Development and Psychometric Properties of the Unique Stress of Chinese International Students Questionnaire (USCIS)

Huanzhen Xu (xhuanz@bgsu.edu), William O'Brien (wobrien@bgsu.edu)
Bowling Green State University

BACKGROUND

❖ As the Chinese international student body in western countries expands, this population's needs for mental health assessment should be addressed. Research has indicated that Chinese international students face unique acculturative stressors and have higher levels of psychological distress compared to their domestic counterparts. Yet, **there is a lack of research on the measurement of their stressors.**

PURPOSE OF CURRENT STUDY

In the current study, we conducted a **psychometric evaluation** of a newly developed stress measure for Chinese international students. Data from a focus group study was used to develop the initial measure. A preliminary analysis was conducted with a small pool of participants to further modify the measure. Then, an exploratory factor analysis (EFA) was conducted with a larger dataset to generate the final version of the new measure, Unique Stress of Chinese International Students Questionnaire (USCIS). **We envision this measure to be used as a screening tool for identifying Chinese international students who express acculturation-related psychological distress and an outcome measure for interventions targeting acculturative stress.**

METHODS

➢ **Focus group study.** 19 participants. Sessions were partially transcribed and card sort methods were used to identify items for the new measure- USCIS. A preliminary psychometric evaluation of the USCIS was conducted with 30 participants and it was shortened to 89 items.
➢ **Psychometric evaluation.**
❖ Participants: 460 people attempted to complete the new measure and **274** cases were kept for data analysis. On average, participants were 24 years old (SD = 4.14). The majority of the participants were full-time international students (94.5%) while the remaining consist of visiting scholars. The participants' gender split was rather even (57.3% female), so was their relationship status (47.8% single; 51.1% married or in a relationship). More than half of them reported pursuing a Master's degree or above (60.2%). About half reported having lived in America for over three years (48.5%) and currently being financially supported by parents (52.2%). The majority of them were reportedly not religious (82.1%), yet about half have gone to religious events upon their arrivals in America (52.2%).
❖ Procedures: the project was approved by IRB. Various means of recruitment were used, including sending recruitment letters to CSSAs, international students email lists, and online forums.
❖ Measures: Demographics, 89-item USCIS, and Kessler-10 Chinese Version.

RESULTS

Exploratory factor analyses (EFA)

Minor missing data in the factor analysis were substituted by the individual's mean score on the USCIS. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.899 and the Bartlett's test of sphericity was statistically significant (Chi-square = 18571.073, df = 3916, p < 0.01), indicating that data were appropriate to conduct EFA

The principal component analysis was used as the extraction method and orthogonal rotations were conducted. Kaiser's rule of eigenvalues, variance explained, and a scree test were considered during factor extraction.

inclusion criteria: (a) items loaded no less than 0.4 on one factor and (b) loaded twice as highly on one factor relative to any other factor. Cross-loaded items were removed: item loaded at 0.32 or higher on two or more factors. Item communalities were then evaluated and items removed if lower than 0.40. Finally, only factors with at least three items were retained.

Multiple factor analyses with set numbers (n = 9, 10, 11, etc) were ran to seek for the best fit model. A nine-factor model with 52 items was selected as the final factor structure. It was noted that four factors had larger numbers of items. Therefore, item commonalities in these factors were revisited and only items with moderate and higher commonalities (>0.60) were retained. This allowed the removal of eleven items. Then, item-total correlations were reviewed to check for multi-collinearity (i.e. an r > 0.87) and low relevancy (i.e. an r < 0.3), and this step led to removal of one item.

Finally, 40 items were retained in the USCIS. The nine factors are Loneliness (6 items), Social Isolation (5), Academic Stress (5), Health Care Unfamiliarity (4), Language Barrier (5), Financial Burden (3), Academic Isolation (5), Distance from Family (4), Transportation (3). All items have loading values of 0.5 or better. The combination of nine factors explained 60.79% of the total variance.

Internal Consistency and Criterion-related Validity

Both the overall (Cronbach' alpha = 0.939) and the subscales of USCIS (Cronbach' alpha = 0.766 - 0.898) have good internal consistencies.

The Pearson's correlation coefficient between the Kessler-10 and the USCIS total was significant (r = .68, p < .01). USCIS subscales Loneliness, Academic Stress, and Financial Burden correlated with Kessler-10 more largely (r > .5, p < .01) than the rest of the subscales did (r = .28-.47, p < .01). This is expected because the USCIS taped into these general stressors that may be detected by a general stress measure as well as constructs unique to CISs (Health Care, Family Distance, Transportation, etc). In the prediction of psychological distress, the combination of demographic variables (age, gender, relationship status, financial resources, degree in progress, religious belief) accounted for a significant amount of variance in Kessler's (R2 = 13.1%). However, the USCIS total scores added a much more significant amount of variance (R2 = 36.7%) and was a significant predictor of psychological distress (B = 0.339, β = 0.649, t = 13.847, p < .001).

DISCUSSION

The USCIS is one of the first measures devoted to assessing acculturative stress experienced by CISs. Psychometric testing results indicated that the total USCIS and its nine subscales demonstrated excellent internal consistency and good criterion-related validity. The USCIS could be used to measure levels of acculturative stress among CISs enroll in American universities and serve as an outcome measure for interventions targeting acculturation stress. The USCIS could also be used to measure the effectiveness of universities' international outreach and student welcoming programs.

Language insufficiency has been reported to be the biggest challenge associated with studying abroad and our study indeed echoed that statement. The USCIS subscale Language Barrier is characterized as feelings of [tiring], [uncomfortable] and [not good enough] when speaking English. Social Isolation focuses on contextual experiences and measures the perceived distance from local peers ([I cannot form deep friendship with Americans]) and its impact ([I feel that making friends with Americans is stressful]). Academic Stress seems to capture just a typical college student's experience, such as [my academic workload is heavy], the origin of CISs' academic stress is likely different and multilayered. Loneliness highlights the emotional suffering associated with isolation ([I feel lonely], [I feel I have no one to rely on]). Academic Isolation features the unique challenge encountered by CISs in the classroom. Sample items include [American professors have little compassion for my struggles], [my professors ignore me]. Financial Burden encompasses CISs' multifaceted financial concerns, from legal standpoint to extra tuition fees to difficult feelings associated with using parents' financial possessions. Distance from Family notes the emotional distance CISs feel between they and their parents. Under great parental pressure and expectation, CISs may experience their parents as their primary "pusher" rather than primary "supporter". This may make them reluctant to seek parental support ([I cannot talk to my parents about my stress]). Transportation may become an issue when CISs relocate to American universities in suburban and rural areas. They may experience [inconvenience] and encounter difficulty obtaining necessary goods because [everything is spread out]. Health Care in America was viewed as [inconvenient] and [unavailable]. While "going to see a doctor alone" is already daunting, differences in cultures, health beliefs and medical care expectations likely result in misunderstandings between American health care providers and CISs and may lead to patient dissatisfaction.

REFERENCES

Chen, J. A., Liu, L., Zhao, X., & Yeung, A. S. (2015). Chinese international students: An emerging mental health crisis. *Journal of the American Academy of Child & Adolescent Psychiatry, 54*(11), 879-880.
Costello, A. B., & Osborne, J. W. (2005). Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most from Your Analysis. Practical Assessment, Research & Evaluation, 10, 1–9.
Han, X., Han, X., Luo, Q., Jacobs, S., & Jean-Baptiste, M. (2013). Report of a mental health survey among Chinese international students at Yale University. *Journal of American College Health, 61*(1), 1-8.
O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity: International Journal of Methodology, 41*(5), 673–690.
Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics, 5th ed.* Boston, MA: Allyn & Bacon/Pearson Education.
Xu, H. (2019) *Chinese international students stress coping: a pilot study of acceptance and commitment therapy* (unpublished master's thesis). OhioLink Electronic Theses and Dissertation Center.
Xu, H., O'Brien, W. H., & Chen, Y. (2020). Chinese international student stress and coping: A pilot study of acceptance and commitment therapy. *Journal of Contextual Behavioral Science, 15*(1), 135–141.
Zhou, C., Chu, J., & Wang, T. (2008). Reliability and validity of 10-item Kessler Scale (K10) Chinese version in evaluation of mental health status of Chinese population. *Chinese Journal of Clinical Psychology, 16*(6), 627–629

For additional information, please contact:

Huanzhen Xu
Bowling Green State University
xhuanz@bgsu.edu

William O'Brien
Bowling Green State University
wobrien@bgsu.edu

BGSU®
Bowling Green State University