

# The Mediating Role of Psychological Capital Between Academic Stress and Well-Being Among University Students

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## ABSTRACT

In the current study, we investigated the relationships among academic stress, psychological capital (PsyCap), and well-being and the effect of the demographic variables of gender, majors, and academic years on academic stress and PsyCap. We used the structural equation model to investigate the mediating role of PsyCap between academic stress and well-being. The participants ( $N = 827$ ) included students from a midsized university in the Eastern Province of Saudi Arabia (636 females, 191 males) who comprised 450 science and 377 humanities majors from all academic years. To collect data, we utilized the Academic Stress Inventory, the Psychological Capital Questionnaire, and the Warwick-Edinburgh Mental Well-Being Questionnaire. The structural equation model analysis results revealed that PsyCap was a full mediator between academic stress and well-being. Gender did not affect on PsyCap or academic stress. In addition, the academic majors affected PsyCap: Students in the humanities majors had better PsyCap than those in the science majors. Furthermore, the academic years affected academic stress; specifically, academic stress decreased as students progressed through their academic years. Therefore, science majors in their first academic year were the most in need of a PsyCap-based intervention.

**Keywords:** Psychological capital (PsyCap), academic stress, well-being, structural equation model, undergraduate students

## INTRODUCTION

Universities are the main resource for youth competencies that promote the development of society in all fields. Therefore, the professional preparation of undergraduate students should include both academic and psychological aspects so that students can positively engage in personal and career development. Well-being is a sustainable state that allows individuals to develop and thrive. Those with high levels of well-being perform effectively, realize their potential in terms of independence and personal growth, and feel life satisfaction (Bodeker et al., 2020; Magyar & Keyes, 2019). Well-being among university students is expressed through a combination of positive feelings, such as being happy, having a purpose in life, developing their potential, controlling their lives, and having positive relationships with others (Huppert, 2009). Additionally, well-being plays a role in individuals' professional and personal success because those who possess high levels of well-being demonstrate more effective learning, creativity, productivity, and social relationships (Ruggeri et al., 2020).

Furthermore, academic stress is a critical issue to be addressed in the university environment. It has been well established in a variety of studies that academic stress can negatively affect many academic aspects, such as academic performance and achievement (Akgun & Ciarrochi, 2003), coping strategies (Basith et al., 2021), and academic adjustment (Heikkilä et al., 2012). Extensive research has shown that high academic stress leads to a decrease in achievement, can lead to dropouts, and affects mental and physical health (e.g., Ryan & Twibell, 2000).

PsyCap refers to an individual's positive psychological resources (You, 2016). PsyCap consists of four interacting components: self-efficacy, hope, optimism, and resilience (Avey et al., 2010; B. C. Luthans et al., 2012; F. Luthans, Avolio, & Youssef, 2007; F. Luthans, Avolio, Avey, et al., 2007; F. Luthans & Youssef-Morgan, 2017). PsyCap represents an individual's positive state of self-confidence and a sense of ability to set and achieve diverse goals for life and work. Additionally, PsyCap

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enables individuals to interpret events positively and discover various ways to accomplish goals, persevere, and overcome difficulties and adversity (Youssef-Morgan & Luthans, 2015). It is important to note that because PsyCap is a malleable and developable variable (F. Luthans et al., 2010), PsyCap-based intervention programs can help to improve its vital elements (i.e., self-efficacy, hope, optimism, and resilience) in individuals.

Although previous literature has emphasized the role of PsyCap in fostering positive organizational and work outcomes, there is limited research attempting to investigate a similar role in the academic context. Furthermore, previous studies regarding the mediating role of PsyCap between academic stress and well-being have used hierarchical multiple-regression analysis (Rioli et al., 2012) or path analysis (Poots & Cassidy, 2020). Additionally, few studies have relied on the structural equation modeling approach in examining the mediating role of PsyCap between academic stress and well-being. Structural equation modeling has two advantages over multiple regression: It enables the examination of several paths concurrently, and it can control measurement errors to improve statistical-estimation accuracy (Kline, 2005). Therefore, in the current study we use the structural equation modeling approach to investigate the mediating role of PsyCap between academic stress and well-being among university students. Additionally, we add to the existing literature by including demographic variables (i.e., gender, majors, and academic years) to the model of the relationship among academic stress, PsyCap, and well-being. The following questions guided our current study:

1. How does academic stress affect the well-being of university students through PsyCap?
2. What group needs a PsyCap-based intervention according to the variables of gender, majors, and academic years?

## LITERATURE REVIEW

### Well-Being

Well-being is a central concept in the positive psychology field (Luștrea et al., 2018). Well-being is commonly associated with happiness in the academic context. Furthermore, Well-being matches an individual's self-perception and expectations based on their values and aspirations (Trout & Alsandor, 2020). However, well-being is not only a state of happiness but also an individual's self-awareness and realization of life's meaning (Waterman, 1993; Youssef-Morgan & Luthans, 2015). Other researchers have viewed well-being as a process in which individuals avoid pain and achieve pleasure (Kahneman et al., 1999). Linton et al. (2016) indicated that well-being represents the psychological, cognitive, and emotional quality of an individual's life that includes thoughts, emotions, and experiences about their state of happiness.

Multiple terms are used to express well-being. For example, social well-being represents individuals' success in facing the challenges and tasks in their social environment (Keyes, 2005). Another example is subjective well-being, which refers to the balance between positive and negative emotions to achieve happiness (Awad & Mayasari, 2015). Psychological well-being refers to individuals' liberation from negative influences, such as anxiety and depression, and reflects an understanding of their potential positive personal development (Luștrea et al., 2018). Well-being represents a positive state that results from emotional, psychological, and social interaction factors, without which it cannot be achieved. Therefore, we adopted the following definition of well-being: a positive psychological state resulting from self-satisfaction, a feeling of happiness, high-quality relationships with others, stress management, and psychological functioning (Defeyer et al., 2021; Green et al., 2021; Tennant et al., 2007).

### Academic Stress

Academic stress is an important element of students' academic life because it can either push them to work hard to achieve the results they desire or lead to anxiety and depression or otherwise, negatively affect their mental health (Chua et al., 2018). Furthermore, high academic stress leads to lower academic performance and dropouts (Freire et al., 2016; Ryan & Twibell, 2000), and impairs memorization skills (Lee & Oh, 2017). According to Lin and Chen (2009), academic stress comprises stress from seven factors: teachers, results, tests, studying in groups, peers, time management, and self-inflicted. We adopt that formulation for this study.

### Psychological Capital

PsyCap is a higher-order component that operates through a critical mechanism of positive emotions and has a motivating role in human behavior (F. Luthans, Avolio, & Youssef, 2007; Martínez et al., 2021). PsyCap includes four capacities: self-efficacy, hope, optimism, and resilience (Avey et al., 2010, 2011). Self-efficacy is a cognitive and affective state that represents individuals' belief and confidence in their abilities. It means that individuals will be able to mobilize motives and cognitive resources to implement the necessary measures to achieve success in a specific task regardless of the circumstances (Avey et al., 2010; Gautam et al., 2019).

Hope is a positive motivational state that includes willpower and determination to pursue challenging but realistic goals and find alternative paths to achieve them when facing obstacles and problems. Hope is a dynamic cognitive and motivational system that works to stimulate cognitive processes and emotional responsibility that drives individuals toward achieving their goals (Snyder, 2002; Snyder et al., 1991).

Optimism is a positive attribution of present and future success (F. Luthans et al., 2006; F. Luthans, Avolio, & Youssef,

2007; F. Luthans, Avolio, Avey, et al., 2007; F. Luthans & Youssef-Morgan, 2017). According to Carver et al. (2010), “Optimism is an individual difference variable that reflects the extent to which people hold generalized favorable expectancies for their future” (p. 879). Optimistic individuals take personal responsibility for the positive outcomes in their lives and use an optimistic explanatory style to deflect responsibility for negative encounters (Peterson, 2000).

Finally, resilience is individuals’ capacity to respond to negative or positive stressful situations and in some circumstances, to even prosper from them (Luthans et al., 2006). Self-efficacy, hope, and optimism act as pathways to resilience. For example, confident, hopeful, and optimistic individuals are more likely to respond and prosper from adversity than those who are not. Resilience denotes bouncing back and even flourishing when confronted with problems and adversity (Luthans & Youssef-Morgan, 2017).

## THEORETICAL FRAMEWORK

We designed the model of the study to investigate the mediating role of PsyCap between academic stress and well-being and to explore the effect of the demographic variables of gender, majors, and academic years on academic stress and PsyCap. In the context of higher education, Avey et al. (2011) tested a model of the relationship between PsyCap, positive emotions (e.g., happiness, love, and joy), and well-being using a sample of business administration students; the results revealed that positive emotions, anxiety, and stress partially mediated the effect of PsyCap on well-being. Furthermore, Riolli et al. (2012) used hierarchical regression to analyze the relationship among PsyCap, well-being, and stress. They found that PsyCap mediated student stress and psychological and physical well-being. Other researchers indicated that higher levels of PsyCap yielded enhanced levels of positive emotions that reduce anxiety and stress and thus increase well-being (Hazan Liran & Miller, 2017; B. C. Luthans et al., 2013). PsyCap has been used to improve the overall well-being of students (F. Luthans et al., 2015; Prasath et al., 2021; You, 2016).

Moreover, some research has investigated the relationship between academic stress and PsyCap and found a negative, statistically significant relationship between academic stress and PsyCap among university students (Chua et al., 2018; Yang & Yang, 2022; Zhong & Ren, 2009). Poots and Cassidy (2020) indicated that academic stress negatively affected well-being, while PsyCap positively affected well-being, and path analysis results revealed that PsyCap partially mediated the relationship between academic stress and well-being. Additionally, academic stress among undergraduate university students led to a considerable decrease in well-being (Barbayannis et al., 2022; Green et al., 2021; Yovita & Asih, 2018).

Regarding demographics, some studies have found that academic stress among females is significantly higher than

among males (Basith et al., 2021; De la Fuente et al., 2021; Dixon & Kurpius, 2008; Lee et al., 2021; Yang & Yang, 2022). To date, there have been few empirical results related to the relationship between academic stress and majors. Furthermore, there have been inconsistent results regarding the relationship between academic stress and academic years. Although those who are closing graduation experience more academic stress than those who are just beginning their studies (Dixon & Kurpius, 2008; Yang & Yang, 2022), the academic stress was much higher for first-year students than for senior students (Barbayannis et al., 2022; Wyatt et al., 2017). In addition, Basith et al. (2021) found that both first- and fourth-year students experienced high levels of academic stress.

In terms of the association of PsyCap and demographic variables, You (2016) discovered significant differences in PsyCap between males and females in favor of males. However, PsyCap was unrelated to gender (Riolli et al., 2012; Yang & Yang, 2022) or majors (You, 2016). Furthermore, whereas You (2016) and Rad et al. (2017) concluded that academic years did not affect PsyCap among university students, Yang and Yang (2022) found that senior students maintain a higher PsyCap than first-year students.

Most previous studies investigated the direct relationship between academic stress and well-being regardless of the possibility of mediator variables (Malik et al., 2020; Zhong & Ren, 2009). Therefore, for several reasons, there is a need to study PsyCap as a mediator variable. PsyCap has a potential advantage as a positive resource for human behavior—malleability (F. Luthans et al., 2010). Additionally, PsyCap has a unique feature in that it is neither as stable as personality traits nor as rapidly changing as emotions (F. Luthans, Avolio, Avey, w., 2007; F. Luthans & Youssef-Morgan, 2017). Also, PsyCap is positively affected by short training interventions (B. C. Luthans et al., 2013). Moreover, we included demographic variables (i.e., gender, majors, and academic years) in the model to explore their effect on both academic stress and PsyCap to reveal the group in need of PsyCap-based intervention. Figure 1 represents our hypothesized model.

Figure 1 is based on previous studies, which confirmed the negative relationship between academic stress and well-being, the negative relationship between academic stress and PsyCap, and the positive relationship between PsyCap and well-being among university students.

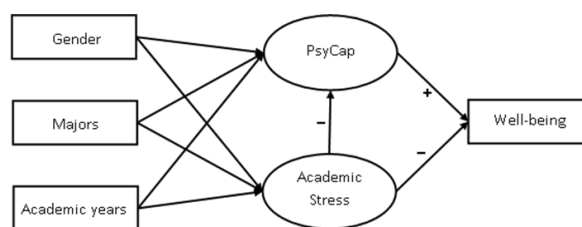


Fig.1: Hypothesized model

## METHODOLOGY

### Study Design and Sampling Procedures

We employed a cross-sectional design (Neuman, 2005). Our target population was undergraduate students at a mid-sized university in the Eastern Province of Saudi Arabia. A sample of 827 undergraduate students participated in this study. The number of females was 636 (76.9%), and the number of males was 191 (23.1%). Additionally, the number of participants from the science majors was 450 (54.4%), and the number of participants from the humanities majors was 377 (45.6%).

### Data Sources

We measured well-being as a general factor using the Warwick-Edinburgh Mental Well-Being Questionnaire (Tennant et al., 2007), which consists of 14 items on a 5-point Likert scale. McDonald's omega reliability coefficient of this questionnaire was 0.92, which is considered a high reliability rate (Hayes & Coutts, 2020). We measured PsyCap using the Academic PsyCap Questionnaire (Luthans et al., 2012), which consists of 24 items that measured the following four factors: self-efficacy (Items 1–6), hope (Items 7–12), resilience (Items 13–18), and optimism (Items 19–24). Additionally, we asked the participants to respond to the questionnaire using a 6-point Likert scale. We estimated McDonald's omega reliability coefficient for each factor: 0.87, 0.88, 0.83, 0.83, respectively.

We measured academic stress using the Academic Stress Inventory (Lin & Chen, 2009), consisting of 34 items on a 5-point Likert scale. This inventory assumes that academic stress consists of seven factors: teacher stress (Items 1–9), results stress (Items 10–14), test stress (Items 15–18), studying in groups stress (Items 19–23), peer stress (Items 24–27), time management stress (Items 28–30), and self-inflicted stress

(Items 31–34). We estimated McDonald's omega reliability coefficient for each factor: 0.88, 0.81, 0.74, 0.80, 0.71, 0.82, and 0.77, respectively.

### Procedures

We obtained ethical approval from the university's Institutional Review Board (IRB-2020-15-225). We collected data through a four-part online questionnaire. The first part focused on questions about demographic data: gender, majors, and academic years. The remaining three parts were the Warwick-Edinburgh Mental Well-Being Questionnaire, Academic PsyCap Questionnaire, and Academic Stress Inventory.

### Statistical Analysis

We used SPSS 26.0 to conduct correlation analysis, estimate descriptive statistics, and check the normality distribution of variables in the current study. In addition, we used the Mplus 7.0 software to conduct structural equation modeling. It implements likelihood estimation to examine the relationships among the target variables and to investigate how PsyCap mediates the relationship between academic stress and well-being.

## RESULTS

To verify the appropriateness of the use of structural equation analysis, we examined the data to test the assumptions of linearity and normality (Byrne, 2010). Table 1 shows the results of the Person correlations and descriptive statistics to verify the assumptions.

According to Finney and DiStefano (2006), a variable is nonnormally distributed if the skewness coefficient exceeds  $\pm 2$  and the kurtosis coefficient exceeds  $\pm 7$ ; the skewness and

**Table 1:** Person Correlations and Descriptive Statistics of the Study Variables (N = 827)

Variables	1	2	3	4	5	6
Well-Being	—					
PsyCap	0.76**	—				
Academic Stress	-0.38**	-0.36**	—			
Gender	-0.01	-0.02	0.01	—		
Majors	0.10**	0.13**	-0.07	-0.25**	—	
Academic Years	0.03	0.05	-0.089*	-0.06	0.21**	—
Mean	4.70	4.55	3.71	—	—	—
SD	0.88	0.84	0.95	—	—	—
Skewness	-1.01	-0.66	0.06	—	—	—
Kurtosis	1.66	0.77	-0.30	—	—	—
Observed Range	1–6	1–6	1–6	—	—	1–4
Expected Range	1–6	1–6	1–6	—	—	1–6

Note: Coding: male = 1, female = 2; science major = 1, humanities major = 2

\* $p < .05$ , \*\* $p < .001$



kurtosis values in Table 1 indicate a normal distribution of the study's variables. Additionally, Table 1 shows a significant positive correlation between PsyCap and well-being and a significant negative correlation between PsyCap and academic stress. There was a significant negative correlation between academic stress and well-being.

Regarding demographic variables, gender did not significantly correlate with academic stress, PsyCap, or well-being. Majors correlated significantly with PsyCap and well-being but did not correlate significantly with academic stress. Academic years correlated significantly with academic stress but did not correlate significantly with PsyCap or well-being.

### Structural Equation Model Analysis

We conducted a structural equation model analysis to explain the relationship between academic stress and well-being as mediated by PsyCap, especially when the demographic variables—gender, majors, and academic years—were added to the model (Figure 1). We employed Mplus 7 to analyze the matrix of covariances for the variables included in the suggested model using the maximum likelihood estimation. We evaluated the overall fit of the model based on several indicators (Byrne, 2010), as shown in Table 2.

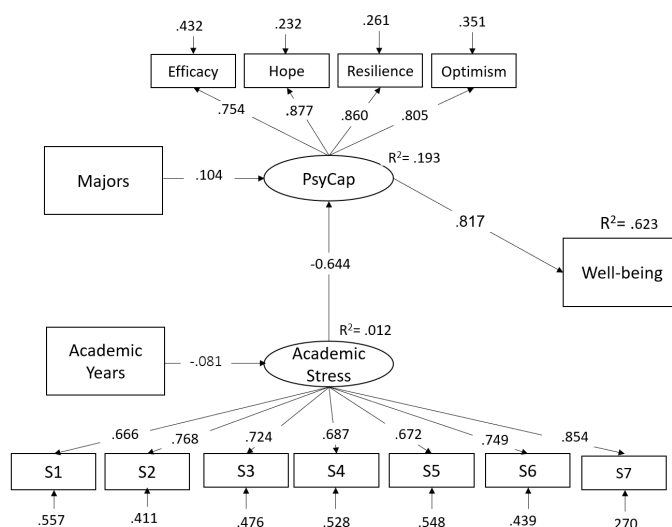
Table 2 presents the values of fit indicators for the model assumed in our study compared to the standard fit indices. Results of the model fit statistics in Table 2 indicate a good-fitting model, and the model explains 62.3% of the well-being variance, as presented in Figure 2.

Furthermore, Table 3 shows the standardized beta coefficients, the standard error of estimation, and the P values of the direct effects in the model. It is important to note that the standardized beta value reveals the amount of change on the dependent variable when the independent variable changes by one standard score when neutralizing the effect of the rest of the variables in the model (Byrne, 2010).

The results show that the model fit statistics were enhanced when demographic variables (i.e., gender, majors, and academic years) were entered into the model, and they provided interesting results as well. Specifically, there was a significant effect of the academic years on academic stress ( $\beta = -.035$ ,  $P = .030$ ), meaning that academic stress decreases with the progression of years of study. In addition, there was a significant effect of majors in PsyCap ( $\beta = 0.208$ ,  $P = 0.003$ ). The PsyCap for the humanities majors was significantly higher than that for the science majors. The effect of gender on academic stress and PsyCap was not significant. The results

**Table 2:** Results of the Model Fit Statistics (N = 827)

<i>Fit Index</i>	<i>Recent Model Fit</i>	<i>Standard Fit Indices</i>
Relative chi-squared ( $\chi^2/df$ )	$\chi^2(82) = 230.772$	$(\chi^2/df) < 4$
Root mean square error of approximation (RMSEA)	0.061	$RMSEA \geq 0.07$
Standardized root mean square residual (SRMR)	0.030	$SRMR \geq 0.05$
Comparative fit index (CFI)	0.971	$CFI \leq 0.95$
Tucker–Lewis index (TLI)	0.946	$TLI \leq 0.95$



**Fig. 2:** Final model with only significant paths

**Table 3:** Standardized Results of Direct Effect in Hypothesized Model (N = 827)

Variables Independent	→ Dependent	$\beta$	SE	Z	P Value
Academic Stress	→ PsyCap	-0.644	0.173	-3.721	0.001
Academic Stress	→ Well-being	0.068	0.187	0.366	0.714
PsyCap	→ Well-being	0.817	0.200	4.085	0.001
Gender	→ Academic stress	-0.019	0.089	-0.214	0.830
Majors	→ Academic stress	-0.125	0.077	-1.625	0.104
Academic Years	→ Academic stress	-0.035	0.016	-2.172	0.030
Gender	→ PsyCap	0.018	0.082	0.223	0.824
Majors	→ PsyCap	0.208	0.070	2.957	0.003
Academic Years	→ PsyCap	0.020	0.015	-0.024	0.981

Note: Coding: male = 1, female = 2; science majors = 1, humanities majors = 2

**Table 4:** Standardized Results of Mediation Analysis (N = 827)

Variables					
Independent	→ Mediator → Dependent	$\beta$	SE	Z	95% CI
Academic Stress	→ PsyCap → Well-Being	-0.526	0.224	-2.346*	[-.894, -.157]
Majors	→ PsyCap → Well-Being	0.087	0.026	3.34**	[.034;.121]
Academic Years	→ Academic Stress → PsyCap	0.057	0.018	3.16**	[.008;.060]
Academic Years	→ Academic Stress → Well-Being	0.007	0.004	1.81	[-.001;.014]

\* $p < .05$ , \*\* $p < .01$

also revealed that academic stress had a significant negative effect on PsyCap ( $\beta = -0.644$ ,  $P < 0.001$ ) but that it had no significant direct effect on well-being ( $\beta = 0.068$ ,  $P = 0.714$ ). Meanwhile, PsyCap had a strong and significant positive effect on well-being ( $\beta = 0.817$ ,  $P < 0.001$ ).

Because a main focus of this study was to examine the impact of academic stress on well-being mediated by PsyCap, we hypothesized that having PsyCap protects students' well-being and that PsyCap will mediate this relationship. The mediator is a variable that explains the relationship between two variables, independent (predictor) and dependent (Preacher & Hayes, 2008). Table 4 displays the results of mediation analysis.

The results in Table 4 show that academic stress was significantly correlated with PsyCap and well-being. After we controlled for academic stress, PsyCap significantly affected well-being. However, academic stress did not significantly impact well-being after controlling for the mediating role of PsyCap. Furthermore, we estimated the indirect effect of academic stress on well-being via the PsyCap at  $\beta = -0.526$  (95% CI -0.894, -0.157;  $P < 0.019$ ). As a result, because there was no direct effect of academic stress and well-being when PsyCap was included in the model, PsyCap completely mediated the relationship between academic stress and well-being. That is, students who experienced less academic stress showed high levels of well-being because they had PsyCap. This implies

that academic stress is relevant to well-being through the mediation of PsyCap.

In addition, our mediation analysis detected that one's major (science or humanities) affected well-being through the effect of PsyCap, which was an indirect effect at  $\beta = 0.087$  (95% CI 0.034, 0.121;  $P < .01$ ) and that there was an indirect effect from academic years to PsyCap through academic stress at  $\beta = 0.057$  (95% CI 0.008; 0.060;  $P < .01$ ), and that there was no indirect effect from academic years to well-being by academic stress at  $\beta = 0.007$  (95% CI -0.001; 0.014;  $P < 0.05$ ).

## DISCUSSION

In this study, we examined how PsyCap mediates the relationship between academic stress and well-being through a model that includes the demographic variables of gender, majors, and academic years. Our results will help reveal the group of students in need of PsyCap-based intervention. Our findings may contribute to a better understanding of the relationship between academic stress and well-being among university students.

After controlling for the mediating role of PsyCap, we found that academic stress did not significantly impact well-being. While there was a negative direct effect of academic stress on PsyCap, there was no direct effect of academic stress on well-being. Also, the indirect effect of academic stress on well-being through PsyCap was significant. In addition,

PsyCap directly positively affected well-being. Thus, PsyCap was a full mediator between academic stress and well-being. Because the relationship between academic stress and well-being was fully mediated by PsyCap, we conclude that PsyCap plays a role as a protective factor. That is, students who experience academic stress and have a sufficient level of PsyCap can develop a feeling of well-being. Our results are consistent with previous studies indicating that academic stress negatively affects PsyCap (Avey et al., 2011; Jiang, 2021; Rad et al., 2017; Wang et al., 2021; Yang & Yang, 2022; Zhong & Ren, 2009), while PsyCap positively affects well-being (Datu & Valdez, 2015; Riolli et al., 2012).

Moreover, due to students' use of their PsyCap components (i.e., self-efficacy, hope, optimism, and resilience) to overcome academic stress, the part of their PsyCap level that is invested in promoting well-being will be reduced. Specifically, students who have a high level of PsyCap can positively evaluate their experiences in an academic context. They can be confident in their ability to achieve goals, overcome challenges, develop alternative plans to accomplish academic tasks, and persevere in achieving those tasks, all of which lead to their feeling of satisfaction. At the same time, PsyCap provides students with positive emotions (Hazan Liran & Miller, 2017; F. Luthans & Youssef-Morgan, 2017; Prasath et al., 2021; You, 2016; Youssef-Morgan & Luthans, 2015). Additionally, PsyCap can fully mobilize positive energy and effectively resist external setbacks as a positive psychological resource (Yang & Yang, 2022). Therefore, it relieves college students' academic stress and enhances their well-being.

Our results differ from those of Poots and Cassidy (2020), who concluded that PsyCap was a partial mediator in the relationship between academic stress and well-being. This can be explained in light of the different statistical analyses used. Whereas Poots and Cassidy (2020) used path analysis, we employed structural equation model analysis to analyze all observed and latent variables simultaneously and to control measurement errors (Kline, 2005).

Regarding the demographic variables, our results indicated that there was no effect of gender on academic stress. This result differs from the findings of previous studies (Basith et al., 2021; De la Fuente et al., 2021; Dixon & Kurpius, 2008; Lee et al., 2021; Yang & Yang, 2022), which concluded that academic stress among females was significantly higher than among males. Similarly, our results indicated that there was no effect of majors on academic stress. In addition, our findings showed that academic years affected academic stress; specifically, academic stress decreased as students progressed through their academic years. However, these results contradict previous research that indicated academic stress was higher among students close to graduation than first-year university students (Dixon & Kurpius, 2008; Yang & Yang, 2022). Furthermore, our results differ from those in

Basith et al. (2021), where the students of the first and final years had high levels of academic stress. A possible explanation for our results is that first-year university students face various challenges due to their exposure to a new learning environment (Yang & Yang, 2022; Yovita & Asih, 2018).

Our results also revealed that gender did not affect PsyCap, which is consistent with the findings of Riolli et al. (2012) and Yang and Yang (2022). However, You (2016) found differences in PsyCap between males and females in favor of males. In addition, our results indicated that majors affected PsyCap, while students in humanities majors had better PsyCap than students in science majors. Again, our result varied from that in You (2016), where there were no differences in PsyCap due to majors. Finally, our research found no effect of academic years on PsyCap, which is consistent with You (2016) and Rad et al. (2017). However, our result contradicts Yang and Yang (2022), where the PsyCap of seniors was higher than that of first-year students.

Our results regarding the demographic variables' effect on academic stress and PsyCap can be explained as follows. Unlike previous studies, our study used seven dimensions of academic stress and applied a model that considered other explanatory variables. Thus, our model helped support our findings on the effect of demographic variables on both academic stress and PsyCap.

## CONCLUSION

Our study applied structural equation modeling to investigate (a) how PsyCap mediates academic stress and well-being of university students and (b) the effect of demographic variables on academic stress and PsyCap. Our results showed that PsyCap fully mediated the relationship between academic stress and well-being, moderately negatively correlated with academic stress, and strongly positively correlated with well-being. Furthermore, academic years affected academic stress because the first-year students' academic stress was higher than that of more senior students. In addition, our results indicated that majors affected PsyCap, with students with humanities majors having greater PsyCap than students with science majors.

Our results suggest that university decision-makers should implement PsyCap-based interventions to reduce students' academic stress and improve the well-being of first-year students who are science majors. PsyCap-based intervention could be in the form of training programs, small-group sessions, or microlearning interventions as needed (Carter & Youssef-Morgan, 2022; Luthans et al., 2013). Taken together, the findings of our study contribute to validating the role of PsyCap as a mediator between academic stress and well-being in the academic context.

Furthermore, we recommend that our model be developed to include additional relevant variables, which can contribute

to explaining the most significant proportion of the well-being variance of university students. A limitation of our study is that we used self-reported questionnaires, which might be affected by social desirability bias. Overall, we hope that the enhancement of the PsyCap can be a priority for newly enrolled undergraduate students.

### Disclosure statement

The authors report there are no competing interests to declare

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