

## Cross-cultural invariance of the Academic Expectations Stress Inventory: Adolescent samples from Canada and Singapore

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### Abstract

We provide further evidence for the two-factor structure of the 9-item Academic Expectations Stress Inventory (AESI) using confirmatory factor analysis on a sample of 289 Canadian adolescents and 310 Singaporean adolescents. Examination of measurement invariance tests the assumption that the model underlying a set of scores is directly comparable across groups. This study also examined the cross-cultural validity of the AESI using multigroup confirmatory factor analysis across both the Canadian and Singaporean adolescent samples. The results suggested cross-cultural invariance of form, factor loadings, and factor variances and covariances of the AESI across both samples. Evidence of AESI's convergent and discriminant validity was also reported. Findings from *t*-tests revealed that Singaporean adolescents reported a significantly higher level of academic stress arising from self expectations, other expectations, and overall academic stress, compared to Canadian adolescents. Also, a larger cross-cultural effect was

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associated with academic stress arising from other expectations compared with academic stress arising from self expectations.

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Expectations to succeed academically have been positively associated with achievement and excellence (Rumberger, 1995; Trusty, 2000), but negative consequences such as excessive stress and related mental health concerns arising from the resulting pressures are also clearly evident (Shek, 1995). Asian adolescents appear to be scoring above international averages on comprehensive international assessments such as Trends in International Mathematics and Science Study (TIMSS, Kelly, Mullis, & Martin, 2000). For example, fourth- and eighth-graders from Taiwan, Japan, and Singapore, outperformed their counterparts from the United States on the TIMSS in 2003 (National Center for Education Statistics, 2007). While Asian and Asian-American students' consistently high achievement patterns have been well documented (Sue & Okazaki, 1990), higher academic stress levels and associated mental health concerns among Asian adolescents have also been reported.

In Lee and Larson's (2000) study, Korean twelfth graders reported more than twice the time their American counterparts reported in completing schoolwork and conversely, American twelfth graders spent more than twice as much time in socializing and leisure activities compared to Korean twelfth graders. In Korea, graduating from a high ranking university is a prerequisite to a good job, high wages, and high social status (Chung, Kim, Lee, Kwon, & Lee, 1993), hence Korean students spend large amounts of time studying after school and on weekends, and leisure was comparatively rare. In a comparative study of subjective well-being, Korean adolescents were found to report more negative emotions regarding education than adolescents from nearly all other Western nations (Diener, Suh, Smith, & Shao, 1995).

Empirical studies of the association between high academic expectations and academic stress have mostly involved Asian or Asian American samples as high academic expectations and academic stress are more closely related in the Asian context (Abe & Zane, 1990; Diener et al., 1995). In a review of the literature in the area of academic stress, there appears to be two main sources of academic stress: academic stress arising from self expectations and academic stress arising from expectations of others such as parents and teachers (e.g., Ang & Huan, 2006; Chen & Stevenson, 1995; Wong et al., 2005).

### **Academic stress arising from expectations of self and others**

Studies of Singaporean adolescents have shown that pressures to succeed academically reflect the stress to excel in school and to get a high paying job with high status (e.g., Ho & Yip, 2003). The situation is very similar in Japan. Results from international assessments have indicated that students in Japan report more often that they were not doing well in mathematics despite scoring

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