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PSYCHOMETRIC EVALUATION OF THE MALAY ADOLESCENT COPING SCALE (ACS): A STUDY OF MALAYSIAN ADOLESCENTS

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ABSTRACT

The aim of the study is to assess the psychometric of the *Adolescent Coping Scale* (ACS) that involves internal consistency reliability, test-retest reliability, and item-scale correlation for Short Form items. Internal consistency reliability of ACS was measured using alpha Cronbach method while test-retest reliability was measured using *Pearson* correlation coefficient method. To assess the degree to which each of the items in the Short-Form adequately measured its respective coping strategy, the correlation of the item with the scale of which it was a part was computed. The research subjects consist of 3158 adolescents aged between 13 to 19 and was selected using purposive sampling. The instrument of *Adolescent Coping Scale (ACS)* by Frydenberg and Lewis (1993) was used. Research finding for *ACS Specific* and *ACS General Long Form* instrument are both has a high internal consistency value which were 0.928 and 0.922. While internal consistency by test-retest method for *ACS Specific* and *ACS General Long Form* both noted an alpha value of 0.933 and 0.928. Lastly, validity analyses by item-scale correlation of 18 ACS Short Form items gain correlation value about 0.605 and 0.869 for *General Form* and 0.873 for *Specific Form*. In conclusion, the finding shows that ACS instrument in Bahasa Malaysia version is suitable to be use as an objective tool in measurement and assessment in the coping strategies for adolescents who facing problems and can help them toward a better quality of life. This is not just coping, but positive coping should reduce the burden of challenges of both short-term immediate stress and should also contribute to longer-term stress relief. In line with a positive psychology orientation, some ways of dealing with stress may actually help to build more effective coping resources for the future.

KEYWORDS: Malay Adolescent Coping Scale (ACS), Reliability, Validity & Item-Scale Correlation

INTRODUCTION

Psychological research needs an instrument to gauge the psychological characters such as attitude and values that need to be mould in such local context others from western instrument. A lot of these psychological tests have been widespread translated. Generally, the psychological test in other countries is illegal and pretty harmful if wrongly managed. Even we are adopting the other countries psychological test by renormalizing that test, but it cannot fully satisfy the researchers need and local cultures. Hence, the western instrument shall be first tested before being used in Malaysia.

Frydenberg and Lewis (1993) created a questionnaire which namely Adolescent Coping Scale (ACS) to identify the strategies that can be applied by teens to cope their problem. Some research confirmed reliability and validity of *ACS* were good and satisfies (Frydenberg & Lewis, 1993; García-Grau, Fusté, Miró, Saldaña & Bados, 2004; Lewis & Frydenberg, 2002; Plucker, 1997; Richaud de Minzi, 2003). But in such local research, reliability is from low to moderate.

Reliability tested by using *Pearson* correlation coefficient method shows that trustworthy value was at 0.32 level or more.

The differences of the results between local and overseas researchers are the problem that needs to be rechecking. An instrument to gauge psychology is not the same as science instrumental because it is always accurate. Some valid and accurate instruments to gauge the psychology in western are not totally guaranteed when used for local sample. This was caused by the differences of norm and cultures in where the instrument was invented and later being used. In accordance, the *Adolescent Coping Scale* (ACS) which was invented in western must be tested first before it can be used in Malaysia.

Besides, this research would focus on valuing *Adolescent Coping Scale* (ACS) psychometric instrument created by Frydenberg and Lewis (1993). ACS helps teens to recognize strategies in coping problems that stress them whether at house or school. This situation is usually happened because of the widely socioeconomic and technology development. This stressful condition is including parent's separation, poverty, environmental factors such as friends and involvement in anti-social activity.

OBJECTIVES

The general objective of this study is to evaluate the psychometric aspect *Adolescent Coping Scale* (ACS) instrument in local context among the Malaysian adolescents.

Specifically, this study seeks to determine the:

- Reliability of ACS items by Cronbach alpha method.
- Reliability of ACS items by test-retest method.
- Validity of the Short Form of the ACS.

METHODS

Research Design

This study was carried out by survey method with aids of questionnaire. It is to determine the reliability level and validity instrument of *Adolescent Coping Scale* (ACS) for secondary school students in Sabah, Malaysia. Reliability instrument gauged through internal consistency (Cronbach Alpha & test-retest) while validity instrument gauged through item-scale correlation for short form items.

Subjects

A total of 3158 teens aged from 13 to 19 were comes from secondary schools included in this study. From the total number of the sample, 1398 students were male and 1760 were female. The students were chosen by using purposive sampling.

Research Instrument

This study was using a set of questionnaire which consists of two sections as follow:

Self information form

It consists of demography items such as sex, age, form, school name, ethnic, family monthly income, and religion.

Adolescent Coping Scale (ACS)

This study was using the *Adolescent Coping Scale* (ACS) which has been introduced by Frydenberg and Lewis (1993). ACS instrument have been earlier translated from English to Malaysian version. Translation process has been based on the cross culture adaptation to make it suited to be used in Malaysia. ACS is a comprehensive instrument and also suitable for teens form 12 to 18. It is also relevant for adult and old (Frydenberg and Lewis, 1993).

The *Adolescent Coping Scale-Long Form* (ACS-*Long Form*) are including of 80 items (79 structured question and one *open-ended* question) consist of 18 action force strategies by conceptual and empirical. About 79 items consist of five points *likert* scale marking (1-*doesn't apply or don't do it*; 2-*used very little*; 3-*used sometimes*; 4-*used often*; 5-*used a great deal*). There is two parts of *Adolescent Coping Scale-Long Form* (ACS-*long form*) instrument that is *Specific Form* and *General Form*. Both has the same items but different and test the same action force. *Specific Form* refers to how the respondent act specifically towards their problem such as problems with school, university, works, family, friends and surrounding. Meanwhile *General Form* refers to how the respondent acts generally towards their problems. Table 1 shows 18 scales contain in ACS.

Table 1: 18 Factors of Adolescent Coping Scales (ACS)

1. Seek Social Support
2. Focus On Solving The Problem
3. Work Hard And Achieve
4. Worry
5. Invest In Close Friends
6. Seek To Belong
7. Wishful Thinking
8. Not Coping
9. Tension Reduction
10. Social Action
11. Ignore The Problem
12. Self-Blame
13. Keep To Self
14. Seek Spiritual Support
15. Focus On The Positive
16. Seek Professional Help
17. Seek Relaxing Diversion
18. Physical Recreation

Adolescent Coping Scale-Short Form (ACS-*Short Form*) with 19 items (18 structured questions and one *open-ended* question) consists of 18 action force strategies by conceptual and empirical. About 79 items which consist of five points *likert* scale marking (1-*doesn't apply or don't do it*; 2-*used very little*; 3-*used sometimes*; 4-*used often*; 5-*used a great deal*). There is two parts of *Adolescent Coping Scale-Long Form* (ACS-*long form*) instrument that are *Specific Form* and *General Form*. Table 2 shows 18 items of action strategies of *ACS Short Form.*

Table 2: The Contents of ACS Short Form

Scales	Items
1. SocSup	Seek helps by telling problem to others
2. SolvProb	To solve problem with all my heart
3. Work	To work hard
4. Worry	Worrying for what happen to me
5. Friends	To spend more time with girlfriend/ boyfriend
6. Belong	To make my relationship good with others
7. Wish Think	Hoping a miracle to happen
8. NotCope	I cannot handle the situation
9. TensRed	To find ways to reduce tension; such as crying, Screaming, drunk, and drug abusing
10. SocAc	Gather with the person which has the same problem
11. Ignore	To prevent myself from the problem so I can cope it
12. SelfBl	To treat self as guilty
13. KeepSelf	Not even let others know my feeling
14. Spirit	Pray for a help and everything will be fine
15. FocPos	To focus only on the positive edge
16. ProfHelp	To seek professional help
17. Relax	Seek relaxing diversions
18. PhsyRec	To maintain health and always active

Adolescent Coping Scale (ACS) instrument is easy and fast-managed. Respondent take only 10 minutes to fill in the *ACS-Long Form* and 2 to 3 minutes for *ACS-Short Form.* About 15 minutes taken by a respondent to complete *ACS* instrument including questionnaires of the respondent biography characters.

Data Analysis

The data have been analyzed by using SPSS version 15.0. Internal consistency reliability measured using *Cronbach* alpha coefficient, test-retest reliability and item-scale correlation measured by *Pearson* correlation coefficient method.

RESULTS

Subject Background

Based on descriptive analysis, this study showed that the number of female subjects (55.7%) slightly more than male (44.3%). The average age of the subjects are 15.50 years old (S.P. = 2.00). Besides that, this study showed that the number students in lower secondary form (46.3%) is almost the same with the students in upper secondary form (53.7%). For the proportion of ethnicity, there are more than 20 categories of ethnics involved in this research. The most ethnics involved are Dusun (14.9%), followed by Bajau (12.5%) whereas the least are Sino-Dusun and Indian with each recorded 0.5% and 0.4%. the findings of this study showed that more than half of the respondents (58.1%) recorded the family monthly income as much as RM1000.00 and below. In the aspect of religion, more than half of the respondents are

Islamics (58.1%), followed by Christians (37.0%), Buddhists (3.9%), Pagan (0.4%) and Hindus (0.2%).

Internal Consistency Reliability

Internal consistency reliability analysis using *Cronbach* alpha method shows that ACS instrument has good internal consistency reliability for *ACS Specific Scale, ACS General Long Form, ACS Specific and ACS General Short Form.* Table 3 and 4 shows the Cronbach Alpha Coefficient for ACS Instrument.

Table 3: Descriptive Statistics and ACS Specific and ACS General Long form Reliability Scale

Scale	Item No	Mean	SD	*Cronbach* Alpha
1. *ACS Specific*	79	235.385	32.349	0.926
2. *ACS General*	79	238.152	29.223	0.909
3. *ACS Specific (Test-Retest)*	79	232.993	33.360	0.938
4. *ACS General (Test-Retest)*	79	235.310	31.325	0.931

Table 4: Descriptive Statistics and *ACS Specific and ACS General Short form* Reliability Scale

Scale	Item No	Mean	SD	*Cronbach* Alpha
1. *ACS Specific*	18	53.946	8.157	0.718
2. *ACS General*	18	54.518	7.688	0.677
3. *ACS Specific (Test-Retest)*	18	53.264	8.423	0.763
4. *ACS General (Test-Retest)*	18	53.589	8.088	0.744

Internal consistency reliability analysis using alpha *Cronbach* method shows that ACS instrument has a good internal consistency reliability level with alpha noted between 0.50 and 0.85 for *ACS Specific Long Form*. While *Cronbach* alpha value for *ACS General Long Form Scale* is between 0.45 and 0.81. Table 5 and 6 shows the *Cronbach* alpha coefficient for 18 scale of *ACS Specific* and *ACS General Long Form Scale.*

Table 5: Descriptive Statistic and Reliability Scale of *ACS Specific Long form*

Scale	Item No	Mean	SD	*Cronbach* Alpha
1. SocSup	5	16.295	3.737	0.761
2. SolvProb	5	17.037	3.304	0.732
3. Work	5	17.734	3.276	0.664
4. Worry	5	16.255	3.914	0.748
5. Friends	5	15.607	3.700	0.643
6. Belong	5	15.715	3.105	0.602
7. Wish Think	5	15.236	3,832	0.710
8. NotCope	5	10.700	3.308	0.602
9. TensRed	5	9.894	3.111	0.500
10. SocAc	4	10.563	2.800	0.588
11. Ignore	4	9.990	2.962	0.641
12. SelfBl	4	10.582	3.364	0.752
13. KeepSelf	4	11.453	3.334	0.725
14. Spirit	4	14.634	3.177	0.657
15. FocPos	4	12.772	2.691	0.502
16. ProfHelp	4	11.300	3.886	0.826
17. Relax	3	10.701	2.345	0.572
18. PhysRec	3	8.565	2.275	0.500
Median				**0.650**
Mean				**0.651**

Table 6: Descriptive Statistic and Reliability Scale of *ACS General*

Scale	Item Scale	Mean	SD	*Cronbach* Value
1. SocSup	5	16.732	3.498	0.703
2. SolvProb	5	17.382	3.107	0.673
3. Work	5	18.103	3.009	0.610
4. Worry	5	16.209	3.760	0.709
5. Friends	5	16.155	3.431	0.594
6. Belong	5	16.161	2.998	0.553
7. Wish Think	5	15.366	3.677	0.639
8. NotCope	5	10.567	3.091	0.561
9. TensRed	5	9.733	2.832	0.388
10. SocAc	4	10.332	2.721	0.516
11. Ignore	4	10.005	2.875	0.589
12. SelfBl	4	10.676	3.207	0.706
13. Keepself	4	11.426	3.237	0.667
14. Spirit	4	14.786	3.034	0.636
15. FocPos	4	13.044	2.604	0.437
16. ProfHelp	4	11.303	3.608	0.762
17. Relax	3	10.991	2.190	0.506
18.PhysRec	3	8.637	2.184	0.504
Median				**0.602**
Mean				**0.600**

Test-Retest Reliability

Based on Table 7, the study shows a high value for reliability test based on test-retest method significantly correlated. If we observe the *ACS General Long Form*, only 13 items from overall 79 items (9, 20, 27, 33, 37, 44, 46, 47, 51, 58, 63, 64 and 68) failed to show a significant correlation. Meanwhile, about 7 items (9, 10, 16, 27, 33, 58 and 67) is non-significant correlation for *ACS Specific Long Form*. From both result, there is four items which did not shows a significant correlation that are, 27, 33 and 58 for *ACS General and Specific Long Form.*

Table 7: Test-Retest Correlations for ACS Items

Item	Form		Item	Form		Item	Form		Item	Form		Item	Form	
	Gen	Spc		Gen	Spc		Gen	Spc		Gen	Spc		Gen	Spc
1.	.397**	.388**	17.	.536**	.559**	33.	.148	.147	49.	298*	.390**	65.	.449**	.447**
2.	.414**	.376**	18.	.675**	.432**	34.	.599**	.580**	50.	.346**	.433**	66.	.409**	.567**
3.	.383**	.468**	19.	.390**	.396**	35.	.512**	.588**	51.	.145	.275*	67.	.391**	.208
4.	.611**	.702**	20.	.219	.245**	36.	.586**	.574**	52.	.391**	.388**	68.	.105	.364**
5.	.397**	.378**	21.	.506**	.505**	37.	.197	.261*	53.	.333**	.352**	69.	.361**	.388**
6.	.525**	.600**	22.	.469**	.394**	38.	.440**	.339**	54.	.312**	.452**	70.	.465**	.407**
7.	.354**	.504**	23.	.296*	.373**	39.	.314**	.241*	55.	.404**	.389**	71.	.412**	.431**
8.	.360**	.462**	24.	.237*	.448**	40.	.424**	.359**	56.	.468**	.422**	72.	.606**	.593**
9.	.065	.089	25.	.323**	.377**	41.	.414**	.259*	57.	.435**	.432**	73.	.548**	.527**
10.	.270*	.176	26.	.379**	.475**	42.	.392**	.453**	58.	.158	.227	74.	.420**	.473**
11.	.381**	.301*	27.	-.026	.021	43.	.553**	.507**	59.	.367**	.416**	75.	.299*	292*
12.	.429**	.433**	28	.461**	.352**	44.	.157	.402**	60.	.432**	.337**	76.	441**	.580**
13.	.460**	.356**	29.	.438**	.511**	45.	.431**	.448**	61.	.520**	.577**	77.	.515**	.560**
14.	.459**	.530**	30.	.359**	.425**	46.	.206	.480**	62.	.430**	.500**	78.	.493**	.426**
15.	.452**	.528**	31.	.515**	.575**	47.	.222	.317**	63.	.176	.251*	79.	.532**	.409**
16.	.350**	.134	32.	.482**	.478**	48.	.367**	.451**	64.	.222	.331**			

*k<0.05 ;**< 0.01

Note: (Gen=General; Spc=Specific)

Validity of the Short Form of the ACS

To measure the degree to which each of the items in the Short Form adequately measured its respective coping strategy, the correlation of the item with the scale of which it was a part was computed (Frydenberg & Lewis, 1993). Generally, validity analysis using scale-item correlation among 18 items of *ACS Short Form and General Form* noted the alpha value of 0.605 and 0.869 and 0.583 to 0.873 for *Specific Form*. Table 8 shows the item-scale correlation for *ACS General and Short Form* item.

Table 8: Item-Scale Correlation for *ACS Short form* Item

Strategy		Correlation with Scale	
		General Form	Specific Form
1.	Seek social support	0.778**	0.762**
2.	Focus on solving problem	0.709**	0.668**
3.	Work hard and achieve	0.706**	0.685**
4.	Worry	0.701**	0.723**
5.	Invest in close friends	0.612**	0.583**
6.	Seek to belong	0.673**	0.749**
7.	Wishful thinking	0.753**	0.805**
8.	Not coping	0.609**	0.645**
9.	Tension reduction	0.678**	0.695**
10.	Social action	0.640**	0.586**
11.	Ignore the problem	0.623**	0.636**
12.	Self-blame	0.823**	0.862**
13.	Keep to self	0.793**	0.855**
14.	Seek spiritual support	0.811**	0.773**
15.	Focus on the positive	0.642**	0.670**
16.	Seek professional help	0.869**	0.873**
17.	Seek relaxing diversions	0.754**	0.728**
18.	Physical recreation	0.605**	0.683**
Median		**0.704**	**0.709**
Mean		**0.710**	**0.721**

**k<0.1

DISSCUSIONS

The results of the study on internal consistency reliability analysis and test-retest method shows that the Adolescent Coping Scales (ACS) instrument has a good reliability coefficient. This finding is parallel to the result of internal consistency reliability and ACS test-retest gained by Frydenberg and Lewis (1993), Plucker (1997) and Richaud de Minzi (2003). For example, Frydenberg and Lewis (1993) have noted that the Cronbach alpha value between 0.53 and 0.82 for ACS Specific Long Form and Cronbach alpha value between 0.58 and 0.85 for ACS General Long Form. Plucker (1997) has noted that the Cronbach alpha value between 0.51 and 0.90 for ACS Specific Long Form. Meanwhile, Richaud de Minzi (2003) found that the Cronbach alpha value are between 0.56 and 0.73. Ferlis et al. (2008) report an internal reliability between 0.933 and 0.928 for both ACS Specific and General Long Form using Cronbach alpha.

For the reliability level of ACS Specific Long Form by using test-retest method, Frydenberg and Lewis (1993) has gained seven items from overall 79 items (9, 15, 16, 26, 51, 62 and 78) failed to show a significant correlation. Meanwhile, 11 items (9, 15, 26, 35, 39, 43, 52, 55, 57, 65 and 78) are not significant for ACS General Long Form. Another study also verified the reliability level of ACS was good and satisfying (Garćia-Grau, Fusté, Miró, Saldăna & Bados, 2004; Lewis & Frydenberg, 2002).

To test the validity of the short form of the ACS, the correlation of the item with the scale was used. The finding shows that 18 items of ACS correlated significantly and positively with ACS General and Specific Short Form scale. The validity is gained because both forms measure a same concept. A positive and significant correlation between 18 items of ACS with ACS General and Specific Short Form shows that ACS instrument measure action force specifically. The result of this research therefore support recent study related to this topic (Frydenberg and Lewis, 1993).

CONCLUSIONS

This study totally shows that the Malaysian version of ACS instrument has a high and satisfying internal consistency reliability and test-retest. The result gained by the researcher is parallel with the Frydenberg and Lewis (1993) research result who is the creator of the ACS instrument. In other words, ACS reliability instrument shows its ability, stability and correct scores when tested.

The validity of the short form of the ACS formed are already expected because 18 items of *ACS Short* Form gained and correlated positively and significantly with *ACS General and Specific Short Form*. The result shows the items in ACS instrument has a good validity. Furthermore, this action force instrument are confirm and suitable to be used among adolescents in Sabah, Malaysia aged from 13 to 19.

Besides, further studies need to be perform for school teenagers in other states in Malaysia, non schooling teens, university and college students, adults, including teens and adults from different ethnics. By the study onto this cluster of people, ACS instrument can be used with aim of overall studies and not only for secondary school pupils.

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