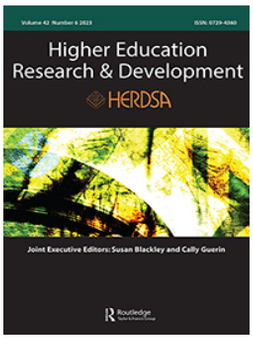

Higher Education Research & Development

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/cher20

The higher education expectation scale: development and testing

Mohammad Izzat Morshidi, Peter K.H. Chew & Lidia Suárez

To cite this article: Mohammad Izzat Morshidi, Peter K.H. Chew & Lidia Suárez (2023): The higher education expectation scale: development and testing, Higher Education Research & Development, DOI: 10.1080/07294360.2023.2228222

To link to this article: https://doi.org/10.1080/07294360.2023.2228222

HIGHER EDUCATION RESEARCH & DEVELOPMENT
https://doi.org/10.1080/07294360.2023.2228222

The higher education expectation scale: development and testing

Mohammad Izzat Morshidi, Peter K.H. Chew and Lidia Suárez

School of Social and Health Sciences, James Cook University, Singapore, Singapore

ABSTRACT

Excessive educational expectations are risk factors for poor mental health among students in higher education. However, the literature on educational expectations has largely focused on primary and secondary students with paucity among tertiary students. This study describes the development of a multidimensional scale measuring perceived educational expectations by tertiary students. Results show that students perceived expectations from four distinct sources: self, parents, educators/institutions, and culture. The final 28-item HEES multidimensional scale provides an opportunity in higher education literature to examine the weight of expectations and their impact on tertiary students' academic performance and well-being.

ARTICLE HISTORY
Received 13 October 2022
Accepted 29 May 2023

KEYWORDS
Educational expectations; scale development; higher education expectation scale

Educational expectation is the belief towards the accomplishment of academic short-term (e.g., examinations, assignments) and/or long-term goals (e.g., graduation, employment) that are imposed by oneself and/or by others. High educational expectations can positively impact academic performance (Chatterjee & Sinha, 2013; Ma et al., 2018; Malik, 2021) but negatively impact mental health (Ritchwood et al., 2015; Tan & Yates, 2011; Warikoo et al., 2020; Zhang et al., 2016). However, not much is known empirically about the impact of perceived expectations on the psychological outcomes of tertiary students as literature on expectations is focused on and utilizes scales for primary- and secondary-level students.

Sources of expectations

First, students with intrinsic goals and expectations have greater motivation, and higher self-esteem, and are likely to graduate (Rubie-Davies et al., 2010; Trinidad, 2019). However, excessive self-expectations can be distressing (Ang & Huan, 2006; Hamaideh, 2011) and a source of academic stress (Hurst et al., 2012). Second, parents are a prominent source of expectations (Cao et al., 2007; Rubie-Davies et al., 2010; Shek & Li, 2016;

CONTACT Mohammad Izzat Morshidi mohammadizzat.morshidi@my.jcu.edu.au School of Social and Health Sciences, James Cook University, Singapore, Singapore

Supplemental data for this article can be accessed online at https://doi.org/10.1080/07294360.2023.2228222.

Sue & Okazaki, 1990). Parental expectations are the desires for their child to perform exceptionally in their studies (Tan & Yates, 2011). For university students, these expectations extend into decisions on academic pathways and careers. A more prestigious or affluent career or discipline is frequently chosen by parents instead of the child themselves (Rubie-Davies et al., 2010; Saw et al., 2013). Students may find themselves in a 'double bind', whereby noncompliance with parental expectations is met with disapproval (Low, 2015). As such, high parental expectations are likely to lead to poor psychological outcomes (Costigan et al., 2010; Ritchwood et al., 2015).

Third, an educator's expectation is the judgments by an educator about a student's achievements (Saracho, 1991; Timmermans et al., 2016). High educator expectations can cause students to feel pressured and become anxious about underperforming (Rubie-Davies et al., 2010). Educators also influence students' career decision-making (Dandy et al., 2015). Lee et al. (2015) noted that teachers were crucial in affecting students' choice in Science, Technology, Engineering, Mathematics, and Medicine (STEMM) post-secondary study. An aspect not often examined regarding an educator's expectation is the influence of institutional demands. As educational institutions compete for increased reputation, they may communicate their demands to educators who then increase the pressure on students (Chen et al., 2009). Unfortunately, not much is empirically known about the influence of institutional pressure on students.

Fourth, there appear to be cultural differences regarding educational expectations between students from Eastern and Western sociocultural backgrounds. A common theory used to explain greater educational expectations among Asian or Eastern students is the Confucian Heritage Culture (Dundes et al., 2009; Sue & Okazaki, 1990). The Confucian model places high importance on academic success as a means of upward social mobility (Choi & Nieminen, 2013; Costigan et al., 2010; Tao & Hong, 2014). Certain disciplines and careers are considered 'prestigious' (e.g., medicine) while other options are discouraged (e.g., entertainment) (Dos Santos, 2020). This is different from the West, which is largely influenced by a Socratic model that emphasizes independence and individualism in education (Phillipson & Phillipson, 2010). As such, the greater cultural emphasis on academic excellence in the Confucian culture is likely to increase the risk of distress among Asian students or students of Asian descent (Shek, 1995; Tan & Yates, 2011).

Review of instruments measuring educational expectations

We reviewed existing instruments designed to measure educational expectations and their psychometric properties (see Table 1). None of the scales holistically examined expectations among tertiary students. Most instruments were selective in the sources of expectations and were designed for primary and secondary students. Naturally, expectations relevant to tertiary students (i.e., choice of study discipline) were not considered. The current study aims to address the paucity in higher education research by developing a multidimensional scale to measure perceived educational expectations of students in higher education.

Study 1: scale development and initial testing

Study 1 details the development of the Higher Education Expectation Scale (HEES) using the framework by Boateng et al. (2018) and Hinkin (1995). The framework comprises

Table 1. Summary of Educational Expectations Instruments.

Instrument	Authors	Country of origin	Student sample	No. of items	Scale (Cronbach's *a*) Dimensions (Cronbach's *a*)
Academic Expectation Stress Inventory (AESI)	Ang and Huan (2006)	Singapore	Secondary	9	Overall scale (.89) Expectation from self (.85) Expectation from parents and teachers (.84)
Living Up to Parental Expectation Inventory (LPEI)	Wang and Heppner (2002)	Taiwan	Tertiary	32	Personal maturity (.87 to .91) Academic achievement (.81 to .85) Dating concerns (.74 to .85)
Perception of Parental Expectations Inventory (PPEI)	Sasikala and Karunanidhi (2011)	India	Secondary	30	Personal expectations (.76 to .78) Academic expectations (.75 to .76) Career expectations (.65 to .66) Parental ambitions (.65 to .71)
Parents' Attributions and Perceptions Questionnaire (PAPQ)	Phillipson and Phillipson (2010)	Hong Kong	Primary	46	Parental attributions (.78) Parental belief of working memory (.80) Parental home and school environment (.82) Academic expectations (NA) Parental background (NA)
High Parental Expectation Scale	Fuligni (1997)	USA	Secondary	4	Overall scale (.77)
Family Influence Scale (FIS)	Fouad et al. (2010)	USA	Tertiary	22	Overall scale (.88) Informational support (.89) Financial support (.82) Family expectations (.82) Values/Belief (.75)
Educational Stress Scale for Adolescents (ESSA)	Sun et al. (2012)	China	Secondary	16	Overall scale (.81) Pressure from the study (.74) Workload (.75) Worry about grades (.71) Self-expectation (.66) Despondency (.66)
University Stress Scale (USS)	Stallman and Hurst (2016)	Australia	Tertiary	21	Overall scale (.83) Academic (.62) Equity (.63) Relationships (.69) Practical (.73) Parenting (.64) Health (.60)
Perceived Parental Academic Pressure (PPAPS)	Kaynak et al. (2021)	Turkey	Secondary	20	Overall scale (.91) Psychological pressure (.85) Restriction (.84) Too high expectation (.79)

Note. NA = Not available

three main phases: identification of the construct and item generation, scale development through factor analysis, and scale evaluation through reliability and validity testing (Boateng et al., 2018).

Scale construction and item generation

A pool of 41 items was generated for the HEES where 29 items were produced using a deductive approach from our review of the literature and 12 items were derived from existing expectation scales that were modified to reflect the higher education setting. A 5-point Likert-type response from 1 (*strongly disagree*) to 5 (*strongly agree*) was chosen due to good reliability (Krosnick & Presser, 2010). A higher sum of scores indicates higher perceived educational expectations. Item-level content validity index (I-CVI) was conducted with six experts to examine item relevance (Polit & Beck, 2006). Experts were university lecturers and professors from Malaysia, Singapore, China, and the United Kingdom who had publications that 1) examined university students' mental health and 2) included at least one cross-cultural sample to ensure cultural awareness. I-CVI scores were calculated using the total relevant ratings for each item divided by the number of experts. A minimum I-CVI score for excellent item-content validity with 6–10 experts was .78 (Polit & Beck, 2006). Given differences in the experts' socio-cultural background, an I-CVI cut-off of .60 was used. Eleven items had an I-CVI score lower than .60 and were omitted. Scale-level content validity index (S-CVI) was calculated by averaging the I-CVI of accepted items. Given that the scale explores new sources of expectations (i.e., institution, culture), we opted for an S-CVI of .70. The S-CVI of the retained 30 items was .73, indicating a moderate level of content validity.

Method

Psychometric testing

Participants

A total of 346 tertiary students from Malaysia were sampled but 43 responses had missing data and one response was from a student studying outside of Malaysia. Only 302 responses were eligible ($M_{age} = 21.08$, $SD = 2.72$, 27.8% male, 70.9% female, and 1.3% not specified). Inclusion criteria included 1) students who are 18 years or older and 2) current tertiary students in Malaysia. The exclusion criteria included 1) students who have graduated and 2) international students (i.e., non-Malaysians). Participants were recruited via snowball sampling across tertiary institutions in Malaysia (24.8% from public institutions, 75.2% from private institutions, 66.9% undergraduates, 23.5% college students, 6.6% postgraduates, and 3.0% diploma and polytechnic students). Ethical approval was obtained from the James Cook University Human Research Ethics Committee (H8316).

Instruments

The academic expectation stress inventory. The properties of the AESI are described in Table 1. The scale has two dimensions: Expectations of parents/teachers and expectations from self. Items are rated on a 5-point Likert from 1 (*never true*) to 5 (*almost always true*) with a higher sum of scores indicating higher perceived academic expectation stress.

The center for epidemiological studies – depression scale (CES-D). The CES-D is a 20-item scale to screen depressive symptoms during the past week (Radloff, 1977). Items are rated on a 4-point Likert scale from 0 (*rarely or none of the time*) to 3 (*most or*

almost all the time). The higher sum of scores indicates greater depressive symptoms. The CES-D has a good internal consistency, Cronbach's $\alpha = .87$ (Yang et al., 2018).

Revised test anxiety scale (RTA). The RTA is a 20-item scale that examines test anxiety across four subscales: Tension, worry, bodily symptoms, and test-irrelevant thinking (Benson & Bandalos, 1992). Items are rated on a 4-point Likert scale from 1 (*almost never*) to 4 (*almost always*) with a higher sum of scores indicating higher test anxiety. The RTA has a good internal consistency, Cronbach's $\alpha = .81$ to .91 (Benson & El-Zahhar, 1994).

Procedure and analyses

This cross-sectional study utilized self-report questionnaires hosted on Qualtrics (2020). Upon providing consent, participants completed a demographic sheet and four instruments, which took about 10 min. Data were analyzed using the Statistical Package for Social Science (SPSS) 27 (IBM Corp, 2020). A cut-off value of .35 indicates acceptable factor loading (Hair et al., 2010). Reliability tests were conducted with an acceptable cut-off value of Cronbach's $\alpha = .70$ (Nunnally, 1978). Concurrent validity was examined by correlating the HEES with the AESI, the CES-D, and RTA as high educational expectations are known predictors of stress, anxiety, and depression among students (Costigan et al., 2010; Ritchwood et al., 2015; Shek, 1995; Tan & Yates, 2011). Moreover, measures of depression and anxiety were also used as validity tests in other expectation scales (see Table 1). A range of .30 to .49 has been suggested as evidence for medium concurrent validity (Cohen, 1988). A cut-off value of .30 was used in our study. Discriminant validity was tested using the Fornell-Larcker criterion by testing the average variance extracted (AVE) of each factor against the square of the factor correlations (Hair et al., 2010).

Results

Exploratory factor analysis (EFA)

Initial inspection of the 30-item HEES revealed a Kaiser-Meyer-Olkin value of .87 which exceeded the recommended minimum of .60 (Kaiser, 1970), Bartlett's test of sphericity was statistically significant, $p < .05$, and the correlation matrix had many coefficients at .30 and above, suggesting that the data was suitable for factor analysis (Pallant, 2013). The Kaiser-Guttman criterion revealed seven factors with eigenvalues above 1.0. Using Cattell's (1966) scree plot, a clear break was identified at the fourth component, suggesting a four-factor solution.[1] Parallel analysis using a Monte Carlo simulation (number of variables = 30, number of subjects = 302, number of replications = 100) (Çokluk & Koçak, 2016; Watkins, 2006) also revealed a four-factor solution. As the Kaiser-Guttman approach is known to overestimate the number of extracted components (Hayton et al., 2004), a four-factor solution based on the scree-plot and parallel analysis was used.

A forced four-factor solution using a Promax (oblique) rotation (kappa = 4) explained 41% of the variance. Factor loadings of each item were examined with a .35 cut-off score (Hair et al., 2010). The pattern matrix revealed that three items – 7, 13, and 15 – did not load on any factor and were omitted. Item 1 had a cross-loading and was omitted

Table 2. Factor Loadings of the Retained 21-item HEES.

Items	Pattern Matrix 1	2	3	4	h^2
Factor 1. Expectation from culture (Cronbach's $\alpha = .84$)					
29. In my culture, academic achievement is a way to repay my parents.	**.809**	-.096	.021	-.156	.549
30. Culturally, I am obligated to do well in my studies.	**.779**	.096	-.157	-.083	.538
26. In my culture, success in education is highly valued.	**.734**	-.301	.192	.013	.543
28. In my culture, I am expected to get a high-paying job after completing my studies at university.	**.706**	-.182	.079	.015	.458
27. I honor my culture by having high academic achievements.	**.545**	.076	.107	.145	.500
25. Performing well academically is my responsibility to the family.	**.481**	.293	-.038	-.036	.420
Factor 2. Expectations from educators/institutions (Cronbach's $\alpha = .81$)					
19. I feel my lecturers have high hopes for me.	-.229	**.800**	.001	.143	.545
20. My lecturers expect me to get higher grades.	-.070	**.732**	.010	-.013	.492
21. I feel I need to maintain the status of the university.	-.087	**.703**	-.057	.083	.435
24. When I do poorly in my exams, I feel I have disappointed my lecturers.	.104	**.645**	-.007	-.233	.478
22. My academic success reflects the ranking of the university.	-.007	**.541**	.085	.037	.344
18. The university expects me to perform well.	.110	**.488**	.066	-.019	.340
Factor 3. Expectation from parents (Cronbach's $\alpha = .80$)					
8. My parents expect me to perform extremely well in my studies.	-.020	-.044	**.753**	.293	.592
10. My parents want me to pursue careers of their choice.	-.009	-.142	**.659**	-.159	.407
12. My parents always ask me about my grades.	-.086	.065	**.638**	.024	.392
16. My parents expect me to have a high-paying job when I complete my studies.	.132	.034	**.544**	.012	.412
17. My parents expect me to further my education (e.g., Ph.D., Professional certification).	-.092	.202	**.524**	.011	.347
11. I must have excellent grades to make my parents proud.	.232	.156	**.505**	-.033	.556
Factor 4. Expectation from self (Cronbach's $\alpha = .70$)					
4. I set high standards in my studies.	.229	.073	-.092	**.556**	.463
6. I know I can achieve higher grades.	.078	.102	.030	**.521**	.347
2. I expect to perform better than my peers academically.	.277	.097	-.085	**.517**	.468

Note. Major loadings for the retained item are bolded.
Omitted items were not included.[2]
h^2 = Communalities

(Worthington & Whittaker, 2006). An inspection of communalities revealed that items 3, 5, 9, and 14 were less than .30 and were omitted. In total, 8 items were omitted, and 22 items were retained (see Table 2).

Internal consistency

All factors had good reliability except for the Expectation from self (Original Cronbach's $\alpha = .66$). Item-total statistics suggested that removing item 23 (*I do not think I can fulfil the expectations set by my lecturers*) would increase the reliability of the factor to .70, meeting the cut-off score. Therefore, item 23 was omitted, resulting in a final 21-item scale (see Table 2).

Validity tests

Pearson correlation coefficients were used to examine the concurrent validity between the 21-item HEES with the AESI, CES-D, and RTA scores (see Table 3) (Boateng et al., 2018; Swank & Mullen, 2017). All correlations between the HEES factors and

Table 3. Pearson Correlation Coefficients between the HEES, AESI, CES-D, and RTA.

		Concurrent validity				
		AESI				
	M (SD) [Range of scores]	Self 15.90 (3.43) [4–20]	Parents/ Teachers 17.44 (4.99) [5–20]	Total 33.34 (7.41) [9–45]	CES-D 25.32 (10.44) [4–58]	RTA 58.55 (17.41) [25–100]
HEES						
Self (3 items)	11.97 (2.23) [3–15]	.227**	.138*	.198**	.073	.082
Parents (6 items)	18.10 (5.23) [6–30]	.268**	**.511****	**.468****	**.393****	**.409****
Educators/ institutions (6 items)	20.05 (4.70) [6–30]	.250**	**.579****	**.505****	.283**	.280**
Culture (6 items)	23.48 (4.49) [6–30]	**.379****	**.468****	**.490****	**.443****	**.391****

Note: HEES = Higher Education Expectation Scale. AESI = Academic Expectation Stress Inventory. CES-D = The Center for Epidemiological Studies – Depression Scale. RTA = Revised Test Anxiety Scale. Bolded values indicate acceptable concurrent validity.
* $p < .05$, ** $p < .01$

the AESI were significant, supporting the concurrent validity of the 21-item HEES. The correlations for Expectations from parents, educators/institutions, and culture with the AESI ranged from medium to good. However, the correlation between the Expectation from self and overall AESI was below the cut-off (i.e., poor concurrent validity). Results also indicated that depression and test anxiety were significantly correlated with Expectations from parents, educators/institutions, and culture. Among the significant correlations, only the Expectation from parents and culture were above the cut-off (.30), while the Expectation from educator/institution factor was slightly below the cut-off. Only Expectation from self was not significantly associated with depression and test anxiety. This suggests that perceived expectations from parents, educators/institutions, and culture are moderately associated with depressive symptoms and anxiety but not expectations from oneself. As for discriminant validity, results show that all the HEES factors were distinct from each other. The AVEs for Expectations from self (.432), parents (.388), educators/ institutions (.422), and culture (.465) were higher than all the squared factors correlations (see Table 4).

Discussion

In this study, we outlined the development of the HEES. Factor analysis revealed four sources of expectations and psychometric tests demonstrated good internal consistency for the 21-item scale. Several issues were found regarding the HEES at this stage. The Expectation from self was poorly correlated with the AESI compared to other factors. We speculate that this may be due to the small number of items in the factor. Although three items per factor are the minimum (Pallant, 2013; Raubenheimer, 2004), it is insufficient to capture the latent variable Expectation from self. Additionally, the poor association between the expectation from self to academic

Table 4. Factor AVEs against the Squared Factor Correlation of the 21-item HEES.

Factors	Self	Parent	Educator/Institutions	Culture
Self	**.432**			
Parent	.059	**.388**		
Educator/Institutions	.146	.189	**.422**	
Culture	.236	.327	.168	**.465**

Note. Bolded values indicate the AVE for each factor.

expectation stress may reflect that merely perceiving high expectations does not necessitate distress which is dependent on one's appraisal of the stressor (Lazarus & Folkman, 1984).

Second, the Expectation from self is the only factor that did not correlate with test anxiety and depressive symptoms. As stress is a predictor of anxiety and depressive symptoms (Lew et al., 2019; Pascoe et al., 2020), we speculate that the absence of an association between Expectation from self to anxiety and depression may be mediated by stress, or in our case, the lack thereof. Third, we did not examine convergent validity for the 21-item HEES.

Thus, in sum, initial psychometric tests revealed a 21-item HEES that has good internal consistency and factor structure. The scale also showed discriminant validity. However, results for concurrent validity tests were mixed, especially for the Expectation from self factor.

Study 2: re-examination of the HEES

Study 2 improved on the limitations reported in Study 1. First, we opted to test for convergent validity using the Living up to Parents' Expectation Inventory (LPEI). The psychometric properties of the LPEI was detailed in Table 1. The LPEI, although limited to parents, allowed us to examine the degree of expectation by utilizing the perceived parental expectation scale which is analogous to the construct of the HEES which measures perceived expectations as well. Second, as the validity for the Expectation from self was poor possibly due to its limited items, new items were introduced and re-examined.

Method

New item addition generation

Nine new items derived from our review were added to the Expectation from self with consensus from the authors resulting in 12 items for the Expectation from self and a new total of 30 items for the HEES.

Psychometric testing

Participants

For Study 2, a total of 314 participants responded to the survey. A total of 12 responses were removed as participants for not meeting the inclusion criteria. A total of 302 tertiary students from Malaysia ($M_{age} = 21.7$, $SD = 2.23$, 38.7% male,

58.9% female, and 2.3% not specified) were sampled using Qualtrics (2020) with similar inclusion and exclusion criteria described in Study 1. Participants were recruited via snowball sampling across higher education institutions in Malaysia (58.9% from public institutions, 35.4% from private institutions, 5.6% did not specify, 18.5% pre-university students, 47.7% undergraduates, 33.8% diploma and polytechnic students). Ethics approval was obtained from the James Cook University Research Ethics Committee (H8698).

Instruments

The living up to parental expectation inventory (LPEI). The properties of the LPEI were detailed in Table 1. The scale has three domains: personal maturity, academic achievement, and dating concerns. Each item is rated using three scales: the perceived parental expectation (PPE) scale, the perceived self-performance scale, and the living up to parental expectation scale. For this study, we used the PPE scale as it measures perceived parental expectations and scores from the academic achievement domain. Items are rated on a 6-point Likert scale from 1 (*not at all expected*) to 6 (*very strongly expected*). A higher sum of scores indicates higher perceived parental expectations.

Academic expectation stress inventory. The properties of the AESI were described in Study 1.

Procedure and analyses

This cross-sectional study utilized self-report instruments hosted on Qualtrics (2020). Upon providing consent, participants completed a demographic sheet and three instruments, which took about 10 min. Data were analyzed using SPSS 27 (IBM Corp, 2020). The four-factor solution was used in the EFA and the parameters used to determine acceptable factor loading were similar to Study 1. We tested convergent validity by correlating the HEES with the LPEI's academic achievement dimension. Others have used a value of .40 to .20 for moderate convergent validity (Cohen, 1988; Nunnally & Bernstein, 1994; Peleg et al., 2016). In our study, a cut-off value of .30 was used. Concurrent validity was examined by correlating the HEES with the AESI and discriminant validity was tested using the Fornell-Larcker criterion using the parameters similar to Study 1.

Results

Exploratory factor analysis

Inspection of the new 30-item HEES revealed that the Kaiser-Meyer-Olkin value of .939, Bartlett's test of sphericity was statistically significant, $p < .05$, and most coefficients in the correlation matrix were above .30, suggesting suitability for factor analysis (Pallant, 2013). A four-factor solution using a Promax (oblique) rotation (kappa = 4) was used which explained 40% of the total variance. Factor loadings of each item with a .35 cut-off score were used (Hair et al., 2010) (see Table 5). Item 23 (*My academic success reflects the ranking of the university*) did not load on any factor and item 13 (*My*

Table 5. Factor Loadings of the Final 28-item HEES.

	Pattern Matrix				
Items	1	2	3	4	h2
Expectation from self (Cronbach's $\alpha = .92$)					
1. I have high expectations of myself as a university student.	**.607**	.220	-.273	.030	.520
2. I expect to graduate with distinction.	**.638**	-.044	-.032	.040	.475
3. I expect to be the best student in my course/class.	**.804**	-.301	.237	-.022	.553
4. I believe I must do my best in university.	**.647**	.249	-.307	.056	.566
5. I set higher academic goals than other students.	**.777**	-.206	.311	-.104	.619
6. I expect to have a prestigious job/career after graduation.	**.706**	.025	.048	-.019	.567
7. I intend to accomplish many things in university.	**.540**	.108	.014	.035	.529
8. I expect to achieve something meaningful in university.	**.549**	.197	-.167	.105	.575
9. I expect to have an excellent academic performance in university.	**.706**	.169	-.034	-.018	.660
10. I expect to perform better than my peers academically.	**.670**	.002	.195	-.086	.568
11. I set high standards in my studies.	**.743**	.040	.073	-.085	.566
12. I know I can achieve higher grades.	**.404**	.260	-.261	.271	.504
Expectation from parents (Cronbach's $\alpha = .79$)					
14. My parents want me to pursue careers of their choice.	-.097	.072	**.685**	.028	.440
15. I must have excellent grades to make my parents proud.	.107	.340	**.395**	-.017	.550
16. My parents always ask me about my grades.	-.048	.140	**.513**	.068	.410
17. My parents expect me to have a high-paying job when I complete my studies.	.028	.213	**.534**	.032	.502
18. My parents expect me to further my education (e.g., Ph.D., Professional certification).	-.099	0.066	**.524**	.242	.448
Expectations from educators/institutions (Cronbach's $\alpha = .80$)					
19. My university expects me to perform well.	-.141	.062	.068	**.641**	.405
20. I feel my lecturers have high hopes for me.	.153	-.270	.104	**.805**	.678
21. My lecturers expect me to get higher grades.	.020	-.098	.034	**.912**	.712
22. I feel I need to maintain the status of my university.	.173	.044	.189	**.409**	.532
24. When I do poorly in my exams, I feel I have disappointed my lecturers.	-.105	.260	.098	**.451**	.419
Expectation from culture (Cronbach's $\alpha = .86$)					
25. Performing well academically is my responsibility to my family.	.099	**.539**	.107	.073	.594
26. In my culture, success in education is highly valued.	.051	**.684**	.056	-.098	.521
27. I honor my culture by having high academic achievements.	.203	**.418**	.152	.069	.559
28. In my culture, I am expected to get a high paying job after completing my studies at university.	-.046	**.618**	.189	-.015	.570
29. In my culture, academic achievement is a way to repay my parents.	-.070	**.775**	.173	-.121	.555
30. Culturally, I am obligated to do well in my studies.	.101	**.609**	.074	-.019	.530

Note. New items are italicized. Major loadings for the retained items are bolded.
Omitted item(s) were not included in the table[3] h^2 = Communalities

parents expect me to perform extremely well in my studies) cross-loaded on Factor 2 and Factor 3. Thus, two items were omitted, and 28 items were retained.

Internal consistency

Reliability analysis using Cronbach's α coefficients indicated that all the factors had good internal consistency exceeding the cut-off value of .70 (Nunnally, 1978).

Validity tests

The correlation matrix revealed that all the HEES factors significantly correlated with the LPEI and exceeded the cut-off value, indicating moderate to strong convergent validity. Additionally, all the HEES factors were significantly correlated with the total AESI and its

Table 6. Pearson Correlation Coefficients between the 28-item HEES, LPEI, and AESI.

		Convergent Validity		Concurrent Validity AESI	
	M (SD) [Range of scores]	LPEI (AA) 32.67 (3.79) [9–54]	Self 14.53 (3.72) [4–20]	Parents/ Teachers 16.18 (4.74) [5–20]	Total 30.71 (7.71) [9–45]
HEES					
Self (12 items)	45.02 (8.33) [12–60]	**.509****	.242**	.206**	.243**
Parents (5 items)	16.89 (4.25) [5–25]	**.647****	.202**	**.339****	**.306****
Educators/institutions (5 items)	17.67 (3.79) [5–25]	**.392****	.188**	.219**	.226**
Culture (6 items)	22.79 (4.39) [6–30]	**.523****	**.395****	**.401****	**.437****

Note: HEES = Higher Education Expectation Scale. LPEI (AA) = Living up to Parental Expectation Inventory (Academic Achievement). AESI = Academic Expectation Stress Inventory.
Bolded values indicate acceptable convergent and concurrent validity, cut-off = .30.
** $p < .01$

Table 7. Factor AVEs against the Squared Factor Correlation of the 28-item HEES.

Factors	Self	Parent	Educator/Institution	Culture
Self	**.435**			
Parent	.203	**.254**		
Educator/Institution	.367	.152	**.443**	
Culture	.403	.157	.313	**.381**

Note: Bolded values indicate the AVE for each factor.

subdomains with a range of poor (below .30) to moderate concurrent validity (see Table 6). Discriminant validity results show that the AVEs for Expectation from self (.435), parents (.254), and educators/institution (.443) were higher than all the squared factor correlations, suggesting that each factor is distinct. However, discriminant validity for the Expectation from culture was mixed. The AVE for Expectation from culture (.381) was higher than all the squared factor correlations except for the factor correlation between Expectation from culture and self (see Table 7).

Discussion

Study 2 improved on the issues highlighted in Study 1. First, we examined convergent validity using the PPE scale for LPEI as it assesses perceived educational expectations. The moderate to strong correlations support the convergent validity of the 28-item HEES. Second, we added and re-examined new items for the Expectation from self which produced a strong convergence with the LPEI. However, the correlation between the Expectation from self and the AESI was poor, suggesting that perceived self-expectation is unlikely to be associated with stress compared to other sources of expectation.

General discussion

The purpose of the study was to develop a multidimensional scale measuring perceived educational expectations for students in higher education. Our findings demonstrated a strong

internal consistency and support for the convergent and concurrent validity of the 28-item HEES. Our results revealed a trend regarding the Expectation from self which was poorly associated with stress and was not associated with anxiety, and depression. It appears that expectations from an internal source (self) are unlikely to be linked with negative outcomes compared to expectations from an external source (i.e., parents, educators). The self-determination theory (Deci & Ryan, 2012) suggests that one's psychological well-being is influenced by the fulfillment of three innate needs: competence, relatedness, and autonomy. We postulate that self-imposed expectations reflect greater autonomy which reduces the risk of negative outcomes compared to externally derived expectations (Shih, 2015). Further investigations to support this speculation are required.

There are several limitations to the study. Firstly, we used the LPEI to test convergent validity. Ideally, a multidimensional educational expectations scale should be used. However, no such scale existed when this study was conducted. Secondly, the HEES was tested among tertiary students in Malaysia which limits the generalizability of the results to students of different nationalities and cultural backgrounds. The HEES is the first known attempt at a multidimensional scale measuring educational expectations by tertiary students. The HEES advances higher education literature by enabling research into the interactions between the weight of expectations and the different sources of expectations on the psychological and academic outcomes of students. The psychometric properties of the HEES are reassuring, but more can be done to test the viability of the scale for research. Future studies might use confirmatory factor analysis to verify the HEES factor structure established in the present study.

Notes

1. Scree-plot can be found in the supplementary materials.
2. Full factor loading for all the original 30 items is in the supplementary materials.
3. A full factor loading for all the new 30 items can be found in the supplementary materials.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Mohammad Izzat Morshidi http://orcid.org/0000-0003-1971-8269
Peter K.H. Chew http://orcid.org/0000-0002-5243-1481
Lidia Suárez http://orcid.org/0000-0001-5614-6509

References

Ang, R. P., & Huan, V. S. (2006). Relationship between academic stress and suicidal ideation: Testing for depression as a mediator using multiple regression. *Child Psychiatry and Human Development*, *37*(2), 133–143. https://doi.org/10.1007/s10578-006-0023-8

Benson, J., & Bandalos, D. L. (1992). Second-order confirmatory factor analysis of the reactions to tests scale with cross-validation. *Multivariate Behavioral Research*, *27*(3), 459–487. https://doi.org/10.1207/s15327906mbr2703_8

Benson, J., & El-Zahhar, N. (1994). Further refinement and validation of the revised test anxiety scale. *Structural Equation Modeling: A Multidisciplinary Journal*, *1*(3), 203–221. https://doi.org/10.1080/10705519409539975

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, *6*, 1–18. https://doi.org/10.3389/fpubh.2018.00149

Cao, Z., Bishop, A., & Forgasz, H. (2007). Perceived parental influence on mathematics learning: A comparison among students in China and Australia. *Educational Studies in Mathematics*, *64*(1), 85–106. https://doi.org/10.1007/s10649-006-9033-5

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*, 140–161. https://doi.org/10.1207/s15327906mbr0102_10

Chatterjee, I., & Sinha, B. (2013). Perception of academic expectations of parents among high school boys and girls and their psychological consequences. *International Journal of Multidisciplinary Educational Research*, *2*(1), 1–13.

Chen, H., Wong, Y. C., Ran, M. S., & Gilson, C. (2009). Stress among Shanghai university students. *Journal of Social Work*, *9*(3), 323–344. https://doi.org/10.1177/1468017309334845

Choi, S. H. J., & Nieminen, T. A. (2013). Factors influencing the higher education of international students from Confucian East Asia. *Higher Education Research & Development*, *32*(2), 161–173. https://doi.org/10.1080/07294360.2012.673165

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates Publishers.

Çokluk, Ö, & Koçak, D. (2016). Using Horn's parallel analysis method in exploratory factor analysis for determining the number of factors. *Kuram ve Uygulamada Egitim Bilimleri*, *16*(2), 537–552. https://doi.org/10.12738/estp.2016.2.0328

Costigan, C. L., Hua, J. M., & Su, T. F. (2010). Living up to expectations: The strengths and challenges experienced by Chinese Canadian students. *Canadian Journal of School Psychology*, *25*(3), 223–245. https://doi.org/10.1177/0829573510368941

Dandy, J., Durkin, K., Barber, B. L., & Houghton, S. (2015). Academic expectations of Australian students from Aboriginal, Asian and Anglo backgrounds: Perspectives of teachers, trainee-teachers and students. *International Journal of Disability, Development and Education*, *62*(1), 60–82. https://doi.org/10.1080/1034912X.2014.984591

Deci, E. L., & Ryan, R. M. (2012). Self-Determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–437). Sage.

Dos Santos, M, L. (2020). I am a nursing student but hate nursing: The East Asian perspectives between social expectation and social context. *International Journal of Environmental Research and Public Health*, *7*(17), https://doi.org/10.3390/ijerph17072608

Dundes, L., Cho, E., & Kwak, S. (2009). The duty to succeed: Honor versus happiness in college and career choices of East Asian students in the United States. *Pastoral Care in Education*, *27*(2), 135–156. https://doi.org/10.1080/02643940902898960

Fouad, N. A., Cotter, E. W., Fitzpatrick, M. E., Kantamneni, N., Carter, L., & Bernfeld, S. (2010). Development and validation of the family influence scale. *Journal of Career Assessment*, *18*(3), 276–291. https://doi.org/10.1177/1069072710364793

Fuligni, A. J. (1997). The academic achievement of adolescents from immigrant families: The roles of family background, attitudes, and behavior. *Child Development*, *68*(2), 351–363. https://doi.org/10.2307/1131854

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Pearson Prentice Hall.

Hamaideh, S. H. (2011). Stressors and reactions to stressors among university students. *International Journal of Social Psychiatry*, *57*(1), 69–80. https://doi.org/10.1177/0020764009348442

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, *7*(2), 191–205. https://doi.org/10.1177/1094428104263675

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, *21*(5), 967–988. https://doi.org/10.1177/014920639502100509

Hurst, C. S., Baranik, L. E., & Daniel, F. (2012). College student stressors: A review of the qualitative research. *Stress & Health*, *29*(4), 275–285. https://doi.org/10.1002/smi.2465

IBM Corp. (2020). *IBM SPSS statistics for windows*. IBM Corp.

Kaiser, H. F. (1970). A second-generation little jiffy. *Psychometrika*, *35*(4), 401–415. https://doi.org/10.1007/BF02291817

Kaynak, S., Sevgili Koçak, S., & Kaynak, Ü. (2021). Measuring adolescents' perceived parental academic pressure: A scale development study. *Current Psychology*, *42(2)*, 1477–1489. https://doi.org/10.1007/s12144-021-01347-w

Krosnick, J., & Presser, S. (2010). Question and questionnaire design. *Handbook of Survey Research*, *2*, 263–314.

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Lee, S. W., Min, S., & Mamerow, G. P. (2015). Pygmalion in the classroom and the home: Expectation's role in the pipeline to STEMM. *Teachers College Record*, *117*(9). https://doi.org/10.1177/016146811511700907

Lew, B., Huen, J., Yu, P., Yuan, L., Wang, D. F., Ping, F., Talib, M. A., Lester, D., & Jia, C. X. (2019). Associations between depression, anxiety, stress, hopelessness, subjective well-being, coping styles and suicide in Chinese university students. *PLoS ONE*, *14*(7), e0217372. https://doi.org/10.1371/journal.pone.0217372

Low, R. Y. S. (2015). Raised parental expectations towards higher education and the double bind. *Higher Education Research & Development*, *34*(1), 205–218. https://doi.org/10.1080/07294360.2014.934333

Ma, Y., Siu, A., & Tse, W. S. (2018). The role of high parental expectations in adolescents' academic performance and depression in Hong Kong. *Journal of Family Issues*, *39*(9), 2505–2522. https://doi.org/10.1177/0192513X18755194

Malik, P. (2021). Parental expectations and academic achievement of adolescents. *International Journal of Education & Management Studies*, *11*(1), 26–28.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill.

Nunnally, J. C., & Bernstein, I. H. (1994). The assessment of reliability. *Psychometric Theory*, *3*, 248–292.

Pallant, J. (2013). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS* (4th ed.). Allen & Unwin.

Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, *25*(1), 104–112. https://doi.org/10.1080/02673843.2019.1596823

Peleg, O., Deutch, C., & Dan, O. (2016). Test anxiety among female college students and its relation to perceived parental academic expectations and differentiation of self. *Learning and Individual Differences*, *49*, 428–436. https://doi.org/10.1016/j.lindif.2016.06.010

Phillipson, S., & Phillipson, S. N. (2010). The involvement of Hong Kong parents in the education of their children: A validation of the parents' attributions and perception questionnaire. *Educational Psychology*, *30*(6), 625–649. https://doi.org/10.1080/01443410.2010.496900

Polit, D., & Beck, C. (2006). *Nursing research: Principles and methods* (6th ed.). Lippincott.

Qualtrics. (2020). Provo, Utah, USA. https://www.qualtrics.com.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*(3), 385–401. https://doi.org/10.1177/014662167700100306

Raubenheimer, J. (2004). An item selection procedure to maximise scale reliability and validity. *SA Journal of Industrial Psychology*, *30*(4), https://doi.org/10.4102/sajip.v30i4.168

Ritchwood, T. D., Carthorn, D., & Decoster, J. (2015). The impact of perceived teacher and parental pressure on adolescents' study skills and reports of test anxiety. *Journal of Best Practices in Health Professions Diversity: Education, Research & Policy*, *8*(1), 1006–1019.

Rubie-Davies, C. M., Peterson, E., Irving, E., Widdowson, D., & Dixon, R. (2010). Expectations of achievement. *Research in Education*, *83*(1), 36–53. https://doi.org/10.7227/RIE.83.4

Saracho, O. N. (1991). Teacher expectations of students' performance: A review of the research. *Early Child Development and Care*, *76*(1), 27–41. https://doi.org/10.1080/0300443910760102
Sasikala, S., & Karunanidhi, S. (2011). Development and validation of perception of parental expectations inventory. *Journal of the Indian Academy of Applied Psychology*, *37*(1), 114–124.
Saw, A., Berenbaum, H., & Okazaki, S. (2013). Influences of personal standards and perceived parental expectations on worry for Asian American and White American college students. *Anxiety, Stress & Coping*, *26*(2), 187–202. https://doi.org/10.1080/10615806.2012.668536
Shek, D. T. L. (1995). Adolescent mental health in different Chinese societies. *International Journal of Adolescent Medicine and Health*, *8*, 913–920.
Shek, D. T. L., & Li, X. (2016). Perceived school performance, life satisfaction, and hopelessness: A 4-year longitudinal study of adolescents in Hong Kong. *Social Indicators Research*, *126*(2), 921–934. https://doi.org/10.1007/s11205-015-0904-y
Shih, S. S. (2015). An investigation into academic burnout among Taiwanese adolescents from the self-determination theory perspective. *Social Psychology of Education*, *18*(1), 201–219. https://doi.org/10.1007/s11218-013-9214-x
Stallman, H. M., & Hurst, C. P. (2016). The university stress scale: Measuring domains and extent of stress in university students. *Australian Psychologist*, *51*(2), 128–134. https://doi.org/10.1111/ap.12127
Sue, S., & Okazaki, S. (1990). Asian-American educational achievements: A phenomenon in search of an explanation. *American Psychologist*, *45*(8), 913–920. https://doi.org/10.1037/0003-066X.45.8.913
Swank, J. M., & Mullen, P. R. (2017). Evaluating evidence for conceptually related constructs using bivariate correlations. *Measurement and Evaluation in Counseling and Development*, *50*(4), 270–274. https://doi.org/10.1080/07481756.2017.1339562
Tan, J. B., & Yates, S. (2011). Academic expectations as sources of stress in Asian students. *Social Psychology of Education*, *14*(3), 389–407. https://doi.org/10.1007/s11218-010-9146-7
Tao, V. Y. K., & Hong, Y. Y. (2014). When academic achievement is an obligation: Perspectives from social-oriented achievement motivation. *Journal of Cross-Cultural Psychology*, *45*(1), 110–136. https://doi.org/10.1177/0022022113490072
Timmermans, A. C., de Boer, H., & van der Werf, M. P. C. (2016). An investigation of the relationship between teachers' expectations and teachers' perceptions of student attributes. *Social Psychology of Education*, *19*(2), 217–240. https://doi.org/10.1007/s11218-015-9326-6
Trinidad, J. E. (2019). Stable, unstable, and later self-expectations' influence on educational outcomes. *Educational Research and Evaluation*, *25*(3-4), 163–178. https://doi.org/10.1080/13803611.2019.1676789
Wang, L. F., & Heppner, P. P. (2002). Assessing the impact of parental expectations and psychological distress on Taiwanese college students. *The Counseling Psychologist*, *30*(4), 582–608. https://doi.org/10.1177/00100002030004006
Warikoo, N., Chin, M., Zillmer, N., & Luthar, S. (2020). The influence of parent expectations and parent-child relationships on mental health in Asian American and White American families. *Sociological Forum*, *35*(2), 275–296. https://doi.org/10.1111/socf.12583
Watkins, M. W. (2006). Determining parallel analysis criteria. *Journal of Modern Applied Statistical Methods*, *5*(2), 344–346. https://doi.org/10.22237/jmasm/1162354020
Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, *34*(6), 806–838. https://doi.org/10.1177/0011000006288127
Yang, W., Xiong, G., Garrido, L. E., Zhang, J. X., Wang, M. C., & Wang, C. (2018). Factor structure and criterion validity across the full scale and ten short forms of the CES-D among Chinese adolescents. *Psychological Assessment*, *30*(9), 1186–1198. https://doi.org/10.1037/pas0000559
Zhang, X., Tze, V. M. C., Buhr, E., Klassen, R. M., & Daniels, L. M. (2016). A cross-national validation of the academic expectations stress inventory with Chinese and Korean high school students. *Journal of Psychoeducational Assessment*, *34*(3), 289–295. https://doi.org/10.1177/0734282915599460