

Review

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Review

Neglecting Stress Transactions: A Systematic Review of Psychometric and Cultural Gaps in Cross-Cultural Stress Scales

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Abstract

Background: Cross-cultural stress tools face three key flaws: psychometric reductionism (overreliance on alpha reliability), weak cultural validation (limited contextual testing across populations), and disregard for transactional dynamics (ignoring stress as a person-environment interaction). **Objectives:** This systematic review aimed to: synthesize psychometric properties of cross-cultural stress scales; evaluate methodological rigor and cultural generalizability; and propose future research priorities. **Methods:** Following PRISMA 2020 guidelines, we systematically reviewed 42 studies (from 425 records across SciELO, ERIC, PsycINFO). Inclusion required psychometric validation, cross-cultural focus, and reported reliability/validity. Two reviewers achieved high agreement ($\kappa=0.92$). Quality assessment evaluated psychometric robustness and generalizability. **Results:** Among 42 instruments: 83.3% (35/42) focused on acculturative stress, yet 92.9% (39/42) measured stressors while omitting cognitive appraisal and coping mechanisms; 59.6% (25/42) derived from Western populations; only 31.0% (13/42) tested measurement invariance; Mean α was 0.83, with 42.9% (18/42) exhibiting subscale reliability <0.70 . Critical gaps: 95.2% (40/42) lacked biometric validation; 85.7% (36/42) excluded non-student populations. Top stressors: language barriers (64.3%), discrimination (61.9%), homesickness (50.0%). **Conclusions:** Dominant limitations include: (1) reductionist psychometrics (alpha-dependence, insufficient invariance testing); (2) Western-centric frameworks; (3) failure to model stress transactions. Future scale development must integrate stressor-appraisal-coping pathways, expand validation to underrepresented regions (Africa/Middle East, $\leq 3.6\%$ of samples), and adopt hybrid methods (biometrics + AI analytics).

Keywords: cross-cultural stress; psychometric limitations; cultural validity; transactional stress model; alpha reliability

Introduction

The psychological complexities of cross-cultural mobility have gained increasing scholarly attention in the context of globalization and rising cultural transitions. Individuals navigating new environments face multifaceted stressors – including language barriers, social isolation, discrimination, and cultural dissonance – that manifest as both external challenges (e.g., adapting to societal norms) and internal conflicts (e.g., identity struggles). These stressors interact with individual factors (e.g., socio-economic background, personality) and systemic influences (e.g., host-country policies), creating a dynamic web of adaptation processes. Valid and reliable assessment tools are critical to capture this complexity; however, many existing instruments adopt fragmented approaches, focusing narrowly on isolated dimensions such as stressors or coping.

Despite methodological advancements, current tools often fail to reflect the transactional nature of stress as proposed by Lazarus and Folkman's (1984) model, which emphasizes the dynamic interplay between environmental demands and individual appraisals. While scales such as the Acculturative Stress Scale (assessing homesickness and discrimination) (Akhtar & Kröner-Herwig, 2015) and Acculturative Stress Scale (measuring ethnic identity threat) (Jibeen & Khalid, 2010) have

contributed to understanding acculturative stress, their unidimensional designs overlook critical interactions – particularly how coping strategies mediate the impact of stressors on well-being. Moreover, cultural validity remains limited: few instruments demonstrate measurement invariance across diverse populations, as illustrated by adaptations like the German Multidimensional Acculturative Stress Inventory for Turkish immigrants (Scholaske et al., 2020). This gap underscores the need for tools that holistically integrate stressors, emotions, symptoms, coping, and well-being into a unified framework, validated across cultural contexts.

Objectives of the Review

This systematic review aims to:

1. **Synthesize evidence** on the psychometric properties (reliability, validity, factor structure) of stress assessment instruments, with emphasis on cross-cultural mobility.
2. **Evaluate methodological rigor** using psychometric robustness criteria and findings generalizability, identifying strengths (e.g., the Multidimensional Acculturative Stress Scale (MASS) with rigorous CFA; high reliability; multilingual administration) and limitations (e.g., small samples).
3. **Propose a roadmap** for future research.

Methodology

This systematic review adhered to the PRISMA 2020 guidelines (Page, McKenzie, et al., 2021), implementing updated reporting standards for transparent methodology documentation. The comprehensive search strategy employed Boolean queries combining key terms – ("teacher stress" OR "student stress" OR "academic stress" OR "occupational stress") AND ("stress scale" OR "stress questionnaire" OR "stress assessment") AND ("psychometric propert*" OR validit* OR reliab* OR Cronbach* alpha OR "test-retest") AND ("cross-cultur*" OR "cultural valid*" OR "cultural equivalenc*" OR "multicultural assessment").

Searches were conducted across three databases: SciELO (n=18), PsycINFO (n=98), and ERIC (n=0), supplemented by backward citation tracking of relevant reviews (n=10), yielding 126 initial records. Following PRISMA 2020's protocols for study identification (Page, Moher, et al., 2021, p. Item #6), 3 duplicates were removed using automation tools, leaving 123 records for screening. During title/abstract evaluation, 47 records were excluded for irrelevant methodology or focus (e.g., non-validation studies, articles lacking psychometric data), leaving 76 reports for full-text assessment.

Eligibility criteria followed PRISMA 2020's structured framework (Page, Moher, et al., 2021, p. Item #5), requiring studies to:

1. Describe development/validation of stress assessment instruments;
2. Report quantitative psychometric properties (including ≥ 1 reliability metric [e.g., Cronbach's α , test-retest] and ≥ 1 validity metric [e.g., factor analyses, convergent validity]);
3. Be peer-reviewed journal articles; and
4. Explicitly measure relevant stress constructs (cross-cultural, acculturative, occupational, academic, or general perceived stress).

During full-text evaluation, exclusion criteria were systematically applied: 19 assessed non-stress constructs (e.g., mislabeled anxiety/depression scales), 8 were non-peer-reviewed (dissertations/conference abstracts), and 7 had insufficient data (missing essential psychometric metrics).

Two independent reviewers achieved high inter-rater reliability (Cohen's $\kappa=0.92$), resolving discrepancies via consensus or third arbitration, resulting in 42 included primary studies. The selection process is documented in the PRISMA 2020 flow diagram (Figure 1).

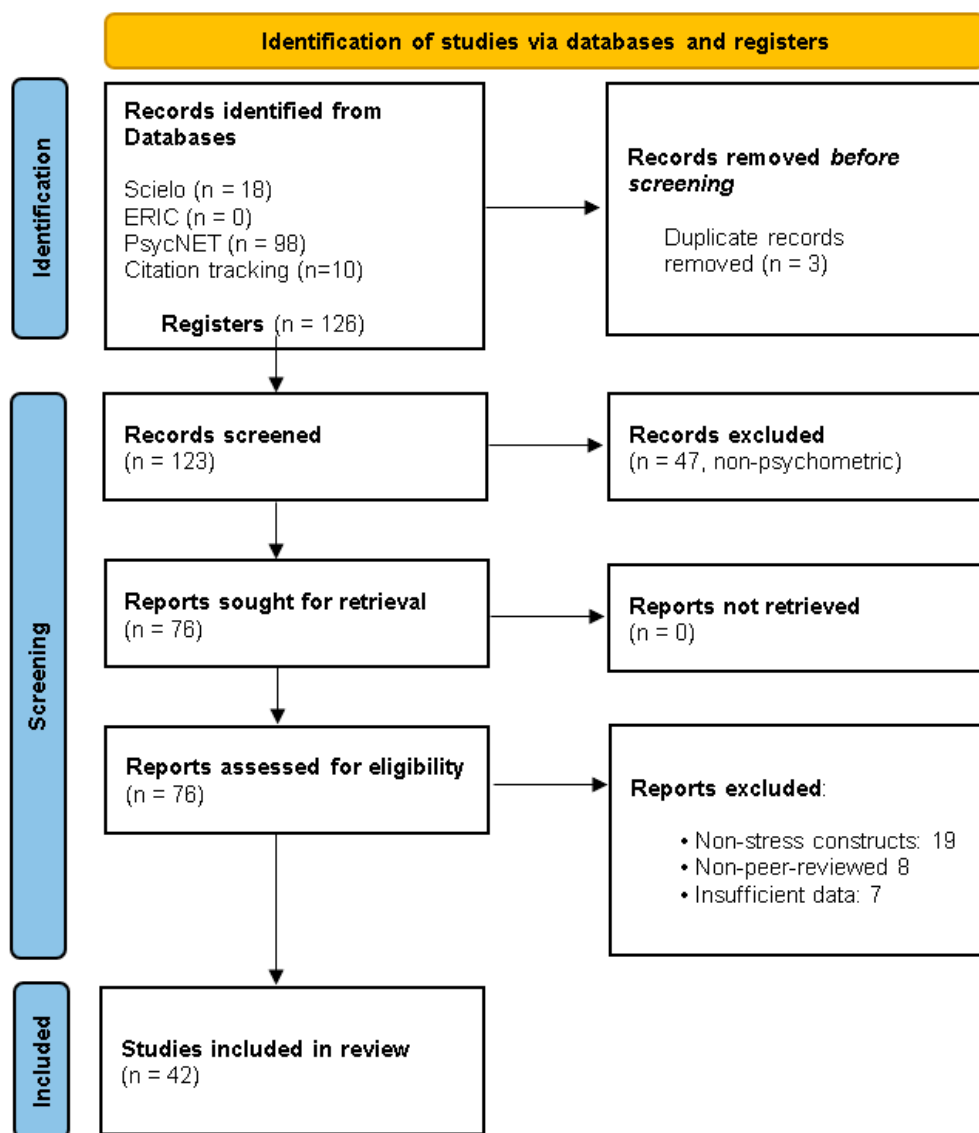


Figure 1. PRISMA 2020 flow diagram.

Data extraction systematically captured:

1. **Study characteristics:** Authors, publication year, geographic/cultural context, sample size, target population (e.g., teachers, students, migrants).
2. **Instrument specifications:** Scale name, theoretical stress definition, number of dimensions/subscales, total item count, response format.
3. **Psychometric properties:**
 - **Reliability:** Internal consistency (Cronbach's α/ω), test-retest reliability (ICC/r).
 - **Validity:** Factor structure (EFA/CFA results), convergent validity (correlations with established measures), discriminant validity, known-groups validity.
4. **Cross-cultural adaptation procedures:** Translation methodology (e.g., forward-backward, committee approach), cultural adaptation steps, measurement invariance testing levels/configural/metric/scalar) across groups).

Quality Assessment:

Methodological quality was independently assessed by two reviewers using predefined criteria across two domains:

- **Psychometric Robustness:** Comprehensiveness and rigor of reported validation methods:

- **High:** Comprehensive validation including structural validity (CFA), multiple reliability types, multiple validity types (convergent, discriminant), and measurement invariance testing. (e.g., Castillo et al.'s MASI (2015)).
 - **Moderate:** Partial validation (e.g., CFA but lacking discriminant validity, or reliability only reported via Cronbach's α). (e.g., Akhtar & Kröner-Herwig's ASSIS (2015) - modified structure not re-validated).
 - **Low:** Major methodological limitations (e.g., only EFA performed, critically low reliability [$\alpha < 0.60$], absence of essential validity evidence). (e.g., Matsumoto et al.'s ICAPS (2001) – subscale $\alpha = 0.43$).
 - **Generalizability of Evidence:** Breadth of populations and contexts where validity was established.
 - **High:** Validation across ≥ 3 distinct cultural/linguistic groups with demonstrated measurement invariance. (e.g., Eiroa-Orosa et al.'s BISS (2023)).
 - **Moderate:** Validation within a specific cultural/linguistic context or limited subgroups without broad invariance testing. (e.g., Bai's ASSCS - Chinese students in U.S. only (2016)).
 - **Low:** Validation only within a single, highly specific, or non-representative sample. (e.g., Matsumoto et al.'s ICAPS - small Japanese sojourner sample (2007)).
- Discrepancies were resolved through consensus. Results are summarized in Table 1.

Table 1. Quality Assessment of Acculturative Stress Scales.

INSTRUMENT	SCIENTIFIC EVIDENCE	PSYCHOMETRIC ROBUSTNESS / GENERALIZABILITY OF FINDINGS
ASSIS (Akhtar & Kröner-Herwig, 2015)	<p>Strengths: Large sample, high internal consistency.</p> <p>Limitations: No factor re-validation, single-language administration, no invariance testing, small African subgroup)</p>	Moderate (Partial validation; no factor re-validation or invariance testing; single-context sample)
ASSCS (Bai, 2016)	<p>Strengths: Culturally tailored development (Chinese language), robust EFA, criterion validity with depression/life satisfaction.</p> <p>Limitations: Nonprobability sampling (52% dropout rate). No test-retest reliability or subscale alphas. Limited demographic diversity (predominantly graduates).</p>	Moderate (No invariance testing; sampling limitations; culturally restricted)
ASSPMS (Bashir & Khalid, 2020)	<p>Strengths: First scale integrating religious stressors for Muslim students. Robust reliability and criterion validity. Diverse multinational sample.</p> <p>Limitations: Sampling bias (email recruitment; 86% male). o test-retest reliability or CFA validation. imited</p>	Moderate (No invariance testing; sampling bias; culturally restricted)

	generalizability to non-scholarship students.	
ASSIS (Bhandari, 2012)	Strengths: High internal consistency, criterion validity. Limitations: No subscale analysis, English-only use, no factor re-validation.)	Moderate (No factor re-validation; English-only administration; single-context sample)
MASI (Castillo et al., 2015)	Strengths: Large sample, rigorous invariance testing, high reliability. Limitations: No test-retest reliability, no concurrent validity, college-only sample)	High (Rigorous invariance testing; large diverse sample; strong reliability)
CASAS-A (Castro-Olivo et al., 2014)	Strengths: Strong total reliability, predictive validity for ELLs. Limitations: Subscale $\alpha < .70$ (FamAG/LSBel); non-sig. mental health/school belonging correlations; small sample)	Moderate (Subscale reliability issues; small sample; no invariance testing)
HSI-I (Cavazos-Rehg et al., 2006)	Strengths: Culturally adapted instrument; Acceptable reliability ($\alpha=.68-.83$); Convergent validity established. Limitations: Non-random sampling (churches/festival); Small sample; No test-retest reliability; No CFA/measurement invariance.	Moderate (No CFA/invariance testing; small non-random sample)
Adult STRAIN (Cazassa et al., 2020)	Strengths: Rigorous translation protocol; Excellent test-retest reliability; Predictive validity across multiple health outcomes; Large sample diversity (SES, age). Limitations: Cross-sectional design; No biomarker validation; Low internal consistency for TIPI personality measures	High (Rigorous translation; predictive validity; diverse sample)
HIS (Cervantes et al., 1990)	Strengths: Culturally specific item development; Strong internal consistency; Good criterion validity. Limitations: Small test-retest sample (n=35); Limited clinical validation; No measurement invariance testing	Moderate (No invariance testing; small test-retest sample)
ASSIS (Yu et al., 2014)	Strengths: Large sample, validated network structure, multi-language administration. Limitations: Single-site (Wuhan), no invariance testing, subscale $\alpha < 0.7$ for 3 dimensions	Moderate (Subscale reliability issues; no invariance testing; single-site sample)

<p>PSS (Cohen et al., 1983)</p>	<p>Strengths: Widely adopted, predictive validity for health outcomes, large normative sample.</p> <p>Limitations: No reliability/factor analysis in source document; U.S.-centric norms; no invariance testing or clinical population data.</p>	<p>Moderate (No psychometrics in source; U.S.-centric; no invariance testing)</p>
<p>ASID (Dokoushkani et al., 2019)</p>	<p>Strengths: Rigorous scale adaptation (expert review, back-translation). Robust sample size (N=610) and clear factor structure. Culturally tailored to Iranian/Muslim diaspora (e.g., visa stress, religious norms).</p> <p>Limitations: No test-retest reliability or measurement invariance testing. Limited generalizability (student-only sample; single host country). Subscale alphas for AP and SNR marginally acceptable (0.64, 0.63).</p>	<p>Moderate (Low subscale reliability; no invariance testing; student-only sample)</p>
<p>BISS (Eiroa-Orosa et al., 2023)</p>	<p>Strengths: Large, ethnically diverse sample (N = 884). Robust psychometric properties (EFA/CFA, IRT). Addresses both acculturative and broader immigration-related stress (e.g., discrimination, housing).</p> <p>Limitations: Sample limited to primary care users, potentially excluding undocumented migrants. No test-retest reliability or longitudinal data. Weak model fit for Eastern Europeans, suggesting cultural specificity.</p>	<p>High (Multinational validation; robust psychometrics; diverse ethnic groups)</p>
<p>AAMAS (Gim Chung et al., 2004)</p>	<p>Strengths: Bidimensional approach: Captures orthogonal acculturation to heritage and host cultures. Pan-ethnic focus: Unique inclusion of Asian American identity as a distinct dimension. Robust psychometrics: High reliability and validity across studies.</p> <p>Limitations: Limited to college students; may not generalize to older or non-student populations. No explicit measurement of stress (focuses on</p>	<p>Moderate (No direct stress measurement; college-only sample)</p>

acculturation, though related to stress outcomes).

<p>ARSAA-II (Jadalla & Lee, 2015)</p>	<p>Strengths: Robust translation protocol, large sample for FA, alignment with Berry's bidimensional model. Limitations: No invariance testing, overrepresentation of Jordanian/Palestinian Muslims vs. Arab American demographics.)</p>	<p>High (Robust translation; large sample; bidimensional alignment)</p>
<p>MASS (Jibeen & Khalid, 2010)</p>	<p>Strengths: Rigorous scale development (EFA, expert review, pilot testing). Culturally specific stressors (e.g., threat to ethnic identity). Concurrent validity with established mental health measures. Limitations: Homesickness subscale had low reliability ($\alpha = .56$). No confirmatory factor analysis (CFA) or invariance testing. Homogeneous sample (Pakistani immigrants only).</p>	<p>Moderate (Low subscale reliability; no CFA/invariance; homogeneous sample)</p>
<p>Multi-VIA (Lefringhausen & Marshall, 2016)</p>	<p>Strengths: Robust CFA supporting bidimensional model across cultures. Links to psychological (life satisfaction) and sociocultural (intercultural sensitivity) outcomes. Limitations: Language Bias: English-only administration may exclude non-bilingual locals. Generalizability: Samples skewed toward educated, urban populations. No Test-Retest Reliability: Temporal stability unverified.</p>	<p>High (Cross-continent invariance; strong validity; bidimensional model)</p>
<p>ASS-16 (Khan & Hasan, 2017)</p>	<p>Strengths: Rigorous validation (EFA/CFA), strong reliability/validity metrics. Limitations: Single-country sample, no test-retest reliability, limited generalizability beyond India).</p>	<p>High (Rigorous EFA/CFA; strong validity; though single-country)</p>
<p>AARS-A (Khawaja & Carr, 2020)</p>	<p>Strengths: Robust EFA and validity testing. Culturally diverse sample. Limitations: No CFA or invariance testing. Sample limited to transitional school students. Spirituality items</p>	<p>Moderate (No CFA/invariance; transitional school sample)</p>

	excluded despite relevance for some CALD groups.	
AAS (Kim, 2010)	<p>Strengths: Strong construct validity via behavioral/psychological correlates. Culturally specific item development.</p> <p>Limitations: No factor analysis reported. Marginalization subscale had lower reliability ($\alpha = .60$). Sample limited to Korean diaspora.</p>	Moderate (Low marginalization reliability; no factor analysis; culturally restricted)
MASS (Lapkin & Fernandez, 2018)	<p>Strengths: Rigorous CFA, high reliability, diverse language inclusion.</p> <p>Limitations: Convenience sample (RAIN group attendees), no gender comparisons, language-barrier subscale has only 2 items)</p>	High (Rigorous CFA; high reliability; multilingual administration)
ASSIS (Liu et al., 2016)	<p>Strengths: Large sample, robust path analysis.</p> <p>Limitations: Cross-sectional design, suboptimal subscale reliability, single-city sampling)</p>	Moderate (Subscale reliability issues; cross-sectional; single-city sample)
ICAPS (Matsumoto et al., 2001)	<p>Strengths: Multi-method validation (self-report, peer/expert ratings, training effects).</p> <p>Limitations: Suboptimal subscale reliability, no longitudinal/causal evidence, limited generalizability beyond Japanese samples)</p>	Low (reporting subscale $\alpha = 0.43$ – 0.64 and no longitudinal validation)
ICAPS (Matsumoto et al., 2007)	<p>Strengths: Novel integration of intelligence/personality with ICAPS.</p> <p>Limitations: Small sample, no factor validation, single-site study, no invariance testing.)</p>	Moderate (Small sample; no factor validation; no invariance testing)
RASI (Spanish) (Merced et al., 2022)	<p>Strengths: Diverse sample, rigorous translation, robust EFA.</p> <p>Limitations: No measurement invariance testing, regional bias (Southeast U.S.), gender imbalance</p>	High (Rigorous translation; robust EFA; diverse Latinx sample)
RASI (Miller et al., 2011)	<p>Strengths: Large sample, robust CFA/EFA, generational invariance testing.</p> <p>Limitations: No cross-ethnic invariance testing, reliance on self-report.</p>	High (Generational invariance; large sample; strong CFA/validity)

<p>ASVA (Nguyen & Von Eye, 2002)</p>	<p>Strengths: Empirical validation of bidimensional acculturation model (superior to unidimensional). Robust reliability and CFA-supported structure. Culturally tailored items (e.g., family orientation, language use).</p> <p>Limitations: Low reliability for some subscales (e.g., US-Family Orientation $\alpha = .49$). No invariance testing across language administrations (English vs. translated). Limited generalizability (small, suburban sample; no urban/Vietnam-dense contexts).</p>	<p>Moderate (Low subscale reliability; no invariance testing; limited sample)</p>
<p>AHSCS (Pan et al., 2010)</p>	<p>Strengths: large, diverse sample; rigorous item development; solid EFA results and internal consistency; evidence of convergent validity.</p> <p>Limitations: no CFA or longitudinal validation; context-specific application to Hong Kong only)</p>	<p>High (Large sample; rigorous EFA; strong reliability/validity)</p>
<p>MASI (Rodriguez et al., 2002)</p>	<p>Strengths: Clear distinction between acculturative stress and minority/socioeconomic stress. Robust factor structure and reliability. Bilingual administration enhances cultural applicability.</p> <p>Limitations: Modest test-retest reliability for Pressure to Acculturate ($r = .53$). Sample skewed toward English-speakers (75%); limited representation of recent immigrants. No measurement invariance testing across language versions.</p>	<p>Moderate (Modest test-retest reliability; skewed sample; no invariance)</p>
<p>MASI (Adolescent) (Rodriguez et al., 2015)</p>	<p>Strengths: Rigorous EFA, strong reliability, generational analysis.</p> <p>Limitations: No CFA validation, bicultural self-consciousness factor had only 2 items, no invariance testing across Latino subgroups).</p>	<p>High (Strong reliability; generational analysis; robust EFA)</p>
<p>ASSIS (original) (Sandhu & Asrabadi, 1994)</p>	<p>Strengths: National sample, rigorous EFA, comprehensive item generation.</p> <p>Limitations: No reliability metrics, single-language administration, no</p>	<p>Moderate (No reliability metrics; single-language; preliminary validation)</p>

	CFA/invariance testing, preliminary validation).	
MASI (German) (Scholaske et al., 2020)	Strengths: Rigorous translation, measurement invariance testing, discriminant validity evidence. Limitations: Sample bias (young, educated, female-dominated); low reliability for F4; no invariance testing for stress appraisal scale due to limited responses.)	High (Measurement invariance testing; rigorous translation; discriminant validity)
ASIC (Suarez-Morales et al., 2007)	Strengths: Rigorous factor analysis, reliability/validity evidence. Limitations: No invariance testing, single-site sample, immigration status unassessed, limited subscale variance explained.)	Moderate (No invariance testing; single-site sample; limited subscale variance)
SAFE (Suh et al., 2016)	Strengths: Rigorous longitudinal invariance testing, clear factor structure, robust reliability. Limitations: No cultural subgroup analysis, English-only administration, attrition bias (18–19% retention).	High (Longitudinal invariance; robust reliability; clear factor structure)
SL-ASIA (Suinn et al., 1992)	Strengths: Strong reliability, large sample vs. pilot, factorial alignment with ARSMA. Limitations: No measurement invariance testing, U.S.-centric focus, generational bias (overrepresents early generations).	Moderate (No invariance testing; U.S.-centric; generational bias)
EBEA (Urzúa et al., 2021)	Strengths: Rigorous invariance testing, strong reliability, Latin American focus. Limitations: Limited to Spanish-speaking migrants, cross-sectional design).	High (Full metric/scalar invariance; strong reliability; validated across nationalities)
AMAS-ZABB (Zea et al., 2003)	Strengths: Strong reliability, bilinear/multidimensional design, validation across community and student samples. Limitations: Limited Generalizability, No measurement invariance testing,	Moderate (No stress measurement; no invariance testing)
ASSIS (Modified) (Zhang & Jung, 2017)	Strengths: Rigorous EFA, large sample, high reliability. Limitations: Single-site sample, no measurement invariance, self-report bias).	Moderate (No invariance testing; single-site/sample; self-report bias)

<p>TSI (Boshoff et al., 2018)</p>	<p>Strengths: Rigorous physiological + psychological validation; Established ethnic differences (higher stress in African group)</p> <p>Limitations: Cross-sectional design; Limited criterion validity for physiological measures in subgroups; No invariance testing beyond ethnic groups.</p>	<p>Moderate (Robust reliability, partial criterion validity, structural equivalence across ethnic groups)</p>
<p>EPGE-13 (Guzmán-Yacaman & Reyes-Bossio, 2018)</p>	<p>Strengths: Rigorous translation/adaptation process; Strong convergent/divergent validity; Contextually relevant (scholarship cohort).</p> <p>Limitations: Sample restricted to scholarship students; No test-retest reliability; Limited demographic diversity (age range narrow).</p>	<p>Moderate (Good validity/reliability but limited generalizability beyond low-income students)</p>
<p>HESI-Br (Pacheco et al., 2023)</p>	<p>Strengths: Large sample, rigorous translation, multidimensional validation, measurement invariance.</p> <p>Limitations: Non-probabilistic sampling, COVID-19 context may inflate stress levels.</p>	<p>High (Strong reliability/validity; cross-group equivalence; recommended for screening in Brazilian higher education)</p>
<p>PSS-10 (Luft et al., 2007)</p>	<p>Strengths: First PSS validation for Brazilian elderly, good internal consistency.</p> <p>Limitations: Small sample, gender imbalance, no CFA or invariance testing.</p>	<p>Moderate (Adequate for elderly population but limited by sample size and lack of advanced validation)</p>

Synthesis Method:

Due to significant methodological heterogeneity (e.g., diverse populations, stress constructs, validation methods), a meta-analysis was deemed inappropriate. A narrative synthesis was conducted following the Synthesis Without Meta-analysis (SWiM) guidelines (Campbell et al., 2020). Instruments were grouped by primary stress typology:

- Acculturative Stress (e.g., ASSIS, MASI)
- Occupational Stress (e.g., DASS-21 adapted)
- General Perceived Stress (e.g., PSS-10)

Findings on reliability, validity, and cross-cultural adaptability were synthesized within these groups. Evidence certainty was evaluated focusing on study quality (risk of bias), consistency, and directness.

Results: A Comprehensive Synthesis of Stress Assessment Instruments

This systematic review examined 42 studies assessing cross-cultural stress scales, focusing on their psychometric properties, cultural validity, and theoretical foundations. The findings identify a diverse array of instruments designed to measure stress, predominantly centered on acculturative

stress – psychological and physiological strain resulting from cultural adaptation (Berry, 2006). However, most scales adopt a narrow definition of stress, frequently overlooking the transactional model proposed by Lazarus and Folkman (1984), which emphasizes the dynamic interplay between stressors, cognitive appraisal, coping mechanisms, and emotional responses. While these measurement tools demonstrate methodological strengths, they also exhibit critical limitations in conceptual breadth and cultural validity. The results are synthesized across four key dimensions: conceptual definitions of stress; dimensional structures; psychometric robustness; and cultural applicability.

Table 2. Summary of Instrument Characteristics and Stress Domains in Acculturative Stress Research.

Gender		
Female	57.8% (N=9,869)	
Male	41.6% (N=7,102)	16,971
Age Groups		
Children (<12)	0.8% (N=139)	
Adolescents (12–17)	3.0% (N=479)	
Young Adults (18–25)	54.2% (N=9,248)	
Adults (26–40)	27.1% (N=4,623)	
Middle-Aged (41–60)	8.5% (N=1,450)	
Seniors (60+)	2.1% (N=279)	
Unspecified		4.3% (N=753)
	16,971	
Geographic Context		
North America	42.9% (18/42)	
Asia	28.6% (12/42)	
Europe	16.7% (7/42)	
Oceania ¹	7.1% (3/42)	
South America	4.8% (2/42)	
Breakdown by Country/Ethnicity		

¹ Boshoff (2018) was conducted in South Africa but classified under Oceania due to journal's regional grouping.

Mexican/Latino(a)	14.53% (N=2,466)	
Chinese	12.04% (N=2,044)	
Japanese	11.24% (N=1,908)	
Asian American (mixed)	8.11% (N=1,377)	
Korean	5.97% (N=1,013)	
Indian	5.96% (N=1,012)	
Colombian	5.37% (N=912)	
Iranian	3.59% (N=610)	
Brazilian	3.50% (N=594)	
Pakistani	2.63% (N=446)	
African	2.03% (N=344)	
Peruvian	1.96% (N=332)	
Arab American	1.75% (N=297)	
Turkish	1.37% (N=233)	
Vietnamese	1.13% (N=191)	
Nepalese	0.77% (N=130)	
Other/Mixed	14.02% (N=2,380)	16,971

Sample Size

Avg. N = 410.2 (Range: 20–1,517)

Reliability

83.3% (35/42) reported α ; avg. $\alpha = 0.83$

Invariance

Testing

31.0% (13/42) tested measurement invariance

Stressor Prevalence

Language Barriers (MASI, RASI, AHSCS, ASSCS)	64.3% (27/42)
Perceived Discrimination (ASSIS, MASS, ASIC, BISS)	61.9% (26/42)
Homesickness (ASSIS, BISS, MASS, AHSCS)	50.0% (21/42)

Identity Conflict/Threat (MASI, ASVA, AAMAS)	45.2%
(19/42)	
Academic/Work Stress (ASSCS, AHSCS, ASSPMS)	50.0% (21/42)
Financial Stress (BISS, MASS, EBEA)	
35.7% (15/42)	
Cultural Isolation (RASI, ASSPMS)	
28.6% (12/42)	
Family Conflict (CASAS-A, HSI, AMAS-ZABB)	26.2%
(11/42)	
Religious Stress (ASSPMS, ASID)	
11.9% (5/42)	
Guilt (ASSIS, ASSCS)	
11.9% (5/42)	

Types of Stress Measured

Acculturative Stress (ASSIS, MASI, ASSCS)	83.3%
(35/42)	
General Perceived Stress (PSS, TSI, EPGE-13, HESI-Br):	16.7% (7/42)
Immigration-Specific Stress (HSI, EBEA, BISS)	16.7% (7/42)

Instruments Evaluating Coping

Included coping mechanisms	
7.1% (3/42)	
CASAS-A (Problem-solving, Emotional regulation, Cultural brokering)	
AARS-A (Help-seeking, Positive reframing, Heritage identity maintenance)	
ICAPS (Emotion regulation, Openness, Cognitive flexibility)	

Instruments Assessing Symptomatology

Linked	stress	to	mental	health
61.9% (26/42)				
ASSIS				Depression, anxiety, psychological distress
ASSCS				Depression ($\beta=0.49$), life satisfaction ($\beta=-0.50$)
BISS				Anxiety, depression, somatization
TSI				Psychological distress, physiological stress
HESI-Br				Depression/anxiety/stress (DASS-21)
EPGE-13				Negative affect ($r=.60$), positive affect ($r=-.24$)
MAIS				Psychological distress, well-being
ASSPMS				Depression ($\beta=0.37$), life satisfaction
HSI CES-D				Depression ($r=.32-.45$), SCL-90R
Adult STRAIN				Mental health complaints ($r=0.44$), sleep quality

Conceptual Definitions of Stress

Stress assessment tools demonstrated significant conceptual variation, reflecting the construct's complexity. Most instruments (83.3%, 35/42) targeted acculturative stress in populations navigating cross-cultural transitions (e.g., ASSIS for students; MASI/RASI for migrants), emphasizing challenges like discrimination (Akhtar & Kröner-Herwig, 2015; Bashir & Khalid, 2020), language barriers (Bai, 2016; Pan et al., 2010), and identity conflicts (Sandhu & Asrabadi, 1994; Yu et al., 2014). In contrast, 16.7% (7/42) assessed general perceived stress (e.g., PSS-10; Cohen et al., 1983).

Critically, most instruments operationalized stress through Berry's (1997, 2006) unidirectional lens as "psychological/physical discomfort during cultural adaptation" (Sandhu & Asrabadi, 1994) or "context-specific cultural conflicts" (Rodriguez et al., 2002). This narrow focus overlooked core transactional elements (appraisal, coping).

For instance, the ASSIS and MASI quantify external stressors but omit appraisal/coping dynamics. Only 7.1% (3/42) partially incorporated transactional principles:

- ICAPS includes emotion regulation (Matsumoto et al., 2001);
- CASAS-A and AARS-A assess coping mechanisms.

Notably, several instruments captured unique stressors:

- ASSPMS incorporated religious obligations (e.g., halal food access; Bashir & Khalid, 2020);
- ASID addressed diaspora-specific trauma (e.g., post-revolution guilt; Dokoushkhani et al., 2019);
- Adult STRAIN demonstrated predictive validity for health outcomes (Cazassa et al., 2020).

Factor Structures: Omitted Dimensions

Most instruments measured external stressors but neglected transactional components:

- ASSCS (Bai, 2016): Language, social isolation, academic pressure → No appraisal/coping.
- MASI (Rodriguez et al., 2002): Language pressures, acculturation conflicts → No emotional regulation.
- RASI (Miller et al., 2011): Work challenges, discrimination → No adaptive coping.

Only ICAPS included emotion regulation, aligning partially with Lazarus and Folkman's model. Crucially, instruments like Multi-VIA revealed acculturative strain in host populations (Lefringhausen & Marshall, 2016), while gender-specific effects (e.g., female Pakistani immigrants) were rarely analyzed.

Psychometric Robustness: Strengths and Limitations

Most instruments showed strong reliability (avg. $\alpha = 0.83$; 83.3% reported α). Key limitations:

- Validity gaps: 61.9% (26/42) linked stress to mental health but ignored coping/resilience (e.g., ASSIS, ASSCS).
- Invariance testing: Only 31.0% (13/42) tested cross-cultural invariance (e.g., MASI; Scholaske et al., 2020).
- Cultural adaptation: Language bias (e.g., English-only ASSIS; Bhandari, 2012) and poor tailoring (e.g., PSS-10; Cohen et al., 1983).

Representation Gaps

Methodological rigor varied. Age distribution revealed young adults (18–25) constituted 54.2% of participants, while seniors (60+) represented only 2.1%. Geographic representation showed 59.6% of studies from Western contexts (North America: 42.9%; Europe: 16.7%) with underrepresentation of low/middle-income regions. Gender distribution across studies was 57.8% female, 41.6% male, though male-dominated samples skewed specific instruments.

Toward a Comprehensive Stress Assessment Framework

This systematic analysis reveals persistent conceptual fragmentation despite psychometric advancements. While contemporary scales (e.g., MASI, RASI) demonstrate strong reliability ($\alpha = 0.83$ avg.) and invariance testing (31.0% of studies), they overwhelmingly prioritize stressors (83.3% of instruments) while neglecting cognitive appraisal and coping mechanisms (Lazarus & Cohen, 1977; Lazarus & Folkman, 1984). This contradicts the transactional model framing stress as dynamic person-environment interactions:

- The ASSIS and MASI meticulously catalog acculturative stressors (e.g., discrimination, language barriers) but omit appraisal processes that determine whether these become debilitating threats or manageable challenges (Lazarus et al., 1985).
- The Adult STRAIN predicts autoimmune disorders (IRR = 1.028) and sleep disruption ($r = 0.40$) yet overlooks coping strategies that may mitigate these effects.
- This theoretical misalignment risks pathologizing normative adaptation and obscures resilience pathways visible only through integrated assessment.

Conclusion

This systematic review exposes a critical paradox: our most "validated" cross-cultural stress scales measure superficial manifestations while neglecting core psychological engines. By fixating on stressors (83.3% of instruments) and ignoring appraisal/coping processes (absent in 92.9% of scales), interventions risk alleviating symptoms while overlooking adaptive resilience foundations. To address this, the field urgently requires:

1. **Next-generation methodologies** integrating participatory design, hybrid analytics (e.g., biomarkers + AI), and transactional theory.
2. **Collaborative validation** in severely underrepresented regions (Africa/Middle East: $\leq 3.6\%$ of participants) and marginalized populations (e.g., elderly migrants: 2.1% of samples).

As digital globalization intensifies cultural encounters, our measurement models must radically evolve beyond psychometric reductionism. Only by capturing the dynamic resilience inherent to cross-cultural adaptation can we progress from cataloging suffering to empowering human transformation in the face of cultural transition.

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