

The Influences of Psychological Capital and Academic Burnout on Test Anxiety among College Students

BY

Hou Yongme^{1*}, Huang Yanting²

^{1,2}Department of Psychology, School of Humanities and Management, Guangdong Medical University, Dongguan, Guangdong, China



Article History

Received: 30/04/2023

Accepted: 07/05/2023

Published: 09/05/2023

Corresponding author:

Hou Yongme

Abstract

Objective To explore the characteristics of psychological capital, academic burnout and test anxiety in college students, and analyze the relationship among the above 3 variables. **Methods** Random sampling was used to select seven hundred college students from Guangdong Province. They were investigated with Chinese Short Version of Psychological Capital Scale (PCS), Academic Burnout Scale (ABS), and Test Anxiety Scale (TAS). **Results** (1)The total scores of PCS, LBS and TAS were (56.17±8.66), (61.04±9.39) and (18.27±6.41), respectively. (2)There was a pairwise correlation among the total scores of PCS, ABS and TAS ($r=-.567, -.274, .229$, all $P<0.05$). (3)The total score of ABS played a partly mediating effect in the relationship between the total scores of PCS and TAS, with the mediation effect accounting for 47.7%. **Conclusion** Psychological capital not only has a direct role on test anxiety, but also indirectly affect it through academic burnout.

Keywords College Students, Psychological Capital, Academic Burnout, Test Anxiety, Mediating Effect

1. INTRODUCTION

Psychological capital is a positive psychological state reflected in the process of individual growth and development. It is a core psychological element that transcends human capital and social capital, which is a psychological resource that promotes individual growth and performance improvement, including four dimensions of self-efficacy, optimism, resilience, and hope [1]. Research shows that psychological capital positively predicts college students' psychological qualities and moral qualities such as positive coping style [2], learning investment [3], academic achievement [4], professional identity [5], employability [6], employment quality [7], work performance [8], subjective well-being [4], voluntary behavior [9], and national identity [10]; negatively predicts depression [11], academic burnout [3, 5, 12], psychological symptoms [12], negative coping styles [2], and career decision-making difficulties [13].

Academic burnout refers to the negative attitude and behavior of students who feel tired of learning due to academic pressure or lack of interest in learning, mainly manifested as emotional exhaustion, low academic achievement, avoidance of learning, etc. It is an

important comprehensive indicator reflecting negative learning psychology. Academic burnout can cause serious pollution to the learning and educational environment of college students, thereby affecting the overall atmosphere and quality of school education [14].

Test anxiety is the most common form of anxiety in learning, which is a tendency of individuals to react in the evaluated situation, usually accompanied by tension, high levels of worry, disruptive thoughts, psychological barriers, and obvious physiological arousal [15]. Test anxiety poses a significant threat to individuals' physical and mental health. Habitual test anxiety can easily cause negative emotions such as tension, fear, anxiety, and depression, which can damage individuals' cognition, emotions, and even personality [16].

Previous studies have shown that there is a pairwise correlation between the three variables of psychological capital, academic burnout, and test anxiety [3, 5, 12, 11, 17, 18]. We can assume that there is a mediating effect between the three variables mentioned

above. Due to the fact that psychological capital is a deep-seated psychological quality and belongs to the antecedent variable (remote variable), test anxiety is an individual's behavior and emotional response in specific activity situations, belonging to the outcome variable, and academic burnout is an individual's habitual behavior, belonging to the proximal variable. Psychological capital should be more mediated by academic burnout. From this angle, we can further assume that academic burnout plays a mediating role between psychological capital and test anxiety.

Based on the above analysis, this study intends to conduct a large sample, multicenter empirical study to understand the current situation of psychological capital, academic burnout, and test anxiety among college students, and to analyze the impact of psychological capital and academic burnout on test anxiety among college students.

2. Objects and Methods

2.1 Objects

The participants were 700 college students who were selected from Guangdong Province by stratified random sampling method, and 663 valid questionnaires were collected, with a response rate of 94.7%. Age ranged from 17 to 25 years old (average 21.38 ± 1.77 years old). Among them, there were 315 male students and 348 female students; 201 freshmen, 166 sophomores, 132 juniors, 87 seniors, and 77 fifth-year students.

2.2 Tools

2.2.1. Chinese Short Version of Psychological Capital Questionnaire, PCQ- CSV

The short version of Psychological Capital Questionnaire (PCQ) is prepared by Luthans et al. (2007) [19] and revised by Zhang Silong et al. [4] into Chinese version (PCQ-CSV). PCQ-CSV has 14 questions in total, divided into 4 dimensions of self-efficacy (SE), resilience (RL), optimism (OM), and hope (HP). Likert 7-point scoring method is used to score from 1 to 7 points corresponding to "completely non-compliant" to "completely compliant". The higher the score, the more obvious the tendency of the item or dimension. A total score of <46.66 indicates low psychological capital, $46.66 \leq$ a total score of <58.32 indicates average psychological capital, $58.32 \leq$ a total score of <72.31 indicates higher psychological capital, a total score of ≥ 72.31 indicates excellent psychological capital. In this study, the Cronbach's α coefficient of total scale is 0.891, and Cronbach's α coefficient of each dimension is 0.775-0.824.

2.2.2. Academic Burnout Scale for College Students, ABS

This scale is formulated by Lian Rong et al (2006) [14], including 20 items and 3 factors, that is, down spirit (DS), improper conduct (IC), and low sense of achievement (LA). It adopts Likert 5-grade rating system, 1 to 5 points corresponding to the respective degrees from "completely non-conformant" to "completely conformant". The higher the point is, the higher the degree of academic burnout is. A total score of >80 indicates severe academic burnout, $60 \leq$ a total score of ≤ 80 indicates moderate academic burnout, $40 \leq$ a total score of <60 indicates low academic burnout, and a total score of <40 indicates no academic burnout. In this study, the Cronbach's α

coefficient of the full scale is 0.874, while that of each factor is 0.742-0.827.

2.2.1 Sarason' Test Anxiety Scale, TAS

Compiled by Sarason (1978) [20], revised by Wang Caikang (2001) [21] into Chinese version. A total of 37 items involve individuals' attitudes towards the exam, their various feelings before and after the exam, and their physical tension. A two-level rating of 'yes' and 'no' is adopted, where 'yes' scores 1 point and 'no' scores 0 point. The level of test anxiety is evaluated according to the total score, and the higher the total score, the higher the test anxiety. A total score of 12 or less is considered a lower test anxiety level, a total score of 12 to 20 is considered a moderate test anxiety level, and a total score of 20 or more is considered a higher test anxiety level. In this study, The Cronbach' a coefficient of the scale is 0.864.

2.3 Data Processing

SPSS 20.0 is used for statistical analysis. Descriptive statistics are used to calculate the mean scores and standard deviations; Pearson product difference correlation is used to explore the correlation among variables; Multiple variable stepwise linear regression analysis is used to analyze the mediating role of academic burnout between psychological capital and test anxiety.

3. Results

3.1 Common method deviation test

Due to the fact that the data in this study are all from questionnaire surveys (self-reported by participants), there may be common biases. The Harman single-factor test [22] is used to test common method bias. The results show that there are 25 factors with eigenvalues greater than 1, and the first factor explained 19.76% of the total variation, which is less than the critical criterion of 40%. Therefore, the impact of common method bias on the results of this study can be ruled out.

3.2 The current situation of psychological capital, academic burnout, and test anxiety among college students

3.2.1 The average level of psychological capital, academic burnout, and test anxiety among college students

From Table 1, it can be seen that the score of hope is high, and the total score and other three-dimensional scores of PCQ are at a moderate level [4, 19]; the total score and three-dimensional scores of the Academic Burnout Scale [14], as well as the score of test anxiety, are at a moderate level [20, 21].

Table 1 Descriptive Statistics of Scores for Each Scale (n=551)

	N	MIN	MAX	M	SD	M of item	SD of item
SE	663	5	18	11.46	1.88	3.82	.70
OM	663	4	17	10.71	1.79	3.57	.63
HP	663	7	26	17.92	2.96	4.48	.83
RL	663	6	27	16.08	3.39	4.02	.93
PCQ	663	27	98	56.17	8.66	4.01	.73
DS	663	10	34	24.32	3.21	3.04	.46
IC	663	7	29	19.02	3.09	3.17	.59
LA	663	9	30	17.70	3.49	2.95	.62
AB	663	32	83	61.04	9.39	9.16	1.33
TAS	663	6	34	18.27	6.41	.49	.17

3.2.2 The type distribution of psychological capital, academic burnout, and test anxiety among college students

Frequency statistics shows that there are 12 students (1.81%) with excellent psychological capital, 287 students (43.3%) with good psychological capital, 253 students (38.2%) with average psychological capital, and 111 students (16.69%) with poor psychological capital [4, 19]; 14 students (2.16%) had severe academic burnout, 333 students (50.24%) had moderate academic burnout, 304 students (45.9%) had mild academic burnout, and 12 students (1.81%) had no academic burnout [14]; 302 students (45.5%) had high test anxiety, while 257 students (38.8%) had moderate test anxiety, and 104 students (15.7%) had low exam anxiety [20, 21].

3.3 Correlation analysis of psychological capital, academic burnout, and test anxiety among college students

From Table 2, it can be seen that PCQ-CSV, ABS, and TAS total scores are correlated in pairs ($r = -.567, -.274, .229$, all $P < 0.01$).

Table 2 Correlation Analysis of PCQ, LBS, and TAS Scores

	1	2	3	4	5	6	7	8	9	
1. SE										
2. OM		.583**								
3. HP		.561**	.664**							
4. RL		.474**	.410**	.295**						
5. PCQ		.849**	.825**	.783**	.744**					
6. DS		-.397**	-.465**	-.529**	-.277**	-.394**				
7. IC		-.292**	-.166**	-.086*	-.228**	-.526**	.433**			
8. LA		-.465**	-.243**	-.202**	-.149**	-.535**	.516**	.307**		
9. ABS		.369**	-.287**	-.254**	-.213**	-.567**	.362**	.445**	.481**	
10. TAS		-.352*	-.321**	-.0213**	-.074	-.274**	.389**	.151*	.340**	.229**

Notes : * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

3.4 The mediating effect test of academic burnout between psychological capital and test anxiety

According to the mediation effect test method proposed by Wen Zhonglin et al. [23], the score of psychological capital is used as independent variable, the total score of TAS is used as dependent variable, and the total score of ABS is used as the intermediate variable. The result is shown in Table 3.

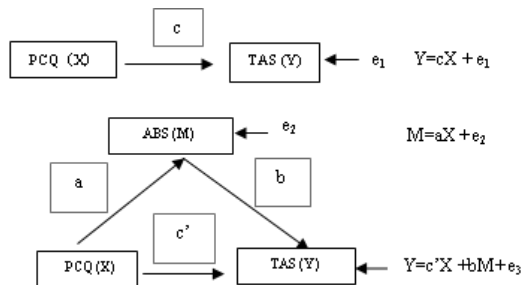


Figure 1 Mediating effect test steps

Table 3 Test of Mediating Effect of Academic Burnout on Psychological Capital and TAS Total Score

Step	Dependent variable	Independent variable	β	t	R^2
Step 1 (c)	TAS	PCQ	-.274	6.095***	.075
Step 2 (a)	ABS	PCQ	.567	4.328**	.321
Step 3 (c')	TAS	PCQ	.188	6.488***	.179
(b)	ABS		.229	3.811**	

From Table 3, it can be seen that in the first step, the PCQ total score negatively predicts TAS total score, with a regression coefficient of (-0.274), and the regression coefficient significantly enters the second step; In the second step, PCQ negatively predicts ABS, with a regression coefficient of (-0.567), and the regression coefficient significantly enters the third step; In the third step, after controlling for the impact of ABS on TAS, PCQ can still predict TAS in a negative direction. The obtained regression coefficient is (-0.181), and the regression coefficient is significant. That is, after adding the intermediate variable ABS between the dependent variable TAS and the independent variable PCQ, the absolute value of the regression coefficient between TAS and PCQ decreases. It can be seen that ABS plays a significant mediating role between PCQ and TAS, and it is a partial mesomeric effect. The mesomeric effect accounts for 47.4% of the total effect (that is, effect $m=ab/c=(-0.567) \times (0.229)/(-0.274) \times 100\%=47.4\%$) .

4. Discussion

This study finds that the psychological capital of college students is (56.17 ± 8.66), which is lower than the research results of Zhang Shanshan et al [7], Ding Kun et al [24] and Jiang Enhui et al [25]; The scores of academic burnout and test anxiety among college students are (61.04 ± 9.39) and (18.27 ± 6.41), respectively, higher than the results of previous research [14, 17, 26-28], suggesting that the psychological capital of current college students needs to be improved, and their academic burnout and test anxiety are more obvious, and there is a gradually increasing trend.

This study also finds that there are significant direct and indirect effects between psychological capital and test anxiety among college students.

On one hand, there is a significant negative correlation between the psychological capital and test anxiety among college students, indicating a direct effect between them, which is consistent with the results of previous studies [18]. In other words, college students with higher psychological capital have lower test anxiety. This is because those with higher psychological capital often have higher self-efficacy, more confidence in learning and examinations, often set higher academic goals for themselves, more perseveringly cope with academic difficulties, complete more difficult learning tasks, obtain better academic performance, and have more optimistic expectations for academic results. Even when encountering academic setbacks, they can quickly and better restore psychological balance, and are less likely to experience test anxiety caused by uncertainty about exam results; On the contrary, students with low psychological capital have relatively low self-efficacy, lack confidence in learning and examinations, often set low academic goals for themselves, easily retreat when encountering academic difficulties, difficult to restore psychological balance when encountering academic setbacks, difficult to complete academic tasks and obtain good academic performance. Their expectations of academic outcomes are not optimistic enough, which can easily lead to a sense of uncertainty about exam results, leading to test anxiety.

On the other hand, there is a significant indirect effect between psychological capital and test anxiety. The specific path is as

follows: psychological capital – academic burnout – test anxiety, which means that academic burnout plays a partial mediating role between psychological capital and test anxiety. Previous literature has shown that academic burnout significantly positively predicts test anxiety. People with high psychological capital experience more positive emotions in learning and are less susceptible to negative emotions, thereby enhancing their motivation and enthusiasm for learning and experiencing lower learning burnout. In this way, they are less likely to experience low academic achievement and also less likely to cause test anxiety [17, 29].

5. Conclusion

This study preliminarily explores the relationship between psychological capital, academic burnout, and test anxiety among college students, and proves the following theoretical hypothesis: academic burnout plays a partial mediating role between psychological capital and test anxiety. On one hand, there is a significant negative correlation between psychological capital and test anxiety, which is a direct effect between the two; On the other hand, there is an indirect effect between psychological capital and test anxiety. The specific pathway of action is as follows: psychological capital - academic burnout – test anxiety. Therefore, universities should not only strengthen the training of students' psychological capital, but also strengthen the comprehensive reform of education and teaching to reduce students' academic burden, improve their sense of academic achievement, and prevent academic burnout and test anxiety.

References

1. Luthan SF, Youssef C, Avolio B. Psychological capital [M]. New York: Oxford University Press, 2007: 21-23.
2. Wang Wenlong. The impact of psychological capital on psychological symptoms among college students: the multiple mediating effects of coping styles [J]. Journal of Higher Education, 2022, (17): 181-185
3. Du Yanshu. The influence of college students' psychological capital on learning engagement: A study on the mesomeric effect of learning burnout [J]. Journal of Inner Mongolia University of Finance and Economics. 2021, 19 (6): 20-23
4. Zhang Silong, Li Jianqi, Liu Yiyang. The impact of psychological capital on academic achievement among college students: The mediating role of subjective well-being [J]. Contemporary Education Theory and Practice, 2022, 14(2): 55-63
5. Chen Yurui. Study on the relationship among psychological capital, professional identity, and academic burnout among college students [D]. Changchun: Northeast Normal University, 2016.
6. Li Yuxing, Wang Yanxiang, Dong Chaohui. The impact of college students' professional values on their employability: The mediating role of psychological capital [J]. China University Students Career Guide. 2022, (3): 32-38.
7. Zhang Shanshan, Wang Yaojun. The impact of psychological capital on the quality of employment for

- college students [J]. *Journal of Campus Life & Mental Health*, 2022, 20(1): 22-26.
8. Ke Jianglin, Sun Jianmin, Shi Jintao, et al. The impact of human capital, social capital, and psychological capital on job performance [J]. *Journal of Management Engineering*, 2010, (4): 29-35.
 9. Nanguang, Lai Yingrong. The relationship between psychological capital and voluntary behavior of college students: The mediating effect of prosocial tendencies [J]. *University*, 2021, (37): 122-124.
 10. Yu Chengfu, Wang Huahua, Zheng Yuanhao, et al. The intergenerational transmission of college students' national identity: The satisfaction of psychological needs and the role of psychological capital [J]. *Journal of South China Normal University (Social Science Edition)*, 2022, (6): 61-71.
 11. Ma Hongli, Lei Meiyong, Liu Geng, et al. The impact of psychological capital on the depression among adolescent [J]. *Guangdong Medical Journal*, 2015, (1): 27-29.
 12. An Rong, Zhao Zhaohui. The moderating effect of life satisfaction on the relationship between psychological capital and academic burnout among college students [J]. *Chinese School Health*, 2016, 37(2): 229-232.
 13. Chen Xiumei, Ma Zhen, Chang Xiuqin, et al. The relationship between professional identity and career decision-making difficulties among college students: The mediating role of psychological capital [J]. *Journal of Tangshan Normal University*, 2022, 44(5): 101-104.
 14. Lian Rong, Yang Lixian, Wu Lanhua. The relationship between professional commitment and academic burnout among college students and the development of a scale [J]. *Journal of Psychology*, 2005, 37(5): 632-636.
 15. Spielberger CD, Anton WD, Bedell J. The nature and treatment of test anxiety [J]. *Emotions and Anxiety: New Concepts Methods and Applications*, 1976: 317-344.
 16. Huang Qiong, Zhou Renlai. The development trend of test anxiety among Chinese students: Vertical analysis and horizontal verification [J]. *Chinese Journal of clinical psychology*, 2019, 27(1): 113-118.
 17. Chen Rui. A study on the correlation between academic burnout, professional commitment, and test anxiety among college students [J]. *Journal of Nanchang Institute of Education*, 2011, 26(6): 124-126.
 18. Zhou Hongyu. Research on the relationship between high school students perception of social support, psychological capital, and test anxiety [D]. *Southwest Jiaotong University*, 2022, 06
 19. Luthan SF, Avolio BJ, Avey JB, et al. Positive psychological capital: Measurement and relationship with performance and satisfaction [J]. *Personnel Psychology*, 2007, (3): 541-572.
 20. Sarason IG. The Test Anxiety Scale: Concept and Research. In C.D. Spielberger & I.G. Sarason (Ed.) *Stress and Anxiety (Vol.5)*. Washington D.C.: Hemisphere Publishing Corp, 1978. 193-216.
 21. Zhang Zuoji. *Handbook of behavioral medicine scales* [M]. Jinjing, China: Chinese Journal of Behavioral Medicine Science, 2001, 10
 22. Zhou Hao, Long Lirong. Statistical testing and control methods for common method bias [J]. *Progress in Psychological Science*, 2004, 12(6): 942-948.
 23. Wen Zhonglin, Hou Jietai, Zhang Lei. Comparison and application of regulatory effect and mediation effect [J]. *Acta Psychologica Sinica*, 2005, 37(2): 268 – 274.
 24. Ding Kun, Yang Xiaojing, Zhang Kangdi, et al. The relationship between psychological stress, achievement motivation, and psychological capital among college students[J]. *Chin J Sch Health*, 2021, 42(11): 1645-1649.
 25. Jiang Enhui, Wu Heming, Zhang Shufang. The relationship between suicidal ideation status and negative life events in college students: The mediating role of psychological capital [J]. *Neural Inquiry and Functional Instruction*, 2021, 16(9): 510-514.
 26. Yongmei Hou, Rimian Liang. The relationship between medical students' family cohesion, adaptation, and learning burnout: The mediating effect of psychological resilience [J]. *Advances in Social Science, Education, and Humanities Research*, 2018, 113: 60-66.
 27. Cong Qian, Cong Zhengtu. A Study on the relationship between test anxiety and coping styles among medical college students[J]. *Chinese Journal of Health Statistics*, 2012, 29(3): 416-420.
 28. Zhang Meng, Liu Kunmeng. A study on the factors influencing test anxiety among college students: Taking some college students in Beijing as an example [J]. *Education Teaching Forum*, 2017, (8): 57-58.
 29. Huang Chaoli. The Effect of academic burnout on test anxiety among high school students: A Study on the regulating effect and Intervention of Resilience [D]. *Huazhong Normal University*, 2021, 06.