



## Stress and career adaptability during COVID-19: A serial multiple mediation model

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To understand how the COVID-19 pandemic has affected students about to enter the job market, we surveyed 754 university seniors to investigate the perceived stress–career adaptability relationship. We also assessed if positive psychological capital (PsyCap) and work volition mediated this relationship. The results show that the seniors' perceived stress during the COVID-19 pandemic negatively predicted career adaptability. Moreover, the sequential mediation effect (perceived stress reduces positive PsyCap and work volition, which predicts career adaptability) was supported. Thus, lower positive PsyCap can reduce work volition and adaptability. We are among the first researchers to explore how the COVID-19 pandemic has disadvantaged recent university graduates in the labor market, and we have provided new perspectives on how to improve their career adaptability.

### Keywords

perceived stress;  
COVID-19; pandemic;  
career adaptability;  
positive psychological  
capital; work volition;  
university seniors

The COVID-19 pandemic has not only caused a widespread economic recession but has also significantly and negatively affected university graduates' employment throughout 2020 in China. As the pandemic has led many companies to stop hiring to reduce operational costs (Lan et al., 2020), there have been fewer employment opportunities for university graduates. The latest data from the Ministry of Human Resources and Social Security of People's Republic of China shows that there were 8.34 million university graduates in 2020 (an increase of 400,000 from 2019), an all-time high. Thus, there is fierce competition among university graduates seeking employment. In addition, as companies prefer hiring candidates with work experience (Jackson & Wilton, 2017), this has made the university graduates' efforts to obtain gainful employment even more difficult.

College graduates suffered a large increase in job loss and a large decrease in hiring rates during the COVID-19 pandemic (Cortes & Forsythe, 2020; Montenovolo et al., 2020). According to a survey conducted in the US, 13% of 1,500 college students had delayed graduation, and 40% had lost a job or a job offer owing to COVID-19 (Aucejo et al., 2020). As the effects of the pandemic may last for a long time (von Wachter, 2020), college students who are overeducated and overskilled will be less competitive in the labor market (Sloane & Mavromaras, 2020).

*Career adaptability*, which refers to individuals' readiness and resources for coping with difficulties in their vocational development, including transitions and traumatic events (Savickas & Porfeli, 2012), is crucial for university graduates to successfully face the occupational transition and challenges posed by the COVID-19 pandemic. Career adaptability consists of four factors: concern (making plans for one's future), control

(making decisions by oneself), curiosity (being inquiring), and confidence (self-efficacy in problem solving; Savickas & Porfeli, 2012). Previous researchers have found that university graduates with high career adaptability tend to have high job search self-efficacy and a good employment status (Guan et al., 2013).

Previous researchers have identified various personality or social factors, such as social support, as predictors of career adaptability (Hirschi, 2009; Jiang, 2017). However, most have overlooked university graduates' disadvantages, inequality, and contextual factors in the labor market, particularly during the COVID-19 pandemic (Blustein et al., 2020). An exception is Duffy et al.'s (2016) psychology of working theory, which provides a novel perspective to understand career adaptability because it considers contextual variables and highlights the importance of work volition on career adaptability. Graduates' internal psychological resources, such as positive psychological capital (PsyCap), should also be included as predictors of career adaptability, as they have received little attention.

As Blustein et al. (2020) pointed out, the pandemic may have influenced young adults' perception of the meaning of work, but the underlying mechanisms of this influence have not been identified. Thus, we investigated the perceived stress-career adaptability relationship in university seniors in China during the COVID-19 pandemic, and tested if positive PsyCap and work volition mediated this relationship.

## Literature Review and Hypothesis Development

### Perceived Stress During the COVID-19 Pandemic and Career Adaptability

A threatening event that is appraised as stressful may cause perceived stress (Cohen et al., 2016). Appraisal theory posits that emotional reactions depend on how individuals evaluate situations (Lazarus, 1991). When they appraise situations as unanticipated, uncertain, and uncontrollable, they tend to feel stressed and develop negative emotions (Lazarus, 1991). In 2020, the unexpected COVID-19 pandemic rapidly spread out of control, becoming an important and threatening life event worldwide because of its high infectivity and lack of effective treatment. Zhao et al. (2021) found that, in China, the general population, including college students, displayed high perceived stress during the pandemic. Other researchers have shown that Chinese college students perceived COVID-19 as a stressor and reported high levels of negative emotions, such as anxiety (Cao et al., 2020). In addition, during 2020 university seniors in China were asked to stay home and complete their graduation online, thus objectively decreasing their opportunities for career development. University seniors with high employment stress in the complicated employment environment are likely to have suffered significant stress and negative emotions during the COVID-19 pandemic; therefore, their perceived stress may have been high.

*Perceived stress* has a negative effect on career adaptability. According to the model of stress and disease, perceived stress results in negative emotional responses, such as anxiety, leading to maladjustment (Cohen et al., 2016). Negative emotions have also been associated with decreased career adaptability (Fiori et al., 2015). Moreover, perceived stress can directly cause university seniors' expectations of their future to become pessimistic, which decreases their interest in their career (Bhagat, 1983), so that they lose perceived control (Coetzee & Harry, 2015) and reduce their curiosity and confidence in career development (Johnston, 2018). Therefore, we proposed the following hypothesis:

**Hypothesis 1:** The perceived stress of university seniors during the COVID-19 pandemic will be negatively correlated with career adaptability.

### Mediating Role of Positive Psychological Capital and Work Volition

*Positive PsyCap* reflects individuals' positive psychological state and resources, including self-efficacy (confidence in resolving challenging tasks), hope (persevering toward set goals and adjusting thoughts and actions accordingly), resilience (recovering after facing adversity), and optimism (having a positive outlook on the present and future; Luthans et al., 2010). Conservation of resources theory posits that individuals

prefer preserving resources and that depleting resources may cause stress (Hobfoll, 2001). As coping with the COVID-19 pandemic consumes individuals' internal resources and causes stress, perceived stress will decrease PsyCap. Undoubtedly, lower PsyCap decreases career adaptability (Safavi & Bouzari, 2019). Therefore, we proposed the following hypothesis:

**Hypothesis 2:** Positive PsyCap will mediate the relationship between university seniors' perceived stress during the COVID-19 pandemic and their career adaptability.

*Work volition* is individuals' perceived capacity to make choices regarding their occupation despite constraints (Duffy et al., 2016). Duffy and colleagues (2016) developed the psychology of working theory, which assumes that disadvantaged (vs. advantaged) people, such as graduates (vs. experienced workers), face more constraints in their career development. This theory emphasizes the effect of contextual variables on individuals' work volition and career adaptability, for example, those of lower socioeconomic status have poorer career adaptability. In the COVID-19 pandemic context, perceived stress has been a contextual factor that significantly and negatively affects work volition. In addition, Autin et al. (2017) found that work volition positively predicted career adaptability. Therefore, we proposed the following hypothesis:

**Hypothesis 3:** Work volition will mediate the relationship between university seniors' perceived stress during the COVID-19 pandemic and their career adaptability.

Work volition has been found to be positively affected by personal resources, including positive PsyCap (Cheung et al., 2020). Therefore, we proposed the following hypothesis:

**Hypothesis 4:** Positive psychological capital and work volition will be serial multiple mediators in the perceived stress–career adaptability relationship.

## Method

### Participants

Participants were 754 senior students from Jiangsu Normal University. After we had obtained approval from the Ethics Committee of this university, we sent the consent form and survey link on the WenJuanXing platform to the students via WeChat. The inclusion criterion was that prospective participants had to be university seniors. Respondents were informed that their participation was voluntary. We obtained 754 valid responses from 345 men (45.8%) and 409 women (54.2%). Their ages ranged from 20 to 26 years ( $M = 22.02$ ,  $SD = 0.96$ ). After completing the survey, participants were debriefed and given a small gift.

### Measures

#### **Perceived Stress**

We used the Chinese short version of the Perceived Stress Scale (PSS; Herrero & Meneses, 2006) to measure perceived stress, because Cohen and Janicki-Deverts (2012) stated that this version had good reliability and validity and high predictive power. Participants rate the four items on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Sample items are “Do you often feel like you cannot control important things in your life?” and “Do you always have confidence in your ability to deal with personal problems?” Cronbach's alpha was .91 in this study.

#### **Positive Psychological Capital**

We measured positive PsyCap using K. Zhang et al.'s (2010) Chinese version of Luthan et al.'s (2010) 24-item scale. The scale comprises four dimensions: self-efficacy, resilience, hope, and optimism. Participants rate the items on a 7-point Likert scale ranging from 1 (*not at all compliant*) to 5 (*completely compliant*). Sample items are “I am working hard to achieve my goal” and “I think life is wonderful.” Cronbach's alpha was .93 in this study.

**Work Volition**

We adopted J. Zhang et al.’s (2019) Chinese version of Duffy et al.’s (2016) Work Volition Scale to assess work volition. This nine-item scale comprises three dimensions: career preparation volition, public opinion volition (e.g., “Despite my culture’s emphasis on employment first and career preference second, I will choose a job I like”) and career environment volition (e.g., “I can endure having a strained interpersonal relationship with my employer if I am employed in my dream job”). Participants rate the items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach’s alpha was .86 in this study.

**Career Adaptability**

We adopted Hou et al.’s (2012) Chinese version of Savickas and Porfeli’s (2012) Career Adapt-Abilities Scale to assess career adaptability. The scale comprises 24 items and four subscales (career concern, career control, career curiosity, and career confidence), each with six items. Sample items are “I think about what my future will be like” and “I make decisions by myself.” Participants rate the items on a 5-point Likert scale ranging from 1 (*not strongly at all*) to 5 (*very strongly*). Cronbach’s alpha was .97 in this study.

**Data Analysis**

We conducted a Pearson correlation analysis to test the relationship between variables using SPSS version 26.0. Then, we used Model 6 of the PROCESS macro for SPSS and the bootstrapping method to test the mediating effects (Hayes & Rockwood, 2017).

**Results**

**Descriptive Statistical Analysis**

We examined the correlations between variables and found support to test the hypotheses, because perceived stress was negatively correlated with positive PsyCap, work volition, and career adaptability (see Table 1).

**Table 1. Means, Standard Deviations, and Correlation Coefficients for Study Variables**

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Perceived stress	2.64	0.68	—			
2. Positive psychological capital	4.63	0.80	-.58**	—		
3. Work volition	3.15	0.66	-.37**	.60**	—	
4. Career adaptability	3.72	0.62	-.42**	.79**	.53**	—

Note. *N* = 754.

\*\* *p* < .01.

**Hypothesis Testing**

We then tested our proposed model. The results show that perceived stress was negatively associated with career adaptability ( $\beta = -.42, p < .01$ ): the higher the perceived stress, the lower was participants’ career adaptability. Thus, Hypothesis 1 was supported. As shown in Table 2, perceived stress had a negative impact on positive PsyCap, and positive PsyCap had a positive influence on career adaptability, which indicates that positive PsyCap mediated the relationship between perceived stress and career adaptability.

Table 2. Results of Mediation Analysis (PROCESS Model 6)

Variable	Positive psychological capital	Work volition	Career adaptability
Instant	-.98	.38	.86
Control variables			
Gender	-.15	-.05	.01
Age	.06	-.01	-.04
Independent variables			
Perceived stress	-.59***	-.03	.07*
Positive psychological capital	.58***	.78***	
Work volition	.09*		
<i>R</i> <sup>2</sup>	.36	.36	.64
<i>F</i>	137.73***	106.54***	262.98***

Note. *N* = 754.

\* *p* < .05. \*\*\* *p* < .001.

As shown in Table 3, the effect of this mediating variable was  $-.46$ , 95% confidence interval (CI)  $[-0.53, -0.39]$ . Therefore, Hypothesis 2 was supported. Perceived stress had no significant influence on work volition, but the effect of work volition on career adaptability was significant. As shown in Table 3, as the effect of this mediating variable was  $.001$ , 95% CI  $[-0.001, 0.02]$ , work volition did not mediate the perceived stress–career adaptability relationship. Therefore, Hypothesis 3 was not supported. However, the effect of sequential mediation, that perceived stress was associated with career adaptability through positive PsyCap and work volition, was significant,  $-.03$ , 95% CI  $[-0.06, -0.01]$ . Thus, participants who experienced more stress had lower PsyCap, which along with lower work volition had a negative impact on career adaptability. Therefore, Hypothesis 4 was supported (see Figure 1).

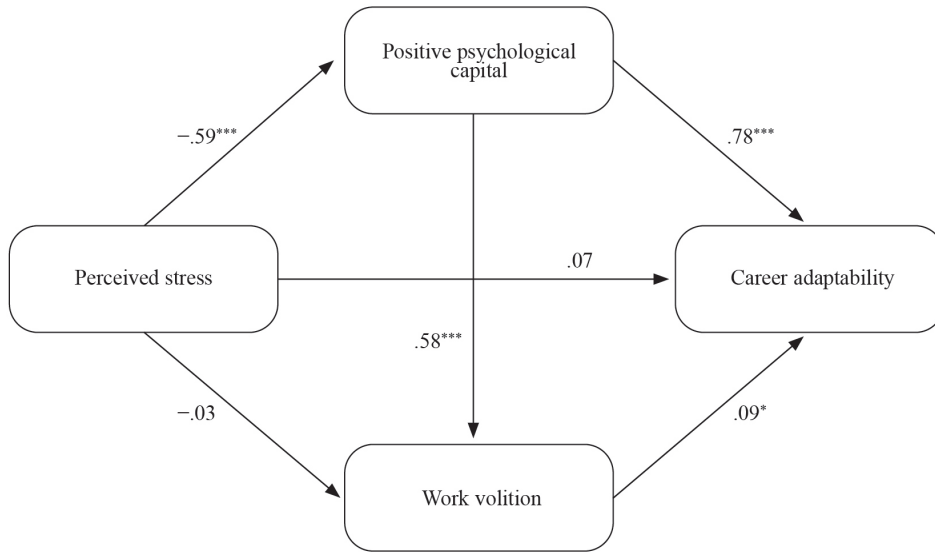


Figure 1. Model for Positive Psychological and Work Volition as Mediators in the Relationship Between Perceived Stress and Career Adaptability

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

Table 3. Direct, Indirect, and Total Effects for the Final Model

Model pathways	Effect estimates	95% CI
Direct effect		
PS → Career adaptability	.07	[-0.01, 0.02]
Indirect effect		
PS → PPC → Career adaptability	-.46	[-0.53, -0.39]
PS → WV → Career adaptability	-.001	[-0.01, 0.01]
PS → PPC → WV → Career adaptability	-.03	[-0.06, -0.01]
Total effect	-.42	[-0.48, -0.35]

Note. PS = perceived stress; PPC = positive psychological capital; WV = work volition; CI = confidence interval.

### Discussion

To our knowledge, we are the first to explore university seniors' perceived stress during the COVID-19 pandemic, and to assess its effects on their career adaptability (Blustein et al., 2020). The COVID-19 pandemic has lasted more than a year and vaccination programs have only just begun. This situation may further increase the constraints and inequities for university graduates in the labor market (Blustein et al., 2020).



## **Theoretical Implications**

Our main finding is that university seniors' perceived stress negatively predicted their career adaptability. This is consistent with previous findings among employed adults, indicating that perceived high stress is harmful to career development (Urbanaviciute et al., 2019). Stress and associated negative emotions may have decreased university seniors' sense of control in the stressful situation of the COVID-19 pandemic (Zhu et al., 2020). Further, Blustein (2017) showed that potentially vulnerable populations, such as university graduates, faced more constraints and felt they had low control over their careers. According to Duffy (2016), losing their sense of control can damage career adaptability development in college students.

The second main finding is that positive PsyCap mediated the relationship between perceived stress and career adaptability. This indicates that during the COVID-19 pandemic university graduates consumed internal resources, such as PsyCap, to cope with perceived stress, which fits with conservation of resources theory (Hobfoll, 2001). Facing resource loss (i.e., PsyCap decrease), university graduates cannot recover quickly (Hobfoll et al., 2018). This result is consistent with findings that higher PsyCap may be a protective factor for university seniors in the face of COVID-19 (Mao et al., 2020; Mubarak et al., 2021).

Our hypothesis that work volition would mediate the relationship between perceived stress and career adaptability was not supported. To our knowledge, no studies have investigated if work volition mediates this relationship. Our result that perceived stress had no significant influence on work volition is not consistent with previous findings that contextual variables (i.e., career barriers) decreased work volition (Autin et al., 2017; Duffy et al., 2016). Future researchers could explore this relationship.

Another key finding is the support we obtained for a serial multiple mediation model. Perceived stress was associated with positive PsyCap and work volition, which were then associated with career adaptability. In the first stage of the sequential mediation model, perceived stress during the COVID-19 pandemic reduced university seniors' positive PsyCap. This result is consistent with previous findings that fear of COVID-19 decreased hope (Saricali et al., 2020), damaged self-efficacy (Yıldırım & Güler, 2020), negatively affected resilience (Killgore et al., 2020), and increased pessimism (Jovančević & Miličević, 2020). Thus, for senior students facing employment, perceived stress during the COVID-19 pandemic may decrease PsyCap and work volition. In the second stage of the sequential mediation model, seniors' positive PsyCap positively affected work volition and finally affected career adaptability, as work volition mediated the relationship between positive PsyCap and career adaptability. Thus, it is important to develop senior students' PsyCap to deal with perceived stress during the COVID-19 pandemic.

## **Practical Implications**

Our results have several practical implications. First, the university employment sector should pay attention to seniors' perceived stress during the COVID-19 pandemic. To reduce their perceived stress and improve their career adaptability, measures aimed at improving the employment environment should be used. The university employment sector could support seniors with online career planning courses. Second, university managers could use positive PsyCap as a tool to increase seniors' work volition and career adaptability. Previous researchers have shown that PsyCap can be improved through intervention programs in both school and organizational contexts (Salanova & Ortega-Maldonado, 2019). Therefore, flexible intervention programs could be developed via social media platforms, such as WeChat.

## **Limitations and Directions for Future Research**

There are some limitations in this study. First, we used the Chinese short version of the Perceived Stress Scale, which, although very reliable and valid (Cohen & Janicki-Deverts, 2012), did not accurately reflect senior students' perceived employment stress caused by the pandemic. Future researchers could develop a targeted scale to measure this variable. Second, as we included seniors only, we do not know how freshmen, sophomores, or juniors perceived the COVID-19 pandemic and how it has affected their career adaptability. Future researchers could focus on this issue. Third, as work volition did not mediate the perceived

stress–career adaptability relationship, future researchers could use other theories and examine other mediators, such as social support (Ibrahim & Amari, 2018). Finally, as this study had a cross-sectional research design, we could not assess causality between variables. Future researchers could test causality using a longitudinal or experimental design.

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