

Identification of psychometric properties of acculturative stress scale for international students

Nugraha Arif Karyanta^{1,2}, Suryanto Suryanto², and Andik Matulesy³

Abstract

Ensuring reliable measurement instruments is crucial for psychologists and practitioners. The Acculturative Stress Scale for International Students (ASSIS) is a widely used tool for assessing acculturative stress. An analysis of data from 100 international students in Indonesia demonstrated that the ASSIS met reliability standards, with AVE values between 0.50 and 0.63 and CR values between 0.73 and 0.91. The ASSIS also satisfied the criteria for content and construct validity. Additionally, the factorial validity of the ASSIS-1 CFA model met 5 out of 6 criteria, including RMSEA < 0.08, SRMR < 0.10, and NFI, CFI, and GFI values > 0.90, while the ASSIS-2 CFA model fulfilled all 6 criteria. Consequently, it can be concluded that the ASSIS is a valid and reliable tool for international students in the Indonesian cultural context.

Keywords

ASSIS, acculturative stress, international student, psychometric properties, scale

Introduction

Researching abroad demands additional effort from students. They not only have to manage a heavier academic workload but also need to adjust to a new environment and culture, which may differ significantly from their home country. Numerous studies have indicated that adapting to a new environment can be a major source of stress (World Health Organization & Gulbenkian Foundation, 2014; Barbayannis et al., 2022). This stress can lead to symptoms of depression and somatic disorders in international students (Brand et al., 2017; Shim et al., 2014). The development of suicidality, social anxiety, and anxious arousal is also influenced (Jardin et al., 2018; Mayorga et al., 2018). Previous research has found a higher prevalence of psychoneurotic and neurotic symptoms among Native American-born individuals who relocated within the Americas (Miller De Rutté & Rubenstein, 2021).

Relocation can present a greater challenge for students from diverse cultural backgrounds. Studies on international students in the United States have shown that they encounter more psychological problems than their American peers (Prasath et al., 2022). International students may encounter obstacles due to the transition to a new environment and the cultural differences between their home and host countries. These challenges can result in acculturative stress (Akhtar & Kröner-Herwig, 2015; Valenzuel et al., 2015). In acculturation research, "acculturative stress" refers to the negative impact of interactions between two different cultural groups, often leading to a decline in physiological, psychological, and social well-being. Adapting to the new culture requires effort (Al-Jaberi et al., 2020; ?).

Research on acculturative stress frequently investigates its consequences. Academic performance is often impacted, though outcomes vary. Some studies have found a negative correlation between acculturative stress and students'

academic performance, while others report different outcomes (Albeg & Castro-Olivo, 2014; Kristiana et al., 2022). Increased levels of acculturative stress were linked to lower educational aspirations and weakened academic self-perception within twelve months (Nair et al., 2021). This correlation echoes previous studies on discrimination, indicating that stressors unique to youth from ethnic minority backgrounds could hinder their overall growth (Umaña-Taylor, 2016).

In contrast to prevailing research, acculturative stress can potentially yield positive outcomes. When individuals reside in foreign environments, they may react to stress by either preserving their cultural beliefs or embracing new cultural practices. This can foster a deeper form of integration that correlates with increased creativity. Exposure to different cultures can inspire individuals to become more adaptable (Falavarjani & Yeh, 2018; Wei et al., 2016). Studies suggest that acculturative stress can contribute positively to the development of resilience, personal growth, and self-efficacy (Mendoza Griego et al., 2023). Nevertheless, it is crucial to acknowledge that the beneficial impacts of acculturative stress are not uniform and can be shaped by diverse factors, such as individual coping mechanisms and the specific characteristics of the stressors. It is essential to take these factors into account when assessing the consequences of acculturative stress (Motti-Stefanidi, 2018; Serafica et al., 2019).

¹ Faculty of Psychology, Universitas Sebelas Maret, Indonesia.

² Faculty of Psychology, Universitas Airlangga, Indonesia.

³ Faculty of Psychology, Universitas Tujuh Belas Agustus, Indonesia.

*Corresponding author:

Suryanto. Faculty of Psychology, Universitas Airlangga, Kampus B UNAIR, Jl. Airlangga 4-6, 60286, Surabaya, East Java, Indonesia.

Email: suryanto@psikologi.unair.ac.id

The majority of research on acculturative stress among Indonesian international students consists of qualitative studies focused on describing their adaptation and communication experiences (Roshima, 2017; Solihat, 2018). One research investigates the level of acculturative stress among international students at Airlangga University, Indonesia (Ali et al., 2020). However, this research specifically concentrates on international students enrolled in master's programs originating from countries within Africa. In light of this, there is a necessity to undertake quantitative research on acculturative stress among international students in Indonesia. Such research would provide more objective measurements through larger-scale surveys and could establish an empirical foundation for qualitative research. Additionally, research focused on the tools utilized to assess acculturative stress is crucial within this context.

In the realm of measuring acculturative stress, various instruments are employed in research studies, among which is the Acculturative Stress Scale for International Students (Bashir et al., 2018). Researchers have opted to explore ASSIS over other tools following a systematic literature review and consideration of several factors: 1) ASSIS is widely recognized as a prominent measurement tool for acculturative stress in student settings, particularly among international students. Therefore, it is frequently utilized in studies focusing on acculturative stress among students. 2). The content and wording of ASSIS items are deemed appropriate for the conditions and contexts prevalent in Indonesia, facilitating the adaptation process. 3). Reliability is a significant factor in the selection of ASSIS for adaptation. Numerous studies have demonstrated its reliability, with Cronbach's alpha coefficients ranging from 0.87 to 0.93 across different research contexts. ASSIS comprises seven subscales: perceived discrimination, homesickness, perceived hatred/rejection, fear, stress due to cultural change/shock, guilt, and miscellaneous. This research aims to assess the psychometric properties of ASSIS as a measure of acculturative stress among international students from diverse countries researching in Indonesia.

Method

Participants

This research was conducted across several Indonesian universities hosting international students. The research focused on international students currently enrolled in these universities. Due to the absence of available data on the exact number of international students in Indonesia, the precise population size could not be determined. The research employed purposive sampling, targeting international undergraduate and postgraduate students researching in Indonesia who were willing to participate and complete a questionnaire. A total of 117 international students completed the questionnaire through both online and offline distribution channels. However, 17 responses were disregarded due to incomplete information, resulting in a final sample size of 100 respondents.

Research Instruments

In this research, the Acculturative Stress Scale for International Students (ASSIS) is employed to assess the

degree of acculturative stress experienced by international students (Sandhu & Asrabadi, 1994). The Acculturative Stress Scale for International Students comprises 36 items categorized into seven components: (1) perceived discrimination (8 items), (2) homesickness (4 items), (3) perceived hate (5 items), (4) fear (4 items), (5) culture shock (3 items), (6) guilt (2 items), and (7) miscellaneous (10 items). Responses are recorded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores on the scale range from a minimum of 36 to a maximum of 180. Elevated ASSIS scores correlate with increased levels of acculturative stress in the respondent, while lower scores indicate less stress. Before implementation, the ASSIS underwent adaptation to fit the Indonesian cultural context. The adaptation process followed the guidelines outlined in the International Test Commission's Test Adaptation Guidelines (2016). The adaptation steps are detailed as follows:

Before proceeding, the researcher initiates the pre-condition by seeking permission via email from the original creator of the scale. The scale's original format was adopted from an article titled "Development of an Acculturative Stress Scale for International Students: Preliminary Outcomes" (Sandhu & Asrabadi, 1994). The development process of the ASSIS instrument involved several stages, beginning with interviews with 13 international students. This initial phase generated a pool of 125 items, which underwent successive rounds of item elimination and selection, ultimately resulting in a refined set of 78 items. Statistical procedures further refined the scale to its final form consisting of 36 items (Sandhu & Asrabadi, 1994).

Test development in this research did not involve a translation process since the ASSIS was utilized in its original English form as per the scale's design. The researcher made minor adjustments by adapting a few terms to ensure they were contextually suitable for use in Indonesia.

Review Process: The author engaged three expert reviewers for this research. These experts hold Ph. D.s in psychology, specializing in social psychology and educational and developmental psychology, and possess expertise in psychological measurement, specifically related to understanding acculturative stress among international students in Indonesia. The author provided a brief description of the ASSIS and the original scale version to the reviewers, accompanied by a cover letter explaining the selection criteria and obtaining their consent to participate. The experts were tasked with validating the scale using a rating form that assessed Relevance, Importance, and Clarity on a Likert scale ranging from 1 to 4. A score of 1 indicated very irrelevant, unimportant, or unclear, while a score of 4 indicated very relevant, very important, or very clear.

Pre-final. During this phase, the author conducted a pilot research involving 10 international students representing various countries and enrolled at different universities in Indonesia. The author provided these students with a measurement instrument that included a comment section, allowing them to provide feedback on the listed items. The author also inquired about how well the items were comprehended by the students. Overall, the international students reported that the items were clear, easy to understand, and relevant to the Indonesian context.

Table 1. Summary of ASSIS's CVI score

Components	I-CVI	S-CVI
Relevancy	1.00	1.00
Importance	1.00	1.00
Clarity	1.00	1.00

Data Analysis

Data analysis in this research involves conducting validity and reliability tests. Validity is assessed through content validity and internal structure validity. Content validity in this research scale is evaluated using the Content Validity Index (CVI), which calculates both the Item-Level Content Validity Index (I-CVI) for each item and the Scale-Level Content Validity Index (S-CVI) for the entire scale. Internal structure validity includes measures of convergent validity and discriminant validity. Convergent validity is determined by examining factor loadings (FL), confirmatory factor analysis (CFA), average variance extracted (AVE), and construct reliability (CR). Discriminant validity is assessed by comparing the square root of the AVE of each construct variable with the correlations between the construct variables. To ensure the instrument's reliability, the AVE and CR values are analyzed. The data analysis will be conducted using the LISREL (Linear Structural Relationships) program.

Result

Content Validity

Experts conducted a content validity assessment to ensure that the questionnaire's content aligned with the research objectives (Hendryadi, 2017). In this research, the Content Validity Index (CVI) was calculated based on ratings provided by three expert reviewers. The scale used for expert validation ranged from 1 to 4, where 1 indicated "not relevant," 2 indicated "less relevant," 3 indicated "somewhat relevant," and 4 indicated "very relevant." (Yusoff, 2019). When three experts are involved, an acceptable Content Validity Index (CVI) value is 1.00 (Polit et al., 2007).

Table 1 presents the results of the Item-Level Content Validity Index (I-CVI) and the Scale-Level Content Validity Index (S-CVI).

Note. The Content Validity Index (CVI) was computed separately for each of the 36 items (I-CVI) as well as for the entire scale (S-CVI). The ratings provided by the three experts were converted into a dichotomous scale where scores 1 and 2 were categorized as 0, and scores 3 and 4 were categorized as 1.

The outcomes presented in table 1 indicate that the CVI score for all 36 items of the ASSIS was 1.00, with all three raters assigning ratings of 3 or 4 to each statement in the scale. Similarly, the S-CVI score for the entire scale was 1.00. These results demonstrate that each item in the ASSIS and the overall content of the scale are highly relevant to the experiences of international students in Indonesian universities.

Factorial Validity

Confirmatory Factor Analysis (CFA) assesses the adequacy of the measurement model by examining various goodness-of-fit statistics. These statistics include benchmarks such as chi-square (χ^2) or chi-square probability (P), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), Comparative Fit Index (CFI), and Goodness of Fit Index (GFI). The criteria used to determine the adequacy or goodness-of-fit of the measurement model are as follows: Chi-squared (χ^2) < Chi-squared table or Chi-squared probability > 0.05; RMSEA < 0.08; SRMR < 0.1; NFI > 0.9; CFI > 0.9; and GFI > 0.9. Each construct variable or dimension must satisfy at least four out of these six criteria to establish a good fit for the model (Ghozali, 2014; Hair et al., 2014). Note. The ASSIS CFA model is structured into two sub-models due to its extensive number of components and items. The first CFA sub-model for ASSIS (ASSIS-1) includes five components: Perceived Discrimination, Homesickness, Perceived Hate, Fear, and Culture Shock. The second CFA sub-model (ASSIS-2) comprises two components: Guilt and Miscellaneous.

According to table 2, the ASSIS-1 CFA model satisfies 5 out of 6 criteria. These criteria include RMSEA < 0.08, SRMR < 0.10, and NFI, CFI, and GFI values > 0.90. Additionally, the ASSIS-2 CFA model meets all 6 criteria. Therefore, it can be concluded that the CFA model of the ASSIS scale, encompassing items that assess perceived discrimination, homesickness, perceived hate, fear, culture shock, guilt, and miscellaneous components, fits well.

Construct Validity

This type of validity assesses whether the research instruments were designed based on an appropriate and relevant theoretical framework. Construct validity can be evaluated through various methods, such as convergent validity and discriminant validity. (Budhiastuti & Bandur, 2018). The minimum FL value should be greater than 0.5. However, if the research involves more than 200 subjects, an FL value greater than 0.4 is still considered acceptable. Additionally, the AVE score should exceed 0.05, and the CR score should be greater than 0.7 (Hair et al., 2014).

Based on table 3, all ASSIS items have FL values of > 0.5, demonstrating that the items are convergently valid for measuring the components of the ASSIS scale. This is further corroborated by the AVE values for each construct, such as perceived discrimination (0.57), homesickness (0.58), perceived hatred (0.63), anxiety (0.50), culture shock (0.52), guilt (0.57), and miscellaneous (0.52). All these AVE values are > 0.50, indicating that the validity criteria are met. The overall AVE for ASSIS was 0.55, which satisfies the criteria for convergent validity. Discriminant validity is assessed by comparing a component's root AVE to its intercomponent correlation. The scale demonstrates discriminant validity if the root AVE is greater than the intercomponent correlation. According to table 4, the root AVE exceeds the intercomponent correlation, suggesting that statement items are more closely related to their respective components than to other components, thereby indicating high discriminant validity.

Table 2. Comparison of ASSIS's CFA model fit.

Model CFA	P-value (χ^2)	RMSEA	SRMR	CFI	NFI	GFI
ASSIS-1	0.00	0.08	0.07	0.95	0.90	0.90
ASSIS-2	0.29	0.031	0.063	0.98	0.90	0.91

Table 3. Validity test results for the CFA method ASSIS scale.

Components	Model CFA		
	Items	Factor Loading	AVE
Perceived Discrimination	assis3	0.52	0.57
	assis9	0.74	
	assis11	0.84	
	assis14	0.79	
	assis17	0.75	
	assis23	0.87	
	assis26	0.73	
	assis29	0.76	
Homesickness	assis1	0.84	0.58
	assis6	0.73	
	assis21	0.7	
	assis35	0.78	
Perceived Hate	assis4	0.71	0.63
	assis15	0.78	
	assis20	0.73	
	assis24	0.9	
	assis33	0.83	
Fear	assis7	0.78	0.50
	assis18	0.54	
	assis27	0.74	
	assis31	0.75	
Culture Shock	assis2	0.62	0.52
	assis13	0.82	
	assis22	0.7	
Guilt	assis10	0.75	0.57
	assis34	0.76	
Miscellaneous	assis5	0.50	0.52
	assis8	0.65	
	assis12	0.77	
	assis16	0.67	
	assis19	0.78	
	assis25	0.94	
	assis28	0.7	
	assis30	0.77	
	assis32	0.75	
	assis36	0.61	
	ASSIS scale		

Instrument Reliability

This reliability assessment employs Average Variance Extracted (AVE) and Composite Reliability (CR) test statistics. An indicator variable, dimension, or construct is considered reliable if the AVE value is > 0.50 and the CR value is > 0.60 . (Ghozali, 2014; Hair et al., 2014). According to table 5, all the indicators constituting the ASSIS are reliable, with AVE values exceeding 0.50. This reliability is further affirmed by the Composite Reliability (CR) values, which are greater than 0.60.

Table 3 shows the validity test results for the ASSIS scale using the Confirmatory Factor Analysis (CFA) method. The scale's components, which include Perceived Discrimination,

Homesickness, Perceived Hate, Fear, Culture Shock, Guilt, and Miscellaneous, are evaluated through specific items listed in the table. The Factor Loading (FL) values, ranging from 0.50 to 0.94, indicate the strength of the relationship between each item and its corresponding component. Higher FL values suggest a stronger association between an item and its respective component. Additionally, the Average Variance Extracted (AVE) values, which range from 0.50 to 0.63, measure the convergence of items within each component. An AVE value of 0.50 or higher indicates satisfactory convergence. The overall AVE value for the entire ASSIS scale is 0.55, demonstrating acceptable convergent validity across all components.

Table 4 compares the Average Variance Extracted (AVE) root values and intercomponent correlation values for two CFA ASSIS scale models. The AVE root values, highlighted in bold, reflect the convergent validity of each component, with values ranging from 0.25 to 0.76. These values exceed the intercomponent correlation values, indicating strong discriminant validity. The table shows that the components within each model are well-defined and distinct, as evidenced by the higher AVE root values compared to the intercomponent correlations. This is essential in confirming the scale's effectiveness in accurately measuring various aspects of acculturative stress among international students in Indonesia.

Table 5 summarizes the Average Variance Extracted (AVE) and Composite Reliability (CR) test results for the ASSIS scale components. The AVE values, ranging from 0.50 to 0.63, indicate satisfactory convergent validity. The CR values, ranging from 0.73 to 0.91, suggest good internal consistency and reliability for all components. Overall, the table confirms that the ASSIS scale is reliable for measuring various aspects of acculturative stress among international students in Indonesia.

Discussion

This research examines the psychometric characteristics of the acculturative stress scale tailored for international students in Indonesia. Table 1 demonstrates strong content validity for the ASSIS, designed to assess the acculturative stress experienced by international students from various countries researching in Indonesia. Both the I-CVI and S-CVI values for this scale are 1.00, indicating exceptionally high validity. (Guilford & Fruchter, 1978). Hence, this scale accurately captures the concept of acculturative stress among international students in Indonesia.

The factorial validity of the ASSIS was assessed using Confirmatory Factor Analysis (CFA). The ASSIS-1 CFA model fulfilled 5 out of 6 criteria, including $RMSEA < 0.08$, $SRMR < 0.10$, and NFI, CFI, and GFI values ≥ 0.90 . In contrast, the ASSIS-2 CFA model satisfied all 6 criteria. These criteria are benchmarks for evaluating model fit, where lower RMSEA and SRMR values and higher NFI, CFI, and

Table 4. Comparison of AVE Root and Intercomponent Correlation.

	Model CFA ASSIS-1				
	Perceived Discrimination	Homesickness	Perceived Hate	Fear	Culture Shock
Perceived Discrimination	0.76				
Homesickness	0.47	0.76			
Perceived Hate	0.59	0.40	0.79		
Fear	0.53	0.49	0.65	0.71	
Culture Shock	0.50	0.64	0.47	0.44	0.72

	Model CFA ASSIS-2	
	Guilt	Miscellaneous
Guilt	0.76	
Miscellaneous	0.25	0.72

Table 5. Summary of AVE and CR Test Results

Components*	Average Variance Extracted (AVE)	Composite Reliability (CR)	Description
Perceived Discrimination	0.57	0.91	Reliable
Homesickness	0.58	0.85	Reliable
Perceived Hate	0.63	0.89	Reliable
Fear	0.50	0.80	Reliable
Culture Shock	0.52	0.76	Reliable
Guilt	0.57	0.73	Reliable
Miscellaneous	0.52	0.91	Reliable

*The components listed in the table are part of ASSIS.

GFI values indicate a better fit. (Ozkok et al., 2019). The outcomes of this research align with those of previous research conducted in various countries. For instance, in a CFA of the ASSIS conducted in China, the results indicated GFI = 0.91, CFI = 0.93, chi-square = 1.90, and RMSEA = 0.04. (Liu et al., 2016). When applying the ASSIS in Korea, the results indicated chi-square = 1.724, CFI = 0.925, NFI = 0.916, RMSEA = 0.064, and SRMR = 0.054. (Kim & Cho, 2020). Subsequently, when utilizing the ASSIS in Texas, the outcomes included a p-value <0.001, NFI = 0.948, CFI = 0.958, RMSEA = 0.058, and SRMR = 0.062. (Wang et al., 2021).

All items in the ASSIS demonstrate Factor Loadings (FL) *geq* 0.5, signifying their convergent validity in measuring the components of the scale. This is reinforced by the AVE value in this research, which is *geq* 0.50. Factor Loadings indicate the strength and direction of the relationship between latent variables and their observed indicators, while AVE measures the proportion of variance captured by a construct relative to the variance attributable to measurement error. (Tavakol & Wetzel, 2020). Both factor loadings (FL) and Average Variance Extracted (AVE) values are crucial in evaluating the convergent validity of a measure, where higher FL and AVE values indicate stronger construct validity (Ab Hamid et al., 2017; Cheung et al., 2023). In this context, the ASSIS effectively assesses the acculturative stress experienced by international students in Indonesia. It accurately captures the construct of acculturative stress among this student population.

The reliability of the ASSIS in assessing acculturative stress among international students in Indonesia is satisfactory. All components of the ASSIS scale demonstrate good reliability, with Average Variance Extracted (AVE) values ranging from 0.50 to 0.63. This is further supported by the Composite Reliability (CR) values, which range from 0.73 to 0.91.

However, it is noteworthy that the reliability observed in this research is not as high as that reported for international students in Malaysia, where the Cronbach's alpha coefficient was 0.95 and internal consistency was 0.90. (Talwar et al., 2022). The variance can be attributed to differences in sample sizes. Larger samples typically enhance the reliability of measurements. This is because larger samples enable more precise estimation of population parameters, minimize the influence of measurement errors, and bolster the robustness of outcomes. (Andrade, 2020; Faber & Fonseca, 2014).

The validation and reliability research of the ASSIS holds significant implications for educational institutions accommodating international students. By understanding the precise measurement of acculturative stress through the ASSIS, universities and similar educational entities can develop more effective intervention strategies (Al-Jaberi et al., 2020). For instance, institutions can implement counselling and psychological support services tailored to address acculturative stress. Counsellors can utilize ASSIS outcomes to assess students' stress levels and customize their approaches accordingly. Moreover, institutions can arrange workshops aimed at assisting international students in navigating cultural, academic, and social hurdles. These workshops can cover coping mechanisms, intercultural communication skills, and the cultivation of robust social networks.

This research also has the potential to impact institutional policies and strategic planning significantly. Using reliable and valid data derived from the ASSIS, educational institutions can formulate proactive support policies for international students. These may include initiatives like peer mentoring programs, cultural orientation sessions, and language assistance services (Yomtov et al., 2015). Moreover, the information obtained from the ASSIS can be utilized to assess the efficacy of current programs and implement

enhancements as needed, thereby enabling institutions to better meet the specific needs of international students.

Understanding the psychometric characteristics of the ASSIS can stimulate further research in the realm of acculturative stress and mental health among international students. Future investigations could explore longitudinal studies to track the evolution of acculturative stress over time and identify influencing factors. Additionally, research could focus on evaluating the effectiveness of diverse interventions aimed at alleviating acculturative stress and enhancing the well-being of international students (Kristiana et al., 2022). This research also has the potential to raise awareness regarding the importance of recognizing and addressing acculturative stress among international students. It could prompt the development of educational programs and training sessions for faculty and staff to recognize the signs of acculturative stress and provide appropriate support to affected students. Furthermore, awareness campaigns may be initiated to foster a more inclusive and supportive campus environment (Kosyluk et al., 2016; Snethen et al., 2021).

Future researchers should consider several limitations highlighted in this research, particularly the restricted number of participants. The size of the sample or respondent pool can significantly impact the generalizability and representativeness of outcomes. Small sample sizes often hinder the ability to extend research conclusions to a broader population. This limitation diminishes the external validity of outcomes and restricts our understanding of the true variability present within the target population. Moreover, when the sample does not adequately represent the overall population, research outcomes may be less applicable or fail to accurately reflect real-world conditions, thereby undermining the robustness of the research's conclusions (Memon et al., 2020).

Conclusion

In summary, the demand for quantitative research and assessment of acculturative stress among international students in Indonesia is increasing alongside the rising number of such students in the country. Therefore, there is an imperative to comprehend the measurement tools and their psychometric properties. Cultural distinctions across countries undoubtedly influence the levels of acculturative stress experienced by international students.

The ASSIS, utilized in this research, was applied to a population of international students in Indonesia. In general, the ASSIS demonstrated validity and reliability in measuring acculturative stress among international students in Indonesia. For future researchers, it is recommended to consider enlarging the sample size in their studies. Including a greater number of participants from diverse backgrounds and demographics can improve the sample's representativeness and extend the applicability of outcomes. Furthermore, conducting future studies on a larger scale with a more diverse sample is advised. These subsequent investigations can validate previous outcomes, enhance the overall generalizability of results, and offer a deeper insight into the phenomena being studied.

This research underscores the significance of ensuring the validity and reliability of acculturative stress measurement

scales. Specifically, Confirmatory Factor Analysis (CFA) and Average Variance Extracted (AVE) values are crucial tools for evaluating the appropriateness of a scale in assessing acculturative stress among Indonesian university students. Analyzing Factor Loadings (FL) across dimensions and AVE values helps researchers gauge the scale's effectiveness in measuring acculturative stress accurately. Moreover, this research indicates that sample size plays a pivotal role in influencing the reliability of the scale. Therefore, it is crucial to consider these factors when assessing the psychometric properties of the acculturative stress scale and enhancing its reliability for effective measurement among international students in Indonesia.

The practical value of possessing a reliable and valid tool in this area is substantial. It enables researchers, educators, and policymakers to gain a deeper understanding of international students' experiences with acculturative stress. This understanding, in turn, informs the development of targeted interventions, support systems, and policies tailored to meet their specific needs. Such efforts contribute directly to the applied aspect of the journal by offering actionable insights that can enhance the well-being and academic achievement of international students within the Indonesian context.

Declaration

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Author contributions

The research paper was collaboratively prepared by all authors, each contributing equally. All authors have reviewed and approved the final version of this research paper.

Conflict of interest

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Orchid ID

Nugraha Arif Karyanta:  0009-0002-8686-3538

Suryanto Suryanto:  0000-0002-2448-7429

Andik Matulesy:  0000-0003-0764-248X

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