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Evaluation and Psychometric Status of the Brief Resilience Scale in a Sample of Malaysian International Students

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Abstract

The purpose of this study is to examine the psychometric status of the Brief Resilience Scale (BRS). The BRS is a brief self-rating questionnaire to measure resilience. This instrument consists of six items and was administered on 120 international students studying at a public university in Malaysia. The sample consists of 76 male and 44 female, with a mean age of 24.4 years old. The BRS met the requirement for the implementation of PCA based on the Bartlett test of Sphericity and the Kaiser Mayer Olkin. Factor analysis reveals a single factor with eigenvalues above 1.0, which accounted for 73.54% of the total variance. Reliability analysis using Cronbach's Alpha was .93, indicating that the scale has good reliability. This study demonstrates that BRS is appropriate to be used by college personnel and counselors to examine and identify resiliency among college students in Malaysia. Suggestions for future study are also discussed.

Keywords: brief resilience scale, reliability, validity

1. Introduction

Daily stress and difficulties faced are part of our life. How people perceive those adversities influence their life. Some people cannot cope with those situations, thus making them unproductive and dissatisfied with their live. However, many people are able to deal with those situations successfully. Those succeeded in managing their daily lives are able to find ways to face the challenges and continue with a purposeful live. They do not blaming others for the problems or issues they encounter. Blaming others for whatever reason will hinder someone from bouncing back (Siebert, 2005). Psychologists have suggested that resilience helps people to manage their life during adversity. Resilience is about survival and growth and it helps people to deal with their new life (Masten & Coatsworth, 1998; Pearson & Hall, 2006). Feldman (2011) states that when dealing with profound difficulties, individual degree of resilience will help individual psychological recovery.

Resilience has been defined in many ways. Resilience is a term that is often used to describe the ability to bounce back or recover from stress and able to adapt to stressful circumstances (Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008; Smith, Epstein, Ortiz, Christopher, & Tooley, 2013; Thomas, 2011). Masten (2001) defines resilience as "a class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development" (p. 228). Other notions that describe resilience include skills and abilities that enabled individuals to adapt to hardships (Alvord & Grados, 2005), doing well despite adversity (Patterson, 2002), ability to adapt well to stressful situations (Ahern, Kiehl, Sole, & Byers, 2006; Wagnild & Young, 1993), and the ability to deal with adverse changes and shocks (Bene, Wood, Newsham, & Davies, 2012). The American Psychological Association defines resilience as the process of adapting well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress" (American Psychological Association, 2014). Thomas (2011) stressed that resilience requires two things: adversity and functioning better than before. It can be concluded that resilience can be defined as "bouncing back" from difficult experiences. Resilient people are generally easy going, have good social skills, independent, remain calm under pressure, bounce back from setbacks, healthier, live longer, more successful in school and work, happier in relationships and less prone to depression (Masten & Coastworth, 1998; Siebert, 2005; Feldmen, 2011). According to Feldmen (2011), resilient people have control over their destiny and they make the best of whatever situation they are in. This might be the reason why resilient people could handle major difficulties easier than others. According to Masten (2013),

resilience becomes the basic system that supports human development especially in dealing with difficulties. In addition, Masten (2013) also stated, "resilience refers to the capacity of a dynamic system to withstand or recover from significant disturbances and continue to function or develop in a healthy or normative way" (p. 586). Resilient people will be able to turn the disruptive changes and conflict into growth opportunities (Maddi & Khoshaba, 2005). Many studies indicated that resilient individuals tend to actively cope with stressful situations and are able to find variety of ways to meet the challenges and continue with a purposeful live.

Generally, resilience has been studied widely in the west (Wagnild, 2009; Abiola & Udofia, 2011) and has become the focus of the study in the field of behavioral and medical science (Charney, 2004; Smith, Dalen, Wiggin, Tooley, Christoper & Bernard, 2008; Wright, Masten, & Narayan, 2013). Most of the previous literature on resilience focuses on the psychological aspects of coping and the physiological aspects of stress (Tusaie & Dyer, 2004). In terms of measurement, there are no specific scales that have been accepted as the best scale to measure resilience.

1.1 Measurement of Resilience

Most of the measurement to examine resilience have been developed and utilized in the west (Abiola & Udofia, 2011). Even though those instruments have been developed in the west, they are not widely accepted and no one specific scale was chosen as the preferred one (Windle, Bennett, & Noyes, 2011). Windle et al. (2011) reviewed 19 scales that were utilized to measure resilience. These scales include the dispositional Resilience Scale, Connor-Davidson Scale, Youth Resiliency, and Resilience Scale for Adults, California Healthy Kids Survey, The Brief Resilience Scale, The Resilience Scale, Psychological Resilience, and Ego Resilience.

1.2 This Study

According to Abiola and Udofia (2011), resilience has been well studied in the west but less in developing countries. There are also limited instruments that can be used to measure resilience for the non-western population due to validity and reliability issues. The major concern is the validity of the instrument developed based on the western culture but used in the non-western population. Therefore, the purpose of this study is to examine the internal consistency and validity of the Brief Resilience Scale (BRS) for international students studying in Malaysia.

2. Methods

2.1 Participant Samples

Participants in this study are 120 international students studying in one of the public universities in Malaysia. They were informed that the purpose of the study was to evaluate the brief resilience scale. The sample consisted of 63% (n = 76) male, and 37% female (n = 44), with a mean age of 24.4 years old voluntarily participated in this study. Of those participants, 53 are in undergraduate program while 67 are graduate students. Purposive sampling procedure (Sekaran & Bougie, 2010) was employed in this study where the researchers solicit participation of international students at the international office, library and international student residence.

2.2 Instrument

The Brief Resilience Sales (BRS) developed by Smith et al. (2008) was used in this study. The BRS consists of six items; three negative items and three positive items. According to Smith et al., items 1, 3 and 5 are positively worded and items 2, 4, and 6 are negatively worded. Respondents were asked to answer each question by indicating their agreement with each statement by using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Smith, et al. (2008) also reported the reliability and validity of the instrument. The BRS demonstrated good internal constancy with the value of Cronbach's alpha ranging from .80-.91. Convergent validity and discriminant predictive validity were also reported by Smith et al. (2008) as part of the validation analysis.

2.3 Data Analysis

Data were analyzed using SPSS 20.0 computer program based on the 120 usable responses. The primary analysis is to assess the reliability, factor structure, and validity of the instrument. The factor structure was examined by principal component analysis (PCA) and the internal-consistency was measured using Cronbach's Alpha.

3. Results and Discussion

Firstly, we calculated mean and standard deviation of the brief resilience scale. Analysis indicated the mean value of BRS is 2.91 and the standard deviation of the scale is .74. The brief resilience scale inter item correlations were found to be strong. Analysis shows that inter-item correlation is between .56 and .81 (Table 1). All values are positive, indicating that the items are measuring the same fundamental construct or characteristic.

According to Field (2009), correlation value between .30 and .90 is acceptable to conduct further analysis. It can be concluded that there are no multicollinearity issues in this data.

Table 1. The brief resilience scale: Correlation matrix

Correlation Matrix							
		Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Correlation	Item 1	1.000	.590	.741	.560	.667	.655
	Item 2	.590	1.000	.714	.715	.704	.683
	Item 3	.741	.714	1.000	.678	.806	.725
	Item 4	.560	.715	.678	1.000	.689	.673
	Item 5	.667	.704	.806	.689	1.000	.622
	Item 6	.655	.683	.725	.673	.622	1.000

After examining the descriptive statistics of each item, Principal Component Analysis (PCA) was conducted. First, Bartlett test of Sphericity was calculated to examine if the correlation matrix in the factor analysis is an identity matrix. As shown in Table 2, the Bartlett Sphericity Test is highly significant, $\chi 2$ (15) = 532.147, p = .000, hence factor analysis is suitable. The Kaiser Mayer Olkin that measure sample of adequacy (MSA = .898) was greater than the minimal accepted level of .5. This result indicates that the study has fulfilled the sampling adequacy requirement for factor analysis (Field, 2005; Hair, Anderson, Tantham, & Black, 1998; Kaiser, 1974). Based on the Bartlett test of Sphericity and the Kaiser Mayer Olkin, it can be concluded that Brief Resilience scale met the requirement for the implementation of PCA.

Table 2. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.898
Bartlett's Test of Sphericity Approx. Chi-Square	532.147
df	15
Sig.	.000

Table 3. Total variation that can be determined

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.412	73.534	73.534	4.412	73.534	73.534
2	.492	8.199	81.732			
3	.388	6.466	88.198			
4	.284	4.741	92.939			
5	.258	4.293	97.232			
6	.166	2.768	100.000			
Extraction Method: Principal Component Analysis.						

Table 4. Component matrix

Component Matrix[a]	
	Component 1
1. I tend to bounce back quickly after hard times	.817
2. I have a hard time making it through stressful events (R)	.857
3. It does not take me long to recover from a stressful event	.910
4. It is hard for me to snap back when something bad happens (R)	.838
5. I usually come through difficult times with little trouble	.875
6. I tend to take a long time to get over set-backs in my life (R)	.846

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

Construct validity measures the extent to which the item in a scale all measures the same construct (Natasa, 2010, p. 137). Validity of the BRS was examined through the use of PCA (Natasa, 2010; Grove, Burn, & Gray, 2013). Factor analysis method was used to access the construct validity of the instrument. Principle component analysis (PCA) determines the factors accounting for the total variance of the specific construct. The factor analysis revealed a single factor with eigenvalues above 1.0, which accounted for 73.54% of the total variance (Table 3). Result indicates factor loadings range from .82 to .91 (Table 4). All six items loaded acceptably well onto a single factor. Generally a factor loading of .40 is acceptable to be the lowest loading in factor analysis and can be included in the scale (Hair et al., 1998; Nunnally & Bernstein, 1994; Stevens, 2009).

The coherent nature of a scale can be judged by examining the internal consistency of the scale. Streiner (2003) stated, "One of the central tenets of classical test theory is that scales should have a high degree of internal consistency, as evidenced by Cronbach's Alpha" (p. 217). Reliability analysis using Cronbach's Alpha was .93 indicating the scale has good reliability (Hair et al., 1998). Since the value of the coefficient alpha is suitable, no item was omitted. Table 5 shows the value of Cronbach alpha if items were deleted.

Table 5. The brief resilience scale: Cronbach's Alpha if item deleted

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Question 1	14.63	14.940	.739	.921
Question 2	14.44	13.711	.790	.914
Question 3	14.52	12.958	.860	.905
Question 4	14.51	14.487	.766	.917
Question 5	14.52	13.815	.814	.911
Question 6	14.55	14.115	.775	.916

4. Conclusion

As a summary, the brief resilience scale developed by Smith et al. (2008) is seen as a reliable and valid scale for the measurement of resilience among international student in Malaysia. Principle component analysis yielded a single component of resilience which is in accordance with the single factor of Brief Resilience Scale developed by Smith et al. (2008). The reliability of the scale in this population was high. The Cronbach alpha was .93.

Even though this instrument has proven to have excellent psychometrics properties for this population, further validation studies are necessary to support this finding, especially with more diverse population. In addition, for validation purpose, this brief resilience scale could also be achieved by correlating this instrument with other instruments that measure resilience or hardiness. Furthermore, these findings are limited by the use of a convenience sampling procedure involving only international student in a public university in Malaysia. It is suggested that a bigger population should be studied including several universities in Malaysia.

Overall, this study demonstrates that BRS is appropriate for use by college personnel and counselors to examine and identify resiliency among college students. The questions are easy to understand and students take only a few minutes to answer and complete the instrument. This instrument will help counselors to gain some ideas or provide initial information on resiliency among the international students and provide support and counseling services to them.

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