

Psychometric and Cross-Cultural Applications of the Student Adaptation to College Questionnaire (SACQ) : A Systematic Review

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ABSTRACT

The Student Adaptation to College Questionnaire (SACQ) developed by Baker and Siryk (1984;1989) remains one of the most widely utilised instruments for assessing students' adjustment to higher education. However, variations in psychometric findings, factor structures, and contextual adaptations have increasingly emerged across studies. Therefore, this systematic review aimed to synthesise empirical studies utilising the SACQ, with focus on its contexts of use, psychometric evidence, factor structures, adaptations, and research gaps. This review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. Studies published between 2007 and 2026 were retrieved from two electronic databases based on predetermined inclusion and exclusion criteria. A total of 57 studies were included and analysed descriptively and thematically. The findings indicated that the SACQ continues to be widely applied across diverse educational contexts and student populations, particularly among first-year undergraduate students and within cross-cultural settings. Variations in psychometric reporting, contextual adaptations, and factor structures were also identified across studies. Several research gaps emerged, including limited longitudinal and mixed-method studies, underrepresentation of vulnerable populations, and limited use of advanced psychometric methodologies. The review highlights the importance of continuous psychometric reassessment and contextual validation when applying the SACQ across different educational settings.

Keywords: Student Adaptation to College Questionnaire (SACQ), higher education adjustment, psychometric validation, cross-cultural adaptation, systematic review

INTRODUCTION

Transitioning into unfamiliar environments often requires substantial psychological, social, and academic adjustment. In the context of higher education, the first year of university represents a particularly critical transitional period as students move from the relatively familiar structure of secondary education into a more independent and demanding university environment. This transition requires students to adapt to new academic expectations, social environments, emotional challenges, and institutional cultures, all of which may influence their persistence and overall adjustment in higher education (Li, 2025). Consequently, understanding how students adjust during this transition has become an important area of investigation within higher education research.

Given the multidimensional nature of university adjustment, Baker and Siryk (1984; 1989) developed the Student Adaptation to College Questionnaire (SACQ) as a comprehensive instrument for assessing students' adjustment across academic, social, personal–emotional, and institutional domains. Due to its strong theoretical foundation and comprehensive conceptualisation of adjustment, the SACQ has become one of the most widely utilised instruments in higher education research. The instrument has also been validated and applied across diverse cultural and educational contexts, including Romania (Grama, 2018), Iran (Manee et al., 2024), and Indonesia (Rifameutia & Malay, 2023), reflecting its continued relevance in examining students' transition into higher education across different settings.

Despite its extensive application, findings related to the psychometric properties, factor structures, and contextual adaptation of the SACQ have become increasingly varied across studies. While some studies continue to support the original multidimensional structure proposed by Baker and Siryk (1984; 1989), others have reported modified factor structures, item reductions, and contextual adaptations when applying the instrument across different populations and educational environments. Such inconsistencies suggest that students' adjustment experiences may not be universally conceptualised or measured similarly across all contexts. Therefore, a comprehensive synthesis of SACQ literature remains necessary to better understand its contexts of use, psychometric evidence, structural adaptations, and emerging research gaps within contemporary higher education research.

Accordingly, this review aims to synthesise empirical studies utilising the Student Adaptation to College Questionnaire (SACQ), with particular focus on its psychometric properties, factor structures, reliability, and cross-cultural applications among higher education students. Specifically, this review addresses the following research questions:

- RQ1 : In what contexts has the SACQ been used?
- RQ2 : What psychometric evidence of the SACQ has been reported?
- RQ3 : What factor structures and adaptations of the SACQ have emerged across studies?
- RQ4 : What research gaps exist in SACQ-related literature?

METHOD

Literature Search

A systematic literature review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to identify studies related to the Student Adaptation to College Questionnaire (SACQ). Two electronic databases, namely Scopus and ERIC, were searched to retrieve relevant articles published between 2006 and 2026. The search terms used in both databases were “Student Adaptation to College Questionnaire” OR “SACQ”.

For the Scopus database, the search was limited to journal articles across all languages and within the subject areas of Psychology, Social Sciences, Arts and Humanities, Environmental Sciences, and Multidisciplinary studies. The ERIC database search was similarly limited to journal articles published within the same time frame. The initial search identified 74 records from SCOPUS and 24 records from ERIC, resulting in a total of 98 records. Following the identification stage, 23 duplicate records were removed, leaving 75 records for the screening process.

The remaining studies underwent title and abstract screening. A total of 18 studies were excluded during the screening stage. The remaining 57 studies were subsequently assessed for eligibility through full-text reading and were included in the final review. The study selection and screening process following the PRISMA guidelines is illustrated in Figure 1.

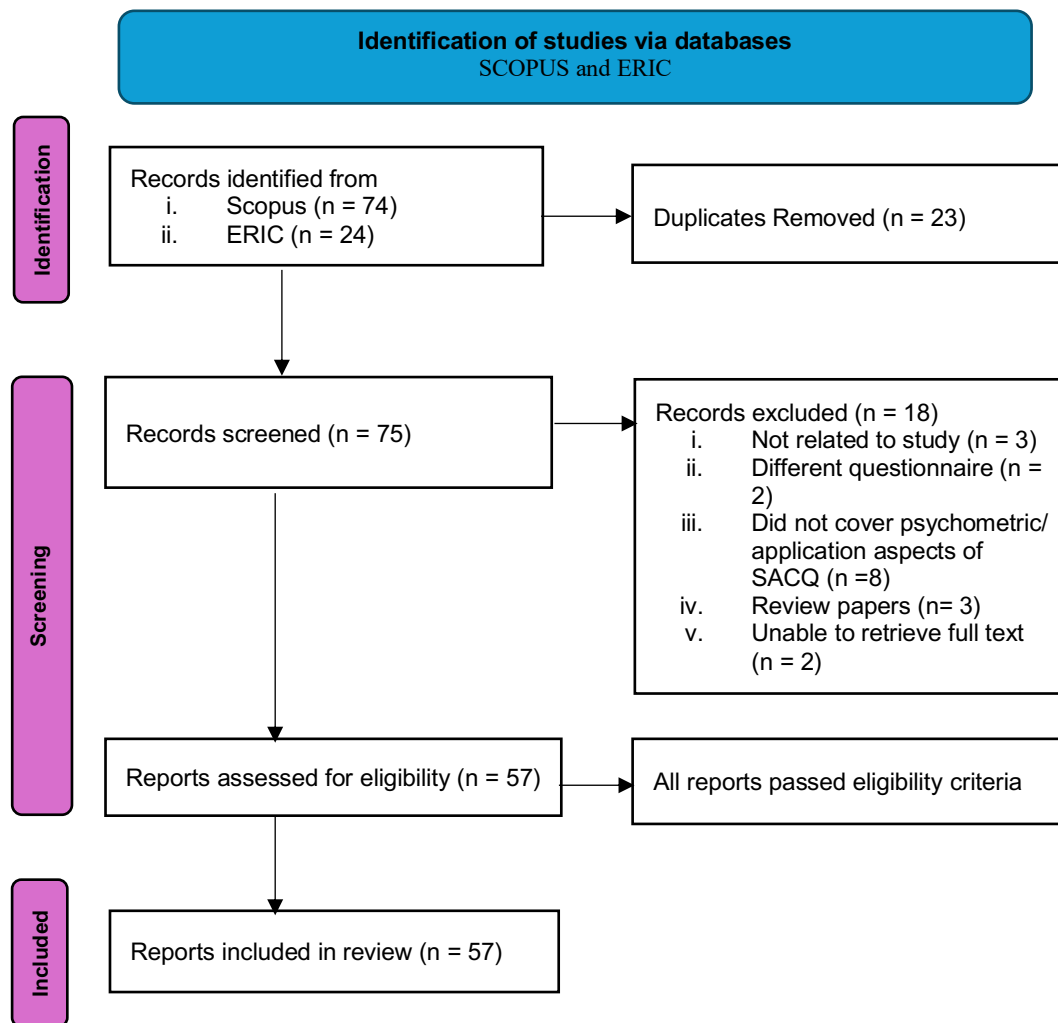


FIGURE 1. PRISMA Flow Diagram

Inclusion and Exclusion Criteria

Studies were included if they focused on the application, adaptation, validation, or psychometric properties of the SACQ in higher education settings. Studies published in any language were considered. Meanwhile, studies were excluded if they: (a) were unrelated to SACQ research, (b) used different adjustment instruments, (c) did not address the application or psychometric aspects of the SACQ, (d) were review papers, or (e) could not be retrieved in full-text form.

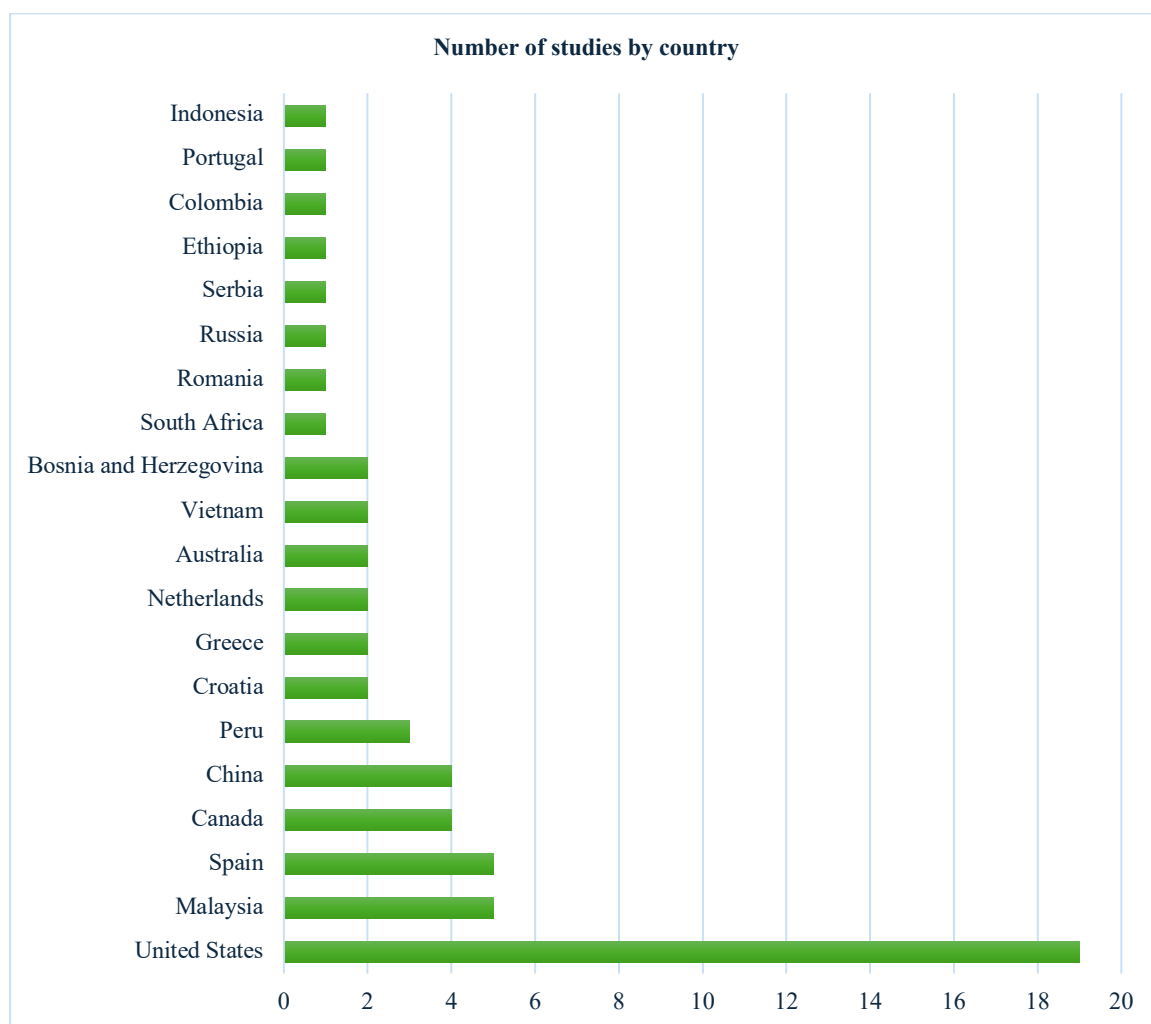
Critical Evaluation

Each included study underwent a detailed methodological evaluation to assess the relevance and quality of the reported findings. Several aspects were examined, including study design, sample characteristics, SACQ version used, factor structure, reliability and validity evidence, item modification or removal, and statistical analyses employed in the studies. In addition, information related to the context of the study, participant demographics, and key findings was extracted systematically using a structured data extraction approach.

As this review was conducted by a single reviewer, the processes of study screening, data extraction, and coding were performed independently by the researcher. While every effort was made to ensure consistency and accuracy throughout the review process, the absence of multiple reviewers may increase the possibility of subjective interpretation and reviewer bias. Therefore, this should be acknowledged as one of the limitations of the present review.

Data Synthesis

The majority of SACQ studies were conducted in the United States ($n = 19$), followed by Malaysia and Spain ($n = 5$ each). Comparatively fewer studies were identified in non-Western and developing contexts, suggesting that psychometric evidence for the SACQ remains concentrated primarily within Western educational settings. See Figure 2.



Note. Several studies involved multicultural or cross-national samples. The Croatia-related studies included one regional study conducted across Croatia, Serbia, and Bosnia and Herzegovina using a Croatian adaptation of the SACQ.

FIGURE 2. Number of studies by country

The publication trend of SACQ-related studies demonstrates a noticeable increase over time, particularly within the most recent decade. Between 2007 and 2016, only 18 studies were identified, with publication frequencies generally remaining low and relatively inconsistent across the years. However, from 2017 onwards, the number of studies increased substantially, resulting in 39 publications between 2017 and 2026. The highest number of publications was recorded in 2021 ($n = 6$), followed by 2019 and 2023 ($n = 5$ each). This increasing trend suggests a growing scholarly interest in the application, adaptation, and psychometric evaluation of the Student Adaptation to College Questionnaire (SACQ), particularly in response to expanding research on student adjustment, transition to higher education, and cross-cultural validation of psychological instruments. Refer Figure 3.

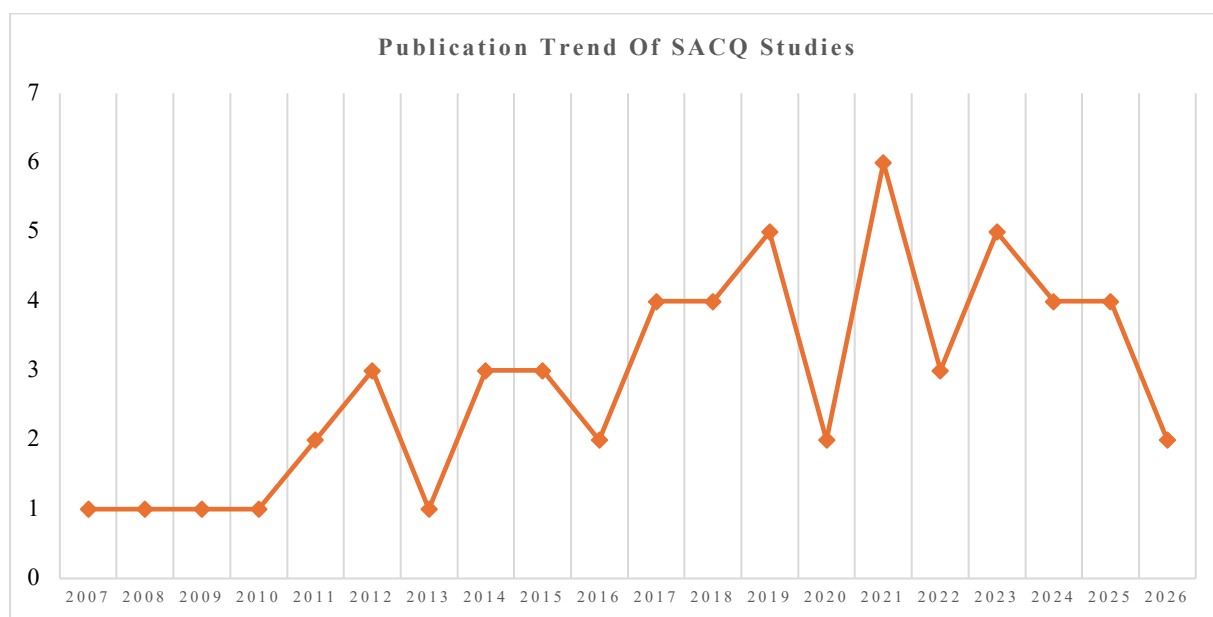


FIGURE 3. Publication Trend of SACQ Studies

RESULTS

Contexts of SACQ Usage

As presented in Table 1, the reviewed studies demonstrated considerable variation in terms of educational settings, research contexts, and cross-cultural applications of the SACQ. The findings indicate that SACQ was most frequently administered among first-year undergraduate and freshman students ($n = 24$), highlighting the instrument's strong association with transition and adjustment experiences during the initial stage of university life. This trend aligns with the original purpose of the SACQ, which was developed to assess students' adaptation to college environments (Baker & Siryk, 1984; 1989). In comparison, relatively fewer studies focused on medical and health profession students ($n = 4$) or special populations such as students with disabilities, autistic students, veterans, and first-generation students ($n = 6$). Nevertheless, the inclusion of these populations suggests increasing recognition of diverse adjustment experiences across higher education contexts.

Meanwhile, in terms of study context, general transition and adjustment to higher education represented the most common focus ($n = 17$). A considerable number of studies also examined psychometric validation and cultural adaptation of the SACQ ($n = 11$), indicating sustained scholarly interest in evaluating the instrument across different educational and cultural settings. Additionally, recent studies increasingly explored SACQ in relation to mental health and emotional well-being ($n = 9$), as well as technology-related issues such as cyberbullying, online learning environments, and digital behaviour ($n = 7$). These findings suggest that SACQ has evolved beyond a traditional adjustment measure and is increasingly applied within broader psychosocial and contemporary educational contexts.

The review further revealed extensive cross-cultural application of the SACQ. While 19 studies were conducted within the original United States context, a larger proportion of studies ($n = 38$) were conducted outside the United States, including research in Asia, Europe, Africa, and South America. This demonstrates the growing international relevance of the

SACQ and reflects increasing efforts to examine student adjustment across diverse educational and cultural contexts.

TABLE 1. Summary of Contextual Characteristics of SACQ Studies

Main Category	Subcategory	Study ID(s)	Frequency (n)
Educational Setting	First-year undergraduate / freshman students	S1, S2, S8, S10, S12, S14, S15, S16, S21, S25, S26, S34, S42, S43, S44, S54, S55,	24
	General undergraduate / university students	S3, S4, S6, S19, S20, S22, S23, S24, S29, S35, S36, S37, S40, S45, S46, S49, S50, S51, S57	16
	International student populations	S7, S17, S18, S27, S30, S39, S41, S52, S56	7
	Medical / health profession students	S9, S28, S53,	4
	Special populations (students with disabilities, autistic students, veterans, commuter students)	S13, S31, S33, S47, S48	6
Study Context	General transition and adjustment to higher education	S1, S2, S7, S8, S17, S21, S24, S25, S26, S28, S30, S31, S33, S34, S38, S39, S55	17
	Psychometric validation / adaptation studies	S10, S11, S12, S14, S16, S19, S36, S40, S43, S44, S45	11
	Mental health and emotional well-being	S6, S9, S22, S26, S27, S32, S44, S51, S54	9
	Social relationships, attachment, and social support	S5, S24, S27, S35, S38, S49, S54	7
	Technology, cyberbullying, and online learning environment	S3, S20, S23, S29, S37, S56, S57	7
	Intervention / program evaluation studies	S4, S23, S47, S48	4
	COVID-19 / remote learning adjustment	S11, S56, S57	3
	Cross-Cultural Use	Original US-based SACQ context	S4, S6, S13, S22, S24, S25, S26, S31, S32, S33, S34, S37, S40, S44, S46, S47, S48, S56, S57
Cross-cultural applications outside the United States		S1, S2, S3, S5, S7, S8, S9, S10, S11, S12, S14, S15, S16, S17, S18, S19, S20, S21, S23, S27, S28, S29, S30, S35, S36, S38, S39, S41, S42, S43, S45, S49, S50, S51, S52, S53, S54, S55	38

In terms of research design, the majority of SACQ studies employed quantitative cross-sectional, correlational, or survey-based approaches ($n = 46$), indicating a strong reliance on self-report data in examining student adjustment. Comparatively fewer studies utilised longitudinal designs ($n = 5$), mixed-method approaches ($n = 4$), and intervention or quasi-experimental designs ($n = 2$). These findings suggest that although SACQ research is extensive, investigations examining adjustment processes over time or incorporating qualitative perspectives remain comparatively limited.

Pyschometric Evidence Reported Across SACQ Studies

Reliability Evidence

As presented in Table 2, the majority of SACQ studies reported satisfactory internal consistency reliability across both the overall scale and its subscales. Most studies reported Cronbach's alpha coefficients exceeding the recommended threshold of .70, indicating acceptable to excellent reliability across different educational and cultural contexts. A total of 15 studies reported both overall SACQ reliability and subscale reliability coefficients, while 8 studies reported overall reliability evidence only and 28 studies reported the subscale reliability only. Comparatively fewer studies relied solely on previously established SACQ reliability evidence without recalculating reliability coefficients for the current sample.

Across the reviewed studies, Academic Adjustment, Social Adjustment, and Personal–Emotional Adjustment subscales generally demonstrated strong reliability coefficients, frequently ranging between .80 and .90. Several studies additionally reported alternative reliability indices such as Composite Reliability (CR), McDonald's omega (ω), and rho_A, reflecting increasing methodological sophistication in recent psychometric evaluations of the SACQ. Nevertheless, a single study reported relatively lower or borderline reliability coefficients, particularly within modified or adapted SACQ dimensions, suggesting potential instability in certain cultural or contextual applications of the instrument.

TABLE 2. Summary of Reliability Evidence Reported Across SACQ Studies

Reliability Category	Study ID(s)	Frequency (n)
Reported overall and subscale reliability coefficients	S1, S2, S6, S7, S15, S19, S21, S25, S30, S31, S34, S36, S43, S48, S49	15
Reported overall reliability only	S3, S9, S13, S14, S23, S50, S52, S53	8
Reported subscale reliability only	S5, S8, S10, S11, S12, S17, S20, S26, S27, S28, S29, S32, S35, S38, S39, S40, S41, S42, S44, S45, S46, S47, S51, S54, S56, S57	28
Relied on previous SACQ reliability evidence without reporting current sample reliability	S4, S18, S22, S24, S33, S37	6
Reported additional reliability indices (e.g., CR, omega, rho_A)	S16, S36, S43, S54, S55	5
Studies reporting acceptable reliability ($\alpha \geq .70$)	S1, S2, S3, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S17, S19, S21, S23, S25, S26, S27, S28, S29, S30, S31, S32, S34, S35, S36, S38, S39, S40, S41, S42, S43, S44, S45, S46, S47, S48, S49, S50, S51, S52, S53, S54, S55, S56, S57	49
Studies reporting lower or borderline reliability coefficients	S20	1

Validity Evidence

Table 3 summarises the validity evidence reported across SACQ studies. A considerable variation in the types of validity evidence reported across SACQ studies. While some studies

conducted extensive psychometric validation procedures, many others relied primarily on previously established SACQ validity evidence without re-evaluating the instrument within their own samples. Among the reviewed studies, construct validity and internal structure validity are the most frequently examined forms of validity evidence, commonly assessed through CFA, EFA, ESEM, dimensionality analysis, and model comparison approaches.

Several adaptation studies also incorporated content validity procedures through expert review (Abdullah et al., 2014), translation and back-translation processes (Bošković et al., 2017), pilot testing, and contextual item reformulation. These procedures were particularly evident in studies involving Spanish, Croatian, Romanian, Vietnamese, Malay, and Chinese adaptations of the SACQ. In addition, convergent and discriminant validity evidence was reported in several recent studies, especially those involving shortened SACQ versions and structural modelling approaches.

Despite the generally positive psychometric findings, a number of studies reported concerns regarding the adequacy of the original SACQ structure. Issues such as poor model fit, factorial instability, multidimensional overlap, and cross-loading items were repeatedly identified, particularly in cross-cultural validation studies. These findings suggest that although the SACQ continues to demonstrate acceptable validity across diverse contexts, the original structure of the instrument may not consistently replicate across different cultural, linguistic, and educational settings.

TABLE 3. Summary of Validity Evidence Reported Across SACQ Studies

Validity Evidence Category	Study ID(s)	Frequency (n)
Reported construct validity / internal structure validity / factorial validity evidence	S10, S11, S12, S14, S16, S35, S36, S39, S40, S43, S44, S45, S54, S55	14
Reported content validity evidence	S1, S10, S11, S35, S45	5
Reported convergent and/or discriminant validity	S10, S11, S45, S48, S54, S55	6
Reported cross-cultural or translation validity procedures	S5, S19, S41, S43, S45	5
Relied on previously established SACQ validity evidence without new validation analysis	S4, S5, S8, S9, S13, S15, S17, S18, S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31, S32, S33, S34, S37, S38, S42, S46, S47, S49, S50, S51, S52, S53, S56, S57	35
Studies reporting inadequate model fit or structural instability in the original SACQ structure	S10, S11, S14, S40, S44, S45, S54, S55,	8

Factor Structures and Adaptations of SACQ

Retention of the Original Four-Factor Structure

The review revealed that the original four-factor SACQ structure remained the most frequently retained framework across the reviewed studies. See Table 4. A total of 28 studies applied the original SACQ dimensions consisting of Academic Adjustment, Social Adjustment, Personal–Emotional Adjustment, and Institutional Attachment without major structural modification. These studies were predominantly applied or correlational studies that utilised SACQ as an established measure of student adjustment rather than re-evaluating its psychometric structure.

Several studies also retained the original multidimensional framework while selectively excluding certain subscales or items based on contextual considerations. Common examples included the removal of Institutional Attachment items associated with dormitory living, residential status, or campus residence, particularly in commuter, distance-learning, or international student contexts. In some cases, researchers administered only selected SACQ dimensions, such as Academic Adjustment and Personal–Emotional Adjustment, depending on the objectives of the study.

Despite the widespread retention of the original SACQ structure, several studies reported concerns regarding the adequacy of the four-factor model. These studies identified issues such as poor model fit, cross-loading items, factorial instability, and multidimensional overlap, suggesting that the original SACQ structure may not consistently replicate across different populations and cultural contexts. Such findings contributed to the emergence of modified, shortened, and alternative SACQ structures reported in subsequent studies. See Table 4.

TABLE 4. Studies Retaining the Original Four-Factor SACQ Structure

Structure Category	Study ID(s)	Frequency (n)
Retained original four-factor SACQ structure without major structural modification	S1, S2, S4, S6, S7, S9, S15, S19, S22, S23, S24, S25, S28, S29, S30, S31, S32, S34, S37, S39, S40, S46, S47, S48, S50, S51, S56, S57,	28
Retained original structure but excluded selected subscales/items	S3, S5, S8, S13, S17, S18, S20, S26, S27, S36, S38, S43, S49, S52	14
Retained original four-factor structure but reported psychometric concerns/factorial instability/ item deletion	S10, S11, S12, S14, S35, S54	5

Emerging and Modified Factor Structures

Beyond the original four-factor framework, several studies reported alternative SACQ structures. Modified structures were particularly evident in psychometric validation and cross-cultural adaptation studies, where researchers identified dimensions that better reflected local educational and cultural contexts.

Among the reviewed studies, three studies have critique the original four-factor structure and suggested revisions of item placement and dimensionality. Three-factor structures were also among the most commonly reported alternatives. These modified structures typically involved combining related adjustment dimensions or excluding domains considered less relevant within specific contexts. Several studies also reported revised five-factor structures, particularly within Chinese and Vietnamese adaptations, where original SACQ dimensions were reorganised into contextually distinct adjustment domains.

In contrast, Feldt et al. (2011) identified a six-factor solution that separated academic and institutional adjustment into more differentiated components. Some studies further reconceptualised SACQ as a broader unidimensional or higher-order construct rather than a strictly multidimensional instrument (Gao et al., 2023; Wider et al., 2023). These findings collectively suggest that the original SACQ structure may not operate uniformly across all educational and cultural settings, contributing to the emergence of alternative structural configurations in subsequent SACQ research. The summary of the result is presented in Table 5.

TABLE 5. Emerging and Modified SACQ Factor Structures Across Studies

Modified Structure Category	Study ID(s)	Frequency (n)
Did not support original four-factor structure	S40, S41, S44	3
Two-factor structure	S49	1
Three-factor structure	S5, S8, S17, S18, S20, S26 S27, S42	8
Five-factor structure	S21, S45, S53,	3
Six-factor structure	S14	1
Unidimensional or higher-order structure	S16, S55	2

Item Reduction and Shortened Versions

Item reduction and shortened SACQ versions were commonly reported across the reviewed studies, particularly within cross-cultural adaptation and psychometric validation research. Multiple studies reduced the original 67-item SACQ into shorter versions ranging from 50-item, 42-item, and 29-item forms to highly condensed models containing fewer than 20 retained indicators. In several studies, researchers also administered only selected SACQ subscales rather than the full multidimensional instrument, depending on the objectives and context of the study.

A major reason for item reduction involved the identification of problematic items with weak statistical performance. Items demonstrating low factor loadings, redundancy, ambiguity, or inconsistent response patterns were frequently removed during validation procedures. Contextual relevance also emerged as an important factor influencing SACQ modification. Items related to dormitory living, campus residence, face-to-face interaction, and traditional campus experiences were commonly excluded or reformulated in studies involving commuter students, distance-learning environments, vocational education settings, remote learning contexts, and international student populations. In some cases, researchers adapted wording to better reflect local educational systems and contemporary learning environments.

Overall, the findings indicate that item reduction and contextual adaptation have become common practices in SACQ research. While shortened versions may improve practicality and contextual suitability, substantial item reduction may also narrow the conceptual coverage of student adjustment originally represented in the full SACQ instrument. Table 6 below presents the full summary of the findings.

TABLE 6. Item Reduction and Shortened SACQ Versions Across Studies

Item Reduction Category	Study ID(s)	Frequency (n)
Reduced SACQ into shortened versions (> 40 items)	S3, S5, S11, S13, S27, S36, S38, S40, S42, S43	10
Developed substantially shortened versions (\leq 40 items)	S9, S10, S12, S17, S18, S21, S35, S45, S49, S52, S53, S55	12
Item removal due to low factor loadings or problematic items	S12, S14, S35, S40, S43, S44, S55	7
Item removal due to contextual irrelevance	S18, S20, S41, S49	4

Cross Cultural and Regional Applications of the SACQ

The findings further demonstrated the extensive cross-cultural adaptation of the SACQ across diverse regional contexts. As presented in Table 7, European adaptations represented the largest category with 15 studies, including applications in Spanish, Croatian, Serbian, Greek,

Romanian, Portuguese, and Dutch contexts. This was followed by Asian adaptations with 11 studies conducted in Chinese, Malaysian, Vietnamese, and Indonesian settings. In contrast, Latin American adaptations were comparatively limited, with only four studies identified across Peru and Colombia.

Furthermore, five studies were conducted within English-speaking Western contexts such as Canada and Australia, while African adaptations remained relatively underrepresented with only two studies identified in Ethiopian and South African settings. Only one study was identified within the Eurasian context, specifically Russia. These findings collectively indicate that the SACQ has expanded substantially beyond its original United States context and continues to demonstrate broad international applicability across different cultural and educational environments. However, the uneven distribution across regions also suggests that cross-cultural validation of the SACQ remains more concentrated within European and Asian contexts compared to other regions.

TABLE 7. Cross-Cultural Applications of the SACQ by Regional Context

Adaptation Category	Study ID(s)	Frequency (n)
European adaptation (Spanish, Croatian, Serbian, Bosnian, Greek, Romanian, Portuguese, Dutch)	S3, S5, S8, S15, S19, S20, S29, S38, S39, S41, S42, S43, S49, S50, S51	15
Latin American adaptation (Peru, Colombia)	S10, S11, S12, S36	4
Asian adaptation (Chinese, Malaysian, Vietnamese, Indonesian)	S1, S9, S16, S18, S21, S27, S45, S52, S53, S54, S55	11
African adaptation (Ethiopian, South African)	S2, S35	2
English-speaking Western adaptations (Canada, Australia)	S7, S28, S30, S46, S47	5
Eurasian adaptation (Russia)	S23	1

DISCUSSION

SACQ as a Predominantly Transition-Focused Instrument

The findings of the present review indicate that the SACQ continues to be predominantly applied within the context of first-year student adjustment, with the majority of reviewed studies focusing on students' transition into university life. Despite having been developed nearly four decades ago, the instrument remains highly relevant in assessing students' academic, emotional, social, and institutional adjustment within higher education settings. This enduring relevance may be attributed to the complex nature of the transition to university, which often requires students to adapt to unfamiliar academic expectations, new social environments, and greater levels of independence. Unlike school settings that are typically characterised by structured and guided learning, higher education emphasises autonomous learning and self-regulation, requiring students to independently manage academic demands and personal responsibilities (Kyndt et al., 2015)

The transition period is often accompanied by challenges in adapting to academic demands and social life (Ding & Curtis, 2020). Failure to adapt effectively may negatively affect students' academic performance, emotional well-being, and persistence in higher education, potentially contributing to academic withdrawal or dropout. Conversely, successful adjustment may facilitate positive identity development, stronger institutional attachment, and a greater sense of belonging within the university environment. Therefore, different students react differently to these challenges (Gomez et al., 2022) In this regard, the SACQ continues

to serve as a valuable multidimensional instrument because it conceptualises student adjustment as a holistic process encompassing not only academic adaptation, but also emotional stability, social integration, and institutional connectedness.

Although SACQ research remains strongly associated with first-year transition experiences, the findings also suggest that the application of the instrument has expanded considerably over time. Recent studies increasingly incorporated the SACQ within broader and more specialised contexts, including mental health, cyberbullying, online learning environments, social support, multicultural learning settings, and vulnerable student populations such as veterans and autistic students. This development reflects the growing recognition that adjustment to higher education is influenced by a wide range of psychosocial, technological, and contextual factors beyond traditional academic transition alone. The flexibility of the SACQ as a multidimensional measure has likely contributed to its continued applicability across these increasingly diverse research contexts.

Nevertheless, despite its broader application, the SACQ remains fundamentally grounded within the conceptual framework of student transition and adaptation to higher education (Baker & Siryk, 1984, 1989). Its multidimensional structure enables researchers to examine adjustment from multiple perspectives simultaneously, contributing to its continued relevance across various educational settings and student populations. However, the extensive use of the SACQ across culturally and contextually diverse environments may also partly explain the structural inconsistencies identified in several psychometric studies. Variations in educational systems, cultural expectations, and student experiences may influence how SACQ dimensions are interpreted across populations, particularly when the original factor structure is applied within substantially different cultural or educational contexts.

Cross-Cultural Expansion and Structural Instability

One of the most significant findings of the present review is the extensive cross-cultural expansion of the SACQ beyond its original United States context. The instrument is no longer applied solely within the United States, but has increasingly evolved into an internationally recognised measure for examining student adjustment in higher education. Studies conducted across Asian countries such as China, Malaysia, and Vietnam as well as European contexts including Spain, Croatia and Greece demonstrate the broad application of the SACQ across diverse cultural and educational environments. As the international use of the instrument expanded, numerous translated and adapted versions of the SACQ also emerged to ensure linguistic suitability and contextual relevance in measuring local students' adjustment experiences. This continued expansion further demonstrates the enduring relevance of the SACQ as a multidimensional instrument for assessing adjustment to higher education.

Despite the growing number of translated SACQ versions, comprehensive psychometric reassessment was not consistently conducted across adaptation studies. Several studies relied primarily on Cronbach's alpha as the sole form of psychometric evidence, with limited use of confirmatory factor analysis (CFA) or exploratory factor analysis (EFA) to evaluate the structural validity of the instrument within the target population. In some cases, translated or adapted versions were directly administered without substantial reassessment of the original factor structure. Such practices are methodologically concerning, as adaptation of an instrument into a different cultural or educational context requires more than linguistic translation alone. Structural reassessment remains essential to ensure that the adapted instrument continues to validly and reliably measure the intended construct within the new context. Implementing rigorous validity and reliability analyses contributes to the development

of accurate and consistent measurement instruments, thereby enhancing the quality of scientific research and ensuring the credibility of the data obtained (Gültürk, 2024)

The findings of the review further demonstrated considerable structural instability of the SACQ across different cultural settings. Several studies conducted in Spanish, Chinese, and Vietnamese contexts reported modified SACQ structures that differed substantially from the original four-factor model (Jia et al., 2025; Feldt et al., 2011; Thi Quynh et al., 2026). Interestingly, although the SACQ was originally developed as a multidimensional instrument, some studies reconceptualised student adjustment as a unidimensional or higher-order construct (Gao et al., 2023; Wider et al., 2023). These findings suggest that student adjustment may not be universally conceptualised in the same manner across different populations and educational environments.

Such inconsistencies are unsurprising given the complexity of contextual and cultural differences in higher education systems. An instrument originally developed within the United States educational context may not operate identically when applied within substantially different academic structures, cultural expectations, and student experiences. Consequently, adjustment itself may be culturally and contextually dynamic rather than universally uniform. (McDonald et al., 2024) The review additionally identified several studies that relied solely on psychometric evidence established in previous SACQ research without reassessing reliability or validity within the current sample (Bobilya et al., 2011; Fagan & McQuillen, 2020; Vlachopanou et al., 2025). Reliance on the original or prior SACQ validation alone may be insufficient when the instrument is administered within culturally distinct populations, as it may fail to adequately capture the unique adjustment experiences embedded within specific educational contexts.

Hence, SACQ should not be assumed to function uniformly across all cultural and educational settings. Instead, continuous psychometric validation and contextual reassessment remain necessary to ensure the appropriateness and structural stability of the instrument across diverse student populations and higher education environments.

Increasing Contextual Adaptation of SACQ

Another important finding of the present review is the increasing contextual adaptation of the SACQ in response to evolving higher education environments and changing student experiences. Contemporary university settings have become considerably more complex, with various academic, technological, psychological, and social factors influencing how students adjust to higher education (Gemmell & Harrison, 2017) Consequently, the application of the SACQ has expanded beyond traditional student populations and is now increasingly used across diverse educational contexts and student groups that may experience adjustment differently. This development highlights the growing importance of examining adjustment experiences across varied student populations to ensure a more inclusive understanding of adaptation to higher education.

The findings further suggest that adjustment in higher education is no longer solely rooted in traditional face-to-face and campus-based experiences. When the SACQ was originally developed in the late 1980s, digital learning environments, social media, online interaction, and hybrid education were not yet prominent features of university life. At the time, adjustment was primarily conceptualised through students' physical integration into the university environment, including academic engagement, social interaction, emotional well-being, and institutional attachment. However, the increasing integration of digital technologies into higher education has substantially transformed students' university experiences

(Mittelmeier et al., 2019; Tait, 2018; Kizilcec et al., 2017). The emergence of online learning, remote education, and post-pandemic educational adaptation has altered how students interact academically and socially, consequently influencing how adjustment itself is experienced and conceptualised. Several reviewed studies incorporated the SACQ within contexts related to cyberbullying (Aparisi et al., 2021; Martínez-Monteagudo et al., 2020), social media engagement (Janković et al., 2016), online learning environments, and remote education settings (Dominguez-Lara et al., 2021; Khazhgaliyeva et al., 2023; Mittelmeier et al., 2019), reflecting the evolving realities of contemporary higher education.

Beyond contextual educational changes, the review also demonstrated the increasingly diverse application of the SACQ across different student populations. Several studies utilised the SACQ among autistic students (Trevisan & Birmingham, 2015; Trevisan et al., 2021), veterans (Fagan & McQuillen, 2020; McGuffin et al., 2019), international students (Chavoshi & Dentakos, 2017; Glass et al., 2014; Lashari et al., 2022; Wu et al., 2024), multicultural student populations (Khazhgaliyeva et al., 2023), commuter students (Melendez & Melendez 2010, Melendez, 2016), and distance learners (Mittelmeier et al., 2019). These findings suggest that adjustment experiences are not uniform across student groups, as different populations may encounter distinct academic, emotional, social, and institutional challenges throughout their transition into higher education.

As a result, contextual adaptation of the SACQ has become increasingly necessary as both higher education environments and student experiences continue to evolve. This was evident in several reviewed studies that reported revising or removing items related to dormitory living and residential experiences (Fagan & McQuillen, 2020; Rodríguez et al., 2012) and institutional attachment (Kurtz et al., 2012; Benraghda et al., 2018; Trevisan & Birmingham, 2015) due to limited contextual relevance within certain educational settings and student populations. In some cases, researchers also administered only selected SACQ subscales that were considered relevant to the objectives and context of the study.

Collectively, a single fixed SACQ structure may not adequately capture the diversity and complexity of contemporary student adjustment experiences across all contexts. The appropriateness of the instrument may therefore depend heavily on both the characteristics of the student population and the educational setting in which it is applied.

Methodological and Psychometric Limitations in Existing SACQ

Despite the extensive use of the SACQ across diverse educational contexts, the present review identified several methodological and psychometric limitations within the existing body of literature. As educational contexts continue to evolve, it is essential for researchers to clearly document the methodological procedures undertaken to ensure that the instrument remains valid and reliable within the investigated setting. However, the review revealed considerable inconsistencies in methodological rigor, psychometric practices, and reporting quality across the reviewed studies.

One of the most notable findings of the review is the dominance of cross-sectional research designs, with 46 out of 57 studies employing this approach. This suggests that student adjustment has frequently been treated as a relatively static phenomenon, despite adjustment itself being dynamic and continuously evolving throughout the university transition process. Students' experiences may fluctuate across semesters as they encounter changing academic, emotional, social, and institutional demands (Wang et al., 2018; Harari et al., 2017). Consequently, cross-sectional designs may be limited in capturing developmental progression, adaptation trajectories, and the causal direction of adjustment over time. Nevertheless, practical

constraints such as time limitations, financial resources, and participant retention may have contributed to researchers' preference for cross-sectional approaches over longitudinal investigations.

The review further found that the SACQ was predominantly administered through self-report methods. Although self-administered instruments offer practical advantages in large-scale educational research, they remain vulnerable to several forms of response bias, including social desirability bias, emotional-state bias, and variations in response styles (Rosenman et al., 2011). Given that adjustment to higher education involves highly personal and emotional experiences, students may underreport psychological difficulties or overstate positive adjustment in order to portray themselves more favorably. To minimise such limitations, several studies incorporated data triangulation through mixed method research (Malau-Aduli et al., 2021, McDonald et al., 2018; Bobilya et al., 2011; Wahid et al., 2025)

Inconsistent psychometric practices also emerged as a recurring limitation within the reviewed literature. Several studies reported using translated or adapted SACQ versions without adequately documenting the validation procedures undertaken within the target population. In addition, some studies relied solely on Cronbach's alpha while omitting exploratory factor analysis (EFA) or confirmatory factor analysis (CFA) to assess the contextual appropriateness of the instrument. Although psychometric reassessment may have been conducted but not fully reported due to perceived irrelevance to the primary objectives of the study, transparent documentation of validation procedures remains essential. Explicit reporting of psychometric evidence is necessary to ensure confidence in the reliability, validity, and contextual suitability of the instrument.

Moreover, psychometric evaluation should not be limited solely to conventional approaches such as EFA and CFA. More advanced psychometric methodologies, including Rasch analysis, Item Response Theory (IRT), Computerized Adaptive Testing (CAT), and Exploratory Structural Equation Modelling (ESEM), may provide deeper insight into the structural functioning and measurement precision of the SACQ. However, the review identified only a limited number of studies employing such advanced approaches, including IRT and CAT applications (Gao et al., 2023) and ESEM procedures (Dominguez-Lara et al., 2021), indicating that sophisticated psychometric evaluation remains comparatively underutilised within SACQ research.

The review additionally revealed that SACQ research continues to be predominantly concentrated within United States contexts, while studies conducted in developing countries remain comparatively limited. This imbalance is important, as students' adjustment experiences may differ considerably across educational systems, socioeconomic conditions, and cultural expectations. Similarly, research examining adjustment within technologically driven educational environments, including online learning, remote education, and post-pandemic university settings, remains relatively underexplored. Although an increasing number of studies have begun investigating vulnerable and underrepresented populations, these populations continue to receive substantially less attention compared to general undergraduate populations.

Research Gaps and Future Directions

Based on the preceding discussion, several research gaps were identified within the existing SACQ literature. First, the implementation of longitudinal research designs remains limited despite the dynamic nature of student adjustment, which continuously evolves throughout the university transition process. Future studies may therefore benefit from examining the

developmental trajectories of adjustment across different stages of higher education. Second, the use of advanced psychometric methodologies remains comparatively underexplored, particularly approaches such as Item Response Theory (IRT), Rasch analysis, measurement invariance testing, and Exploratory Structural Equation Modelling (ESEM).

Besides, non-Western educational contexts and vulnerable student populations continue to be underrepresented within the literature despite the increasing diversity of contemporary higher education environments. Next, research focusing on digital learning environments, remote education, and post-pandemic adjustment experiences remains relatively limited even though technological integration has substantially transformed students' university experiences. Finally, future researchers are encouraged to consider mixed-method approaches, as the predominantly quantitative orientation of existing SACQ research may not fully capture the subjective and complex nature of student adjustment experiences. The integration of qualitative evidence may therefore provide richer and more contextualised insights into students' transition to higher education.

Limitations of the Review

Several limitations should be acknowledged in the present review. First, the review was limited to only SCOPUS and ERIC, which may have resulted in the exclusion of potentially relevant studies indexed elsewhere. Second, the screening, selection, and data extraction processes were conducted by a single reviewer, which may increase the possibility of subjective bias despite careful review procedures. In addition, only published studies accessible within the selected inclusion criteria were considered. Therefore, the findings should be interpreted within the scope and methodological boundaries of the present review.

CONCLUSION

Overall, the present review demonstrated that the SACQ remains one of the most widely utilised instruments for assessing students' adjustment to higher education despite being originally developed in the 1980s. The findings further indicate that the instrument continues to maintain strong international relevance, as its application has expanded considerably beyond the United States across diverse cultural, educational, and student contexts. The multidimensional nature of the SACQ, encompassing academic, emotional, social, and institutional aspects of adjustment, has contributed substantially to its continued relevance within higher education research.

However, the review also revealed considerable structural and contextual inconsistencies across studies, particularly in relation to variations in factor structures, psychometric procedures, and contextual adaptations of the instrument. These findings suggest that student adjustment may not be universally conceptualised or experienced similarly across different educational environments and student populations. Consequently, researchers should exercise greater caution when applying the SACQ within new contexts and ensure that appropriate psychometric reassessment procedures are conducted to establish the validity and reliability of the instrument within the investigated population.

Nevertheless, the SACQ continues to serve as a valuable tool for understanding students' transition into higher education. As contemporary university environments become increasingly complex due to cultural diversity, technological advancement, and evolving student experiences, the application and validation of the SACQ must continue to evolve

accordingly to ensure its continued relevance and contextual appropriateness within modern higher education settings.

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Appendix A

Author	Year	Country	Sample	Context	Design	Purpose	No. of items	Translated/Original	Reliability	Factor Structure	EFA/CFA	Item Removal	Modification	Validity
Abdullah, M. C, Kong, L. L. Talib, A.R. (S1)	2014	Malaysia	250 first year undergraduates	First-year undergraduates	Quantitative - Survey	To examine relationships between perceived social support, university adjustment and academic adjustment.	67	Translated to Malay	Overall alpha SACQ = .91 Subscales (.78 -.86)	4 original factor structure	No EFA/CFA conducted	Not reported	Not reported	content validity was carried out confirmed by language experts and psychologists
Anbesaw, T., Beyene A. & Kefale, J. (S2)	2022	Ethiopia	307 First-year undergraduates	First-year undergraduates	Quantitative - Survey	To assess the prevalence of adjustment problems and associated factors among first-year undergraduates	67	Translate to Amharic	Overall alpha SACQ = 0.86 Academic Adjustment = 0.83 Personal emotional adjustment = 0.83 Social adjustment = 0.80 Institutional attachment = 0.78	4 original factor structure	No EFA/CFA conducted	Not reported	Not reported	Not reported
Aparisi, D., Delgado, B., Bo, R. M. & Martinez-Moteagudo, M.C. (S3)	2021	Spain	1368 university students	Impact of cyberbullying on student adaptation to college	Quantitative - Survey	Relationship between Cyberbullying, Motivation and Learning Strategies, Academic Performance, and the Ability to Adapt to University	50 items (short version of SACQ) different likert scale 1-5	Did not mention	Overall SACQ = .82	4 original factor structure	No EFA/CFA conducted	Not reported	Not reported	Not reported
Bobilya et al. (S4)	2011	USA	11 wilderness participants + 9 control (first year college students)	Spiritually focused wilderness orientation	Mixed-method exploratory study	Examine influence of wilderness orientation on adjustment and spiritual development	Original 67-item SACQ	Did not mention	No sample-specific reliability reported	4 original factor structure	No EFA/CFA reported	Not reported	Not reported	Used previously validated SACQ instrument
Bošković, S., Ilić-Stošović, D. & Skočić-Mihić, S. (S5)	2017	Croatia & Serbia	64 university students	Students with disabilities on adjustment to college	Quantitative survey	Adjustment to college amongst student with disabilities	56 items (modified SACQ)	Croatian adaptation Translation into serbian	Academic Adjustment - 24 items (.728) Emotional- 24 items = .878 Social - 8 items = .825	3 factor structure : academic, emotional, social adjustment	PCA with oblimin rotation (EFA)	Not reported	Adapted version; emotional items reverse-coded; translated using back-translation	Used previously validated SACQ instrument
Cecero, J. J., Beitel, M. & Prout, T. (S6)	2008	USA	264 students	Relationships among early maladaptive schemas, psychological mindedness and college adjustment	Quantitative - Survey	Relationships among early maladaptive schemas, psychological mindedness and college adjustment	67 items	English	Overall SACQ = .92 Academic Adjustment = .84 Social Adjustment = .84 Personal -	4 original factor structure	No EFA/CFA conducted	Not reported	Not reported	Not reported

									emotional = .81 Institutional attachment = .80					
Chavoshi, S. & Dentakos, S. (S7)	2017	Canada	209 students	International Undergraduate Students	Quantitative - Survey	A Developmental Sequence Model to University Adjustment of International Undergraduate Students	67 items	English	Overall SACQ = .93 Academic Adjustment = .86 Social Adjustment = .84 Personal - emotional = .87 Institutional attachment = .79	4 original factor structure	No EFA/CFA conducted	Not reported	Not reported	Not reported
De Sousa Monteiro Nouws, S. M., Deus, E. R., Pais, M. E. M., Martinez-Lopez, Z. & Vacas, C. T. (S8)	2024	Portugal	461 students	first year Engineering students	Quantitative - Survey	Adaptation of first year Engineering students	Portuguese adaptation of SACQ of 67 items SACQ	Portuguese	Academic $\alpha=.89$ Personal-emotional $\alpha=.84$ Social $\alpha=.87$	3 SACQ subscales used (academic, personal-emotional, social)	No EFA/CFA conducted	Not reported	Institutional Adjustment subscale excluded (due to low variability); only academic, personal-emotional, and social subscales administered	Used previously validated SACQ instrument
Ding, M & Liao, Y. (S9)	2024	China	1155 students	Medical Freshmen	Quantitative - Survey (longitudinal study T1 and T2)	Latent class of medical freshmen's school adjustment and the relationship among its transition, social support and mental resilience	Revised Chinese SACQ (Ouyang, 2012) 28 items	Chinese	Overall SACQ $\alpha=.91$ (T1); $\alpha=.93$ (T2)	4 factors : learning adjustment , emotional adjustment , interpersonal adjustment , school recognition	No EFA/CFA conducted	Not reported	Revised Chinese Adaptation	Used previously validated SACQ instrument
Dominguez-Lara et al (S10)	2021	Peru	557 students	First year university students	Cross sectional psychometric study	Obtain evidence on the internal structure of a scale on the adaptation to university life, the Student Adaptation to College Questionnaire (SACQ)	Spanish version of SACQ (Rodriguez et al., 2012) - 67 items	Spanish	Institutional $\alpha=.839$, $\omega=.841$; Personal-emotional $\alpha=.863$, $\omega=.862$; Academic $\alpha=.687$, $\omega=.752$; Social $\alpha=.751$, $\omega=.762$	Final 27-item 4-factor structure	Initial CFA showed poor fit across existing SACQ models; subsequent EFA produced a 27-item 4-factor structure	Multiple items removed due to low loading, cross-loading, complexity , and method effects	Extensive item reduction from 67 to 27 items; reverse items revised	Content validity (Aiken's V), construct validity via CFA/EFA, discriminant validity, and internal structure validity evaluated
Dominguez-Lara et al (S11)	2021	Peru	688 first year university students	Remote education during pandemic	Cross sectional psychometric study	Validate SACQ-ER in remote learning context	SACQ - ER (Remote Educati	Spanish	Academic $\alpha=.826-.856$, $\omega=.909$; Social	Final 42-item 4 Factor structure	Used ESEM instead of CFA (claimed that	From 70 items to 42 items due to low	added new remote learning items	Content validity, internal structure

							on Version) 70 items 5 point likert scale		$\alpha=.891-.914$, $\omega=.846$; Institutional $\alpha=.734-.892$, $\omega=.890$; Personal-emotional $\alpha=.897-.918$, $\omega=.900$	same with original SACQ	it is superior to strict CFA) because cross loadings exist naturally CFA overconstrains model	loading, cross loading, low factor simplicity, and heywood cases	deleted unsuitable items and problematic items example :social fit item, teacher contact item, and living away from home item.	validity, convergent validity, measurement invariance
Donado et al. (S12)	2021	Colombia	739 students	Second semester students in private university	Cross sectional psychometric study	Examine internal structure and reliability of SACQ in Colombian students	Spanish SACQ adaptation from Peru (Dominguez Lara et al. 2019) 67 items, 9 point likert scale	Spanish	Institutional $\alpha=.905$, $\omega=.906$; Personal-emotional $\alpha=.885$, $\omega=.888$; Academic $\alpha=.825$, $\omega=.832$; Social $\alpha=.809$, $\omega=.815$	27-item 4-factor Peruvian model demonstrated best fit (Dominguez-Lara et al. 2019)	CFA model comparison across four SACQ structures	No additional item removal; retained Peruvian 27-item model	Minor linguistic adaptation from Peruvian Spanish to Colombian Spanish	Internal structure validity evaluated through CFA and AVE/VME analysis
Fagan & McQuillen (S13)	2020	USA	100 Student Veterans	Veteran university/ college students	Cross sectional correlational study	Examine relationship between participation and assimilation into campus culture	Original SACQ 67 items (2 omitted items)	English	Original SACQ $\alpha=.93$; modified study version $\alpha=.80$	Original 4-subscale structure referenced; not empirically tested	No EFA/CFA reported	Items A26 and A33 omitted	Two campus residence-related items omitted due to low on-campus residency	Used previously validated SACQ instrument
Feldt, Graham & Dew (S14)	2011	USA	305 First year college students	Small Midwestern college	Cross sectional psychometric study	Examine construct validity and factor structure of SACQ	Original SACQ 67 items (65 analyzed in factor analysis)	English	Emotional $\alpha=.91$; Social $\alpha=.88$; Studying $\alpha=.87$; College $\alpha=.78$; Institutional $\alpha=.84$; Academic $\alpha=.86$	6 factor structure identified	CFA conducted on one-dimensional and original 4-factor models; subsequent EFA (principal axis factoring with oblimin rotation) produced 6-factor structure	10 items failed loading criterion and 17 items cross-loaded	Original SACQ structure re-examined; academic and institutional domains split into separate factors	Construct validity evaluated through CFA, EFA, and correlations with personality and stress measures
Páramo Fernandez et al. (2017) (S15)	2017	Spain	300 First year university students	Spanish public university	Cross sectional predictive study	Examine predictors of university adjustment	Spanish SACQ adaptation (Rodriguez et al., 2012) - 67 items	Spanish	Total $\alpha=.94$; Academic $\alpha=.90$; Social $\alpha=.85$; Personal-emotional $\alpha=.89$; Institutional $\alpha=.85$	Original 4 factor structure used	No EFA/CFA conducted	No item removal reported	Spanish SACQ adaptation by Rodriguez et al. (2012)	Used previously validated Spanish SACQ adaptation

Gao et al. (S16)	2023	China	5090 First year undergraduates	Chinese university students	IRT/CAT psychometric study	Examine psychometric characteristics and develop SACQ-CAT	Chinese revised SACQ (Ouyang, 2012) 67 items; 5 point likert scale	Chinese	Test reliability > .90 across most latent trait levels; CAT marginal reliability ranged from .82-.90	Unidimensional structure supported under IRT framework	IRT-based dimensionality analysis (SMT, Hull, PA)	No items removed despite local dependence and low discrimination concerns	Chinese revised SACQ; converted to 5-point Likert scale	Construct validity supported through dimensionality analysis, item fit, local independence, and criterion validity
Glass et al. (S17)	2014	USA	298 international students	International undergraduate and graduate students	Cross-sectional correlational study	Examine recreation participation, intercultural friendship, and adaptation by region of origin	Adapted SACQ-Subscales (12 items)	English	Academic Environment $\alpha=.81$; Social Adaptation $\alpha=.72$; Attachment $\alpha=.75$	3 factor structure	No EFA/CFA conducted	Not reported	Shortened SACQ dimensions for international student context	Internal consistency and factor loadings reported
Benraghda et al. (S18)	2018	Malaysia	446 undergraduate students	IUM local and international students	Cross sectional quantitative	Examine relationship between student engagement and college adjustment	Modified SACQ (24 items)	English	Reliability coefficients not clearly reported	3 factor modified structure	No EFA/CFA conducted	Reduced from 67 to 24 items	Attachment subscale removed due to contextual incompatibility	Used previously validated SACQ instrument
Grama (S19)	2018	Romania	1806	Romanian university students	Cross-sectional adaptation study	Culturally adapt SACQ for Romanian students	Original SACQ(67 items)	Romanian	Academic $\alpha=.86$; Social $\alpha=.79$; Personal-emotional $\alpha=.87$; Attachment $\alpha=.85$; Full Scale $\alpha=.94$	Original 4 factor SACQ structure retained	No EFA/CFA conducted; authors recommended future construct validation studies	Not reported	Romanian translation and cultural adaptation using translation-back translation procedure	Cultural adaptation validity supported through translation and back-translation procedures
Janković et al. (S20)	2016	Serbia	485	Belgrade and Novi Sad universities	Cross-sectional correlational study	Examine effects of Facebook and smartphone usage on leisure activities and college adjustment	Adapted SACQ dimensions (Selected SACQ dimensions only - total items not reported)	Not reported	Academic Motivation $\alpha=.658$; Academic Performance $\alpha=.784$; Social Adjustment $\alpha=.734$	Three-factor adapted SACQ structure	No EFA/CFA conducted	Institutional and personal-emotional dimensions excluded	Selected SACQ dimensions adapted from Wohn and LaRose (2014); probable Serbian translation/localization but no formal translation procedure reported	Used previously validated SACQ instrument
Jia et al (S21)	2025	China	981 university freshmen	Chinese first-year university students	Cross-sectional LPA study	Examine relationship between mobile phone dependence and adaptability	Chinese adaptation by Ouyang (2012)	Chinese	Total $\alpha=.93$; Emotional $\alpha=.84$; Interpersonal $\alpha=.77$; Academic $\alpha=.75$; Recognition $\alpha=.82$; Overall Evaluation $\alpha=.78$	Five factor Chinese adaptation structure.	No EFA/CFA conducted	Reduced from 67 to 36 items	Chinese adaptation shortened to 36 items with revised five-factor structure	Used previously adapted Chinese SACQ version

Keptner (S22)	2019	USA	144 university students	Public Midwestern urban university	Cross-sectional correlational study	Examine relationship between occupational performance and university adjustment	Original SACQ (67 items)	English	Reliability coefficients for current sample not reported	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	No reported	Used previously validated SACQ instrument
Khazgaliyeva et al. (S23)	2023	Russia	177 university students	Online multicultural learning environment	Quasi-experimental pre-post intervention study	Examine social adjustment in multicultural online learning	Adapted version of original SACQ (67 items)	Not reported whether translated or not	Cronbach's alpha = .86	Original 4-domain SACQ framework retained	No EFA/CFA conducted	Not reported	Adapted SACQ used but adaptation procedures not clearly described	Used previously validated SACQ instrument
Kneipp et al. (S24)	2009	USA	233 undergraduate students	Small southern university	Cross sectional predictive study	Examine relationship between religiosity, spirituality, and college adjustment	Original SACQ (67 items)	English	Use prior studies reported reliability. did not report their study's result	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
Krajniak et al. (S25)	2018	USA	246 first semester freshmen	Large university in Eastern United States	Cross-sectional correlational study	Examine relationships among personality disorder traits, emotional intelligence, and college adjustment	Original SACQ (67 items)	English	Current sample reliability ranged from $\alpha=.86-.94$ across SACQ subscales; total adjustment $\alpha=.95$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
Kurtz et al. (S26)	2012	USA	90 freshman college student	Longitudinal study	Prospective Longitudinal correlational study	Examine whether personality traits predict college adjustment	Original SACQ (67 items)	English	Current sample reliability coefficients were $\alpha=.85$ for Academic Adjustment, $\alpha=.88$ for Social Adjustment, and $\alpha=.84$ for Personal-Emotional Adjustment	Original 4-factor SACQ structure retained (but institutional attachment excluded)	No EFA/CFA conducted	Not reported	Institutional Attachment subscale excluded due to item overlap	Used previously validated SACQ instrument
Lashari et al. (S27)	2022	Malaysia	675 International postgraduate students	International student-Malaysia public universities	Cross sectional correlational study	Examine the role of language proficiency, acculturation stress, and social support in student adjustment	Modified SACQ (40 items)	English	Current sample reliability coefficients were $\alpha=.77$ for Academic Adjustment, $\alpha=.80$ for Social Adjustment, and $\alpha=.85$ for Psychological Adjustment	Modified 3-factor SACQ structure retained	No EFA/CFA conducted	Twenty-seven SACQ items excluded; item selection procedure not clearly justified	Original SACQ reduced from 67 to 40 items	Used previously validated SACQ instrument
Malau-Aduli et al. (S28)	2021	Australia	198 first year health profession students	Medicine, Dentistry and pharmacy students	Explanatory sequential mixed methods study	Examine factors influencing university adjustment among	Original SACQ (67 items)	English	Current sample reliability coefficients	Original 4-factor SACQ	No EFA/CFA conducted	Not reported	Not reported	Used previously validated

						first-year health profession students			were $\alpha=.84$ for Academic Adjustment, $\alpha=.84$ for Social Adjustment, $\alpha=.81$ for Emotional Adjustment, and $\alpha=.80$ for Institutional Attachment	structure retained				SACQ instrument
Martínez-Montea-gudo et al. (S29)	2020	Spain	1282 university students	Multiple undergraduate students	Cross sectional predictive study	Examine whether emotional problems and university adjustment predict cyberbullying involvement	Spanish version of SACQ (Rodríguez et al., 2012) - 67 items	Spanish	Academic=.86; Social=.79; Personal-Emotional=.86; Institutional=.89	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Use Spanish validated version without structural modification	Used previously validated Spanish SACQ version
McDonald et al. (S30)	2018	Canada	59 quantitative, 8 qualitative focus group participants	First year transition into nursing program	Embedded mixed-method design	Examine nursing students' initial transition experiences	Original SACQ (67 items)	English	Academic=.84; Social=.78; Personal-Emotional=.82; Institutional=.78; Full Scale=.92	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
McGuffin et al. (S31)	2019	USA	588 college students including veterans	Student veteran adaptation to college	Cross-sectional quantitative study	Examine role of combat exposure and insomnia in college adaptation	Original SACQ (67 items)	English	Full Scale=.96; Subscales=.87-.92	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
Melendez & Melendez (S32)	2010	USA	95 female college students	Urban commuter university	Cross sectional correlational study	Examine influence of parental attachment on college adjustment across racial/ethnic groups	Original SACQ (67 items)	English	Academic=.91; Social=.77; Personal-Emotional=.85; Full Scale=.91 (did not report attachment scale)	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	shortened Institutional Attachment to simply attachment	Used previously validated SACQ instrument
Melendez (S33)	2016	USA	162 freshman commuter college students	Diverse urban commuter institution	Cross-sectional comparative study	Examine effects of gender, ethnicity, and athletic participation on college adjustment	Original SACQ (67 items)	English	Reported previous studies reliabilities	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
Melendez (S34)	2019	USA	359 college freshmen	Four urban universities	Cross sectional predictive study	Examine influence of residential status, gender, and ethnicity on college adjustment	Original SACQ (67 items)	English	Academic=.83; Social=.82; Personal-Emotional=.76; Institutional=.74; Total=.96	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument

Mittelmeier et al. (S35)	2019	South Africa	1141 Undergraduate and postgraduate distance learners	Distance learning	Cross-sectional survey study	Examine adjustment across internationalisation categories in distance learning	Adapted SACQ version (35 items)	English	Academic=.713; Social=.751; Emotional=.743; Attachment=.872	Original 4-factor SACQ structure retained	Factor analysis conducted to confirm four SACQ constructs; detailed CFA/EFA procedures not fully reported	Items reduced from 69 to 35 using highest factor-loading items from prior validation studies	SACQ shortened and adapted for distance-learning context	Content validity established using think-aloud method and construct validity supported through factor analysis
Cassaretto et al. (S36)	2024	Peru	1513 university students	Spanish SACQ Validation	Cross-sectional validation study	Validate psychometric properties of Spanish SACQ-50	Spanish SACQ-50 (50 items) - Rodriguez et al. (2012)	Spanish	Academic $\alpha=.83/\omega=.82$; Social $\alpha=.83/\omega=.80$; Personal-Emotional $\alpha=.84/\omega=.80$; Institutional $\alpha=.88/\omega=.83$; Total $\alpha=.94/\omega=.92$	Original 4-factor SACQ structure retained	CFA using DWLS estimator comparing multidimensional and unidimensional models	No additional removal; Item 44 showed weak loading	Spanish adaptation retaining original SACQ dimensions	Construct validity supported through superior fit of four-factor and second-order models
Raacke & Bonds-Raacke (S37)	2015	USA	264 University students	Social networking and college adjustment	Cross sectional correlational study	Examine relationship between social networking use and college adjustment	Original SACQ (67 items)	English	Reported previous studies reliabilities	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
Rienties et al. (S38)	2012	Netherlands	958 Domestic and international business students	Academic and social integration among students	Cross-sectional comparative study	Examine academic/social integration and academic performance among international students	Modified SACQ (62 SACQ items)	English	Academic $\alpha=.83$; Social $\alpha=.84$; Personal-Emotional $\alpha=.84$; Attachment $\alpha=.85$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Possible reduction from original SACQ; omitted items not specified	Shortened SACQ version	Used previously validated SACQ instrument
Rienties & Tempelaar (S39)	2013	Netherlands	1275 Dutch and international students	Academic and social integration among international students	Cross-sectional comparative study	Examine role of cultural dimensions on adjustment and academic performance	Original SACQ (67 items)	English	Academic $\alpha=.827$; Social $\alpha=.845$; Personal-Emotional $\alpha=.847$; Attachment $\alpha=.847$	Original 4-factor SACQ structure retained	Structural equivalence tested using exploratory factor analysis and Tucker's Phi coefficients	Not reported	Not reported	Cross-cultural validity supported through structural equivalence testing
Roszkowski (S40)	2014	USA	62 (T1), 59 (T2)	Psychometric evaluation of SACQ	Longitudinal psychometric evaluation	Examine item assignment correctness and temporal stability of SACQ	Original SACQ (67 items)	English	Academic $\alpha=.83-.86$; Social $\alpha=.89-.91$; Personal-Emotional $\alpha=.78-.84$; Attachment $\alpha=.87-.91$	Original 4-factor SACQ structure critiqued	No new CFA/EFA; item-remainder correlation analysis conducted	Problematic items identified (9, 14, 21, 23, 32, 49, 56)	Suggested revision of item placement and dimensionality	Construct validity assessed through item analysis and congruence coefficients
Selimović et al. (S41)	2019	Bosnia and Herzegovina	808 university students	Self-esteem and adaptation to college	Cross-sectional correlational study	Examine relationship between self-esteem and adjustment	Adapted SACQ (67 items)	Bosnian	Academic $\alpha=.84$; Social $\alpha=.74$	Original 4-factor SACQ structure critiqued	No EFA/CFA conducted	3 contextually irrelevant items removed	Back-translation; removal of non-applicable items	KMO=.82-.90; multivariate normality assessment

Smojver - Ažić et al. (S42)	2015	Croatia	219 first year university students	Attachment and depressive symptoms	Longitudinal correlational study	Examine mediating role of emotional adjustment between attachment and depressive symptoms	25 items (Adapted Croatian SACQ)- Emotional Adjustment subscale only	Croatian	Emotional Adjustment $\alpha=.91$	3-factor Croatian SACQ structure	No EFA/CFA conducted	Original SACQ reduced from 67 to 65 items	Croatian adaptation excluded Institutional Attachment domain	Used previously validated Croatian SACQ adaptation
Rodríguez et al. (S43)	2012	Spain	300 first year university students	Spanish SACQ adaptation and validation	Cross-sectional psychometric validation study	Adapt and validate SACQ for Spanish students	Original 67 items; revised 50-item version (Adapted Spanish)	Spanish	Academic $\alpha=.90/\omega=.91$; Social $\alpha=.85/\omega=.89$; Personal-Emotional $\alpha=.89/\omega=.91$; Institutional $\alpha=.84/\omega=.90$; Total $\alpha=.95/\omega=.95$	Original 4-factor structure retained but revised	CFA conducted using LISREL comparing original and revised models	Dormitory items removed; additional 15 items deleted due to poor/cross-loadings	Forward-backward translation with contextual item reformulation	Construct validity supported through revised multidimensional CFA model
Taylor & Pastor (S44)	2007	USA	861 university sophomores	SACQ Construct Validity	Cross-sectional psychometric validation study	Examine construct validity and dimensionality of SACQ	Original SACQ (67 items)	English	Academic $\alpha=.88$; Social $\alpha=.89$; Personal-Emotional $\alpha=.85$; Institutional $\alpha=.88$	Original four-factor structure not supported	CFA failed to support original structure; EFA conducted subsequently	Authors recommended substantial revision due to cross-loadings	No translation or adaptation	Original four-factor SACQ model demonstrated inadequate construct validity
Thi Quynh et al. (S45)	2026	Vietnam	363 technological university students	Vietnamese SACQ adaptation and validation	Cross-sectional psychometric validation study	Validate culturally adapted SACQ	Vietnamese culturally adapted SACQ (Original 67 items reduced to SACQ-29)	Vietnamese	Cronbach's alpha ranged .80-.94	Revised 5-factor model	EFA and CFA supported revised 5-factor structure	Extensive item reduction based on loadings and correlations	Cultural adaptation with expert validation and pilot testing	Convergent and discriminant validity supported
Trevisan & Birmingham (S46)	2015	Canada	134 undergraduate university students	Relationships between autistic traits and college adjustment	Cross-sectional correlational study	Examine relationship between autistic traits and college adjustment	Original SACQ (67 items) - excluded Institutional Attachment	English	Cronbach's alpha ranged .80-.87	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Institutional Attachment subscale was excluded from analyses; no SACQ item removal reported	Not reported	Used previously validated SACQ instrument

Trevisan et al (S47)	2021	Canada	19 mentees (autistic undergraduate students)	Peer mentorship program and college adjustment	Longitudinal intervention/program evaluation study	Evaluate mentorship effects on college adjustment	Original SACQ (67 items)	English	SACQ subscale reliability ranged $\alpha=.80-.87$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
Tuason et al. (S48)	2023	USA	30 interventions, 33 comparison (vulnerable first-generation college students)	Psychoeducational intervention	Pilot intervention study	Examine intervention effects on college adjustment	Original SACQ (67 items)	English	Pretest SACQ reliability: Total $\alpha=.94$; Academic $\alpha=.83$; Social $\alpha=.87$; Personal-Emotional $\alpha=.84$; Attachment $\alpha=.73$. Posttest SACQ reliability: Total $\alpha=.98$; Academic $\alpha=.90$; Social $\alpha=.96$; Personal-Emotional $\alpha=.76$; Attachment $\alpha=.83$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Convergent validity supported through Average Variance Extracted (AVE=.58-.66) and Composite Reliability analyses
Gutiérrez et al. (S49)	2023	Spain	251 University and vocational training students	Family relationships and student adjustment	Cross-sectional correlational study	Examine relationship between family variables, attachment, and adjustment	Spanish SACQ Adaptation (56 items) - only used 32 items	Spanish	Academic $\alpha=.85$; Personal-Emotional $\alpha=.91$	Original 4-factor SACQ structure retained - only used 2 factor	No EFA/CFA conducted	No psychometric deletion; selective subscale use - Academic and Personal-Emotional Adjustment only	Minor wording changes for vocational students	Used previously validated SACQ instrument
Vlachopanou et al. (S50)	2025	Greece	284 university students	Academic motivation, procrastination, adjustment, and GPA among Greek university students	Cross-sectional profiling study	Examine motivation-procrastination-adjustment student profiles	Original SACQ (67 items) - Greek Adaptation	Greek	SACQ total $\alpha=.93$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Used Greek adaptation	Used previously validated SACQ instrument

Vlachopanou et al. (S51)	2026	Greece	284 university students	Academic success, motivation, and adjustment	Cross-sectional SEM study	Examine demographic, motivational, and institutional predictors of achievement	Original SACQ (67 items) - Greek Adaptation	Greek	Academic Integration $\alpha=.731$; Social Integration $\alpha=.885$; remaining subscale reliabilities not reported	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Used Greek adaptation	Used previously validated SACQ instrument
Wahid et al. (S52)	2025	Indonesia	36 international first year medical student	Adaptation and coping mechanisms in medical school	Mixed-method cross sectional	Explore adaptation and coping mechanisms	Indonesian version SACQ (34-item SACQ)	Indonesia	Overall $\alpha=.913$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	No further item removal reported	Used shortened 34-item SACQ version	Used previously validated SACQ instrument
Wen et al. (S53)	2025	China	1866 medical college students	Depression and school adjustment	Cross-sectional	Examine depression, loneliness, family functioning, and adjustment	Chinese SACQ (36 items)	Chinese	Overall $\alpha=.915$	5 dimension Chinese structure	No EFA/CFA conducted	No further item removal reported	Used shortened 36-item SACQ version	Used previously validated SACQ instrument
Wider et al. (S54)	2017	Malaysia	557 first year undergraduates	Freshman adjustment in public university	Cross-sectional PLS-SEM study	Examine peer attachment predicting adjustment	Original SACQ (67 items) - 5 likert scale	Not reported	Composite Reliability (CR): Academic Adjustment=.844, Social Adjustment=.808, Personal-Emotional Adjustment=.843, Institutional Attachment=.855	Original 4-factor SACQ structure retained	PLS measurement model assessment	Major item deletion due to low loadings - final 18 retained SACQ items	No translation procedure reported; SACQ adapted and administered using modified 5-point scale	AVE, CR, Fornell-Larcker used
Wider et al. (S55)	2023	Malaysia	568 first year university students	Parent/peer attachment, identity exploration, and university adjustment	Cross-sectional PLS-SEM study	Examine effects of parent and peer attachment on university adjustment through identity exploration	Original 67-item SACQ reduced to 7 retained indicators	Not reported	$\rho_A=.861$, CR=.886, AVE=.528	SACQ dimensions collapsed into single higher-order University Adjustment construct	PLS-SEM measurement model assessment using SmartPLS 3.0	58 SACQ items removed due to low loadings and overlapping indicators	Extensive restructuring and higher-order construct modeling	PLS-SEM, mediation analysis, bootstrapping, HTMT validity assessment
Wu et al. (S56)	2024	USA	224 international and domestic university students	Stress, coping, and adjustment during COVID-19	Secondary quantitative cross-sectional study	Compare adjustment, coping, and stress between international and domestic students	Original 67-item SACQ	English	Academic $\alpha=.88$; Social $\alpha=.91$; Personal-Emotional $\alpha=.87$; Institutional $\alpha=.90$	Original 4-factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument

Zhao et al. (S57)	2022	USA	517 university students	COVID-19 adjustment and coping	Quantitative cross-sectional with machine learning	Predict COVID-19 adjustment using SACQ, coping, and stress variables	Original 67-item SACQ	English	Academic $\alpha=.88$; Social $\alpha=.91$; Personal- Emotional $\alpha=.87$; Institutional $\alpha=.90$	Original 4- factor SACQ structure retained	No EFA/CFA conducted	Not reported	Not reported	Used previously validated SACQ instrument
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