The core of self-assessment and academic stress among EFL learners: the mediating role of coping styles

Syed Farhat Jahara[1] , Mudassir Hussain[2] , Tribhuwan Kumar[3] , Ahmad Goodarzi[4] and Yalalem Assefa[5*]

*Correspondence:
yalalem2012@gmail.com

[1] Department of English
Language and Translation,
College of Sciences and Arts
, -Asyah, Qassim University,
Buraydah, Saudi Arabia
[2] Department of Education &
Research, University of Lakki
Marwat, Lakki Marwat, Pakistan
[3] Department of English
Language and Literature, College
of Science and Humanities
at Sulail, Prince Sattam Bin
Abdulaziz University, Al
Kharj 11942, Saudi Arabia
[4] Razi University, Kermanshah,
Iran
[5] Department of Adult Education
and Community Development,
Woldia University, Woldia,
Ethiopia

Abstract

While several studies have addressed the interconnections between self-assessment and academic stress, much uncertainty still exists about the mediating role of coping styles in this interplay. Therefore, this research aimed to determine the mediating role of coping styles in the relationship between the core of self-assessment and academic stress. To this aim, a total of 384 English as a foreign language (EFL) learners in the training institutes in Woldia, Ethiopia, filled out three questionnaires, including self-evaluations, the coping styles, and the academic stress. The analysis of the data using structural equation modeling revealed that the core of self-assessment had significant negative effects on academic stress, emotion-based coping, and avoidance. Furthermore, self-assessment with the mediating role of other factors, namely problem-oriented coping, emotion-based coping, and avoidance coping showed to have a negative and significant effect on academic stress. Based on the findings, it is possible to receive personality traits as an individual factor, predict differences in individuals coping styles of academic stress, and, as a result, teach appropriate coping styles to EFL learners to reduce their academic stress.

Keywords: Academic stress, Avoidance, Coping styles, Self-evaluation, Self-evaluation core

Introduction

Academic stress is one of the important educational challenges that might have negative impacts on students' academic performance (O'Neill et al., 2019; Paralkar & Knutson, 2021; Pascoe et al., 2020; Reddy, et al., 2018). Academic stress means feeling tired of doing homework and studying, having pessimistic feedback about education and curriculum, and feeling of theoretical inadequacy (David, 2010; Hafeez et al., 2022). Stress is one of the natural and inevitable aspects of contemporary human life, defined as the physiological response of humans to threatening environmental stimuli (Fraser et al., 2021; Liu, 2015; Oladipupo et al., 2022). Academic stress (AS) affects EFL learners' mental and physical health and ability to perform homework effectively (Akadiri et al., 2022; Eyni et al., 2021). Also, high-stress levels lead to negative psychological, emotional, and physical outcomes, such as drowsiness, weakened immune system, and illness, leading

to an academic failure (Almutairi et al., 2022; Ramadhani & Mahmudiono, 2021). Academic stress indicates a growing need for knowledge and insufficient time to acquire that knowledge (Af Ursin et al., 2021; Russell, 2020; Syamsuri & Bancong, 2022).

It is also known that learners' excessive expectations from themselves may lead to the actual and objective perception of their pressures, resulting in stress about studying a foreign language learning (Ireland et al., 2020; Nejad et al., 2022; Slivar, 2001). Mainly, the individual factors related to academic stress can be divided into four personality traits: self-esteem, generalized self-efficacy, locus of control, and neuroticism. Moreover, research showed that the core of self-assessment as an individually induced factor can be negatively related to academic stress (Gök & Şen, 2022; Lian et al., 2014; Othman et al., 2022). The core of their evaluations in the form of an integrated personality structure reflects the fundamental beliefs of individuals about themselves and their passion for their world, which is manifested in the assessment of their abilities (GuoJie, 2021; Tavousi & Pour Sales, 2018; Umeanowai & Lei, 2022). People with positive levels at the core of their evaluations experience more happiness, learning satisfaction, and job satisfaction because people with positive levels at the core of their evaluations seek out situations that are challenging and rewarding, which in turn increases life satisfaction (Miller Smedema et al., 2015; Özerl et al., 2016; Zhuoyuan, 2021). These people always evaluate themselves positively in different situations and consider themselves capable, valuable, and self-regulated. Being highly motivated, they do their job more effectively and are more satisfied with their lives and jobs by looking for challenging opportunities (Al-Mamoory & Abathar Witwit, 2021; Tavousi & Pour Sales, 2018). Research has also revealed a strong relationship between the evaluation core, learning satisfaction, and happiness (Miller Smedema et al., 2015; Mohammadi & Danesh Pouya, 2021; Özerl et al., 2016). High levels of self-evaluation act as a protector against stress and increase actual well-being by maintaining a positive mood and receiving more social support (Kammeyer-Mueller et al., 2009). People with high levels of self-evaluation can both control their emotions well and have more positive experiences and emotional states in comparison with people with low levels of self-evaluation (Putro et al., 2022; Sifatu et al., 2020; Wongdaeng, 2022). Individuals with a positive self-assessment core can also maintain low levels of stress, experience positive emotions, and receive high levels of learning (Hu, 2022; Punpromthada et al., 2022; Rouhollahi et al., 2020; Snyder et al., 2012).

Empirical studies

Research has shown that academic stress has a negative and significant relationship with academic achievement (Glozah & Pevalin, 2014; Habiban et al., 2011; Moghimisalam et al., 2011; Struthers et al., 2000). For example, Golzah and Pewalin (2014), in a study designed to examine the relationship between social support, stress, health, and academic achievement in EFL learners in Ghana, found that stress has a negative and significant relationship with academic success. In another study, Struthers et al. (2000) examined academic stress and academic performance and concluded that high levels of academic stress are associated with low academic grades and decreased academic performance in foreign language learning. Additionally, Kakabraei et al. (2013) found a negative and significant relationship between objective pressures and academic stress with academic satisfaction. In a recent study, Nikanjam et al. (2022) showed that academic

stress and academic performance have a negative and significant relationship. In other words, these two variables had negative correlations as the increase of academic stress decreased learners' academic performance.

Meta-analytical studies have highlighted that these four quarters are interconnected, and the common structure forms the core of their evaluations (Kammeyer-Mueller et al., 2009). In line with the transactional model of stress (Lazarous & Folkman, 1984), which personality affects a person's ways of assessing the stressful situation frequency of exposure to stressful factors and experiencing stressful aspects and coping styles in learning, the core of its assessment also provides an organizational and useful framework for understanding individual differences in assessing stressors (Kammeyer-Mueller et al., 2009). According to the hypothesis of differential confrontation in the stress process, individuals with high core levels of their assessment experience less stressful situations (Kammeyer-Mueller et al., 2009).

People's coping styles also vary according to the type of assessment of stressors (Pearsall et al., 2009). According to previous studies, academic stress can be alleviated by coping strategies (Abdollahi et al., 2020; Freire et al., 2019). Traditionally, coping is referred to the continual psychological efforts to manage particular external or internal challenges that exceed the resources of an individual (Lazarus & Folkman, 1984). Active coping may protect against the negative impact of stressors on adaptive outcomes by strengthening the person's coping efficacy in a specific situation (Lantu & Tindika, 2022). In most studies, coping strategies are organized based on the distinction between two types of coping styles: problem-oriented coping and emotion-driven coping. While problem-oriented coping is the use of individualized plans, such as information gathering and decision-making, to treat the stress-generating problems, in emotion-oriented coping, learners manage their negative emotion by means of strategies such as seeking emotional support and distancing (Folkman, 2010; Yogantari & Dwijendra, 2020). Besides, avoidance as a withdrawal coping style assists learner to avoid stressful situations (Meneghel et al, 2019). Thus, people with positive self-assessment may avoid stressful situations to control the environment successfully and therefore are reported to have less academic stress. In this perspective, self-assessment is known to be the students' attempts to evaluate their performance against the standards (Panadero et al., 2020; Yang et al., 2022). In this way, self-assessment can be referred to the process of identifying one's weaknesses and strengths (Panadero et al., 2020).

In an attempt to explore the effect of self-, peer, and teacher assessment on Iranian undergraduate English learners' academic success, Khonbi and Sadeghi (2012) compared 82 learners distributed in one control and three experimental groups (self-, peer-, and teacher-assessment groups). Comparing the groups' academic success using ANCOVA, they found that peer assessment followed by self-assessment groups outperformed the other groups. Moreover, the teacher-assessment group showed the least amount of academic success among the assessment groups. This study highlights the indispensable effects of self- and peer feedback on learners' academic success.

Also, Kammeyer-Mueller et al. (2009), in a met-analysis study, examined the role of the core of self-assessment in shaping students' coping strategies in reaction to stressful situations. They revealed that the core of self-assessments interplayed with higher stress, less avoidance coping, and more problem-solving coping. However, they reported that

emotional stability was directly linked to the stress and coping process. Similarly, Pope (2005) used an experimental design to examine the impacts of self- and peer assessment on student stress levels and performance. Results of this research demonstrated that self- and peer assessment was directly associated with the amount of stress and student's academic performance.

Furthermore, Hale (2015) drawing on an inductive approach examined learners' responses to a series of open-ended questions which dug into their insights on self-assessment. The analysis of the qualitative data revealed that the learners value self-assessment as an exercise in line with the aims of education and believed that it gains their feeling of being trusted by their teachers and grows their responsibility. Therefore, both qualitative and quantitative studies indicate the high value of self-assessment in learners' academic success and performance. Given the high importance of academic success and self-assessment as well as the adverse effects of stress on this issue, there is a need to develop an educational program and strategies to prevent academic stress among EFL learners in academic institutes. For this purpose, it is important to clarify the relationships between academic stress (AS), core of self-assessment (CSA), and coping styles among EFL learners. The association between CSA and burnout and the association between coping styles and burnout have been investigated in previous studies (Boland et al., 2019; Rodríguez-Rey et al., 2019; Snyder et al., 2012). However, to the best of our knowledge, there has been no integrative effort to examine coping styles as a mediator in the relationship between CSA and academic stress among EFL learners. The finding of the present study will shed light the roles played by self-assessment and coping strategies in learners' manipulating their academic stress and subsequent academic performance. Therefore, the present study examined the relationship between CSA and academic stress and determined the mediating role of coping styles on the relationship between CSA and academic stress in an Ethiopian context. In order to reach the aims of the present study, the following hypotheses were proposed:

- Hypothesis 1: The core of self-assessment significantly affects academic stress.
- Hypothesis 2: The core of self-assessment significantly affects problem-oriented coping.
- Hypothesis 3: The core of self-assessment significantly affects emotion-driven coping.
- Hypothesis 4: The core of self-assessment significantly affects avoidance coping.
- Hypothesis 5: The core of self-assessment significantly affects academic stress with the mediating role of problem-based coping.
- Hypothesis 6: The core of self-assessment significantly affects academic stress with the mediating role of emotion-based coping.
- Hypothesis 7: The core of self-assessment significantly affects academic stress with the mediating role of avoidance coping.

Method

Research design

In this study, a quantitative cross-sectional method was used to collect 384 learners' perspectives through three questionnaires. A quantitative cross-sectional study is known as an observational study or descriptive research that aims to analyze quantitative data collected from a group of participants at a specific point in time (Mann, 2003). According

to Zangirolami-Raimundo et al. (2018), such studies are highly practical and useful when researchers need to examine various characteristics of participants at once. Therefore, in this study that seeks to examine various interconnections between coping strategies, self-assessment, and academic stress, data were collected at specific points in time from a relatively large number of participants.

Participants

Utilizing a two-stage cluster sampling method, the participants of the present study were selected from 112 English institutes in Woldiya, Ethiopia. In cluster sampling, the participants are randomly selected from the population by dividing it into smaller groups known as clusters (Hines et al., 2010). In so doing, two institutes were randomly selected in the first stage, and then, 426 intermediate language learners in those institutes were surveyed by the census method. To meet the ethical requirements, all the participants were asked to fill out written consent form before launching the main stage of the research. Out of these 426 learners, 24 refusing to fill out the form were excluded. Also, when the remaining participants were done with filling out the research questionnaires, 18 questionnaires showed to be incomplete and were removed from the database. After all, a total of 384 questionnaires found ways to the data analysis stage. The participants were intermediate and upper-intermediate English learners enroll in English programs designed to improve their general English skills. Sharing Amharic as their first language, the participants were 183 female and 201 male English learners within the age range of 17 to 21. The researchers confirmed that the participants' performances during the study would remain confidential, and they would be kept informed about the findings of the study.

Instruments

The researchers used three questionnaires to collect the self-report data, including the core of self-evaluations (Judge et al., 2003), the coping styles questionnaire (Kammeyer-Mueller et al., 2009), and academic stress questionnaire (Sun et al., 2011).

The core of self-evaluations questionnaire

The core of self-evaluations questionnaire, developed by Judge et al. (2003), measures individuals' fundamental self-evaluations through 12 items with a 5-point Likert scale: strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). To calculate each learner's overall score of the questionnaire, the items 2, 4, 8, 8, and 10 were reverse scored and the rest straight. The individual's overall scores on this scale ranged from 12 to 60. High scores on this scale indicated positive self-evaluation, and low scores indicated negative self-evaluation. In a study surveying learners and staff perspectives, Endler and Parker (1994) reported Cronbach's alpha coefficients of this scale as 0.80 and 0.84, respectively. Tavousi and Akbarzadeh (2013), in their research, reported the validity of this scale with an internal consistency method of 0.68 and a retest method of 0.89. Moreover, the pilot study of this research showed that Cronbach's alpha coefficient of self-assessment questionnaires was 0.789.

Coping styles

The short form of the coping styles questionnaire (Kammeyer-Mueller et al., 2009) is based on the main list of coping with stress conditions (Chang et al., 2012). The difference between the short form and the main questionnaire is the number of items. The main form has 48 items, and the short form has 21 items. This questionnaire examines three styles of problem-based coping (7 items), emotion-based coping (9 items), avoidance coping (7 items), social entertainment dimension (3 items), and attention grabbing (4 items). In this list, learners are asked to determine how much they use each coping style on a 5-point Likert scale from never (1) to very high (5). The dominant style of each person is determined according to their score in each of the three dimensions of coping styles. The range of individual scores in this questionnaire for each coping style varies from 7 to 35. Chang et al. (2012) emphasize the high power of the short-form questionnaire to determine the relations between coping styles and stress conditions. Cronbach's alpha coefficients for problem-based coping, emotion-centered coping, and two dimensions of avoidant coping (entertainment and attention) reported to be 0.92, 0.82, and 0.85, respectively. Cohen et al. (2006) confirmed the five-factor structure of the short form of the stress response log using confirmatory factor analysis. Rafenson et al. (2006) also found that correlations between subscales of the short form of coping with stress conditions and introversion and extroversion personality traits support the construct validity of this questionnaire. Grigsby (2015) also reported Cronbach's alpha coefficients of this questionnaire from 0.88 to 0.97. Also, in this research, the pilot study of the questionnaire revealed that Cronbach's alpha reliability enjoyed the high coefficients of 0.906, 0.934, and 0.930, for problem-based, emotion, and avoidance coping styles, respectively.

Academic stress questionnaire

This questionnaire, which was developed by Sun et al. (2011), has 16 items scored using a 5-point Likert scale from 1 to 5 (strongly disagree = 1 to strongly agree = 5). In this instrument, the range of scores is between 16 and 80, and the higher the subject's score, the more stress he has. Sun et al. (2011) reported its reliability by Cronbach's alpha method as 0.82 and the retest method as 0.78. In the present study, its reliability was calculated in the pilot study by Cronbach's alpha method and showed the high reliability coefficient of 0.73.

Data collection procedures

This research involved collecting learners' perspectives using three questionnaires: the core of self-evaluations questionnaire (Judge et al., 2003), the coping styles questionnaire (Kammeyer-Mueller et al., 2009), and the academic stress questionnaire (Sun et al., 2011). To ensure the reliability of the questionnaires, a pilot study on 28 EFL students was carried out prior the main stage of the study. The measured reliability coefficients of the questionnaires were reported in the previous sections.

Having ensured the learners' willingness to participate through written consent forms, one of the researchers attended in the classes and asked the learners to fill out the printed questionnaires one by one. It took the learners an average of 30 min to the questionnaires. As the English forms of the questionnaires were used in this study, the

researcher provided explanations about the questionnaires when the participants had problems understanding any items. Moreover, before distributing the questionnaires in classes, the required information about checking the questionnaire items was given to the participants by one of the researchers. It is noteworthy that the whole process of data collection procedure lasted around 1 month in 2021.

Data analysis procedures

In the present study, structural equation modeling (SEM) was used to examine the fit of the hypothesized model using AMOS 24 program. SEM as a confirmatory rather than exploratory statistical analysis employs both path analysis and factor analysis to accept or reject associations between variables (Mueller & Hancock, 2019). It helps researchers handle copious variables. χ^2/df, the goodness of fit index(GFI), the non-normed fit index (NNFI), the incremental fit index (IFI), the relative fit index (RFI), and the comparative fit index (CFI) and root-mean-square error of approximation (RMSEA) are the fit indices utilized to assess the hypothesized models. Generally, the acceptable fit for GFI, NNFI, IFI, RFI, and CFI is 0.90 or more, and the acceptable value for the measure of approximate fit (RMSEA) is lower than 0.08 and 0.05 for satisfactory fit and close fit, respectively.

Results

As SEM was used to measure the fit of the hypothesized model using AMOS 24 program, construct validity was required, the results of which are presented in the Table 1 below:

As presented in Table 1, the Kaiser–Meyer–Olkin (KMO) values for the core of self-assessment, problem-based coping, emotion-driven coping, avoidance-oriented coping, and academic stress questionnaires yielded 0.786, 0.909, 0.928, 0.929, and 0.856, respectively. They evidenced that the volume of data was suitable for factor analysis and also according to the amount of surface covered by chi-square statistic (significance level) Bartlett index for all variables, and their dimensions were equal to 0.001, which was less than 0.01 indicating that the data was well correlated.

Analysis of research data

To analyze the data in two sections of descriptive statistics and inferential statistics, SPSS 25 and Amos 24 software were used. First, the descriptive statistics section presents the

Table 1 KMO and Bartlett tests to evaluate the adequacy of sampling and data correlation

Variables	KMO	Bartlett's test of sphericity	df	Sig
Core of self-assessment	0.786	1271.363	66	0.001
Problem-based coping	0.909	1831.412	21	0.001
Emotion-driven coping	0.928	1996.743	21	0.001
Avoidance-oriented coping	0.929	1893.704	21	0.001
Academic stress	0.856	5452.011	120	0.001

Table 2 Central indicators and dispersion of research variables

	N	Mean	Std. deviation	Minimum	Maximum	Skewness	Kurtosis
Core of self-assessment	84	34.051	6.930	15	54	− 0.180	.095
Problem-based coping	84	21.799	7.192	9	35	− 0.126	− 1.309
Emotion-driven coping	84	19.356	7.349	7	33	0.358	− 1.277
Avoidance-oriented coping	84	19.442	7.166	7	32	0.240	− 1.332
Academic stress	84	46.998	9.362	28	66	0.263	− 1.134

Table 3 Evaluation of normality of variables by Kolmogorov-Smirnov test

	The test statistic (K-S)	Sig	Results
Core of self-assessment	0.132	0.200*	Normal variable distribution
Problem-based coping	0.131	0.200*	Normal variable distribution
Emotion-driven coping	0.163	0.173	Normal variable distribution
Avoidance-oriented coping	0.118	0.200*	Normal variable distribution
Academic stress	0.156	0.200*	Normal variable distribution

central indicators and the dispersion of research variables. The results are shown in Table 1.

The results of descriptive statistics in Table 2 show that the mean standard deviation ± of core of self-assessment variables was 34.051 ± 6.930, problem-based coping was 21.799 ± 7.192, emotion-driven coping was 19.356 ± 7.349, avoidance-oriented coping was 19.442 ± 7.166, and academic stress was 46.998 ± 9.362. Skewness and Kurtosis were in the range − 2 to 2 showing that the distribution of variables was almost normal.

Defaults of using structural equation methods

Default 1: Kolmogorov–Smirnov test

To evaluate the normality of the research variables, the Kolmogorov–Smirnov normality test was used, the results of which are reported in Table 3 below:

Based on the results presented in Table 3, as the sig. value was greater than 0.05, it was concluded that the assumption of normality was met.

To investigate the correlation of research variables, the Pearson test was run, the results of which are as follows:

The results of the Pearson test in Table 4 revealed that while the correlation coefficient between the core of self-assessment and problem-based coping was positive and equals to 0.602, this correlation for emotion-driven coping was negative and equals to − 0.603. The avoidance-oriented coping and academic stress showed to be significantly negative and equal to − 0.618 and − 0.631, respectively (less than 0.05). Moreover, problem-based coping showed to have negative and significant correlation coefficients with emotion-driven coping, avoidance-oriented coping, and academic stress ($-0.791, -0.755$, and $-0.894 < p$-value $= 0.05$). Additionally, the analyses suggested that emotion-driven coping held positive correlations with avoidance-oriented coping and academic stress with significant values of 0.820 and 0.852 (less than p-value $= 0.05$). Another significant

Table 4 Examining the correlation between research variables

	Core of self-assessment	Problem-based coping	Emotion-driven coping	Avoidance-oriented coping	Academic stress
Core of self-assessment	1				
Problem-based coping	0.602**	1			
Emotion-driven coping	− 0.603**	− 0.791**	1		
Avoidance-oriented coping	− 0.618**	− 0.755**	0.820**	1	
Academic stress	− 0.631**	− 0.894**	0.852**	0.798**	1

Correlation is significant at the 0.01 level (2-tailed)
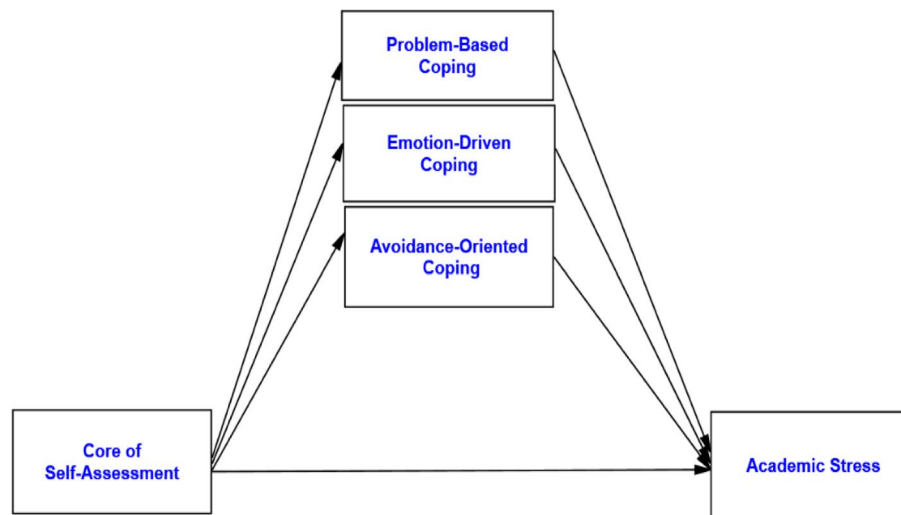
Fig. 1 Research model of the present study

and positive correlation coefficient was also found between avoidance-oriented coping and academic stress which was equal to 0.798.

Furthermore, the path analysis method with AMOS 24 software was run to explore the relationship among research variables (Figs. 1). The research model is as follows:

The model was fitted in AMOS 24 software. The obtained results are reported as follows:

According to the software output, the calculated value of χ^2 was equal to 2.385, which is less than 3 in relation to its degree of freedom (i.e., 1). The low value of this index indicated a slight difference between the conceptual model and the observed research data. Besides, RMESA value was 0.075.

The GFI, NNFI, IFI, RFI, and CFI indices were 0.900, 0.901, 0.902, 0.905, and 0.901, respectively, stipulating a high fit. In the following, the research hypotheses are examined.

Hypothesis 1: The core of self-assessment significantly affects academic stress

The results of path analysis in Fig. 2 and Table 5 show that the standard coefficient between the core of self-assessment and academic stress is equal to − 16.16. According to the absolute value of *t*-test statistics which was equivalent to − 2.271 and greater than
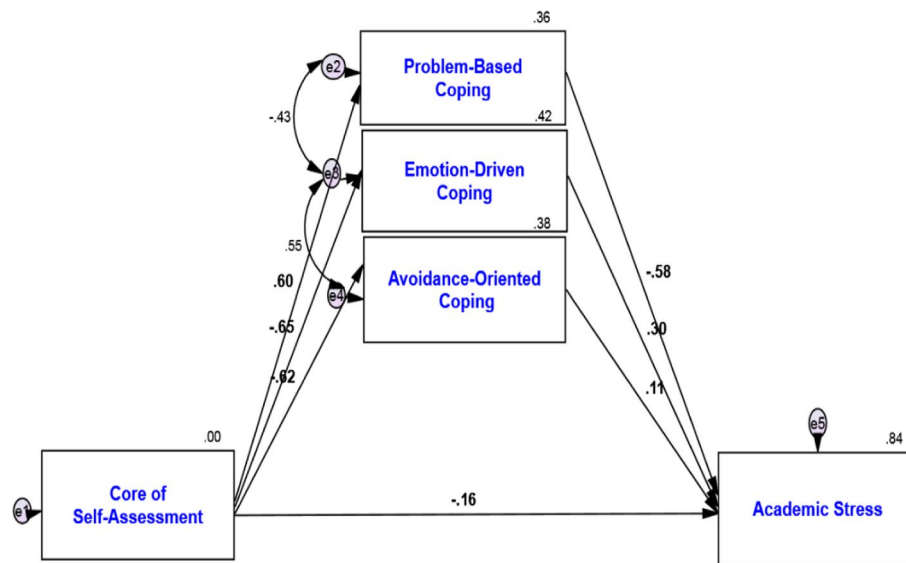
Jahara *et al. Language Testing in Asia*   (2022) 12:21

Page 10 of 18

Fig. 2 Model fit in standard estimation mode

Table 5 Results of the relationship between core self-assessment and academic stress

	Path coefficients	*t*-value	*p*-value	Condition
Academic stress → the core of self-assessment	− 0.161	− 2.271	.023	Accept

Significant at the level of 0.01 ($p < 0.01$)

1.96, it can be concluded that with probability of 95%, the core of self-assessment had a negative and significant effect on academic stress (*p*-value = 0.023; β = 0.161). Also, the coefficient of determination, which was equal to the quadratic coefficient of the path coefficient (0.025), shows that 2.5% of the changes in academic stress were due to self-assessment (Figs. 3).

Hypothesis 2: The core of self-assessment significantly affects problem-oriented coping

According to Fig. 2 and Table 6, the standard coefficient between the core of self-assessment and problem-oriented coping was equal to 0.602, indicating that the core percentage of self-assessment had a positive and significant effect on problem-based coping (*p*-value = 0.001; β = 0.602). In other words, for an increase of one core unit of self-assessment, the problem-oriented confrontation increases by 0.602 units. In addition, as the coefficient of determination was equal to the power of the path coefficient (0.362), it can be inferred that 36.2% of the change in problem-oriented confrontation was due to self-assessment.

Hypothesis 3: The core of self-assessment significantly affects emotion-driven coping

As Fig. 2 and Table 7 show, the standard coefficient between the core of self-assessment and emotion-based coping was − 0.651, and according to the absolute value of *t*-test statistics (equal to 16.790 and greater than 1.96), it can be concluded with probability of 95%; the core of self-assessment had a negative and significant effect on emotion-based
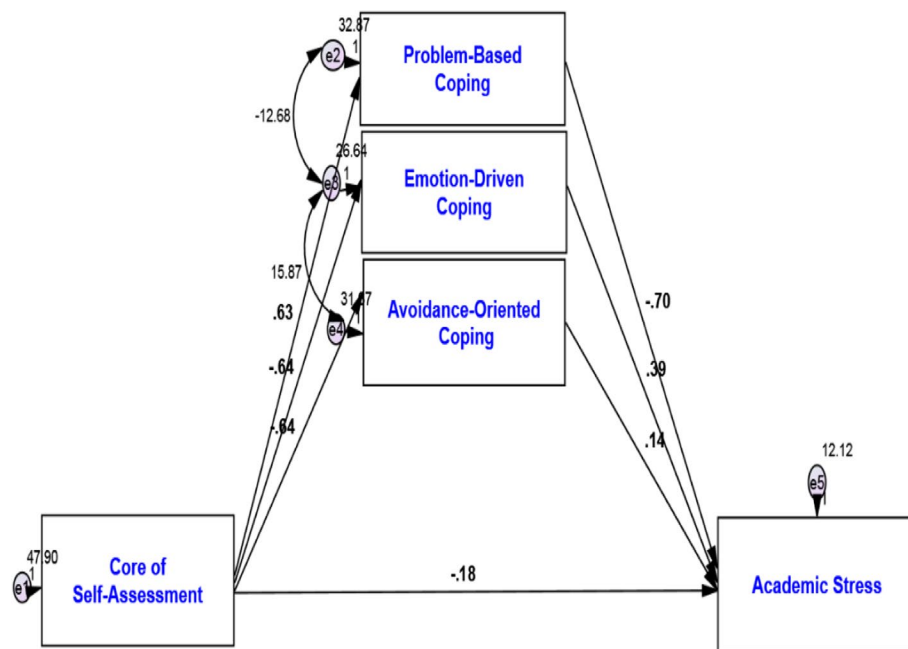
Fig. 3 Model fit in nonstandard estimation mode

Table 6 Results of the relationship between self-assessment core and problem-based coping

	Path coefficients	*t*-value	*p*-value	Condition
Problem based → core self-assessment	0.602	14.769	.001	Accept

Significant at the level of 0.01 (*p* < 0.01)

Table 7 Results of the relationship between self-assessment core and emotion-driven coping

	Path coefficients	*t*-value	*p*-value	Condition
Emotion-driven coping → core self-assessment	− 0.651	− 16.790	.001	Accept

Significant at the level of 0.01 (*p* < 0.01)

coping (*p*-value = 0.001; $\beta = -0.65$). That is to say, with an increase of one core unit of self-assessment, emotion-centered coping decreases by 0.651 units, and the coefficient of determination, which was equal to the power of the path coefficient (0.423), suggests that 42.3% of the changes in emotion-centered coping were due to core self-assessment.

Hypothesis 4: The core of self-assessment significantly affects avoidance coping

The results of path analysis in Fig. 2 and Table 8 show that the standard coefficient between the core of self-assessment and avoidance is − 6.18. According to the absolute value of the *t*-test statistic, which is equal to 15.380 and greater than 1.96, it can be concluded with a probability of 95. The percentage of self-assessment core has a negative and significant effect on avoidance (*p*-value = 0.001; $\beta = -6.18$). In other words, for one unit of self-assessment, the avoidance response decreases by 0.618 units, and the

Table 8 Results of the relationship between self-assessment core and avoidance coping

	Path coefficients	*t*-value	*p*-value	Condition
Avoidance coping → the core of self-assessment	− 0.618	− 15.380	.001	Accept

Significant at the level of 0.01 ($p < 0.01$)

Table 9 Results of the relationship between self-assessment core and academic stress (Sobel test)

	Path coefficients	*t*-value	*p*-value	Condition
Academic stress → problem-based coping → core of self-assessment	− 0.346	− 9.764	< 0.05	Accept

Significant at the level of 0.01 ($p < 0.01$)

coefficient of determination, which is equal to the power of the path coefficient, is 0.382, which indicates that 38.2% of the avoidance response changes are due to the self-assessment score.

Hypothesis 5: The core of self-assessment significantly affects academic stress with the mediating role of problem-based coping

As Fig. 2 and Table 9 present, the standard coefficient between the core of self-assessment and academic stress with the mediating role of problem-based coping is − 0.346. Accordingly, it can be inferred that 95% probability of self-assessment with the mediating role of problem-oriented coping affected academic stress in a significant and negative way (p-value = 0.001; $\beta = -0.346$). In other words, the academic stress decreased by 0.346 units in exchange for increasing one core unit of self-assessment with the mediating role of problem-oriented coping. Also, the coefficient of determination which was 0.119 shows 11.9% of changes in academic stress was in relation to the core of self-assessment with the mediating role of problem-solving.

Hypothesis 6: The core of self-assessment significantly affects academic stress with the mediating role of emotion-based coping

Drawing on data presented in Fig. 2 and Table 10, the standard coefficient between the core of self-assessment and academic stress with the mediating role of emotion-based coping was − 197. According to the absolute value of *t*-test statistics which is 5.914 and greater than 1.96, it can be concluded that with a 95% probability of self-assessment with the mediating role of emotion-based coping, it has a negative and significant effect on academic stress (p-value = 0.001; $\beta = -0.197$). That is, with an increase of one core unit of self-assessment with the mediating role of emotion-based coping, the academic stress had a decrease of 0.197 units. Additionally, the coefficient of determination was 0.039 indicating that 3.9% of changes in academic stress was due to the core of self-assessment with the mediating role of emotion-driven coping.

Hypothesis 7: The core of self-assessment significantly affects academic stress with the mediating role of avoidance coping

As Fig. 2 and Table 11 report, the standard coefficient between the core of self-assessment and academic stress with the mediating role of avoidance was equal to − 0.070, and

Table 10 Results of the relationship between self-assessment core and academic stress (Sobel test)

	Path coefficients	*t*-value	*p*-value	Condition
Academic stress → emotion-driven coping → core of self-assessment	− 0.197	− 5.914	< 0.05	Accept

Significant at the level of 0.01 (*p* < 0.01)

Table 11 Results of the relationship between self-assessment core and academic stress (Sobel test)

	Path coefficients	*t*-value	*p*-value	Condition
Academic stress → avoidance coping → core of self-assessment	− .070	− 2.394	< 0.05	Accept

Significant at the level of 0.01 (*p* < 0.01)

according to the absolute value of the *t*-test statistic, which is equivalent to 2.394 and greater than 1.96, it can be concluded that with 95% probability of self-assessment core with mediating role of avoidance, coping had a negative and significant effect on academic stress (*p*-value = 0.001; $\beta = -0.070$).

In other words, in exchange for increasing one core unit of self-assessment with the mediating role of avoidance, the academic stress decreases by 0.070 units, and the coefficient of determination which is equal to the power of the coefficient of the path is equal to 0.005, suggesting that 0.5% of changes in academic stress was in correspondence with self-assessment along with the mediating role of avoidance.

Discussion

This study aimed to determine the mediating role of coping styles in the relationship between the core of self-assessment and academic stress. In line with previous research, the results of this study showed that the core of their assessment predicts academic stress (Fraser et al., 2021; Khonbi & Sadeghi, 2012; Liu, 2015). One possible explanation is based on the importance of the role of personality traits in the formation of academic stress. Personality traits affect relationships between people and their reactions to the environment (Eyni et al., 2021). Based on the stress exchange model (Lantu & Tindika, 2022; Ramadhani & Mahmudiono, 2021), personality traits affect a person's assessment of stressful situations and frequency of exposure to stressful factors, stressful factors of experience, and affect coping styles. Academic burnout is also a person's negative reaction to acute and severe stress in the educational environment. Research shows that high expectations and expectations beyond the ability of the individual to the actual and objective perception of constant stress and, ultimately, anxiety and anxiety of learners (Af Ursin et al., 2021; Russell, 2020). As predicted, the findings of this study showed that the core of evaluations has a significant positive relationship with academic inefficiency and a significant negative relationship with academic, emotional fatigue, and academic apathy (Glozah & Pevalin, 2014; Habiban et al., 2011; Kuchkarova, 2022; Moghimisalam et al., 2011; Struthers et al., 2000).

In addition, the results of this study showed that the core of their evaluations has a significant positive relationship with problem-based coping and a significant negative relationship with emotion-centered coping. These results are consistent with research that has confirmed the relationship between the core of their evaluations and coping (Hu,

2022; Snyder et al., 2012; Kakabraei et al., 2013; Struthers et al., 2000). Although there is no unified effort on the mechanism of the effect of their evaluations on the coping process, Nejad et al. (2022) and Slivar (2001) showed with their stress exchange model that the core of their evaluations influences coping styles. As people with positive core beliefs believe they can control the environment, they report less stressful factors. In contrast, people with low levels of the core of their assessment find stressful factors exhausting and experience less sense of control over the environment; for example, in people with high levels of stress who experience more negative emotional states, their perception of stressors increases (Eisenbarth, 2019; Lazarous & Folkman, 1984; Özerl et al., 2016; Miller Smedema et al., 2015; Snyder et al., 2012).

As predicted, this study showed that in the relationship between the core of self-assessment with academic fatigue and academic apathy, problem-based coping and emotion-based coping, and in the relationship between the core of self-assessment with academic inefficiency, problem-based coping has a mediating role. The findings of this study are in line with the results of Lian et al. (2014) and Othman et al. (2022). Also, Aghili Mehrizi et al. (2022) examining the mediating role of coping styles in the relationship between personality traits and academic burnout, showed a significant relationship between personality traits and burnout. An important negative relationship between problem-oriented coping and introversion predicts high stress levels.

Although research (e.g., Tavousi & Pour Sales, 2018; Umeanowai & Lei, 2022) shows avoidance coping with extroversion, agreement, conscientiousness openness to experience has a positive relationship and predicts moderate levels of academic stress. In this study, avoidance coping had no significant relationship with the core of their evaluation. This finding can be explained based on the differential choice hypothesis and the differential confrontation hypothesis in the stress process. Based on the differential confrontation hypothesis, individuals with higher levels of the core of their assessment experience less stressful situations. According to the hypothesis, differential selection of streaks influences stress coping styles (Pearsall et al., 2009). These findings indicate that EFL teachers and educationists who encourage their learners to have constant self-assessments through making study plan, managing their time, and using their study guide are suggested to create stress-free environments. An atmosphere with minimum rate of stress can effectively activate and modify students' coping strategies and, thus, will equip the learners with valuable stress management skills. In addition, results support that if students' academic success is the prime goal of institutions, the learners should be taught the efficient coping strategies to be able transcend their learning opportunities in every academic space.

In other words, the process of streak tension affects the individual's experience of stress factors. The type of assessment of stress factors affects coping styles (Miller Smedema et al., 2015; Özerl et al., 2016; Wongdaeng, 2022). This model assumes that the core of self-assessment reduces the likelihood of exposure to stressors and leads to low-pressure levels. Still, since stressors are active, differential confrontation works in two ways: the effect of the core of their evaluations on objective stressors in the workplace or the individual's interpretation of stressful situations. The interpretation of these people from the educational position did not lead to stress and exhaustion.

Based on the differential choice, they chose more problem-oriented confrontation and less avoidance confrontation, which led to low levels of pressure.

Conclusion

Despite limitations, this research increases the limited existing knowledge on the interplays between the core assessment, coping strategies, and academic stress. Our findings emphasize that the effects of the core of self-assessment on academic stress should be considered with care in the educational arenas which focus on such assessment. In other words, encouraging self-assessment in learning situations may produce adverse effects on learners' academic success. Our findings suggest that, to avoid learners' unadjusted and incorrect self-appraisal, it could be of high importance to inject motivation and hope to any educational institutes to achieve learners' academic self-efficacy and success (Duchatelet & Donche, 2019). Supporting the available literature, the findings of this research reveal that reducing academic stress in educational settings could motivate students both to establish their academic goals and to employ their skills to reach them. Therefore, it can be concluded that teachers, educationist, and school officials should do all their best to increase students' motivation and remove the negative factors in education. Moreover, the findings of this study can be used by researchers to design interventions to give assistant to the learners with impaired CSA.

There are also some limitations in this study that should be considered. First, the questionnaire data which are based on self-reports may be afflicted with some extents of social desirability biases which may endanger the validity of collected data (Heeringa et al., 2017). Second, the cross-sectional nature of the collected data limits the longitudinal inferences from the findings. This confines the results to a particular situation and time (Solem, 2015). Thus, future longitudinal research in other educational contexts is called to enrich the literature. Also, qualitative studies exploring the interrelationships between core of self-assessment, coping styles, and academic stress will add valuable findings to the literature in this field of research. The last but not the least, as only the relationship between personality traits and academic stress with coping styles was investigated in this study, it is suggested that other external factors affecting academic stress, such as employment, heavy workload, and learner marriage, be examined by organizing research.

Authors' information
Syed Farhat Jahara is an Assistant Professor at Department of English Language and Translation, College of Sciences and Arts et al.-Asyah, Qassim University, Saudi Arabia. Mudassir Hussain is an Assistant Professor at the Department of Education and Research in the University of Lakki Marwat, Pakistan. Tribhuwan Kumar is an Assistant Professor of English at the College of Science and Humanities at Sulail, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia. Ahmad Goodarzi is a Ph.D in Applied Linguistics at Razi University of Kermanshah, Iran. Yalalem Assefa is a University Lecturer at the Department of Adult Education and Community Development, Woldia University, Woldiya, Ethiopia.

Declarations

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