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The Effects of Stressors on Academic Performance of International Students in Jiangsu University: The Moderating Role of Coping Strategies

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Abstract: ***This paper examined the effects of stressors on academic performance of international students in Jiangsu University: the moderating role of coping strategies. The sample comprised randomly selected 228 international students from the university across all levels; bachelor, masters and PhD. We used multiple linear regression model to estimate the findings. Among our empirical results are: (1) stressors have adversative effects on students' academic performance. (2) Male and female international students differ with regard to the effects of stressors on their academic performance. (3) The effect of stressors on students' academic performance differ among bachelor, masters and PhD international students. (4) International students employed different strategies of coping throughout their study duration in order to minimize their stress levels and to attain higher levels of academic performance. The study found that, Problem-focused strategies were positively related to international students' academic performance on the premise of its ability to minimize stress. Based on the empirical findings, we profess appropriate recommendations to stakeholders for action.***
Keywords: Stressors, International Students Academic Performance, Coping Strategies.

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Author's consent: All the aforementioned authors had a common consensus towards the processes undertaken in this paper.

I. INTRODUCTION

Studying abroad can be a hectic experience for many students as they circumnavigate their new environs. Stress exerts negative feelings of leaving friends, family, and important belongings behind (Szabo, Ward and Jose, 2015). Valbona (2015), revealed that international students regularly present problems of financial crisis, personal problems, bereavement, relationship problems, childcare difficulties, depression, physical illness and even political matters. Similarly, international students may also encounter the following stressors; unfamiliar academic environment, language barriers, poor academic relationship with the instructors, relationship with other students, family home problems, loneliness, insufficient resources to perform academic work and culture shock (Leong, Ward & Low, 2000).

The increasing interest in the analysis of stress may be due to its worldwide development and the fact that we live in a world that has several worrying conditions. Stress has become a central part of life and sometimes it can be said to be the price we all pay for struggling to be alive (Wang, 2011). Stress contributes to health problems globally. Its presence is felt in all corners of life; home, workplace, industry and academic societies. It is an inseparable component of life regardless of religion, race, gender or cultural background. The ramifications of stress can be devastating for some individuals to the extent of committing suicide (Abouserie, 1994; Scott, 2000). It is interesting to note that what is regarded as stressful by one students, may not be stressful for another due to individual differences (Ross et al., 1999; Yuan, 2010).

A considerable number of research exploring students' experience of stress among international students have been wide-ranging (Dimkpa & Inegbu 2013; Junious, et al., 2010; Yucha, et al, 2009; Beck, et al., 1997). Sources of international students' stress have been broadly categorized as academic, lifestyle, and personal/external. Stressors reported by international students, such as feeling overworked and adverse relationships with their tutors and universities, often encompass more than one category. Additionally, poor facilities, excessive homework assignments for the students, inadequate provision of basic needs by parents and incorrect student perceptions (Dimkpa & Inegbu 2013), academic and examination issues (Bradbury & Miller, 2011) and poor teaching (Manson 2014). The urgency with which international students need to complete voluminous examinations and assessments, and to meet deadlines generates immense stress; these stressors have negative impact on learning and the memory process (Joels, et al., 2006; Schwabe, et al., 2012), which are the core of our educational system.

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The approach with which international students confront stressful events depends significantly on how they perceive and react to circumstances, perhaps due to individual differences and variability in experience (Monteiro et al., 2014). Fast forward, Yusoff (2015) categorised stressors among international students in six main areas encompassing all the stressors mentioned in earlier literature: learning and teaching related stressors (LTRS), teacher related stressors (TRS), and group social-related stressors (GSRS), academic related stressor (ARS), intrapersonal related stressor (IRS1), interpersonal related stressors (IRS2). Yusoff, (2015) and Valbona, (2015) argues that students are subjected to different kinds of stressors, such as an uncertain future, pressure of academic achievements with an obligation to succeed and difficulties of integrating into the job market and societies.

Thus, the quest to identify which stressors affect international students is principal to researchers and stakeholders. Corresponding to the variability of stressors reported in the literature, the effects of stress on students is mottled (Sripowgwiwat, et al., 2018; Aafreen, et al., 2018; Vogel & Schwabe, 2016; Valbona, et al., 2015; Jimenez et al., 2009). For example, Vogel and Schwabe (2016) concluded stress have both improving and damaging effects on memory, subject on the precise memory process or stage that is affected by stress and the activity profile of the major physiological stress response systems while Aafreen, et al. (2018) concluded stress to be a negative predictor of students' academic performance. This has implications on international students and affects students' ability to function well, both emotionally and academically. This is consistent with Storti (1990) and Lyrakos (2012) claim that stress has damaging effect on student's ability to study.

Again, Moon (2004) continues that there is a clear relation between emotional well-being and academic fitness. Liberman, (1994) and Leong, Ward & Low, (2000) further espoused that International students may witness lack of concentration in their studies due to the stressors associated with their well-being. Lyrakos (2012) adds that stress has become an unavoidable psychological and emotional factors affecting academic performance of international students. Unlike native students, international students need to develop bicultural competence, as they maintain their own values while adjusting to the practical, interpersonal, and emotional challenges encountered in the host country (Musgrave-Marquart, Bromly, Dalley, 1997; Noh & Kaspar, 2003; Poyrazli & Grahame, 2007). International students, need to adapt to a new culture, language, academic and social environment. Taking into consideration the importance of international students, it is necessary to evaluate their coping to the university life and the various strategies adopted by international students at Jiangsu University.

Coping refers to how an individual seeks to eliminate or reduce stressors in their environment, alter their appraisal of the potential harmfulness of these stressors, or minimize the extent of strain that they will experience as a result of these stressors (O'Driscoll & Cooper, 1996). Yuan (2010) found that students who coped with the difficulties of studying abroad by trying to control the situation, actually found it backfired on them by increasing levels of anxiety. Researchers attribute this to the fact that direct, sustained attempts to cope with the stress by actively trying to control what is essentially an uncontrollable situation, actually increases anxiety. On the other hand, Gill & Scherto (2007) posits that, international students who coped by changing their own beliefs and expectations to suit their new environment, were able to adjust better. In the same vein, Sovic (2008) further espouse, accepting the fact that separation from home is temporary, but relatively uncontrollable, allows the person to concentrate their energies on making new friends and exploring life in the host society, instead of putting considerable effort in an attempts to nourish relationships with individuals from the home country.

Students from overseas must consider greater adjustment as stressors such as cultural differences may lead to clashes in students' expectations (Earwaker, 1992; Nwadiani & Ofoeqbu, 2001; Akqun & Ciarrochi, 2003). Hudd et al., (2000) and Baglin, (2003) argue that, increasing levels of stress may be due in part to the absence of the individual's usual support framework, such as friends, relationships and family. A key role for universities in relation to stress is the provision of appropriate resources to enable individuals to deal with stress. A number of research studies have concluded that coping strategies can be beneficial in moderating the effects of stress on individuals (Endler & Parker, 1990; Wohlgemuth & Betz, 1991; Allen & Hiebert, 1991; Vogel & Schwabe, 2016). Coping is a key variable in the process of reducing, minimizing or tolerating stress (Gustems and Calderon 2013) and preventing a negative academic result (Tavolacci et al. 2013).

Folkman and Lazarus (1984), using an individual's direction of actions as classification criteria, categorized coping strategies into problem focused strategies and emotion focused strategies. The goal of emotion-focused coping strategies is to regulate emotions, maintain hope and optimism, and to refuse to accept the worst. Whereas emotion-focused coping strategies comprise concentrating on the positive, self-criticism, unrealistic reasoning, minding your own business, separation and decrease in anxiety, problem-focused coping strategies consist of actions that involve defining a problem, seeking alternative solutions, weighing those options against anticipated outcomes, selecting a solution, and taking action (Wang & Saudino, 2011). Problem-focused coping strategies refer to managing or solving the problem by removing or circumventing the stressor; whereas emotion-focused coping strategies refer to regulating, reducing, or eliminating the emotional arousal associated with a stressful situation (Folkman & Lazarus, 1984).

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The literature demonstrate changes over time in the variations of stress face by international student and coping mechanisms as evaluated by researchers (Aafreen, et al., 2018; Vogel & Schwabe, 2016; Jimenez, et al., 2009; Beck & Srivastava, 1991). Regardless of the variations in literature and findings, most studies suffer from methodological challenges. For instance, a significant number of studies only used frequencies and percentages to report the effects of stress among students (Sripowgwiwat, et al., 2018; Vogel & Schwabe, 2016; Bilali1 & Bilali, 2015) and these findings may not truly reflect the impacts of stress among international students. However, an important area such as stress and performance needs rigorous investigations to reveal detail and clear findings needed to make well informed decisions. It is a fact that a good policy cannot be based on research findings that suffer from methodological weaknesses. Thus, our study aim at bringing out empirical findings through systematic, rigorous and generally accepted methodological approach. It is also imperative to think through the setting or the context in which stress occurs as it is contended that stress arises out of the association between the individual and the environment (Lazarus & Folkman, 1984; Wang, Slaney, & Rice, 2007)). The higher education sector in China is currently in the midst of a period of fundamental change, in response to external fluctuations amongst the actors that impinge upon it, and internally instigated change within various institutions (Yuan, 2010). The enrolment and participation rate of international students in China higher education has been encouraged through central government policies and scholarships programmes such as Chinese Government Scholarship, Confucius institute, provincial and presidential scholarships as well as "Belt and Road" scholarship initiatives, resulting in an ever increasing student population. For instance, in 2018, the total number of international student's enrolment in China reached 492,185 (Ministry of education of the people republic of China, 2019). China continues to be the major destination for international students, being the most popular country in Asia for international students, and the third most popular in the world (Gil, 2019).

Having said that, the ministry note that, most (87%) international students in China are self-funded (Ministry of education of the people republic of China, 2019). According to the government regulations, international students cannot work during their studies. However, part-time work or internships are sometimes allowed – mostly to earn some part-time income, in a bid to make the country's education system more attractive and to improve student's quality of life (Rahul, 2017). On July 1st, 2013, the Exit and Entry Administration Law of the People's Republic of China formally implemented; international students work-study along with its requirements. However, part-time jobs in China for international students are not readily available and the procedure for application is also not so easy. Only 15-20% of international students in china get part-time jobs (Gil, 2019). These coupled with language barrier and academic pressures increases the stress levels of international students in China.

With these and other challenges within the college, international students are at a high potential for experiencing all kinds of stress that may affect their academic performance. Even though there are growing number of literature on stress among students, its prevalence and influence according to the literature differ. Regardless of the growing evidence of stress literature, empirical work to understand the nature and influence of stress among international students as well as the coping strategies adopted by international students in managing stress at Jiangsu University, China is missing. With this in mind, it is prudent to investigate the influence of stress on academic performance and coping strategies employed by international students at Jiangsu University, China.

This study seeks to examine examined the effects of stressors on academic performance of international students in Jiangsu University: the moderating role of coping strategies**.** Our study differs from previous studies in many ways. Firstly, our study extends stress, academic performance and coping strategies papers by providing in-depth examination of the effects of stressors on academic performance and the moderating role of coping strategies. Secondly, it measures stressors from a multifaceted domain and further provide empirical evidence of how each of the stressor domains influence students' academic performance. Moreover, it account for students characteristics in stress-coping strategies-performance investigations as well as finding out how the domains of stressors differ among international students. This study has a number of theoretical and practical contributions. Firstly, this study adds to the literature by providing empirical evidence from the perspectives of international students of Jiangsu University, China thereby widening the scope and applicability of the stress-performance and moderating role of strategies literature. The findings shall clarify ongoing debate on stress-performance relationships as well as the moderating effect of coping strategies among international students at Jiangsu University. It shall also, serve as useful literature for future researchers working on this field. In terms of practical contributions, the findings of this study may inform the management (Overseas Education College) of international students of Jiangsu University, China about the extent to which different domains of stressors are impacting on international students' academic performance. In addition, the findings may inform both tutors, international students and the administrators of the school regarding which stressor domains should be considered. Thus, the findings of this study is intended to influence future policy of the university. The rest of the paper was organised as follows: section two dealt with materials and methods. Section three focused on results while section four presented discussion of the results. Finally, section five dealt with conclusions and recommendations for practice.

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II. MATERIALS AND METHODS

A. *Variables*

The three main variables used in this study are International Students' Academic Performance (ISAP), which is the dependent variable, stress among international students (stressors), which is the independent variable and coping strategies as a moderator. According to Yusoff (2015; 2011), stress among international students can be grouped into six areas: academic related stressor (ARS), intrapersonal related stressor (IRS1), interpersonal related stressors (IRS2), learning and teaching related stressors (LTRS), teacher related stressors (TRS), and group social-related stressors (GSRS). See Table 1 for description of the variables used in this study.

Table 1: Description of Variables

Variable	Description
Dependent Variable	
International Student Academic Performance (ISAP)	The extent to which international students have attained their short-term or long-term educational goals.
Independent Variable – Stressors	
Academic related stressor (ARS)	Stress associated with all forms of academics. For instance, course arrangement, lecture hours, programme package, etc.
Intrapersonal related stressor (IRS1)	This category of stressors that occur within a person. For example, changes in the person's emotions and feelings.
Interpersonal related stressors (IRS2)	IRS2 is the nature of stress that occur between individuals. For instance, stress associated with role expectations.
Learning and teaching related stressors (LTRS)	The kind of stress associated with teaching and learning. It usually place emphasis on classroom interaction.
Teacher related stressors (TRS)	The category of stress related with the pressure from teachers or supervisors usually term papers, publication of articles, loaded assignment and other teacher/supervisor related activities.
Group social-related stressors (GSRS)	Stress associated with international students working in groups such as group assignment or project work.
Moderator – Coping Strategies	The moderating effect of coping strategies on stress-academic performance interplay.
Control Variables	
Gender	International students being male or female
Level of education	The level of education, an international students have reached in their education pursuits. International student can either be bachelor, master and PhD.

B. *Participants*

The respondents of this research comprises 228 international students in Jiangsu University, China. The researcher employed proportionate random sampling in selecting the respondents. This paved way for equal representation of international students across all levels of education to fully participate and understand the nature of stress among the international students and how its influence their academic performance taking into consideration, the moderating effect of coping strategies. The respondents consist of 63.40% females and 36.60% males. Consequently, 35.96% were bachelor students, 32.90% were master students while 31.14% were PhD students.

C. *Instruments*

Questionnaires were used for the study. The three sets of questionnaires used in this study are International Students' Stressors Questionnaire (ISSQ) for measuring stressors among international students, International Students Academic Performance Questionnaire (ISAPQ) and Simplified Coping Styles Questionnaire (SCSQ) for measuring different strategies of coping. The ISSQ was adopted from Yusoff (2015; 2011). The instruments has six dimensions with 45 items (see Table 2). The ISAPQ was adopted from Academic Performance Questionnaire (APQ) developed by Shahzadi and Ahmad (2011) to measure academic performance among international students. ISAPQ contains nine items for measuring academic performance.

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SCSQ consists of 20 items referring to different ways of coping, with a total score range from 0 to 60. These sets of instruments were used for the study due to: (1) its established validity and reliability; (2) suitability for the respondents of the study; and (3) comprehensiveness in measuring the variables employed in this study (Sripowgwiwat, et al., 2018; Yusoff, 2015; 2011; Shahzadi & Ahmad, 2011). These instruments were measured using five point likert scale ranging from '1' being lowest to '5' being highest. Moreover, pilot study of the instruments were carried out and the reliabilities are reported in Table 2.

Table 2: Reliability Results of the Instruments

Variable	Number of Items	Cronbach's Alpha
ARS	10	0.903
IRS2	12	0.825
IRS1	8	0.815
LTRS	6	0.801
TRS	5	0.824
GSRS	9	0.743
ISAP	7	0.868

According to Table 2, the reliabilities of the instruments are above 0.7. This is consistent with the recommended threshold for reliabilities and findings reported in previous studies.

D. Procedure

Before the actual data collection, permission was sort from Jiangsu University before the actual data collection. Two weeks later, the researchers collected the data from the respondents. Data collection took roughly a month. All ethical considerations such as anonymity, right to inform consent and confidentiality were strictly adhered to. This enabled the researchers to clarify the misunderstandings that arose during the data collection.

E. Preliminary Checks

The researchers checked the data against the assumptions underlying multiple linear regression. Our data met all the assumptions of multiple linear regression with the exception of homoscedasticity. Henceforth, we used robust options to estimate robust standard errors to minimise the error variance in the data. As a result, multiple linear regression was identified as appropriate for this study.

F. Multiple Linear Regression Model

Following the preliminary checks, we used multiple linear regression model for our study. To do this, we set a hypothetical function for our dependent and independent variables. Equation (1) illustrates the hypothetical function involving the variables used in this study.

$$NSAP = f\left(Stress\right) \tag{1}$$

Thus, Equation (1) implies International Students Academic Performance (ISAP) is a function of stress among international students. Based on this function, we model a classical linear regression equation to reflect a linear relationship among the variables. The hypothesised linear model is written as:

$$NSAP = a_0 + \beta_1 Stress + \beta_2 Controls + \mu \tag{2}$$

where ISAP is the dependent variable, Stress represents the vector of independent variables, Controls represents the control variables ($\beta \neq 0$) respectively. Thus, Equation (2) represents a general linear regression model for ISAP, Stress relationship while controlling for other variables and u represents error term. We can simplify Equation (2) to capture the specific independent variables and the set of control variables:

$$NSAP = a_0 + \beta_1 ARS + \beta_2 IRS_1 + \beta_3 IRS_2 + \beta_4 LTRS + \beta_5 TRS + \beta_6 GSRS + \beta_7 Gender + \beta_8 Level + \mu \tag{4}$$

where ISAP is the dependent variable, $\beta_1 - \beta_6$ represent the coefficient of the independent variables ARS, IRS_1, IRS_2, LTRS, TRS, GSRS respectively. $B_7 - \beta_8$ represent coefficient of the control variables gender and level of education.

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G. Diagnostic Tests

In order to ensure accuracy and consistency in our estimates, we perform some diagnostics test on our results. Since our data did not meet homoscedasticity assumption, we used robust standard errors to minimise the error variance in our data. Additionally, we checked for the significance of the joint hypothesis using F-test and high explanatory power using the R-squared.

H. Descriptive Statistics

We conducted descriptive analysis to describe the basic features of the data and provides better understanding of our data and results. The two descriptive analysis performed in our study are mean and standard deviation and correlation analysis. Tables 2 and 3 present mean and standard deviation and correlation analysis respectively.

Table 3. Mean and Standard Deviation

Variable	All	Gender		Level of education		
		Male	Female	Bachelor	Master	PhD
	(1)	(2)	(3)	(4)	(5)	(6)
ISAP	3.561	3.364	3.522	3.641	3.640	3.682
	(0.467)	(0.439)	(0.471)	(0.464)	(0.486)	(0.486)
ARS	3.761	3.514	3.732	3.543	3.656	3.676
	(0.498)	(0.512)	(0.446)	(0.524)	(0.449)	(0.476)
IRS1	3.342	3.201	3.327	3.111	3.274	3.371
	(0.532)	(0.518)	(0.492)	(0.522)	(0.489)	(0.568)
IRS2	3.352	3.387	3.436	3.333	3.342	3.563
	(0.519)	(0.526)	(0.513)	(0.521)	(0.506)	(0.539)
LTRS	3.678	3.812	3.822	3.718	3.708	3.770
	(0.501)	(0.462)	(0.430)	(0.452)	(0.386)	(0.511)
TRS	3.738	3.567	3.851	3.627	3.747	3.868
	(0.416)	(0.449)	(0.372)	(0.432)	(0.380)	(0.468)
GSRS	3.712	3.802	3.851	3.741	3.869	3.770
	(0.423)	(0.471)	(0.327)	(0.442)	(0.370)	(0.424)
Observation	228	83	145	82	75	71

Standard errors are in parentheses

The result in Table 3 shows that the mean values reported by the participants are generally high (above 3) for both stress and performance. Even though, females reported relatively higher mean score than males except for academic performance but generally both students reported high means. On the contrary, the pattern of mean score is not uniform among students based on the level of education (See Table 2).

Table 4: Correlation Matrix

	ISAP	ARS	IRS1	IRS2	LTRS	TRS	GSRS
ISAP	1						
ARS	0.281	1					
IRS1	0.358	0.354	1				
IRS2	0.268	0.278	0.435	1			
LTRS	0.472	0.520	0.314	0.443	1		
TRS	0.467	0.383	0.284	0.323	0.157	1	
GSRS	0.496	0.504	0.456	0.228	0.179	0.418	1

Table 4 shows the correlation matrix. Thus, the relationship among the variables, however, such relationship is low especially among the independent variables. The result shows absence of any multicollinearity among the independent variables.

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III. EMPIRICAL RESULTS

Based on the empirical model used in this study, we used ordinary least square estimator to estimate all our results. We perform series of estimations to examine the phenomenon in detail. The results are presented based on the objectives for this study.

A. The Effects of Stress on International Students' Academic Performance

This section of the study presents the empirical results of the effects of stress on international students' academic performance. We performed hierarchical regression to ensure better understanding of the results. Table 5 presents the result of the effects of stress on international students' academic performance.

Table 5: Effects of Stress on International Students' Academic Performance

ISAP	**(7)**	**(8)**	**(9)**	**(10)**
ARS		-0.142***		
		(0.036)		
	-0.145***		-0.139***	-0.139***
	(0.035)		(0.037)	(0.037)
IRS1	0.065	0.075	0.074	0.079
	(0.052)	(0.053)	(0.050)	(0.051)
IRS2	0.048	0.041	0.060	0.053
	(0.055)	(0.055)	(0.054)	(0.055)
LTRS	-0.813***	-0.815***	-0.852***	-0.846***
	(0.088)	(0.092)	(0.086)	(0.089)
TRS	-0.309***	-0.323***	-0.332***	-0.337***
	(0.099)	(0.104)	(0.096)	(0.099)
GSRS	-0.400***	-0.427***	-0.382	-0.404***
	(0.094)	(0.096)	(0.088)	(0.091)
		-0.084*		-0.057
Gender		(0.046)		(0.052)
			-0.059***	-0.048*
Level			(0.023)	(0.026)
		0.422***		
		(0.152)		
	0.375**		0.406***	0.432**
Cons	(0.145)		(0.148)	(0.153)
		139.3***		
F test	168.47***		135.28***	121.82***
		0.554		
				0.560
R-squared	0.547		0.557	
Observations	228	228	228	228

Dependent variable: International student academic performance. Robust standard errors are in parentheses.

The result in Table 5 shows that academic related stressors, learning and teaching related stressors, teacher related stressors and group social related stressors significantly and negatively affect international students' academic performance with or without controlling for students characteristics. For all the estimations, learning and teaching related stressors remained the highest predictor of international students' academic performance (see Table 4). On the contrary, academic related stressors remained the weakest significant predictor among other predictors with or without controlling for students characteristics such as gender and level of education.

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B. Extent to which the Effects of Stress on International Students' Academic Performance differ based on Students Characteristics

This section of the work examined the differences in the effects of stressors on academic performance of international students based on their characteristics such as gender and level of education.

Table 6: Effects of Stress on International Students' Academic Performance differ based on Students Characteristics

	Gender		Level of education		
ISAP	Male	Female	Bachelor	Master	PhD
	(11)	(12)	(13)	(14)	(15)
ARS	-0.074 *	-0.227 ***	-0.085**	-0.309***	-0.177**
	(0.040)	(0.065)	(0.042)	(0.085)	(0.063)
IRS1	0.020	0.134	0.051	0.313	-0.074
	(0.064)	(0.087)	(0.029)	(0.164)	(0.092)
IRS2	0.059	0.036	0.079	-0.041	0.116
	(0.067)	(0.093)	(0.089)	(0.118)	(0.118)
LTRS	-0.774 ***	-0.837 ***	-1.026***	-0.764***	-0.735***
	(0.142)	(0.112)	(0.018)	(0.168)	(0.135)
TRS	-0.408 **	-0.215 *	-0.475	-0.200	-0.314***
	(0.163)	(0.127)	(0.292)	(0.234)	(0.018)
GSRS	-0.539 ***	-0.285 *	-0.426	-0.291	-0.447***
	(0.128)	(0.145)	(0.294)	(0.212)	(0.141)
Cons	0.256 *	0.441	-0.094	0.593	0.460
	(0.138)	(0.310)	(0.098)	(0.377)	(0.251)
F test	143.08***	45.95***	74.50***	33.93***	52.53***
R-squared	0.684	0.411	0.786	0.431	0.572
Observations	83	145	82	75	71

Dependent variable: International student academic performance. Robust standard errors are in parentheses.

According the results in Table 6, academic related stressors has higher effects on international students' academic performance among female students (β = -0.227, p<0.01) than male students (β = -0. 074, p<0.1), even though both effects are negative. Similarly, the effects of learning and teaching related stressors on international students' academic performance is higher for female students (β = -0.837, p<0.01) than male students (β = -0.774, p<0.01). On the contrary, teacher related stressors affects academic performance of male students (β = -0.408, p<0.05) than female students (β = -0.215, p<0.1). This result is similar to the effects, group social related stressors has on both male and female students' academic performance (see Table 6).

Concerning the extent to which the effects of stress on students' academic performance differ among international student's levels of education, the result does not follow a particular trend. For instance, while the effects of academic related stressors on students' academic performance is strongest for master students, learning and teaching related stressors affects the academic performance of bachelor students the most as compared to master and PhD students (see Table 6). Surprisingly, the effects of teacher related stressors and group social related stressors were significant only for PhD students (β = -0.314, p<0.01) and (β = -0.447, p<0.01) respectively.

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Table 7: Moderating Effects of Problem-Focused Coping Mechanism on the Relationship between Stressors and Academic Performance of International Students

Eoc	Coef.	Coef.	Std. Err.	T		P>|t|	
Step 1 (Control Variables)							
_cons	3.350*** (0.132)	2.890*** (0.457)	2.570*** (0.383)	2.387*** (0.350)	1.548*** (0.553)	1.871*** (0.623)	1.723*** (0.695)
Gender	0.145*** (0.066)	0.098* (0.064)	0.099* (0.064)	0.124** (0.065)	-0.104** (0.054)	-0.110*** (0.048)	-0.130*** (0.053)
Nationality	-0.112*** (0.040)	-0.079** (0.039)	-0.070* (0.039)	-0.068* (0.040)	-0.056* (0.032)	-0.081*** (0.029)	-0.047 (0.031)
Level of Education	0.091*** (0.027)	0.081*** (0.026)	0.054** (0.027)	0.079*** (0.027)	0.049*** (0.022)	0.045** (0.020)	0.052*** (0.021)
Step 2 (Independent Variables)							
ARS		-0.338** (0.173)					
IRS1			-0.168 (0.145)				
IRS2				-0.386** (0.162)			
LTRS					-0.761*** (0.169)		
TRS						-0.700*** (0.161)	
GSRS							-0.676*** (0.180)
Problem-focused (PFC)		0.236*** (0.114)	0.105*** (0.94)	0.237*** (0.112)	0.236*** (0.105)	0.217*** (0.092)	0.096* (0.50)
ARS X PFC		0.095*** (0.037)					
IRS1 X PFC			0.035 (0.023)				
IRS2 X PFC				0.084*** (0.039)			
LTRS X PFC					0.149*** (0.041)		
TRS X PFC						0.119*** (0.039)	
GSRS X PFC							0.102*** (0.046)
F-test	3.960***	5.420***	5.390***	4.010***	23.100***	38.340***	26.620***
Rsquared	0.290	0.128	0.128	0.098	0.385	0.510	0.420
Adj Rsq.	0.278	0.105	0.104	0.074	0.369	0.497	0.404
OBS							

Dependent variable: International student academic performance. Significance levels are two-tailed n = 288.

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The moderation analyses were conducted. The interaction between problem focused strategies and stress variables; ARS, IRS2, LTRS, TRS, GSRS were statistically significant while the interactions between Problem-focused strategies and IRS1 was statistically insignificant.

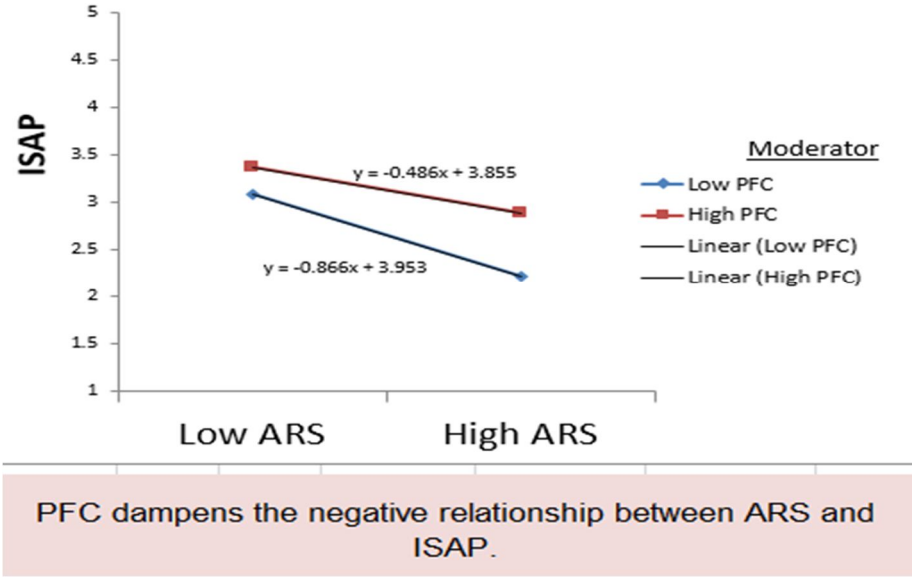

Fig 1: Effect of interaction of Problem-focused coping and Academic-related stressor on International Students' Academic Performance.

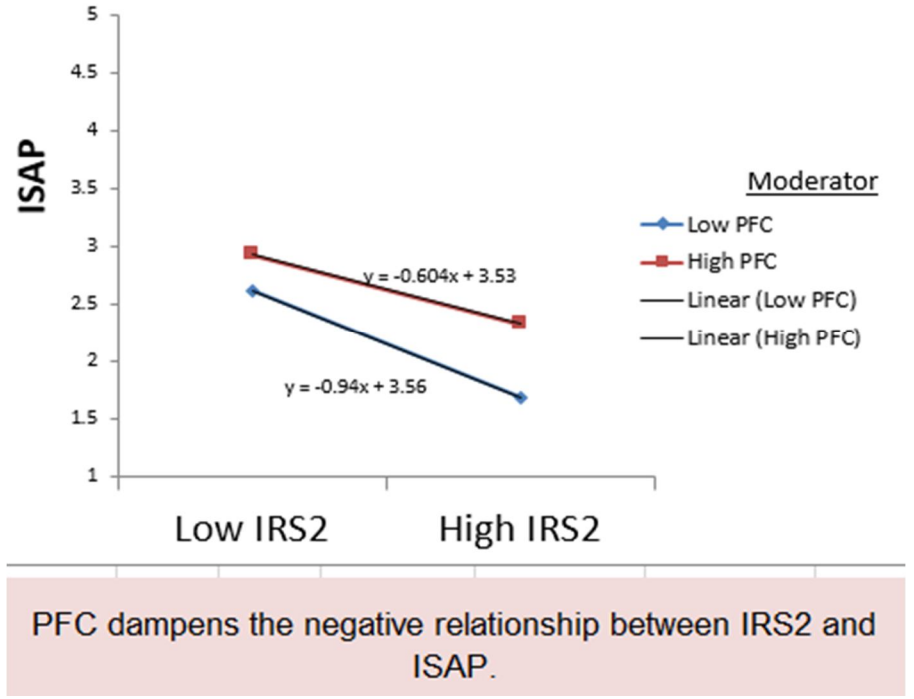

Fig 2: Effect of interaction of Problem-focused coping and Interpersonal-related stressor on International Students' Academic Performance.

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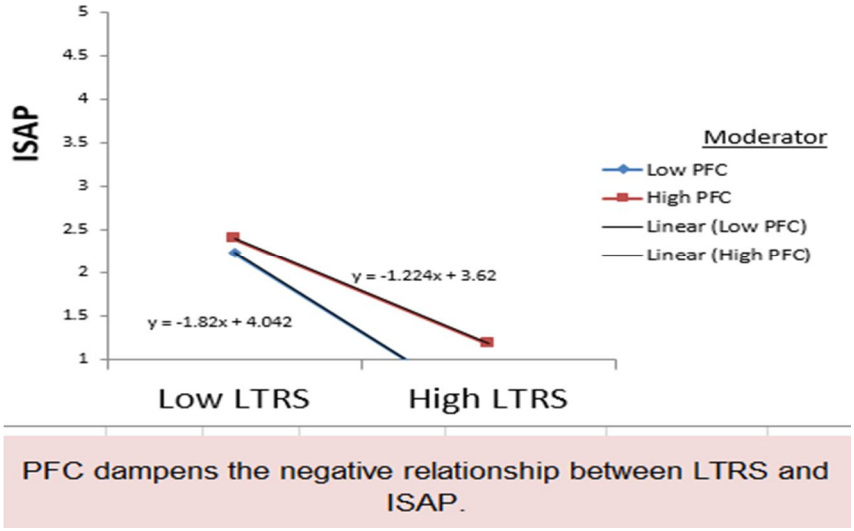

Fig 3: Effect of interaction of Problem-focused coping and Learning and teaching-related stressor on International Students' Academic Performance.

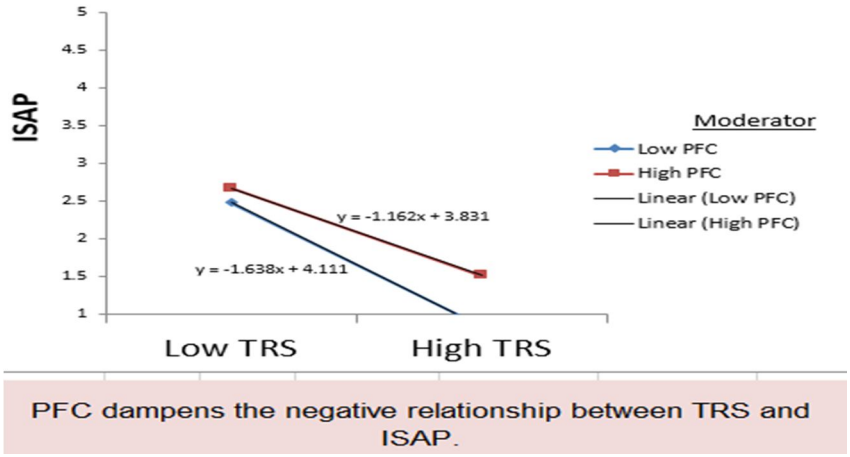

Fig 4: Effect of interaction of Problem-focused coping and Teacher-related stressor on International Students' Academic Performance.

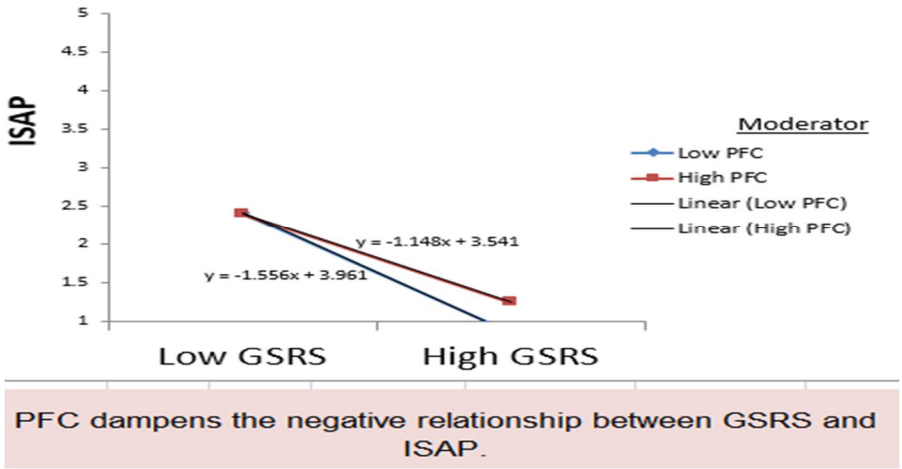

Fig 5: Effect of interaction of Problem-focused coping and Group social-related stressor on International Students' Academic Performance.

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Table 8: Moderating Effects of Emotion-Focused Coping Mechanism on the Relationship between Stressors and Academic Performance of International Students

	International Students Academic Performance						
Step 1 (Control Variables)							
_cons	3.350*** (0.132)	2.125** (0.827)	2.257*** (0.654)	2.046** (0.854)	2.049** (0.746)	1.157** (0.626)	2.336*** (0.766)
Gender	0.145*** (0.066)	-0.092* (0.064)	0.096* (0.055)	0.096* (0.065)	-0.112** (0.055)	-0.099** (0.049)	-0.124*** (0.053)
Nationality	-0.112*** (0.040)	-0.070** (0.039)	-0.069** (0.039)	-0.063** (0.039)	-0.067** (0.033)	-0.059** (0.029)	-0.112*** (0.031)
Level of Education	0.091*** (0.027)	0.081*** (0.026)	0.056** (0.027)	0.082** (0.026)	0.052** (0.022)	0.046** (0.020)	0.054** (0.021)
Step 1 (Moderation Analysis)							
ARS		-0.311 (0.226)					
IRS1			-0.362* (0.212)				
IRS2				-0.366 (0.261)			
LTRS					-0.652*** (0.200)		
TRS						-0.901*** (0.192)	
GSRS							-0.342* (0.204)
Emotion-focused (EFC)		0.121 (0.213)	0.142 (0.165)	0.213 (0.209)	0.378** (0.194)	0.468*** (0.192)	-0.312 (0.216)
ARS X EFC		-0.019 (0.058)					
IRS1 X EFC			0.033 (0.052)				
IRS2 X EFC				-0.051 (0.063)			
LTRS X EFC					0.116** (0.052)		
TRS X EFC						0.140*** (0.050)	
GSRS X EFC							0.89* (0.057)
F-test	3.960***	5.700***	5.410***	4.370***	21.720***	37.550***	27.420***
Rsquared	0.290	0.134	0.128	0.106	0.371	0.505	0.427
Adj Rsq.	0.278	0.111	0.104	0.082	0.354	0.491	0.411
Motion							

Dependent variable: International student academic performance. Significance levels are two-tailed n = 288.

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Three moderation analyses were conducted. The interaction between Emotion-focused strategies and LTRS, TRS were statistically significant while the interactions between E-motion-focused strategies and IRS1 ARS, IRS2, LTRS, TRS, GSRS was statistically insignificant.

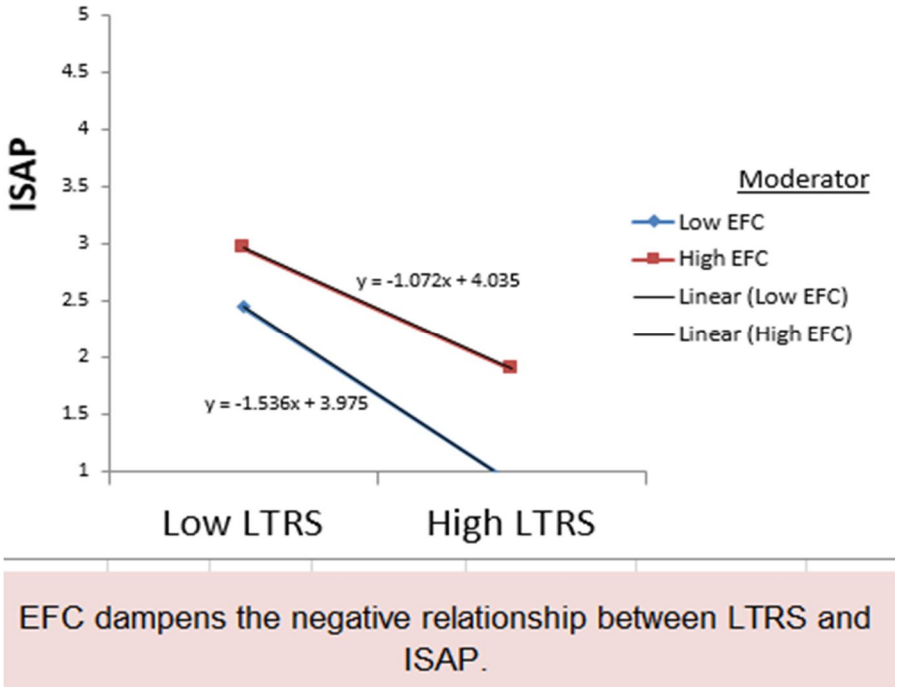

Fig 6: Effect of interaction of Emotion-focused coping and Learning and teaching-related stressor on International Students' Academic Performance.

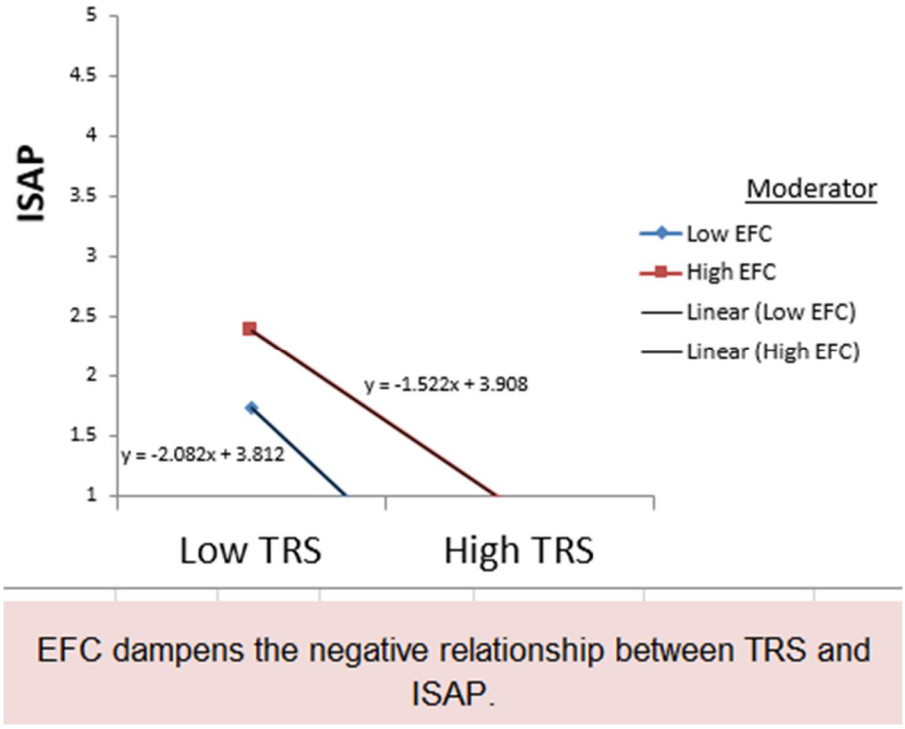

Fig 7: Effect of interaction of Problem-focused coping and Teacher-related stressor on International Students' Academic Performance.

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IV. DISCUSSION

The findings of this study provide empirical evidence for stress, coping strategies and performance literature as it discloses the effects of stress on academic performance of international students, taking into consideration the moderating role coping strategies. The study revealed that academic related stressors, learning and teaching related stressors, teacher related stressors and group social related stressors have negative effects on international students' academic performance given the prevailing students characteristics such as gender and level of education. Generally, the results revealed that stressors have negative effects on international students' academic performance. It implies that regardless of international students' gender and level of education, they experience similar stress and these impacts negatively on their academic performance. Additionally, the result revealed that learning and teaching related stressors was the highest predictor of international students' academic performance. Thus, the teaching and learning interaction brings more stress than other types of stressors.

This finding is consistent with the findings of Aafreen, et al. (2018) who found out that stress is a negative predictor of students' academic stress. Surprisingly, academic related stressors had the weakest effects on students' academic performance. This finding contradicts the earlier finding where learning and teaching related stressors is the strongest predictor of students' academic performance. Probably, after teaching and learning interactions, students are giving less work in the form of assignments and out of school academic activities. Hence, compared to other stressors, the actual academic related stressors is less. Said differently, it appears academic related activities are either within the scope of the general students' expectations or a little above students' expectations which does not really affects their academic performance. The general finding of this study validate the findings of Rafidah, et al. (2009) where stress has significant influence on students' academic performance.

Furthermore, the results show that academic related stressors compared with male students adversely influence female students' academic performance. Similarly, female students' academic performance is highly influenced by learning and teaching related stressors than male students. These seem to suggest that female international students find academic related activities as well as learning and teaching activities to be more stressful and impacts adversely on their academic performance more than their male counterparts. These findings further confirms earlier findings of Maloney, et al. (2012) and Shessel (2003) where stress impacts was high in female students than male students. Unexpectedly, male students rather reported higher adverse effects of teacher related stressors on their academic performance than female students.

Logically, female students whose academic performance are adversely influence by academic related stressors and learning and teaching related stressors are expected to report more adverse effects of teacher related stressors than male students. The result may mean that female students have relationship that is more cordial with their teachers and ability to handle stress related activities from teachers than male students. Hence, related stressors from teachers are much more handled by the females than males. Similarly, male revealed higher effects of group social related stressors on their academic performance than female students did. Thus, male students feel much stressed in group and social related activities than female students. This finding contradicts that of Sripowgwiwat, et al. (2018) who found significant difference between male and female students in only academic related stressors.

Additionally, master students reported stronger effects of academic related stressors on their academic performance than bachelor and PhD students. On the contrary, bachelor students reported stronger effect of learning and teaching related stressors on their academic performance compared to master and PhD students. Besides, teacher related stressors and group social related stressors influence the academic performance of only PhD students. This is not surprising since PhD students are sometimes prone to high pressure from their supervisor and uncooperative attitudes of their colleagues during their term papers and project works. Hence, these pressures put much stress on them and consequently it adversely affects their academic performance. This finding partly confirms the findings of Bilali1 and Bilali (2015) with teacher and learner relationship stress was high among bachelor students while PhD students reported high-perceived stress on their academic performance compared to bachelor and master students. The findings of this study confirms the study of Sripowgwiwat, et al. (2018) who found significant difference between lower and higher secondary group students in all the six stressors.

Moreover, Problem-focused strategies minimized stressors and was positively related to academic performance. This is consistent with the studies conducted by (Lacković-Grgin, 2004; Lazarus & Folkman, 2004, Deasy et al. 2014a; Gustems and Calderon 2013; Pietarinen et al. 2013), demonstrating that academic performance depends in part upon how students perceive and cope with stressful conditions (Murray-Harvey et al. 2000; Stormont and Young-Walker 2017; Vaez and Laflamme 2008). Doron et al. 2009 argues that problem-focused coping strategies can mitigate the adverse impact of stress and lead to more positive results. Rogaten and Moneta (2017) continues that students who employ problem-focused strategies during revision for examination, adopt more active strategies, such as planning or seeking social support for instrumental reasons, can stimulate their performance positively.

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Cohen et al., (2008) adds that Problem-focused strategies are usually considered to be direct predictors of better academic performance. Again, the literature reveals that, students who resort to problem-focused coping stratagems, such as seeking social help (Väisänen et al. 2018), and who makes effort to improve their hectic conditions (Mapfumo, Chitsiko, and Chireshell 2012) acclimatize and achieve higher levels of performance. Shaheen & Alam, (2010) maintains that, problem-focused coping strategies are adaptive coping devices that minimize stress experienced by international students.

V. CONCLUSION AND RECOMMENDATIONS FOR PRACTICE

The overall objective of this study was to investigate the effects of stress on international students' academic performance. Based on the findings, the following conclusions are drawn. Firstly, stress adversely affects the performance of international students at Jiangsu University regardless of their gender and level of education. However, learning and teaching related stressors is the worst enemy to students' academic performance.

Secondly, academic related stressors, and learning and teaching related stressors adversely affect female students' academic performance more, compared with that of male students. On the contrary, teacher related stressors and group social related stressors adversely affects male's academic performance than that of their female counterpart. Bachelor students experience more learning and teaching related stressors effects than other students while master students' experiences more academic related stressors effects than bachelor and PhD students do. However, teacher related stressors and group social related stressors only influence the academic performance of PhD students.

Thirdly, this study has empirically revealed the positive beneficial impacts of the moderating role of coping strategies on stress–academic performance interaction. By incorporating stress and academic performance under the condition of problem-focused coping strategies, international students may become more productive and achieve higher performance in their academic endeavors.

Based on the conclusions, the following recommendations are made. Firstly, international students at Jiangsu University should learn and develop coping strategies to deal with all kinds stressors. The management of Jiangsu University should include coping strategies for stressors in their orientation programme for international students' especially bachelor students. Lecturers should also use different kinds of approaches to minimize stress among international students. Secondly, female students should develop more coping strategies for academic related stressors, and learning and teaching related stressors while male students should develop more coping strategies for teacher related stressors and group social related stressors. More so, bachelor students should develop extra coping strategies for learning and teaching related stressors while master students' focus more on academic related stressors. However, PhD students should develop extra coping strategies for dealing with teacher related stressors and group social related stressors.

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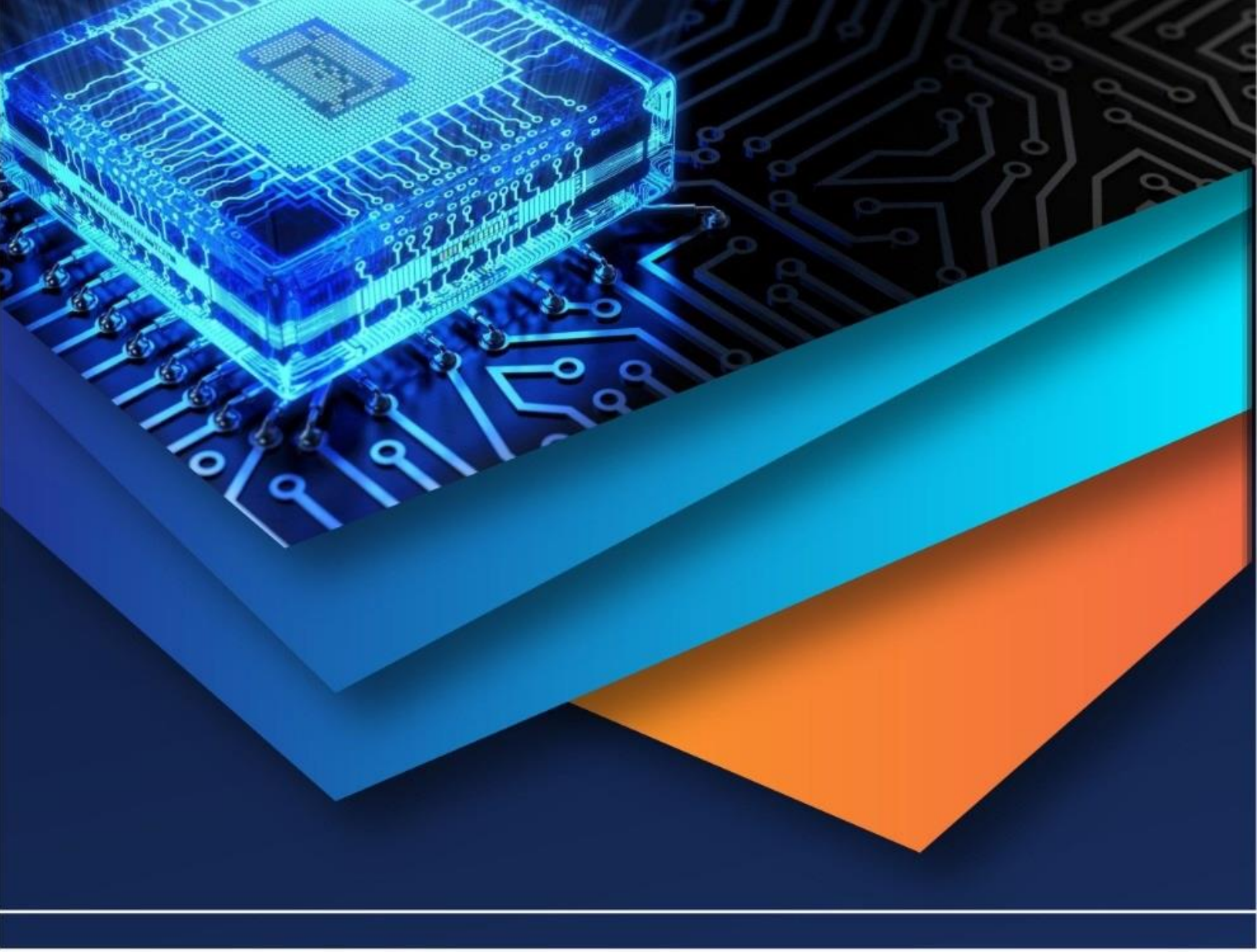

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