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ORIGINAL RESEARCH

Adaptation and Validation of Learned Helplessness Scale in Chinese Law School Students

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Purpose: This study aims to translate and validate the Learned Helplessness Scale (LHS) for use in the educational context and specifically among Chinese law school students. Understanding learned helplessness in the context of Chinese law students can provide unique insights into the interaction of legal education, psychological health, and cultural influences, thereby contributing to a more nuanced understanding of learned helplessness.

Methods: A total of 711 Chinese college students from two law schools participated in this study. The Learned Helplessness Scale (LHS) was translated into Chinese using forward and backward translation. Exploratory and confirmatory factor analysis, and construct validity were conducted to assess the dimensionality of the Chinese version of the LHS (Chinese LHS).

Results: The exploratory factor analysis indicated that the Chinese LHS has a four-factor structure consisting of 14 items, which accounted for 50% of the total variance. The subsequent confirmatory factor analysis further supported this four-factor structure. The internal consistency of the Chinese LHS was found to be medium to high, with Cronbach's α values ranging from 0.63 to 0.87 for the subfactors, and 0.79 for the total scale. In addition, concurrent validity is also confirmed.

Conclusion: The 14-item version of the Chinese LHS is a psychometric sound instrument for assessing learned helplessness among Chinese law school students.

Keywords: learned helplessness scale, Chinese, adaptation, validation

Introduction

Law school students, compared with other student groups, are experiencing significant stress as a result of their academic workload and examinations. Law school students are required to complete numerous tasks, quizzes, and exams before graduation. Unsurprisingly, many law school students fail some exams or courses, even multiple times during their undergraduate studies. For example, research found that numerous academic failures are widespread among students majoring in law, as they face additional academic demands and pressures.[1] However, their unsuccessful attempts may lead to adverse consequences. Research has found that some students may develop a negative mental state characterized by a sense of powerlessness when dealing with their academic work.[2]

Moreover, research has also found that these students tend to avoid challenges and use ineffective learning strategies after several failures.[2] This cognitive state is referred to as learned helplessness, which is defined as the perceived inability to control or influence one's environment.[3] Learned helplessness originally stemmed from depression studies but has been extensively studied in educational settings. Previous research argued that individuals are susceptible to

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developing the cognitive state of learned helplessness when they perceive the outcome of a specific situation as being independent of their behavior when confronted with it.[4] Students who hold this negative attitude could experience several detrimental psychological consequences, such as stress, anxiety, and depression.[5,6] Additionally, research has found that students who share learned helplessness often consider themselves incapable of success, and their academic performance and achievement are negatively affected by the cognitive state of learned helplessness.[7–9] Therefore, a sensitive tool for measuring students' learned helplessness is essential for educators and school counselors.

The Learned helplessness Scale (LHS)[10] is a 20-item instrument that is designed to measure individuals' learned helplessness. The LHS has been tested in both clinical and normal populations, and a five-factor solution was found in the original study. Three of the factors, internality-externality, globality-spatiality, and stability-instability, accounted for over 45% of the variance in the data, while the other two factors only accounted for 2% of the variance and contained only four items and in addition to the factor structure, Quinless and Nelson[10] also tested the concurrent of the LHS. Since its development, the LHS has been a popular scale for measuring individual learned helplessness in various populations and fields, including employees,[11] college students,[12] health providers,[13] etc. In educational psychology, the LHS has also been widely used to measure students' learned helplessness (e.g.,[14]). However, there have been no studies validating the LHS among groups of students, and there have also been no studies that have adopted and tested the psychometric properties of the LHS among Chinese participants.

Present Study

In the context of China, the pursuit of legal education is often highly competitive and demanding. Law school students face intense academic pressure. The emphasis on academic achievement and professional advancement within the legal field adds to the pressure experienced by these students. As a result, the potential for feelings of helplessness in the face of such challenges is a significant concern.

Moreover, the cultural context in China, which places value on perseverance, academic success, and filial responsibility, may influence the way in which law school students perceive and respond to challenges within their educational environment. The interplay of cultural expectations, familial dynamics, and societal pressures can contribute to the development and manifestation of learned helplessness among these students.[15,16] Therefore, considering the demanding nature of legal education and the cultural factors, it is essential to understand learned helplessness of law school students in China. By validating a learned helplessness scale tailored to this specific context, researchers and educators can gain insights into the unique challenges faced by these students and develop targeted interventions to support their well-being and academic success. To address this literature gap, we aimed to conduct a comprehensive study to adopt and validate the LHS in Chinese law school students. We aimed to evaluate the factorial and concurrent validity of the LHS using exploratory factor analysis, confirmatory factor analysis, and correlating LHS with the Depression Anxiety Stress Scale-21 (DASS-21). The DASS-21 has been extensively validated in previous research for assessing depression, anxiety, and stress due to its established reliability and validity, making it a suitable measure for evaluating psychological distress, often linked to learned helplessness measure for assessing psychological distress, which is often associated with learned helplessness. The following hypotheses were made: 1) the five-factor structure of the LHs will be confirmed after LHS are adopted in China 2) the concurrent validity of the LHs will be confirmed with the variables of perceived competence and control (PCC), avoidance of uncertain situations (AVS), depression, anxiety, and stress.

Method

Participants

The present study employed 348 participants to examine the factor structure of the Chinese version of LHS, ranging in age from 17 to 24 years (M = 19.97, SD = 1.73). The gender distribution within the sample was diverse, with 155 (44.5%) identifying as males and 193 (55.5%) as females. The participants were from four distinct law schools located in the regions of Jiangsu and Shanghai, providing a geographically varied representation within the study.

We recruited another 363 participants for validation purposes, with an age range of 17 to 25 years and a mean age of 18.57 (SD = 1.14). The gender distribution within this sample was well-balanced, with 184 (50.7) % males and 179

(49.3%) females. The validation sample was drawn from four law schools situated in Shanghai and Guangdong. All participants in this study are currently undergraduate students in law schools in Mainland China, and their participation was recruited through posters or online invitations via emails or online groups.

Participation in this study was voluntary and anonymous, with consent forms being obtained from all participants prior to their involvement. The purposes and all potential risks and benefits of this study were provided in the consent form. Additionally, the study reported no missing data, as participants were mandated to complete all survey items before submission.

Measures

The Learned Helplessness Scale (LHS), developed by Quinless and Nelson,[10] is a self-report instrument used to measure the participants' level of hopelessness. The LHS contains 20 items, and participants respond to each item using a 4-point Likert scale ranging from strongly agree (1) to strongly disagree (4). Sample items from the LHS include "No matter how much energy I put into a task, I feel I have no control over the outcome" and "I can find solutions to difficult problems". The Cronbach's alpha of the Chinese version of the LHS in this study ranged from 0.63 to 0.87.

The Depression Anxiety Stress Scale-21 (DASS-21) is a shortened version of the 21-item self-report Depression Anxiety Stress Scale developed by Lovibond[17] to assess the severity of symptoms related to depression, anxiety, and stress. The DASS-21 consists of three factors: depression, anxiety, and stress, with each subscale containing seven items. Respondents are required to rate the extent to which they have experienced each symptom over the past week on a 4-point scale. Example items include "I felt that I had nothing to look forward to 'for depression', 'I was aware of dryness of my mouth', for anxiety, and 'I tended to over-react to situations' for stress. The Cronbach's alpha was 0.84, 0.84, and 0.87 for depression, anxiety, and stress, respectively.

Translation Procedure

The translation process was conducted by three bilingual researchers proficient in both English and Chinese. After the initial translation, a panel of researchers with expertise in the field and Chinese literature critically evaluated the measure. Subsequently, a back-translation was carried out by a different researcher to ensure linguistic accuracy and maintain fidelity to the original content. The research team collaboratively addressed discrepancies arising during the translation process through discussions. To determine the measure's readability and comprehension within the target population, we administered a final pilot test to 20 students.

Statistical Analysis

We split the first sample into two random halves to conduct exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to explore the underlying factor structures of the Chinese version of LHS. Kaiser-Meyer-Olkin test was conducted to assess the suitability of the data for factor analysis with a value of greater than 0.8, indicating the sampling is adequate.[18] EFA with Principal Axis Factoring and Promax rotation was running to establish the optimal factors of the LHS among our sample. Scree plot and parallel analyses were also used to determine the number of factors.[19] The retention criteria for factors were based on Kaiser's criterion, with a threshold set at eigenvalues greater than or equal to 1. We retained items with an item loading greater than 0.40.[20] We also deleted cross-loading items unless the differences between the two factors were greater than 0.15.[20] Subsequently, a final EFA was conducted after eliminating non-conceptually fitting items, aiming to refine and optimize the factor structure of the Chinese version of the LHS in the context of the adaptation sample.

The other half was used to conduct CFA based on the results of the EFA and other possible factor structures. Confirmatory factor analysis (CFA) with maximum likelihood (ML) estimator was used to examine the factor structure of SMD. Acceptable fit criteria, as outlined by Marsh, Wen, and Hau,[21] were applied to the CFA results. Specifically, a Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) greater than 0.90 were considered indicative of satisfactory fit. At the same time, a Root Mean Squared Error of Approximation (RMSEA) below 0.08 was deemed acceptable Meanwhile, Cronbach's alpha was used to evaluate the reliability of the total scale and its subscales, providing insights into the internal consistency of the measurement instrument.

Third, the construct validity was evaluated by Pearson's correlation coefficients between the Learned Helplessness and other criteria variables. A correlation coefficient was considered weak when the absolute value of $r < 0.30$, moderate when r value between 0.30 and 0.50, and strong when $r > 0.50$.[22]

Results

Efa

The data exhibited a KMO value of 0.85 and 0.88 for the EFA and CFA samples, indicating its suitability for factor analysis. Multicollinearity was assessed using the item correlation matrix. As depicted in Figure 1, no significant multicollinearity was observed. The parallel analysis and scree plot also indicated a five-factor structure (Figure 2). Subsequently, a five-factor solution was tested. Nonetheless, the results revealed instances of items exhibiting cross-loading on multiple factors or displaying negative factor loadings (Table 1). Following the previously mentioned deletion criteria, 14 items were retained for further analysis. We performed the correlation matrix (Figure 3) and parallel analysis (Figure 4), a four-factor solution identified for the 14-item version of the Chinese LHS. These four factors accounted for 50% of the total variance. Factor 1, comprising items 1, 13, 15, 17, and 18, explained 21% of the variance, while Factor 2, encompassing items 5, 6, and 20, explained 12% of the data's variance. Factor 3, consisting of items 4, 7, and 11, explained 9% of the total variance, and Factor 4, which included items 10, 12, and 14, explained 8% of the variance. All items demonstrated strong factor loading onto their respective factors (see Table 2).

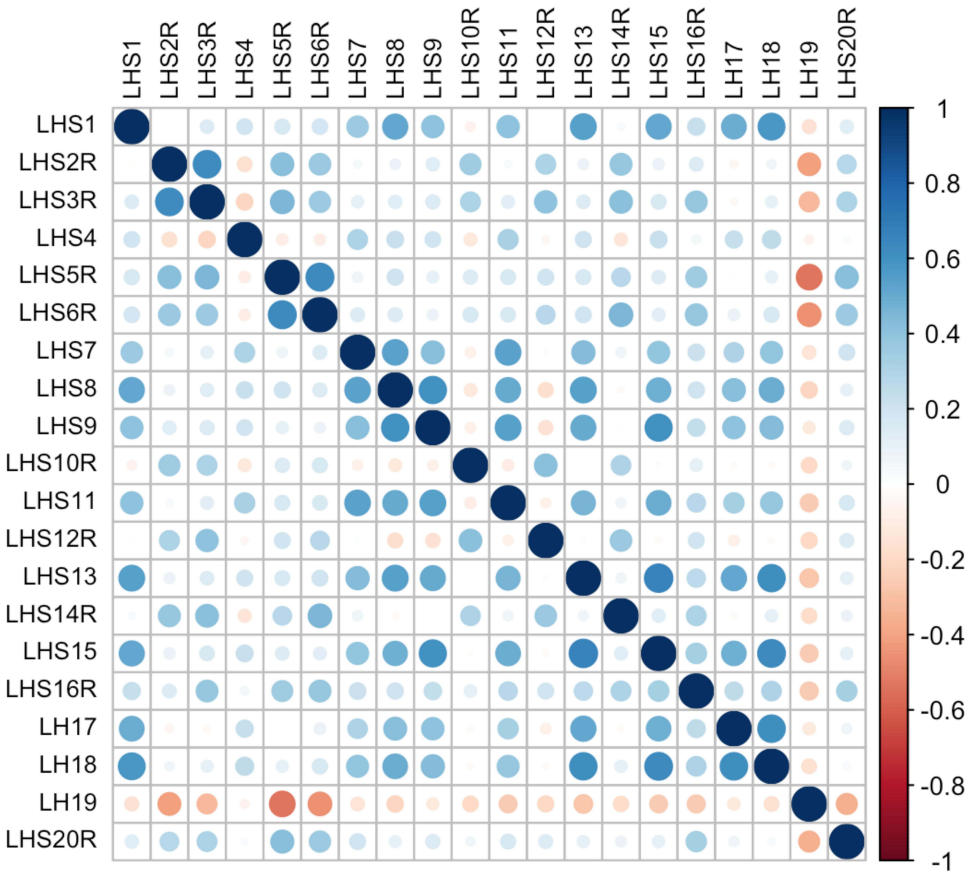

Figure 1 Correlation Matrix.
Notes: Items with R means revised items.

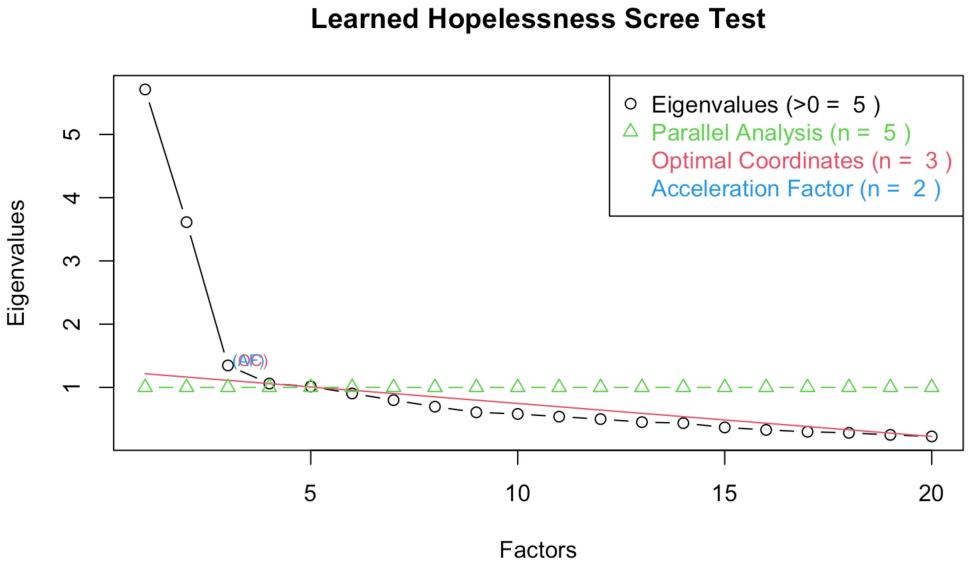

Figure 2 Scree Plot.
Notes: Eigenvalues are plotted to reveal the scree point.

CFA

Table 3 shows that three CFA models were developed based on the EFA result and possible factor structure. Model 1, which is a four-factor structure derived from the EFA results. In addition, a unidimensional model (Model 2) and a higher-order four-factor model (Model 3) were tested. The results of the factor comparisons are presented in Table 4. Model 1, the four-factor structure derived from the EFA results, exhibited the best model fit, with $\chi 2$=136.488, CFI = 0.9,

Table 1 Factors Loadings for Items of the Initial Exploratory Factor Analysis

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Item 18	0.937	*−0.053*	*0.078*	*−0.094*	*−0.061*
Item 17	0.785	*−0.038*	*−0.029*	*−0.046*	*−0.115*
Item 13	0.703	*0.000*	*0.033*	*0.049*	*0.105*
Item 15	0.697	*−0.097*	*0.068*	*0.055*	*0.197*
Item 1	0.665	*0.092*	*−0.052*	*0.009*	*−0.018*
Item 8	0.405	*0.076*	*−0.246*	*0.157*	*0.324*
Item 5	*−0.027*	0.980	*−0.201*	*−0.210*	*0.03*
Item 6	*0.086*	0.773	*0.071*	*−0.083*	*−0.125*
Item 19	*−0.033*	−0.57	*−0.03*	*−0.03*	*−0.041*
Item 20	*−0.157*	0.544	*−0.037*	*0.157*	*0.038*
Item 16	*0.232*	0.316	*0.194*	*0.096*	*−0.027*
Item 12	*−0.105*	*−0.030*	0.781	*0.217*	*−0.098*
Item 10	*0.018*	*−0.110*	0.576	*−0.063*	*0.099*
Item 14	*0.062*	*0.080*	0.535	*−0.003*	*0.083*
Item 7	*0.072*	*−0.022*	*0.099*	0.640	*0.124*
Item 4	*0.037*	*−0.047*	*0.006*	0.566	*−0.226*
Item 11	*0.114*	*0.086*	*−0.033*	0.563	*0.173*
Item 2	*−0.070*	*0.128*	*0.372*	*−0.175*	0.532
Item 3	*−0.005*	*0.095*	*0.469*	*−0.107*	0.520
Item 9	*0.374*	*−0.137*	*−0.132*	*0.163*	0.502

Notes: Factors 1 to 4 refer to the four factors of the Chinese version of the learned helplessness scale. The italicized text refers to the factors that also cross-loaded on that particular factor. Grey-colored text represents insignificant factor loading values.

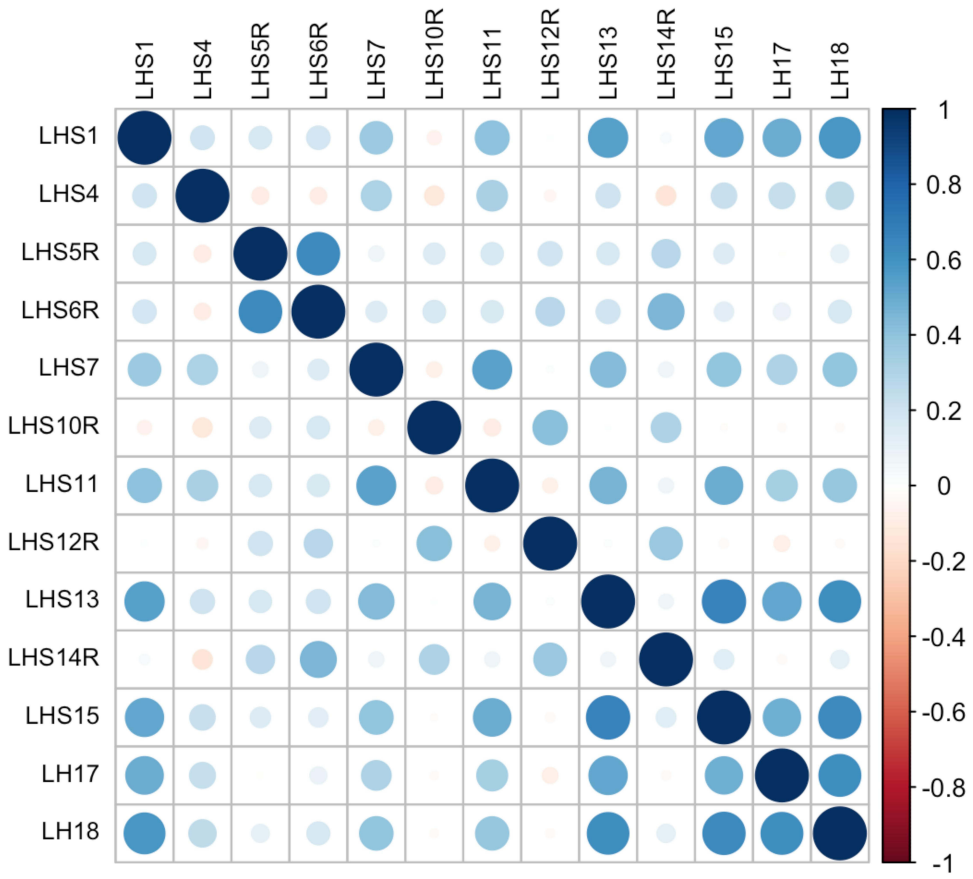

Figure 3 Correlation Matrix for the 14-item Learned Helplessness Scale.
Notes: Items with R means revised items.

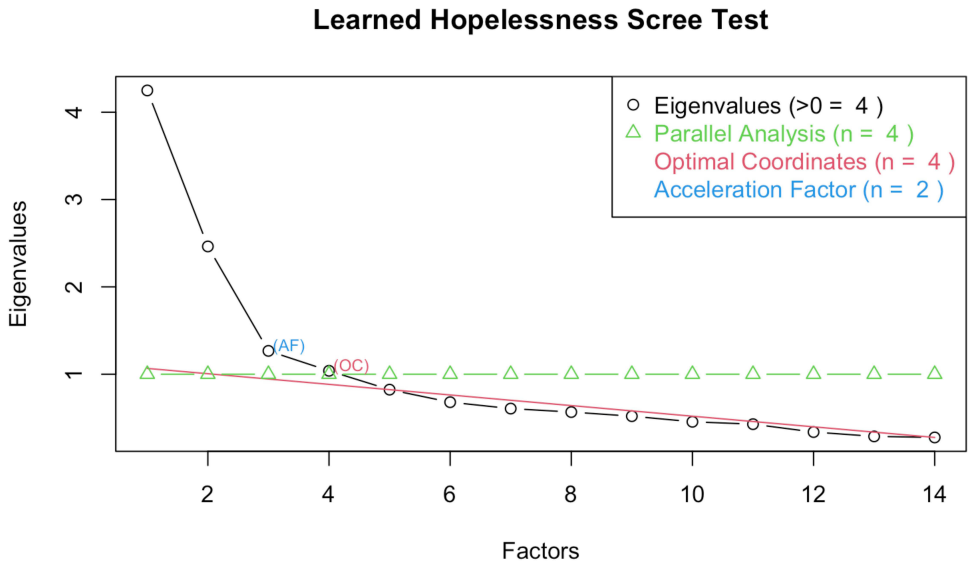

Figure 4 Scree Plot for the 14-item Learned Helplessness Scale.

Table 2 Factors Loadings for Items of the Exploratory Factor Analysis for the 14-Item Learned Helplessness Scale

Items/Factors	Factor 1	Factor 2	Factor 3	Factor 4
Item 18. No matter how hard I try, things never seem to work out the way I want them to.	0.901	−0.062	−0.065	0.029
Item 17. When I do not succeed at a task, I find myself blaming my own stupidity for my failure.	0.742	−0.089	−0.037	−0.052
Item 13. I feel that I have little control over the outcomes of my work.	0.692	0.035	0.117	0.039
Item 15.I feel that anyone else could be better than me at most tasks.	0.680	−0.005	0.136	0.041
Item 1.No matter how much energy I put into a task, I feel I have no control over the outcome.	0.645	0.106	0.039	−0.069
Item 5. If I complete a task successfully, it is probably because of my ability.	0.036	0.883	−0.161	−0.08
Item 6. I have the ability to solve most of life's problems.	0.107	0.717	−0.116	0.14
Item 20. My behavior seems to influence the success of a work group.	−0.106	0.508	0.153	−0.037
Item 7. When I do not succeed at a task, I do not attempt any similar tasks because I feel that I would fail them also.	0.046	0.055	0.694	0.081
Item 11. When I perform poorly, it is because I do not have the ability to perform better.	0.125	0.159	0.609	−0.045
Item 4. I do not place myself in situations in which I cannot predict the outcome.	0.034	−0.149	0.467	−0.023
Item 12. I accept tasks even if I am not sure that I will success at them.	−0.104	−0.028	0.11	0.706
Item 10. I try new tasks if I have failed similar ones in the past	0.031	−0.09	−0.076	0.604
Item 14. I am successful at most tasks I try.	0.055	0.157	−0.005	0.516

Notes: Factors 1 to 4 refer to the four factors of the Chinese version of the learned helplessness scale. The grey-colored text represents insignificant factor loading values.

Table 3 CFA Model Goodness-of-Fit Indices

CFA Models	χ^2	df	CFI	TLI	RMSEA	SRMR	AIC	BIC
Model 1	136.488	71	0.900	0.872	0.072(90% CI: 0.054, 0.091)	0.064	3438.536	3546.333
Model 2	184.732	77	0.835	0.805	0.089(90% CI: 0.073, 0.106)	0.073	3474.781	3563.554
Model 3	161.917	76	0.869	0.843	0.080(90% CI: 0.063, 0.097)	0.088	3453.965	3545.909

Notes: Model 1= four-factor correlated model; Model 2 = unidimensional model; Model 3 = four-factor higher-order model.

Table 4 Factor Loading Table for the Learned Helplessness Scale

Latent Variables	Indicator	*B*	*SE*	*z*-value	*p*-value	*Beta*
Factor 1	Item 18	1.000				0.745
	Item 17	0.799	0.120	6.633	< 0.001	0.531
	Item 13	0.930	0.097	9.538	< 0.001	0.759
	Item 15	1.032	0.113	9.124	< 0.001	0.725
	Item 1	0.961	0.105	9.177	< 0.001	0.730
Factor 2	Item 5	1.000				0.631
	Item 6	0.952	0.168	5.635	< 0.001	0.577
	Item 20	0.559	0.207	2.700	< 0.01	0.243
Factor 3	Item 7	1.000				0.764
	Item 11	0.858	0.121	7.101	< 0.001	0.716
	Item 4	0.389	0.127	3.058	< 0.01	0.266
Factor 4	Item 12	1.000				0.478
	Item 10	0.915	0.217	4.211	< 0.001	0.484
	Item 14	0.922	0.217	4.244	< 0.001	0.490

Notes: Factors 1 to 4 refer to the four factors of the Chinese version of the learned helplessness scale.

TLI = 0.872, and RMSEA = 0.072 (90% CI: 0.054, 0.091), as shown in Table 4. Consequently, based on the EFA and CFA analyses, the four-factor structure model was determined to be the most appropriate factor structure for LHS among Chinese college students. Concerning item loading, most of the items exhibited moderate to high factor loadings on their designated factors, indicating that the items could reliably measure the latent variables they were designed to assess (see Table 4). However, items 20 and 4 displayed low but significant loadings on their designated factors. Furthermore,

Table 5 Bivariate Correlation Among Learned Helplessness Scale and DASS-21 Factors

	LHS	Self-Doubt	Confidence	Avoidance	Resilience	Depression	Anxiety	Stress
LHS	1							
Factor 1	0.811**	1						
Factor 2	0.565**	0.240**	1					
Factor 3	0.689**	0.510**	0.137**	1				
Factor 4	0.501**	0.201**	0.370**	0.108*	1			
Depression	0.576**	0.520**	0.192**	0.565**	0.224**	1		
Anxiety	0.739**	0.718**	0.336**	0.527**	0.186**	0.568**	1	
Stress	0.549**	0.591**	0.175**	0.406**	0.227**	0.525**	0.552**	1

Notes: *$p < 0.01$; **$p < 0.001$; LHS = total scale of the Chinese version of the Learned Helplessness Scale; Factors 1 to 4 refer to the four factors of the learned helplessness scale.

Cronbach's overall alpha for LHS was 0.79, indicating good internal consistency reliability. The subscale values ranged from 0.63 to 0.87, indicating a moderate to good internal consistency reliability.

Construct Validity

To evaluate the construct validity, we utilized the DASS-21. The correlation matrix in Table 5 displays the results of Pearson correlation analyses. As anticipated, the overall LHS scale exhibited a significantly positive correlation with depression ($r = 0.58$, $p < 0.001$), anxiety ($r = 0.74$, $p < 0.001$), and stress ($r = 0.55$, $p < 0.001$), indicating strong concurrent validity of the overall LHS scale among the Chinese student group.

Discussion

Learned helplessness is frequently observed among Chinese law school students, with various detrimental effects on their academic success and school life.[7] Influenced by Confucian culture, Chinese law school students are at an even higher risk of developing learned helplessness.[15] Therefore, it is imperative for educators and school counselors to have a sensitive and accurate instrument for measuring students' level of learned helplessness. The Learned Helplessness Scale, developed by Quinless and Nelson[10] has been widely used in the literature and applied among student groups. Still, there is a lack of psychometric studies of LHS among Chinese student groups and within law-school educational contexts. As a result, this study examined the psychometric properties of LHS, explicitly exploring and testing the factor structure, reliability, and validity of the scale among a group of Chinese law school students. Our study found a 14-item version of the LHS with a four-factor structure among Chinese law school students through CFA and EFA. Furthermore, we assessed the construct validity of the LHS by examining its association with the DASS-21 and found a positive correlation with the DASS-21 scale, supporting its construct validity. The results of our study suggest that the 14-item Chinese version of the LHS is a psychometrically sound instrument that can effectively measure learned helplessness among college students.

The exploratory factor analysis results of the Chinese version of the LHS revealed a four-factor structure comprising 14 items, explaining 50% of the variance in the data. In contrast to the original LHS, the proposed Chinese version dropped six items during the exploratory analysis phase. The decision to remove these items (items 2, 3, 8, 9, 16, 19) was made based on statistical evidence, as these items exhibited cross-loading on multiple factors. Cross-loaded items introduce difficulties and ambiguities in interpreting the underlying dimensions, suggesting that these items may not measure a single underlying dimension.[20,23,24] Furthermore, eliminating cross-loaded items can improve conceptual clarity and interpretability of the underlying dimensions, which is crucial for developing a psychometrically sound scale.[25] This ensures that each item primarily reflects a single latent construct, thereby enhancing the scale's validity and reducing the potential for measurement error and ambiguity in interpreting the results.[25]

Additionally, we excluded item 16 ("I am able to reach my goals in life") and 19 ('I feel that my success reflects my ability, not chance') from the original scale due to its very low factor loading and negative factor loading. Research

suggests that items with inadequate factor loading may indicate insufficient discriminant validity and a low ability to measure the underlying construct.[20,25] Therefore, we removed item 16 and 19 for a better psychometric property.

The CFA results further confirmed the factor structure identified by the EFA. More importantly, the majority of the items in the CFA model exhibited significantly high loadings on their respective factors. For example, Item 1 ("No matter how much energy I put into a task, I feel I have no control over the outcome") demonstrated a factor loading of 0.73, indicating that it serves as a reliable indicator of the intended construct. However, we also observed that two items, precisely Item 4 and Item 20, exhibited low factor loadings on their respective factors. The low factor loadings of these items may be attributed to their specific contents. For instance, compared to the other items within the factor, the content of Item 20 ("My behavior seems to influence the success of a work group") predominantly focuses on the impact of an individual's behavior on a group's success, which may be associated with the interpersonal dynamics aspect of learned helplessness. Conversely, Items 5 ("If I complete a task successfully, it is probably because of my ability") and 6 ("I have the ability to solve most of life's problems") loaded on the same factor with item 20 seem to reflect self-efficacy or personal beliefs regarding one's abilities. Subsequent studies should re-evaluate the quality of these two items in different populations.

Limitations

Several limitations should be noted. Our sample was drawn from economically advanced regions in China, including Shanghai, Guangdong, and Jiangsu provinces. Future investigations should explore the generalizability of our findings by incorporating data from diverse areas across the country. Additionally, reliance on self-reported data may introduce biases. To enhance the robustness of our findings, future studies should triangulate the results with additional data sources, such as classroom observations or teachers' reports. Finally, our study did not examine the measurement invariance of the LHS; therefore, future research should establish the measurement invariance of the LHS.

Conclusion

We adapted and tested the LHS among Chinese law school students and found that the 14-item Chinese version of LHS demonstrated satisfactory psychometric properties. It exhibited a four-factor structure with excellent fit indices. The reliability of both the total scale and subscales was acceptable, and the construct validity was supported in our study. In summary, the 14-item Chinese version of LHS is a psychometric instrument that can be used to measure learned helplessness among Chinese student groups.

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics Approval

This study has been approved by the Survey and Behavioural Research Ethics Committee of Qingdao University. In accordance with the Declaration of Helsinki, all participants were fully informed about the purpose of the study and provided their informed consent.

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Disclosure

The authors declare that they have no conflicts of interest in this work.

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