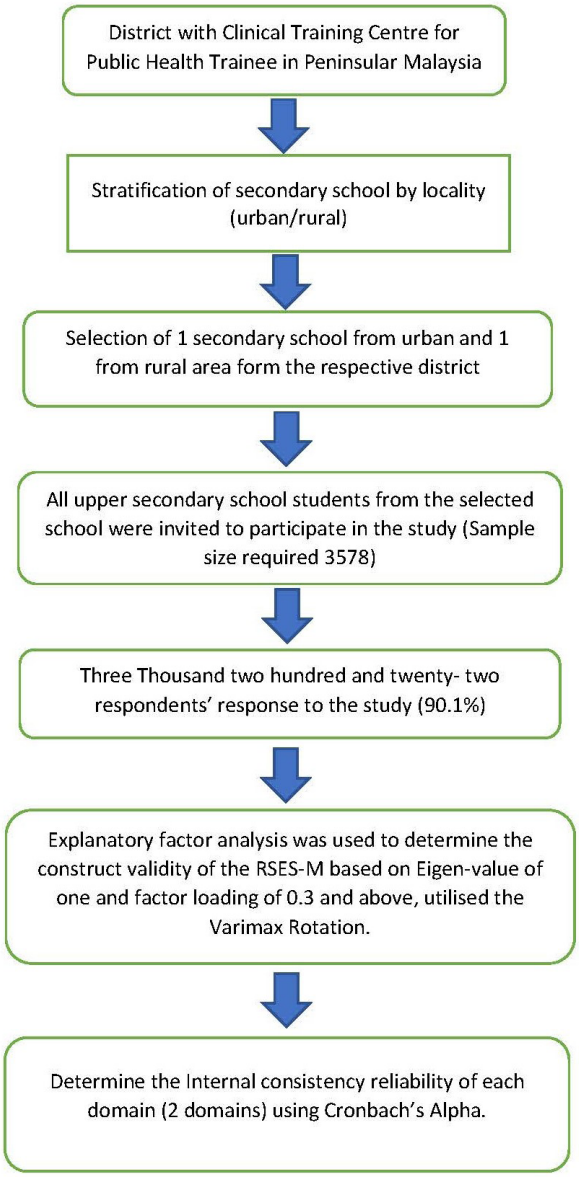

Figure 1: Sampling process for MYHARB study

RESULTS

A total of 3222 form four students which cconsisted of 46.9% (n-1531) male and 53,1% (n=1731) female students, responded in this study. A majority of respondents were Malay (79.9%- n= 2610), followed by Chinese (12.9%-n= 423) Indian (6.7% n-218) and others (0.5%-n-15). A Kaiser-Mayer-Olkin measure of 0.806 indicated good sampling adequacy for exploratory factor analysis and a significant value from the Bartlett's test of Sphericity indicated that the data were adequate for reduction. The varimax rotated factor matrix in Table I identified two factors which accounted for 50.2% of the variance. The first factor, labeled Factor 1, comprised of

Table I: Rosenberg Self-Esteem Scale -Malay (RSES-M) items and Varimax rotated factor matrix

Item	Varimax rotation (variance 50.225%)	
	Factor	
	1	2
1	0.593	
2		0.692
3	0.646	
4		0.693
5	0.735	
6	0.740	
7	0.659	
8		0.711
9	0.701	
10		0.606

items 1, 3 ,5, 6,7 and 9 (1= On the whole, I am satisfied with myself, 3= I take a positive attitude towards myself, 5= I feel that I have a number of good qualities, 6= I feel that I am a person of worth, at least on an equal plane with others, 7= I wish I could have more respect for myself, 9= I am able to do things as well as most other people) accounted for 30.3% of the variance. The second factor, Factor 2, consisted of items 2, 4 8 and 10 (2= I certainly feel useless at times, 4= All in all, I am inclined to feel that I am a failure, 8= At times, I am no good at all, 10= I do not have much to be proud of") accounted for 19.9% of the variance.

Table II shows the mean score of the items ranged from 2.07 (Item 8) to 3.20 (Item 7). All items showed good item-total correlation in the first factor, whilst similar pattern was also observed in the second factor except for Item 8 ("At times, I am no good at all") which showed low correlation with other items in the factor. There was moderate correlation between Factors 1 and 2 (r= 0.50). Internal consistency of both factors (Factor 1 and Factor 2) were moderate (Cronbach alpha 0.776 and 0.624).

DISCUSSION

To the best of our knowledge, this is the first study on the validity and reliability of the Malay version of RSES (RSES-M) among upper secondary students in Malaysia. Our study revealed that the RSES-M consisted of two factors, which is in-line with reports by Jamil (2005) among 157 lower secondary students in Seremban (Negeri Sembilan, Malaysia) (29), Mimura and Griggith (2007) among respondents in Japan (21), Greenberger et al. (2003) (30) among undergraduate students and Galanou and colleague (2014) among Greek students (31). However, the present findings contradicted the unidimensional factor reported by Martin-Albo et al. (2007) among university students in Spain) (24), Gomez Lugo et al. (2016) among Columbian and Spanish(32), Urban et al. (2014) among adolescents in Hungary (33) and Wu (2008) among undergraduates in Taiwan (34). The dimensionality of self-esteem has always been an ongoing dispute among researchers. Some researchers proposed that the RSES is a dimensional construct, while others contend that it could be two-dimensional because of positively and negatively-worded items in the RSES (20, 34). Furthermore, Kaplan and Pokorny (1969) (36) as well as Goldsmith (1986) (37) argued that the first factor reflects the positivity of an individual's defense on prestige and dignity whereas the second negative element expressed self-denigration and unfavorable attitude towards self-competence and self-liking. Alternatively, our finding of bi-dimensionality may be due to cultural differences between the Asian and the western populations (21). Secondly, the varimax rotation may have not rotated enough to yield the least variance for each dimension. However, to the best of our understanding, based on varimax rotation, the current framework of self-esteem suit best into this bi-dimensional concept. Nonetheless, it was generally accepted that regardless whether uni-dimensional or bi-dimensional RSE has similar validity in determining the global self-esteem of an individual (21).

The reliability of the first factor/positive self-esteem (0.77) and the second factor (0.629) as demonstrated from the present study were slightly lower than described by Rosenberg (1965) (38), and Vasconcelos-Raposo et al. (2012) (23)(0.806 and 0.794). Notwithstanding, a lower value of reliability for both factors in the present study, they were nevertheless higher than the minimum value of 0.60 and thus ensures the reliability of psychometric properties of a measurement tool (Nunnally and Berstein 1994)(39). On the other hand, the internal consistency of the 2 factors in the present study was comparable to a report by Mimura and Griffith (2007) among Japanese (0.76 for (positive self-esteem factor and 0.67 for negative self-esteem factor). (21)

A detailed analysis of each item in the RSES-M showed that the first factor assembles all positively-worded items, while the second factor clusters all items with negative-worded items, except for item 7. It was indicated in this observation that the positive aspects of self-esteem were explored under the first factor. Conversely, its negativity was examined under the second factor. All items in the first and second factors were identical to that reported by Jamil et al among lower secondary school students in Seremban. In addition, the varimax factor matrix of each item in factors 1 and 2 were also similar to the finding of Jamil 2006 (29), except for item no. 9 ("I am able to do things as well as most other people was higher in this study"). (0.701 vs. 0.495). The score of items were consistent in each factor, as indicated by the moderate value of Cronbach's α. However, item 7 ("I wish I could have more respect for myself"), which was supposed to be in the "negative factor" "behaved" differently in both the present study as well as in a local study by Jamil 2005 (29). We believe that respondents might have misinterpreted this item as of a positive nature. Such

Table II: Response to items and internal reliability of RSES–M among Form Four students in Malaysia

		n (%)	Mean	SD	Item-Total correlation	Cronbach Alpha (if the respective item was deleted)
1	On the whole, I am satisfied with myself		2.99	0.66	0.457*	0.756*
	Strongly disagree	121(3.7)				
	Disagree	382(11.6)				
	Agree	2210(67.1)				
	Strongly agree	562(17.7)				
2	I certainly feel useless at time		2.85	0.85	0.455**	0.516**
	Strongly disagree	847(27.3)				
	Disagree	1185(36.0)				
	Agree	1075(32.7)				
	Strongly agree	133(4.0)				
3	I take a positive attitude towards myself		3.16	0.69	0.501*	0.745*
	Strongly disagree	119(3.6)				
	Disagree	214(6.3)				
	Agree	1947(54.4)				
	Strongly agree	994(30.4)				
4	All in all, I inclined to feel that I am a failure		3.00	0.85	0.401**	0.556**
	Strongly disagree	1093(33.3)				
	Disagree	1169(35.6)				
	Agree	917(27.9)				
	Strongly agree					
5	I feel that I have a number of good qualities		3.12	0.59	0.588*	0.723*
	Strongly disagree	77(2.3)				
	Disagree	167(5.1)				
	Agree	2294(69.8)				
	Strongly agree	750(22.8)				
6	I feel that I am a person of worth, at least on an equal plane with others		3.13	0.60	0.576*	0.726*
	Strongly disagree	77(2.3)				
	Disagree	166(5.0)				
	Agree	2259(68.7)				
	Strongly agree	787(23.9)				
7	I wish I could have more respect for myself		3.20	0.65	0.479*	0.750*
	Strongly disagree	93(2.8)				
	Disagree	170(5.2)				
	Agree	2010(61.2)				
	Strongly agree	1012(31.8)				
8	At times, I am no good at all		2.07	0.70	0.321**	0.614**
	Strongly disagree	196((6.0)				
	Disagree	340(10.4)				
	Agree	2235(68.1)				
	Strongly agree	507(15.5)				
9	I am able to do things as well as most other people		3.18	0.60	0.524*	0.738*
	Strongly disagree	69(2.1)				
	Disagree	188(5.7)				
	Agree	2237(68.3)				
	Strongly agree	779(23.8)				
10	I do not have much to be proud of		2.17	0.74	0.441**	0.53**
	Strongly disagree	231(7.0)				
	Disagree	535(16.3)				
	Agree	2075(63.0)				
	Strongly agree	449(13.6)				

Reliability for Factor 1 – Cronbach Alpha 0.776 Reliability for Factor 2- Cronbach Alpha 0.6 * Item in Factor 1 ** Item in Factor 2

findings were also in line with other studies abroad. Tinakon and Nahathai (2012) (22) reported a low inter-item correlation coefficient of 0.015 for this item in their study among students in Thailand. In addition, Pullmann and Allik (2000) (40) also found a low factor loading and communality of this item in factor analysis. Furthermore, Bieber and colleague (2007) (41) also reported a low item-total correlation of 0.23 in their study among young women in USA and Thailand. However, an in-depth study is recommended to assess whether this item actually measures general self-esteem or self-respect (42).

The mean score of self-esteem among respondents in our study was lower compared to studies among respondents in Spain (24), Portugal (23) and Chile (43), however, it is comparable to that of Japanese adults (21). We postulate that the lower score might be attributed to cultural differences, as in eastern communities, the concept of a mind/health may be non-identical (44,45) The people tend to think and act collectively, rather than individually, and therefore individuals are less likely to assert an independent self (46).In addition, eastern societies highly value modesty and humility, which could account for their lower self-esteem score on the RSE among the Eastern population as compared to Westerners.

There are several limitations in the study. Firstly, generalization of the present findings is only applicable to upper secondary school-going adolescents. Secondly, the construct validity of RSES-M was investigated using principal component analysis to enable comparison with previous studies (25, 29), but other methods such as confirmatory factor analysis could have also been used. Further assessment of RSES-M using a nationally-representative sample among upper secondary students in Malaysia is strongly recommended.

CONCLUSION

In conclusion, despite a difference in the interpretation of item 7 between our population and that of Rosenberg, the RSES-M can be considered as a valid and reliable tool to measure self-esteem in upper school going adolescents in Malaysia. Modification of the RSES-M is strongly recommended to strengthen the validity of the tool in measuring global self-esteem among adolescents in the local context.

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