Psychometric Properties of the Revised Academic Hardiness Scale in Saudi's College Student Samples

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Abstract:

The Revised Academic Hardiness Scale (RAHS) has been shown to be a reliable and valid tool for assessing academic hardiness in different populations. However, the Revised Academic Hardiness Scale (RAHS) has not been translated into Arabic and validated for the Saudi population. Therefore, the current study aimed to translate the English version of the RAHS into Arabic for the Saudi context and validate the translated scale. A total of 496 participants from Umm Al-Qura University were recruited. Based on exploratory and confirmatory factor analyses in different subsamples, the results of the current study revealed that the single-factor model fits the data satisfactorily. In addition, the Arabic version of the RAHS has adequate levels of validity and reliability for the Saudi population.

Keywords: Revised Academic Hardiness, Validity, Reliability, Scale validation, College Student Samples.

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Introduction:

One of the National Transformation Program's (NTP) Strategic Objectives is "Improving students' values and core skills" (Patalong, 2016, p.1). Saudi vision (2030) asserted that academic hardness has a big role to achieve it! As Wardani (2020) mentioned that academic hardiness contributes to develop participant's psychological well-being, transformational coping, and social support skills. Furthermore, academic hardness gives us a better understanding for the ability of students to take risks and register in challenging class, and why other students avoided challenging classes. (Benishek, Feldman, Shipon, Mecham, 2005) but, what does academic hardness mean? Academic hardiness is "a construct representing how students tend to respond to academic stressors." (Wei gold& Weigold, 2016, p. 1207). Furthermore, Nguyen and Westbrook (2011) found that universities can increase academic performances by providing programs that process students' hardiness in learning. In this regard, the college students' learning quality has an impact on how they face challenges during their study in college. There were cases where a lecturer had high expectations for students, which led to pressure and other negative impacts. Limited opportunity, poor peer supports, and intense competition in the academic setting can create negative experiences among students, resulting in a high academic stress (Brand & Klein, 2019).

Every student has academic stress during lectures. People who have tough, strong personality characteristics, and are able to face all academic pressures are people who have academic hardiness personality characteristics. Benishek et al. (2005) and Cheng et al., (2019) mentions that academic hardiness refers to a person's resilience to persist in completing his academic tasks.

Originality, academic hardness was drown from two theories which are hardness theory and academic motivation theory. Psychological hardness theory clarified the ability of students to deal with stressors and challenging classes. Moreover, it explained how the hardness affects human personality, and contribute to how they think, feel, behave, and

avoid feeling sick in the stressor situation. (Peter, Elizabeth, Kamal, 2013); (Kobasa, 1979a); (Kobasa, 1979b).

The study of hardiness in academic settings is particularly relevant as the academic environment can be demanding and competitive for students. Practitioners and policy-makers have a vested interest in motivating and encouraging students to achieve to their potential, as students reaching their potential have implications for later occupational success and satisfaction (Maddi & Khoshaba, 2005).

Hardiness has been shown to be a predictor in performance effectiveness in college students (Maddi, 2002; Maddi, Harvey, Khoshaba, Fazel, & Recurreccion, 2011). It has been positively related with retention rate and creativity among college student (Lifton, Seay, & Bushke, 2000) and negatively associated with both academic stress and a number of health complaints in undergraduates (Hystad, Eid, Laberg, Johnsen, & Bartone, 2009).

The positive influence of hardiness on undergraduates has also been reported in many recent studies. A range of studies has demonstrated the importance of hardiness for adjustment to university life (Lifton, Seay, McCarly, OliveTaylor, Seeger, & Bighee, 2006). Hardiness has been shown to be a predictor in performance effectiveness in college students (Maddi, 2002; Maddi, Harvey, Khoshaba, Fazel, & Recurreccion, 2011). Maddi et al. (2009) found higher levels of hardiness to be associated with academic self-efficacy and positive attitudes to university.

Academic hardiness, as a personality trait, has been associated with students'/undergraduates' performance (Kamtsios & Karagiannopoulou, 201٦; Sheard & Golby, 2007), students' achievement motivation and task or learning orientation (Busato et al., 2000; Kamtsios & Karagiannopoulou, 2016), positive attitudes towards university (Maddi et al., 2011), students' learning self-efficacy (Wong, Liang, & Tsai, 2019) and positive academic emotions (Kamtsios & Karagiannopoulou, 20١٣). According to Kinder (2008), academic hardiness has a strong relation with first year undergraduates' motivation, whereas Sheard and Goldy (2007) mentioned that high hardy undergraduates have higher performance.

Benishek and Lopez (2001) have formulated the meaning of "Academic Hardiness" (Benishek et al., 2005, Benishek and Lopez, 2001), providing a framework for understanding how students (high school students and university undergraduates) may react to academic challenges.

Psychological hardness theory sets three cognitive appraisal processes that contribute to individual's persistence when they encounter hard situations, which are: commitment (a desire to give life's events your time and effort and be a part of it), control (willing to have personal control and make personal sacrifices to come over hard situations), and challenge (perceiving life's changes and inconstancy normal part of life contribute to personal development). (Weigold& Weigold, 2016); (Benishek, Feldman, Shipon, Mecham, 2005); (Benishek & Lopez, 2001).

Furthermore, Benishek et al. (2005) developed links between the hardiness attitudes and forms of behaviors that concern learning and performance in university undergraduates. The components of academic hardiness were defined as follows: commitment concerned students' reported willingness to expend consistent effort and to engage in personal sacrifices in order to achieve academic excellence, irrespective of the content or demands of individual courses, instructors or personal interests. Challenge was defined as students' purposeful efforts to seek out difficult academic coursework and experiences to justify such actions as inherent in personal living. Control was defined as students' beliefs that they possessed in the capacity to achieve desired educational outcomes from personal effort and through effective emotional self-regulation in the face of academic stresses and disappointments (Benishek et al., 2005).

Academic Hardiness measures:

There are many scales that measure academic hardiness، including the Dispositional Resilience (Hardiness) Scale (HARDY) (Bartone., Ursano., Wright, & Ingraham, 1989), Unabridged Hardiness Scale (UHS; Ouellette, 1993), Personal Views Survey (Maddi, 1997; Maddi et al., 2009), Views Survey III-R (PVS III-R; Maddi and Khoshaba, 2001),

Hardiness Scale (LGHS) and the Personal (Lang et al., 2003), revised Academic Hardiness Scale (RAHS; Benishek, Feldman, Shipon, Mecham, & Lopez, 2005), Dispositional Resilience Scale DRS-15 (Bartone, 2013), Academic Hardiness Scale (Kamtsios & Karagiannopoulou, 2011), Hardiness Resilience Gauge (HRG) (Bartone et al., 2019; Stein & Bartone, 2020), Although all of these tools are generally characterized by adequate psychometric properties, some of them are a one-dimensional construct and operationalize it as a total hardiness score, while others are multidimensional trait with separate measures for commitment, challenge, and control.

Addressing the need for a short scale to measure Academic Hardiness using a comprehensive and multidimensional trait with separate measures to measure three components of academic hardiness (commitment, challenge, and control), Benishek & Lopez (2001) developed Academic Hardiness Scale which is a three dimensional 19-item self-report scale with a more holistic view, Commitment is measured by 10 items (e.g., "I work hard for my grades"), challenge by five items (e.g., "I enjoy the challenge of a difficult class"), and control by four items (e.g., "I become less motivated to study when I don't get the grades I want right away"). Students respond to items using a 4-point Likert-like scale, with end-points of 1 = completely false and 4 = completely true. A high score on the scale indicates a high level of Academic Hardiness.

Benishek & Lopez (2001) developed and administered the academic hardiness Scale (AHS) to a sample of 481 high school students (aged 14-19 yrs), results of both principal axis factor analyses (PAF) and confirmatory factor analyses (CFA) yielded support for a three-factor model of the construct. Supplemental analyses indicated that, after controlling for general academic self-concept, the challenge subscale of our novel measure differentiated students who pursued more difficult academic coursework and educational pans from those who did not.

Concerning internal reliability coefficients, Benishek and Lopez (2001) reported internal reliability coefficients of .85 (commitment), .78 (challenge), .64 (control), and .84 (composite score). revealing high internal consistency, they assessed validity using factor analysis, and by

testing associations between the subscales and a proposed nomological net. They found weak associations among the subscales, weak associations between the subscales and social desirability, and moderate associations with academic self-concept and high school GPA. Also, the challenge subscale was able to differentiate between college-bound and non-college-bound students, and between those who continued with maths and those who did not. results indicate that the academic hardiness Scale had satisfactory validity and reliability levels for the populations studied.

The Revised Academic Hardiness Scale has since been adapted to and used in various cultures and languages; for instance, it has been employed in India, Indonesia, Philippines, Malaysia, Australia, Southeast Asia, and Indonesia (Karimi., & Venkatesan, 2009; Fajriani., & Marsela, 2021; Santos, 2018; Eng, 2021; Creed, Conlon., & Dhaliwal, 2013; San., & Aung, 2020; Mawarni, 2017; Wati., & Ifdil, 2023)

While studies on academic hardiness conducted in schools have focused on senior high school students, the academic hardiness of College Student has not been given enough attention, despite College Students being part of an interactive environment. Therefore, the current study focused on College Students and assessed their levels of academic hardiness.

The present study:

To our knowledge, there is no effective scale for measuring academic hardiness suitable for Saudi university students. Therefore, it is necessary to take an appropriate measure to evaluate the structure of this age group, so that educational counselors and university professors of university students evaluate and enhance the academic hardiness of the students. Hardiness as a personal trait may help students exploit previous experiences to face upcoming university challenges and difficulties and turn them into opportunities for growth (Suhaili et al., 2020), and to withstand the anxiety resulting from their studies and the need to constantly adapt to life. A changing environment, and engaging in educational work rather than avoidance, denial or procrastination.

In the current study, the English version of the academic hardiness scale was translated into Arabic and validated for the Saudi Arabian context. To the best of our knowledge, the scale had previously not been translated into Arabic or validated among the Saudi Arabian population.

The aim of this study was to validate a Saudi Arabian adaptation of the Revised Academic Hardiness Scale (Benishek & Lopez, 2001) concerning the factorial structure of the questionnaire. Furthermore, the study aimed to investigate the Revised Academic Hardiness Scale concurrent and predictive validity.

Methods

Design and setting

Design and setting A descriptive study was conducted. The study tools, which included demographic information forms and the Revised Academic Hardiness scale, were prepared in electronic format using Google Forms. Participants were recruited and invited via email. The digital link to the scale was sent to individuals whose email addresses were available on university websites.

Participants

Participants were all Arabic speakers and affiliated with universities located in different regions of Saudi Arabia. Regarding the selection criteria, all participants were required to have been students, faculty members, or employees at a university for at least 1 year prior to the study and to have a minimum age of 18 years. Participation in the study was voluntary and anonymous, and all participants provided informed consent prior to participation. The current study received ethical approval from the research ethics committee of the Umm Al-Qura University. All information provided by the participants was collected in an unidentifiable form.

Sample characteristics

The e final sample included 496 participants, with ages ranging between 18 and 27 (mean age 21.47 years; *SD* = 2.18). Male accounted for 44.5% of the sample, while 56.5% of the sample was female. Furthermore, 349 (70.4%) participants were from scientific Specialization, 147 (29.6%) were from the literary Specialization. 292 (58.9%) participants were in First level, 18 (3.6%) were in second level,

63 (12.7%) were in third level, 19 (3.8%) were in fourth level, 44 (8.9%) were in fifth level, 13 (2.6%) were in sixth level, 28 (5.6%) were in seventh level, 19 (3.8%) were in eighth level, Participation in the study was voluntary. The sample characteristics are described in Table 1.

Table 1: Sample characteristics (n = 1148)

	n	**(%)**
Gender	**Frequencies**	
Male	216	43.5
Female	280	56.5
Total	**496**	**100.0**
Specialization		
Scientific	349	70.4
Literary	147	29.6
Total	**496**	**100.0**
Academic level		
Level 1	292	58.9
Level ٢	18	3.6
Level ٣	63	12.7
Level ٤	19	3.8
Level ٥	44	8.9
Level ٦	13	2.6
Level ٧	28	5.6
Level ٨	19	3.8
Total	**496**	**100.0**

Measures:

Participants completed a questionnaire including one scale and questions regarding demographics, such as their gender, age, and university details.

The Arabic version of the Revised Academic Hardiness Scale:

The Revised Academic Hardiness scale was used to measure academic hardiness suitable for Saudi university students. This instrument includes nineteen items rated on a 4-point Likert scale ranging from 1 (completely false) to 4 (completely true). The Arabic version of the Revised Academic Hardiness scale was translated from the English version. The current researcher translated the scale into Arabic.

Four Arab psychologists then carefully evaluated the initial Arabic translation for comparison in meaning with the original English version. Necessary revisions were then made. The translated Arabic items were then shared with an Arab specialist who was experienced in both languages (English and Arabic), who was then asked to translate them back into English. Finally, the original English items of the Revised Academic Hardiness scale were compared with their translated version, and no significant differences in meaning were found between the two versions.

Data analysis:

Data analyses were performed using SPSS 25 and Amos 26. For the sample characteristics, mean values and standard deviations (SDs) for continuous variables and frequencies and percentages for nominal variables were calculated. The skewness and kurtosis of the academic hardiness scale items were checked. For a normal distribution, the skewness and kurtosis have a value of 0, while any value below 2 suggests that the data are normally distributed (Groeneveld & Meeden, 1984). For each item-scale assignment of the academic hardiness scale, item-total correlations were computed after correcting for item overlap. Item-total correlations ≥ 0.30 were defined as acceptable (Döring & Bortz, 2016).

Furthermore, the internal consistency of the academic hardiness scale was evaluated by calculating Cronbach's alpha, McDonald's omega, and composite reliability; values ≥ 0.70 were accepted as indicating sufficient reliability (George, 2011).

Scale validity was assessed using EFA, CFA, and convergent validity. The full sample was randomly divided into two subsamples; one was considered for the EFA and the other for the CFA. The EFA was performed using principal axis factoring (PAF) to determine underlying factors in the prepared 19-item scale. PAF was chosen as the extraction method for the EFA because by using it, one is better able to recover weak factors and determine the least number of factors that can account for the common variance of a set of variables (Mabel & Olayemi, 2020).

Structural equation modeling (SEM) was conducted in the CFA group using IBM SPSS AMOS 26.0. The goodness of fit was reviewed

using the comparative fit index (CFI), goodness fit index (GFI), incremental fit index (IFI), normed fit index (NFI), and relative fit index (RFI); all these indices had values of 0.90 or above, indicating a good fit. Another fit index is the root-mean-square error of approximation (RMSEA); an RMSEA value between 0.05 and 0.08 indicates an acceptable fit, while a value less than 0.05 indicates a good fit (Byrne & Campbell, 1999).

Furthermore, a CMIN/DF value < 5 indicates an acceptable fit (Marsh & Hocevar, 1985). The magnitude of the standardized coefficients should be 0.40 (Howard, 2016).

Results

Reliability and item analysis

The full-sample results (n = 496) based on the absolute values of skewness and kurtosis for a total academic hardiness scale score indicated that the sample data were normally distributed (skewness = -.558 and kurtosis = .442). Additionally, all items correlated with the total scale to a good degree; the correlation coefficients ranged between 0.328 and 0.627, as shown in Table 2.

Table 2: Item statistics for the academic hardiness scale

Descriptive Statistics								Corrected Item-Total Correlation
	N	Mean	Std. Deviation	Skewness		Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	
Take my work as a student seriously	496	3.64	1.330	-.640	.110	-.786	.219	0.572
Dedicated student	496	3.30	1.373	-.316	.110	-1.106	.219	0.473
Work hard for grades	496	3.74	1.364	-.725	.110	-.762	.219	0.627
Involved in all my classes	496	3.29	1.238	-.277	.110	-.796	.219	0.513
Regardless of the class, I do my best	496	3.65	1.317	-.658	.110	-.722	.219	0.607
Make personal sacrifices to get good grades	496	3.44	1.337	-.386	.110	-1.009	.219	0.523
Work only as hard as I need to pass	496	3.45	1.339	-.444	.110	-.983	.219	0.546
Grades aren't important to me	496	3.26	1.455	-.265	.110	-1.279	.219	0.395
Doing well is as important to me as to my parents	496	3.72	1.348	-.760	.110	-.690	.219	0.604

Descriptive Statistics								Corrected Item-Total Correlation
	N	Mean	Std. Deviation	Skewness		Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	
More involved, interested in outside activities	496	3.19	1.339	-.109	.110	-1.154	.219	0.394
Avoid classes that require extra work	496	2.90	1.273	.098	.110	-.948	.219	0.334
Enjoy challenge of difficult class	496	3.22	1.293	-.170	.110	-.960	.219	0.374
Don't see the purpose of taking a class if I am not confident, I will do well	496	3.03	1.309	-.034	.110	-1.025	.219	0.382
Enroll in classes in which I can do well	496	3.50	1.345	-.485	.110	-.959	.219	0.454
Difficult classes are the best way to improve one's knowledge	496	3.31	1.282	-.281	.110	-.892	.219	0.388
If I do poorly, I doubt my ability as a student	496	2.94	1.303	.057	.110	-1.094	.219	0.345
Difficult to bounce back from academic disappointment	496	2.99	1.351	.031	.110	-1.157	.219	0.365
Become less motivated to study when I don't get the grades, I want right away	496	3.13	1.383	-.080	.110	-1.206	.219	0.328
If I get behind, I panic and feel ill	496	3.51	1.378	-.501	.110	-.988	.219	0.394
academic hardiness scale (total score)	496	63.21	12.469	-.558	.110	.442	.219	

Exploratory factor analysis (subsample, n = 248)

The EFA was performed using principal axis factoring PAF to determine underlying factors in the prepared 19-item scale. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy presented a value of 0.800, while the value for Bartlett's test of sphericity analysis was 1715.006, df (171) with sig. = 0.000. The EFA revealed three factors with an eigenvalue > 1 and Cumulative % (42.134) Table 3 shows these results.

Table 3: item factor loadings, eigenvalues, and total explained variance

AR scale items	Item factor loadings		
	1	2	3
I take my responsibilities as a student seriously.	.810		
I am a student dedicated to academic tasks.	.343		
I work hard to get high grades.	.768		
I engage in lectures.	.472		
I do my best regardless of my classmates' level.	.613		
I make personal sacrifices to get high grades.	.417		
I work as hard as I need to just to pass.	.531		
Grades are not important to me.	.397		
I care about performing well in academic tasks.	.608		
I participate with interest in extracurricular academic activities.	.431		
I avoid courses that require extra work.			.474
I enjoy challenging difficulties in lectures.			.714
I see no benefit in enrolling in a course if I'm not confident I'll do well in it.			.542
I prefer courses where I can perform well.			.760
Courses are the best way to improve my knowledge.			.803
I doubt my abilities as a student if my performance is poor.		.653	
It's difficult to return to my normal state after academic disappointment.		.772	
I become less enthusiastic about studying when I don't get the grades I want.		.697	
I panic if I get low grades in my studies.		.679	
Eigenvalue	**3.503**	**2.275**	**2.695**
Total variance explained (%)	**20.962**	**12.435**	**8.738**

Based on the factor loadings presented in the table, we can identify three distinct factors. Here's a commentary on each factor

Factor 1: Academic Commitment

This factor has high loadings on items related to taking responsibilities seriously, working hard for grades, doing one's best, and caring about academic performance. It reflects a student's dedication to their studies and willingness to put in effort. We could call this factor "Academic Commitment" or "Studious Dedication."

Factor 2: Academic Control

The items loading on this factor are related to doubting abilities after poor performance, difficulty recovering from academic disappointment, decreased enthusiasm after not achieving desired grades, and panicking over low grades. This factor seems to capture a student's emotional and psychological response to academic setbacks. We might name this factor " Academic Control " or "Academic Stress Management."

Factor 3: Academic Challenge Orientation

This factor shows high loadings on items about enjoying challenging difficulties, preferring courses where one can perform well, and viewing courses as the best way to improve knowledge. It also includes an item about avoiding courses that require extra work (negatively loaded). This factor appears to represent a student's attitude towards academic challenges and their approach to course selection. We could label this factor "Academic Challenge Orientation" or "Learning Challenge Approach."

The eigenvalues and total variance explained indicate that these three factors account for a cumulative 42.135% of the total variance, with Factor 1 explaining the largest portion at 20.962%.

This factor structure provides insights into different aspects of students' academic attitudes and behaviors, potentially useful for understanding and improving educational experiences and outcomes.

Confirmatory factor analysis (subsample, n = 248)

The Three-factors solution determined via EFA was validated with the CFA subsample. The final SEM is shown in Fig1. The CFA confirmed the Three-factors structure derived through EFA because all regression weights exhibited positive, highly significant (above 0.40), and highly satisfactory fit indices Table 4.

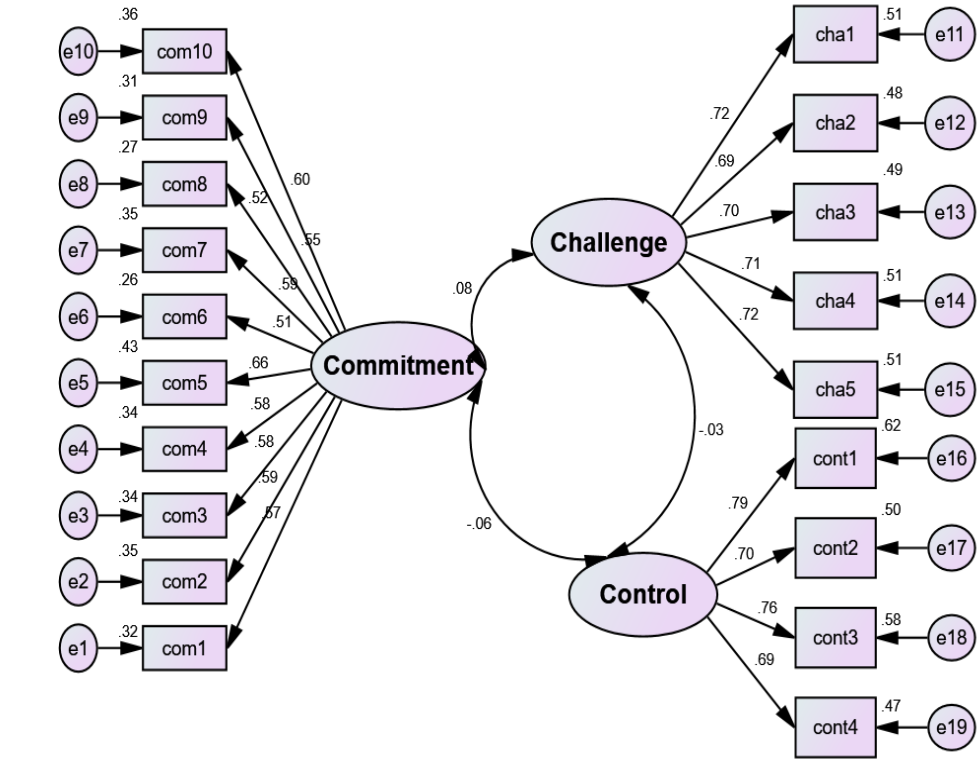

Fig. 1 Confirmatory factor analysis model for from the second subsample data including standard loadings and standardized errors.

Table 4 Fit indices of the confirmatory factor analysis (CFA) model

Measure	Estimate	Threshold	Interpretation
CMIN	235.322	--	--
DF	149	--	--
CMIN/DF	1.579	Between 1 and 3	Excellent
CFI	0.938	>0.95	Acceptable
SRMR	0.047	<0.08	Excellent
RMSEA	0.048	<0.06	Excellent
PClose	0.575	>0.05	Excellent

This table presents the fit indices for a Confirmatory Factor Analysis (CFA) model. Here's a commentary on the results:

The Chi-square (CMIN) value is 235.322 with 149 degrees of freedom (DF). While these values alone don't indicate model fit, they're used to calculate other fit indices.

The CMIN/DF ratio is 1.579, which falls within the excellent range of 1 to 3. This suggests that the model fits the data well in terms of its chi-square relative to its degrees of freedom.

The Comparative Fit Index (CFI) is 0.938. While this is slightly below the ideal threshold of >0.95, it's still considered acceptable. It indicates that the model fits reasonably well compared to a baseline model.

The Standardized Root Mean Square Residual (SRMR) is 0.047, which is below the threshold of 0.08. This excellent result suggests that the model explains the correlations to within an average error of 0.047.

The Root Mean Square Error of Approximation (RMSEA) is 0.048, which is below the threshold of 0.06. This excellent result indicates a good fit of the model in relation to the degrees of freedom.

The PClose value is 0.575, which is well above the threshold of 0.05. This excellent result suggests that the probability of getting a RMSEA as large as 0.048 in the population is high, further supporting the model's good fit.

Overall, these fit indices suggest that the CFA model fits the data very well. While the CFI is slightly below the ideal threshold, all other indices show excellent fit. This indicates that the proposed factor structure is a good representation of the underlying construct being measured.

Model Validity Measures

This table presents the Model Validity Measures for a three-factor model. It includes Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Maximum Reliability (MaxR(H)) for each factor, as well as the factor correlations and square root of AVE values (in bold on the diagonal).

Table 5: Model Validity Measures

	CR	AVE	MSV	MaxR(H)	F1	F2	F3
F1	0.832	0.333	0.007	0.835	0.577		
F2	0.833	0.500	0.007	0.834	0.081	0.707	
F3	0.826	0.543	0.004	0.831	-0.063	-0.031	0.737

The model validity measures present a mixed picture of the three-factor structure. While the model demonstrates good reliability and discriminant validity across all factors, there are concerns regarding the convergent validity of Factor1.

The composite reliability (CR) values for all factors exceed 0.8, indicating strong internal consistency. This suggests that the items within each factor are reliably measuring the same construct. Additionally, the low Maximum Shared Variance (MSV) values and weak inter-factor correlations provide evidence of good discriminant validity, implying that the factors are distinct from one another.

However, Factor 1 shows a notably low Average Variance Extracted (AVE) of 0.333, falling below the recommended threshold of 0.5. This low AVE value is a direct result of the relatively low factor loadings of the items on Factor 1. When item loadings are low, it means that a smaller proportion of the variance in these items is explained by the factor, leading to a lower AVE.

In contrast, Factors 2 and 3 demonstrate satisfactory convergent validity with AVE values above 0.5.

Stability by Cronbach's alpha and McDonald's omega coefficient:

This table presents the reliability coefficients for the Academic Hardiness Scale and its subscales using two different measures: Cronbach's alpha and McDonald's omega. These coefficients provide insight into the internal consistency and stability of the scale and its components.

Table 6: Stability by Cronbach's alpha and McDonald's omega coefficient

	Commitment	Challenge	Control	(Total score)
Cronbach's Alpha	0.879	0.814	0.812	0.826
Omega	0.880	0.815	0.813	0.818

The reliability analysis of the Academic Hardiness Scale reveals strong internal consistency across the entire scale and its individual subscales. Both Cronbach's alpha and McDonald's omega coefficients were employed to assess reliability, providing a comprehensive view of the scale's stability.

The Commitment subscale emerges as the most reliable component of the Academic Hardiness Scale, with near-identical Cronbach's alpha (0.879) and McDonald's omega (0.880) values. These high coefficients indicate that the items within this subscale are strongly interrelated and consistently measure the underlying construct of academic commitment.

The Challenge and Control subscales also demonstrate robust reliability, with coefficients exceeding 0.8 for both measures. The Challenge subscale shows Cronbach's alpha of 0.814 and McDonald's omega of 0.815, while the Control subscale exhibits values of 0.812 and 0.813 respectively. These results suggest that both subscales effectively capture their intended constructs with high internal consistency.

When considering the Academic Hardiness Scale as a whole, the reliability remains strong. The total score reliability, as indicated by Cronbach's alpha (0.826) and McDonald's omega (0.818), reinforces the scale's overall consistency in measuring the broader construct of academic hardiness.

The close alignment between Cronbach's alpha and McDonald's omega values across all subscales and the total score provides additional confidence in these reliability estimates. This consistency suggests that the scale maintains its reliability even when accounting for potential variations in item properties, which is a strength of McDonald's omega.

In conclusion, these reliability coefficients collectively indicate that the Academic Hardiness Scale is a stable and internally consistent measure. The strong reliability across all components supports the scale's utility in assessing academic hardiness, with each subscale reliably capturing its specific aspect of the construct.

Discussion

The current study aimed to translate and adapt the academic hardiness scale to the Arabic language spoken in Saudi Arabia and investigate its psychometric properties in Saudi Arabian College Student.

EFA, CFA, and convergent validity were used to assess the construct validity of the scale, while Cronbach's alpha and McDonald's omega were used to assess the reliability and the internal consistency and stability of the scale and its components. The results show that the Arabic version of the scale has satisfactory psychometric properties and a good degree of reliability and validity. These results are consistent with those of the original version of the scale (Benishek & Lopez, 2001), and with the findings of other studies (Karimi., & Venkatesan, 2009; Fajriani., & Marsela, 2021; Santos, 2018; Eng, 2021; Creed, Conlon., & Dhaliwal, 2013; San., & Aung, 2020; Mawarni, 2017; Wati., & Ifdil, 2023). Thus, they support the strength and reliability of the academic hardiness scale used to assess academic hardiness in Saudi Arabian College Student.

The Cronbach's α for the total academic hardiness scale was .826, whereas α values for commitment, challenge, and control were 0.879, 0.814, and 0.812, respectively. The average interitem correlations for all factors are well above the acceptable level (≥ .30) for internal consistency, indicating the items within each subscale are highly correlated and coherent (Sun et al., 2011).

Overall, the results of this study represent an important step in assessing the reliability and validity of the Academic Resilience Scale and its potential use in educational settings. The results support the suitability of the scale for students. The satisfactory psychometric properties of the scale suggest that the Academic Resilience Scale is a useful tool and a promising measure of psychological resilience for research and evaluation purposes in higher education. Researchers and educators can confidently use this scale as a measure of psychological resilience in college students.

Conclusion

The Arabic version of the Revised Academic Hardiness scale showed generally satisfactory psychometric properties when applied among Saudi Arabian College Student. Based on our results, it is proposed that this version can be used for various purposes related to promoting academic hardiness and for Understanding academic

hardiness can help students better cope with the stresses and strains of studying and surviving in academic institutions by informing interventions and influencing policy. The scale can be used as a quick screening instrument to assess academic hardiness levels in educational institutions, thereby helping promote academic hardiness in the work environment. Future research using different sampling procedures (i.e., a stratified sampling), or involving larger and more heterogenous samples would be helpful.

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