




# Longitudinal effect of career-related parental support on vocational college students' proactive career behavior: a moderated mediation model

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## Abstract

Guided by career construction theory and the proactive motivation model, the current study investigated the longitudinal effect of career-related parental support on vocational college students' proactive career behavior, as well as the mediating role of career adaptability and the moderating role of belief in a just world. We collected three-wave longitudinal data from a sample of 676 vocational college students with the Career-related Parental Support Scale (reported at time 1), Career Adapt-Abilities Scale-Short Form (reported at time 2), Proactive Career Behavior Scale (reported at time 3), and Belief in a Just World Scale (reported at time 1). After controlling for the demographic variables, our results showed that career-related parental support positively predicted vocational college students' proactive career behavior. Career adaptability partially mediated the relationship between career-related parental support and vocational college students' proactive career behavior. Moreover, the conditional indirect effects of career-related parental support in predicting proactive career behavior via career adaptability are stronger for vocational college students with high as opposed to low belief in a just world. These findings carry implications for career research both theoretically and practically.

**Keywords** Vocational college students · Career-related parental support · Career adaptability · Proactive career behavior · Belief in a just world

## Introduction

With the background of the boundaryless and protean career era, the uncertainty, unpredictability, and insecurity of individual career development patterns have heightened (Arthur & Rousseau, 1996; Guan et al., 2019). As a consequence, self-directed career management has become more pivotal

than ever. In China, an extremely large number of students live and learn in higher vocational colleges. According to the Ministry of Education of the People's Republic of China (2021), approximately 1.6 million students were studying in 1518 higher vocational colleges, accounting for almost half of the total college students in 2021. It is important to note that due to social, historical, and cultural influence, vocational college students usually have relatively worse education quality, lower social recognition and more restricted career paths (Ling et al., 2021; Zhang et al., 2019a) than university students. All of these factors might lead the school-to-work transition of vocational college students to be more challenging, especially under the context of escalating enrollment in higher education and the turbulent domestic labor market coupled with the COVID-19 (Kawohl & Nordt, 2020). Thus, proactive behaviors of engaging in one's own career management is particularly important for this special group. Proactive career behavior refers to individual's active attempts to explore career opportunities, set career goals, build support networks, and develop various skills to shape

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their career futures (Claes & Ruiz-Quintanilla, 1998; Lent et al., 2022; Strauss et al., 2012). It has been proven to be conducive to individual career transitions (Eby et al., 2003; Forret & Dougherty, 2004; Hall, 2002) and career success (De Vos et al., 2009; Fuller & Marler, 2009). Given the conducive role of proactive career behavior, it is essential to investigate proactive career behavior in this understudied population—vocational college students—and explore the potential influencing factors.

Viewed from the perspective of development, most students at vocational colleges are in the stage of emerging adulthood (Arnett, 2000), which allows for a variety of proactive activities to determine their future career opportunities, enhance relevant abilities to deal with career challenges, and prepare for the school-to-work transition. Confronted with various pressures and uncertainties related to this important stage, parental support, guidance, and advice still remain a constructive role in shaping vocational college students' career-related behaviors and abilities (Bryant et al., 2006; Guan et al., 2015). Career-related parental support, which refers to the concrete actions that parents adopt to lead their children's career development (Dietrich & Kracke, 2009), has been proven to significantly prompt individuals' career-related proactive behaviors (e.g., career exploration, career planning) (Guan et al., 2015; Mechling et al., 2021). However, it is still not clear about the mechanics between career-related parental support and vocational college students' proactive career behaviors. According to the model of proactive motivation, situational factors could influence individuals' proactive behaviors via activating their motivation (Parker et al., 2010). As a critical psychosocial resource (Savickas, 2013) and even a potential "can do" motivation (Klehe et al., 2021), could career adaptability play a key mediating role in the linkage between career-related parental support and proactive career behavior? This question has not been adequately validated.

Additionally, although studies have indicated that parental support provides the necessary resources, confidence, and motivation for individual career development (Garcia et al., 2012; Schultheiss et al., 2001), not all of these supports could be "absorbed" or "internalized" by individual as an adaptive resource for coping with career uncertainty. Perhaps this difference, to some extent, depends on the belief held by individuals. In consideration of the relatively unfavorable status for vocational college students in the Chinese context (Ling et al., 2021), belief in a just world, a construct reflecting the basic perceptions of justice in the world (Dalbert, 1999; Lerner, 1980), is more important for them, and may be a crucial player in their career development (Zhang, 2020). Unfortunately, while previous research has explored the influence of career-related parental support and belief in a just world separately, few of them systematically

integrated these determinants and clarified whether belief in a just world could be an important boundary condition impacting the indirect effects of career-related parental support on proactive career behaviors via career adaptability. In view of these gaps, considering a cross-sectional approach cannot capture the temporal precedence among variables as compared to a longitudinal approach (Maxwell et al., 2011), the present study adopts a longitudinal design to provide stronger evidence for the mechanisms of career-related parental support on vocational college students' proactive career behaviors, and to identify the mediating role of career adaptability and the moderating role of belief in a just world.

### Career-related parental support as an antecedent to proactive career

In line with career construction theory, research has suggested that family is one of the important contextual factors that shaping individual career future (Garcia et al., 2012; Restubog et al., 2010). Within the family system, career-related parental behaviors have a central impact on children's career development. Generally, career-related parental behaviors include career-related parental support, career-related parental interference, and career-related parental engagement (Dietrich & Kracke, 2009). Concretely, career-related parental support refers to encourage and assist youth with their career development through offering valuable suggestions and opportunities; Career-related parental interference means parents force their own opinions or ideas on their children's career preparation or decisions; Career-related parental engagement alludes to the involvement of parents to their offspring's career issues. Among these three career-related parental behaviors, relative to the negative impact of parental interference and lack of parental engagement, career-related parental support has been proved by a plethora of studies that positively promotes students' career development (Dietrich & Kracke, 2009; Ginevra et al., 2015; Guan et al., 2015; Tian & Fan, 2014), which may be especially meaningful for vocational college students at disadvantage.

In the previous literature, it has been well documented that career-related parental support significantly predicts individuals' career decision efficacy (Guan et al., 2016), career maturity (Lim & You, 2019), and vocational identity (Zhang et al., 2021). As a valuable contextual supportive factor, career-related parental support might also be an important trigger for the proactive career behavior of vocational college students who in disadvantaged backgrounds, especially in China where parents traditionally play a critical role in influencing their children's career (Zhang et al., 2019b). Previous studies have found that external support helps to activate individuals' proactive career behaviors.

For example, it has been proven that perceived external support can significantly enhance individuals' self-definition of future work (Xiao et al., 2021) and trigger a series of self-development-oriented proactive behaviors (Hoyle & Sherrill, 2006; Lu, 2020). Career-related parental support, as an important form of external support, could also activate vocational college students' proactive behaviors and shape their career futures more energetically. Cumulative evidence has shown that parents who provide their children with career-related learning opportunities and activities, role models, verbal encouragement, and emotional support can promote individuals' self-efficacy related to career development (Turner & Lapan, 2002; Zhao et al., 2012), inducing a series of career behaviors, such as career exploration (Guan et al., 2015) and career planning (Mechling et al., 2021). Thus, career-related parental support could also play a key role in activating students' proactive career behaviors by facilitating their career planning, promoting them to prepare for a series of tasks involved in their future careers, leading them to actively seek career-related advice or help from others and build the relevant resource. Based on the above analysis, we propose the following:

**Hypothesis 1** Career-related parental support positively predicts vocational college students' subsequent proactive career behaviors.

### The mediating role of career adaptability

Career adaptability alludes to individuals' readiness or psychosocial resources to coping with vocational development tasks or unpredictable career problems, which includes four crucial factors: career concern, career control, career curiosity, and career confidence (Savickas, 1997; Savickas & Porfeli, 2012). Emerging evidence suggests that individuals' career adaptability could be significantly influenced by social support (Hui et al., 2018; Li et al., 2022). As a critical source of social support, career-related parental support can especially contribute to the cultivation of career adaptability for vocational college students. Career information or supportive advice from parents can help them assess career-related information and explore their career development opportunities more effectively, thus promoting their career adaptability (Soresi et al., 2014). Career support from parents can also significantly increase students' sense of competence, which effectively promotes them to think positively and look ahead (career concern), explore career roles and career environments (career curiosity), develop career decision-making skills (career control), and increase confidence in overcoming various career obstacles (career confidence) (Guan et al., 2015). Previous empirical studies have also

confirmed that when individuals experience a high level of career-related support from parents, their career adaptability also increases accordingly (Guan et al., 2015, 2016; Zhang et al., 2021).

Furthermore, career adaptability is more likely to provide the main impetus for individuals' participation in proactive career behaviors. This effect could be explained by the career construction model of adaptation (Savickas, 2013) which states that career adaptive resources (career adaptability) can trigger a range of career adaptive responses. Substantial literature has supported this view by demonstrating that career adaptability can positively contribute to subsequent proactive career behavior, one kind of typical career adaptive responses. For example, one empirical study with college students found that the four dimensions of career adaptability (career focus, career control, career curiosity, and career confidence) were significantly related to proactive career behaviors such as career planning, skill development, and networking (Taber & Blankemeyer, 2015). Similarly, Lu (2020) further showed that career adaptability had a significantly positive predictive effect on the proactive career behaviors of college athletes.

The model of proactive motivation by Parker et al. (2010) implies that contextual variables may promote proactive behaviors by activating three types of intrinsic motivation – “reason to”, “energized to”, and “can do”. “Reason to” motivation refers to the underlying extrinsic or introjected reason that individuals select or persist with particular career-related actions; “energized to” motivation denotes affect-related motivational states that influences career actions, such as positive affect enhances a person's likelihood of setting career goals; “can do” motivation entails individuals' perception of self-efficacy, control and attribution of the situation, and manage of the risks (Parker et al., 2010). Based on the proactive motivation model, Klehe et al. (2021) claimed that, as the psychosocial resources that condition adaptive behaviors (Hirschi et al., 2015) and motivate risk taking (Koen et al., 2010), career adaptability is an important “can do” motivation, and thus may play a critical role in individuals' proactive behavior. Building off the proactive motivation model and Klehe et al.'s (2021) opinion, it is reasonable to anticipate that career adaptability (“can do” motivation) may play a mediating role in the influence of career-related parental support (contextual factor) on vocational college students' proactive career behavior, providing an explanatory mechanism for the relationship between them. In fact, prior studies have found that career adaptability can mediate the relationship between situational factors and career behaviors, such as parents' career expectations and college students' career decision difficulties (Li et al., 2013), as well as parents' career support and college students' career exploration and career planning (Guan et al.,

2015; Zhao et al., 2022). More specifically, one study examining 244 Chinese college students who filled out questionnaires involving career-specific parental behaviors (parental support, parental interference, and lack of parental career engagement), career adaptability, and career exploration found that career adaptability can partially mediate the association between parent support and career exploration after controlling for a series of demographic variables (Guan et al., 2015). Thus, in this study, we supposed that vocational college students who have high career-related parent support are more likely to develop high career adaptability and consequently facilitate proactive career behavior. We propose the following:

**Hypothesis 2** Career-related parental support positively predicts vocational college students' subsequent proactive career behavior through the mediating role of career adaptability.

### Belief in a just world as a first stage moderator

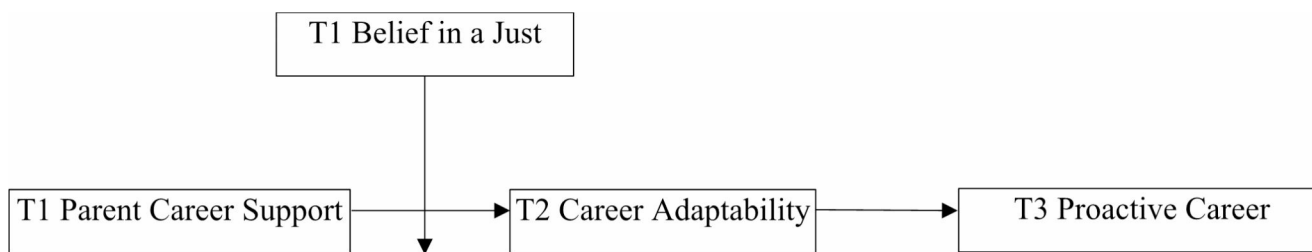
Although career-related parental support may influence proactive career behavior through the mediating effect of career adaptability, not all college students could “absorb” this supportive “nutrition” from their parents and transform them into adaptive resources (career adaptability) (Garcia et al., 2012; Schultheiss et al., 2001), thus displaying higher levels of proactive career behaviors. In the current study, we hypothesized that belief in a just world may moderate the effects of career-related parental support on vocational college students' career adaptability, and in turn proactive career behaviors. As an important component of an individual's internal belief system, belief in a just world refers to the basic conviction held by individuals that they live in an orderly and predictable world which is generally just and meaningful (Dalbert, 1999; Lerner, 1980). That is, people believe that they live in a just world where everyone gets what they deserve and deserves what they get. In this way, strong just-world believers are able to deal with injustice, helplessness, and insecurity and carry out their daily tasks with confidence, hope, and trust in their future. Previous researches have assumed that belief in a just world could play a facilitative role in reducing individuals' worries about external risks to their career prospects, increasing their occupational self-efficacy, and enhancing their confidence in achieving their career goals (Nudelman et al., 2016; Otto et al., 2009). Furthermore, belief in a just world has also been viewed as a flexible coping mechanism that can positively influence high school students' career adaptability (Zhang, 2020).

According to career construction theory, individual career development is conceptualized as a dynamic adaptation process driven by self-construction and person-environment integration, and career adaptability is developed gradually in the interaction between individuals and their context (Savickas, 2002, 2013). Viewed through the lens of this theory, belief in a just world, as an individual variable, may enhance the influence of contextual factors such as career-related parental support on career adaptability, thus moderating the indirect effect of career-related parental support on proactive career behaviors via career adaptability. Individuals with high levels of belief in a just world often perceive the events they experience as equitable and equal, and this positive attitude has advantageous adaptive significance in providing spontaneous motivation for individuals to achieve long-term goals (Du & Zhu, 2007). When acquiring career support from their parents, they are more willing to invest material, energy, and time in long-term career goals (Dalbert, 2009; Otto et al., 2009), and are more confident about their career development (Dalbert, 2001; Sutton & Winnard, 2007). In contrast, individuals with low belief in a just world tend to deny that efforts will be duly rewarded, and this negative perception would inhibit their motivation, autonomy and flexibility in career development (Jung & Ahn, 2018), which is important for developing career adaptability. Notably, several studies have suggested the possible beneficial effects of high belief in a just world as opposed to low belief in a just world in work circumstances. For instance, Cao et al. (2015) revealed that the relationship between abusive supervision and followers' workplace deviance was buffered among individuals with higher belief in a just world. The evidence mentioned above leads to the supposition that the strength of an individual's belief in a just world tends to impose restrictions on the influence of career-related parental support on the development of career adaptability, and in turn proactive career behaviors. Thus, we propose the following:

**Hypothesis 3** Belief in a just world moderates the indirect effect of career-related parental support on proactive career behavior via career adaptability.

### The present study

In summary, this study proposes to construct a moderated mediation model (as shown in Fig. 1) and adopt a three-stage longitudinal tracing design to explore the influence of career-related parental support on vocational college students' proactive career behaviors and the mediating mechanism played by career adaptability, as well as to examine the moderating effect of belief in a just world on the first half of



**Fig. 1** The Proposed Moderated Mediation Model

the path of this mediation model. We anticipated to provide suggestions and insights for the role of family in stimulating vocational college students' proactive career behaviors.

## Method

### Participants

The present study was conducted at two higher vocational colleges in Henan Province, China. Data for our current study were based on three-stage longitudinal measurements by the questionnaire survey method, which were collected in March 2020 (T1; career-related parental support and belief in a just world), four months later (T2; career adaptability) and eight months later (T3; proactive career behavior). In each wave survey, vocational college students were guided to respond to the online questionnaire through a frequently-used online survey platform in China, the Questionnaire Star Survey. Since this online system was programmed to prevent moving forward until all items and questions on the current page had been answered, there was no missing data for participants who completed the online survey. In initial, 778 vocational college students participated in our investigation in the first wave. For the second wave and third wave, the numbers of vocational college students took part in this survey were 747 and 702, respectively. The attrition rates were 4.0% for T2 and 9.8% for T3. A total of 676 vocational college students who completed all the questionnaires at three measurement waves constitute our final analytical sample. In this study, the overall attrition was 13.1% ( $n = 104$ ). Additional analyses showed that there were no significant differences in terms of T1 career-related parental support ( $t = 0.22, p > 0.05$ ) as well as T1 belief in a just world ( $t = -0.61, p > 0.05$ ) between vocational college students who remained in this study and those who dropped out. Therefore, after removing participants who did not participate fully in all three surveys, our final analytical sample consists of those who completed all the questionnaires at three waves. Among these participants, 312 were male and 364 were female; 140 were urban and 536 were rural; 297 were first-generation vocational college students and 379

were non-first-generation vocational college students; the average age of the participants at the first measurement was  $19.29 \pm 1.19$  years. The current study was approved by the Human Research Ethics Committee of the corresponding author's affiliation institution.

### Measures

#### Career-related parental support scale

The career-related parental support subscale of the Parent Career-Related Behaviors Questionnaire developed by Dietrich and Kracke (2009) was used. This questionnaire contains 5 items which were scored from 1 (very unlikely) to 5 (very likely), with higher scores indicating higher levels of career-related parental support. In this study, Cronbach's alpha coefficient was 0.87.

#### Career adapt-abilities scale-short form

The short version of the Career Adapt-Abilities Scale developed by Maggiori et al. (2017) was used to measure career adaptability, which consists of four subscales: career concern, career curiosity, career control, and career confidence, each with three items, for a total of 12 items on a 5-point Likert scale (1 = not a strength, 5 = greatest strength). The higher the score is, the stronger the individual's career adaptability. In this study, Cronbach's alpha coefficient was 0.91.

#### Proactive career behavior scale

The Proactive Career Behavior Questionnaire developed by Strauss et al. (2012) and revised by Zheng (2014) was used. The 14-item scale covers four types of proactive career behaviors, including four questions on career planning, four questions on proactive skill development, three questions on career consultation, and three questions on networking building. The questionnaire is scored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). A higher score indicates a higher level of proactive career

behavior, and in this study, Cronbach's alpha coefficient was 0.95.

### Belief in a just world scale

The General and the Personal Belief in a Just World Scale developed by Dalbert (1999) and revised by Su et al. (2012) was used for measurement. The scale involves two dimensions: the general belief in a just world directed to the surrounding environment and the personal belief in a just world directed to the individuals themselves. Since this study focuses on the influence of personal belief in a just world on individuals' career development, the personal belief in a just world subscale was selected for the assessment. The scale consists of 7 items and is scored on a 6-point scale from 1 (strongly disagree) to 6 (strongly agree). The higher the total score, the higher the individual's belief in a just world. In this study, Cronbach's alpha coefficient was 0.82.

### Data analysis

First, the present study calculated descriptive statistics for these study variables, followed by correlations among them using IBM SPSS Statistics 24.0. Second, this study examined the mediating effect of T2 career adaptability on the relationship between T1 career-related parental support and T3 proactive career behavior following the four-step procedure of MacKinnon (2008). This procedure requires (a) a significant predictive effect of T1 career-related parental support on T3 proactive career behavior; (b) a significant predictive effect of T1 career-related parental support on T2 career adaptability; (c) a significant predictive effect of T2 career adaptability on T3 proactive career behavior while controlling for T1 career-related parental support; and (d) a significant indirect effect between T1 career-related parental support and T3 proactive career behavior via T2 career adaptability. We employed the bias-corrected percentile bootstrap method with 5000 random samples to determine whether the final condition was qualified. Third, we explored whether T1 belief in a just world moderated the mediation process. By using Hayes's PROCESS macro (Model 7) (Hayes, 2013), we performed the analysis of the moderated mediation model. The data of T1 career-related

parental support, T2 career adaptability, T3 proactive career behavior and T1 belief in a just world was all standardized before conducting the examination of the mediation model and the moderated mediation model. Additionally, in all analyses, we controlled for covariates such as gender, age, first generation college students, and birth place (Guan et al., 2015, 2016; Ma et al., 2021; Zhang et al., 2021).

## Results

### Descriptive statistics

Table 1 shows the means, standard deviations, and correlations for the key variables utilized in each analysis. As expected, both T1 career-related parental support and T2 career adaptability were positively correlated with T3 proactive career behavior. Additionally, T1 career-related parental support was positively correlated with T2 career adaptability. In addition, T1 belief in a just world was positively correlated with T1 career-related parental support and T2 career adaptability, respectively.

### Testing for mediation effect

In Hypothesis 2, we anticipated that T2 career adaptability would mediate the relationship between T1 career-related parental support and T3 proactive career behavior. Following MacKinnon's (2008) 4-step procedure, we examine the mediation effect of T2 career adaptability. Multiple regression analysis showed that T1 career-related parental support significantly predicted T3 proactive career behavior,  $\beta=0.30$ ,  $p<0.001$  (the first step, see Model 1 of Table 2), which was in favor of our Hypothesis 1. T1 career-related parental support significantly predicted T2 career adaptability,  $\beta=0.23$ ,  $p<0.001$  (the second step, see Model 2 of Table 2). After controlling for T1 career-related parental support ( $\beta=0.24$ ,  $p<0.001$ ), T2 career adaptability significantly predicted proactive career behavior,  $\beta=0.30$ ,  $p<0.001$  (the third step, see Model 3 of Table 2). In the final step, we used the bias-corrected percentile bootstrap method to examine the mediating effect of T2 career adaptability between T1 career-related parental support and T3 proactive career behavior. Our results indicated that the indirect effect of T1 career-related parental support on T3 proactive career behavior via T2 career adaptability was significant, indirect effect=0.07, 95% CI = [0.04, 0.10]. The mediation effect accounted for 22.17% of the total effect. Thus, our results fully meet the four requirements for constructing the mediation effect, which suggested that Hypothesis 2 was supported.

**Table 1** Descriptive Statistics and Correlations among Variables

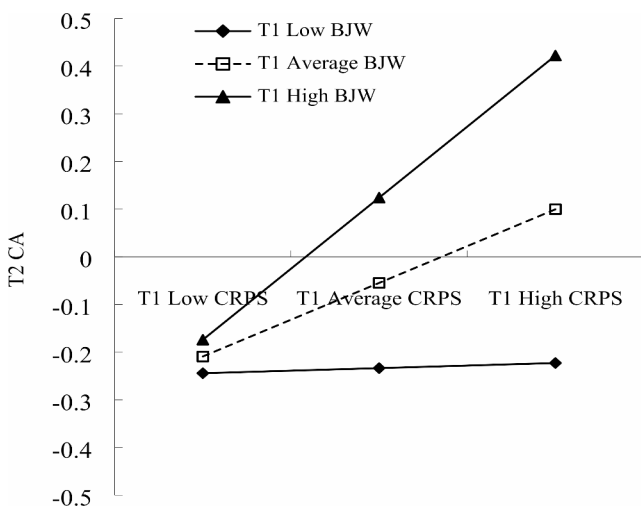
Variables	M	SD	1	2	3
1 T1 Career-related parental support	3.50	0.84			
2 T1 Belief in a just world	3.76	0.73	0.38***		
3 T2 Career adaptability	3.53	0.70	0.23***	0.25***	
4 T3 Proactive career behavior	3.45	0.64	0.30***	0.17***	0.35***

Note. N=676. \*\*\* $p<0.001$

**Table 2** Testing the Moderated Mediation Effect of T1 Career-related Parental Support on T3 Proactive Career Behavior

Predictors	Model 1 T3 Proactive career behavior		Model 2 T2 Career adaptability		Model 3 T3 Proactive career behavior		Model 4 T2 Career adaptability	
	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>
	Gender	-0.10	-1.36	-0.01	-0.15	-0.10	-1.38	0.04
Age	-0.04	-1.18	0.02	0.61	-0.05	-1.43	0.01	0.29
First generation college students	0.01	0.08	-0.05	-0.64	0.02	0.28	-0.07	-0.94
Birth place	0.02	0.19	-0.02	-0.20	0.02	0.27	0.04	0.40
T1 Career-related parental support	0.30	8.14***	0.23	5.94***	0.24	6.48***	0.15	3.86***
T1 Belief in a just world							0.18	4.47***
T2 Career adaptability					0.30	8.25***		
T1 Career-related parental support $\times$ T1 Belief in a just world							0.14	4.47***
<b>R<sup>2</sup></b>	0.09		0.05		0.18		0.11	
<b>F</b>	13.82***		7.43***		24.01***		12.03***	

Note.  $N=676$ . Bootstrap sample size=5000. Results were reported after controlling for gender, age, first generation college students and birth place. Gender was dummy coded such that 0=male and 1=female; First generation college students was dummy coded such that 0=no and 1=yes; Birth place was dummy coded such that 0=urban area and 1=rural area. The  $\beta$  values are standardized regression coefficients. \*\*\* $p < 0.001$



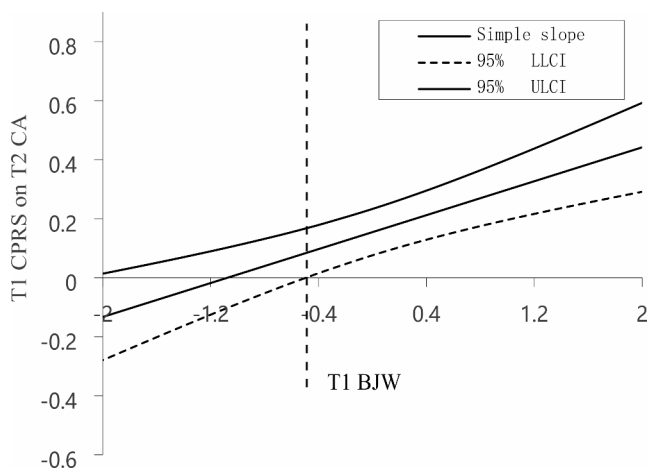
**Fig. 2** The Interactive Effects between T1 Career-related Parental Support and T1 Belief in a Just World in Predicting T2 Career Adaptability. Note. Low, 1 SD below the mean; high, 1 SD above the mean. Abbreviation: SD, standard deviation. B JW=Belief in a just world, CA=Career adaptability, CRPS=Career-related parental support

### Testing for moderated mediation

In Hypothesis 3, we assumed that T1 belief in a just world would moderate the direct/indirect relations between T1 career-related parental support and T3 proactive career behavior via career adaptability. Using the PROCESS macro process (Model 7), we examine this first stage moderated mediation model. As Model 4 of Table 2 illustrates, the predictive effect of T1 career-related parental support on T2 career adaptability was significant,  $\beta=0.15$ ,  $p < 0.001$ , and strengthened by belief in a just world,  $\beta=0.14$ ,  $p < 0.01$ . To more clearly present the interaction effect, this study plotted T1 career-related parental support on T2 career adaptability,

separately for low levels of T1 belief in a just world (1 SD below the mean), average levels T1 belief in a just world (at the mean), and high levels of T1 belief in a just world (1 SD above the mean); see Fig. 2. Simple slope tests illustrated that for vocational college students with low levels of T1 belief in a just world, the predictive effect of T1 career-related parental support on T2 career adaptability was not significant,  $\beta_{\text{simple}}=0.01$ ,  $p > 0.05$ . However, for vocational college students with average levels of T1 belief in a just world, T1 career-related parental support significantly predicted T2 career adaptability,  $\beta_{\text{simple}}=0.15$ ,  $p < 0.001$ . And this predictive effect became greater for vocational college students with high levels of T1 belief in a just world,  $\beta_{\text{simple}}=0.30$ ,  $p < 0.001$ . Then, we employed the Johnson-Neyman technique to examine the regions of significance for better discovering the nature of this moderation effect. As illustrated in Fig. 3, the predictive effect of T1 career-related parental support on T2 career adaptability was insignificantly different from 0 for T1 belief in a just world values less than or equal to -0.49 for which the confidence intervals contain 0. While it became significantly different from 0 for T1 belief in a just world values greater than -0.49 for which the confidence intervals do not contain 0. Thus, the positive effect of T1 career-related parental support on T2 career adaptability was strengthened for individuals who had higher level of belief in a just world.

Furthermore, the results of the bias-corrected percentile bootstrap method also indicated that the indirect effect of T1 career-related parental support on T3 proactive career behavior via T2 career adaptability was strengthened by T1 belief in a just world (see Table 3 for details). For vocational college students with low levels of T1 belief in a just world, the indirect effect of T1 career-related parental support on T3 proactive career behavior via T2 career adaptability was



**Fig. 3** Conditional Relationship Between T1 Career-related Parental Support and T2 Career Adaptability as a Function of T1 Belief in a Just World. *Note.* The dark line indicates the simple slope of T1 CRPS on T2 CA. Areas to the right of the vertical dotted line stand for the regions of significance for the conditional relationship. The effect of T1 career-related parental support on T2 career adaptability is strengthened for vocational college students with higher levels of T1 belief in a just world. BJW=Belief in a just world, CA=Career adaptability, CRPS = Career-related parental support

**Table 3** Conditional Indirect Effect as a Function of T1 Belief in a Just World

T1 Belief in a just world	Indirect Effect	Boot SE	Boot LLCI	Boot ULCI
M-SD	0.003	0.02	-0.03	0.04
M	0.05	0.02	0.02	0.08
M+SD	0.09	0.02	0.05	0.14

*Note.* N=676. Bootstrap sample size=5000. Results were reported after controlling for gender, age, first generation college students and birth place

not significant,  $ab=0.003$ , 95% CI = [-0.03, 0.04]. However, this indirect effect was significant for vocational college students with average levels of T1 belief in a just world,  $ab=0.05$ , 95% CI = [0.02, 0.08]. For vocational college students with high levels of T1 belief in a just world, this indirect effect became greater,  $ab=0.09$ , 95% CI = [0.05, 0.14]. Thus, these results supported Hypothesis 3.

## Discussion

Guided by career construction theory and the proactive motivation model, this study revealed how career-related parental support influences vocational college students' subsequent proactive career behaviors and when this influence is greater. Adopting a three-wave longitudinal design with 676 vocational college students, we found that career-related parental support had a positive predictive effect on vocational college students' proactive career behavior

(Hypothesis 1 was supported), and career adaptability mediated the relationship between career-related parental support and vocational college students' proactive career behaviors (Hypothesis 2 was supported). Moreover, we identified that the indirect effect of career-related parental support on proactive career behavior via career adaptability was moderated by vocational college students' belief in a just world (Hypothesis 3 was supported). That is, high levels of belief in a just world amplify the influence of career-related parental support on the enhancement of career adaptability, and consequently promote an increase in proactive career behavior. The results of this study carry implications for vocational college students' career development both theoretically and practically.

### Longitudinal relationship between career-related parental support and vocational college students' proactive career behavior

The present study showed that career-related parental support significantly predicted the subsequent proactive career behaviors of vocational college students, which is consistent with prior research confirming that external support could activate individual proactive behaviors (Parker et al., 2006). Our results further suggest that career-related parental support, as an important source of external support, had a facilitatory effect on vocational college students' proactive career behaviors. Previous studies have shown that students who reported higher perceived career-related parental support were most likely to have higher self-efficacy in career decision making (Guan et al., 2016), and exhibit higher career identity such as career exploration, career commitment, and career reflection (Zhang et al., 2021). Furthermore, Guan et al. (2015) found that career-related parental support, as an important career engagement approach, could create a supportive career development atmosphere for college students and promote their career exploration behaviors. Regarding proactive career behaviors, we obtained similar findings in this study. For vocational college students, who just start their adult lives, career-related parental support may not only provide important resources to help them better evaluate career-related information and form a clear future work self, but also guide them to explore different career opportunities, and actively plan their career development. Thus, driven by their career goals, vocational college students might engage in a series of proactive career behaviors. Additionally, career-related parental support can motivate vocational college students to develop self-efficacy related to career development (Turner & Lapan, 2002; Zhao et al., 2012), inspiring them to actively shape their career future. However, when vocational college students do not receive enough career support from their parents, they tend to be



more passive in response to their career preparation, which will, to some extent, inhibit their subsequent proactive career behaviors.

### The mediating role of career adaptability

Our study found that career-related parental support could promote vocational college students' subsequent proactive career behaviors by increasing their career adaptability. In other words, career adaptability mediated the relationship between career-related parental support and proactive career behaviors. As such, these findings echo the results of other researches. Previous studies have indicated that career adaptability, as an important psychosocial resource for individuals coping with an uncertain career world, plays a critical role in the maintenance and development of a series of career behaviors (Johnston, 2018; Rudolph et al., 2017), and those supportive contextual factors (e.g., parental support) could contribute to the development of career adaptability (Guan et al., 2016; Hui et al., 2018; Zhang et al., 2021). Moreover, extant empirical studies have further confirmed that career adaptability can mediate the relationship between contextual variables and career-related behaviors. For example, Zhao et al. (2022) found that career adaptability could interpret the mechanism of career-related parental support behaviors on early childhood education students' career planning. In the area of proactive behavior, the proactive motivation model indicates that individual motivations can serve as a mediator between the relationship between contextual variables and proactive behavior (Parker et al., 2010). In our study, we extended this model and supported the idea of Klehe et al. (2021) that, career adaptability, as an important factor of "can do" motivation, follows the similar path of "situational factors - individual motivation - proactive behavior". Our results also suggested that through receiving support, advice and information about career development from their parents, vocational college students can effectively promote their career concern, curiosity, confidence and control, leading to a series of proactive career behaviors such as career planning, career skill development, counseling behavior and networking to prepare for their future career development.

### The moderating effects of belief in a just world

This study further found that the conditional indirect effects of career-related parental support in predicting proactive career behaviors via career adaptability were stronger among individuals with high as opposed to low belief in a just world. Specifically, for vocational college students with higher belief in a just world, career adaptability would improve with increasing career-related parental support,

but this positive effect was not significant in vocational college students with lower belief in a just world. As one of the basic functions of belief in a just world, the trust function that "hard work will be rewarded" is closely related to various adaptive outcomes (e.g., career adaptive resources) (Otto et al., 2009; Zhang, 2020). For vocational college students with high belief in a just world, this trust function makes them more autonomous in their career development and more flexible in their coping mechanisms, which are important preconditions for the development of career adaptive resources. Belief in a just world would also strengthen the benefit of career-related parental support on vocational college students' career adaptability, then activate their proactive career behaviors.

However, students with low belief in a just world are more likely to dispute that their current efforts will be rewarded in the future (Dalbert, 2009; Otto et al., 2009). Even when they receive a variety of career supports from their parents, they still have difficulty transforming these supports into career adaptive resources, and are inclined to lack confidence and motivation to engage in career management. In fact, previous research has also found the moderating effect of individual beliefs in the relationship between parental support and children's career adaptability. For instance, Guan et al. (2016) has demonstrated that there are individual differences in the effect size of career-related parental support on career adaptability, and that low levels of traditional beliefs significantly enhance the effect of career-related parental support on college students' career decision-making self-efficacy, then promote their career adaptability. In the present study, we also acquired the individual differences from the perspective of belief in a just world.

### Research limitations and shortcomings

Our findings should be interpreted with caution considering these limitations below. Firstly, this study only used vocational college students' perceived career-related parental support by self-report, and did not acquire career-related parental support behaviors from parents' reports. Future research can collect data from both parents and vocational college students through multiple subjects' reports, and compare career-related parental support from parents' reports with vocational college students' perceived career support to confirm the influence of family support on vocational college students' proactive career behaviors. Secondly, this study considered career-related parental support behaviors alone, and did not take into account of parental career interference and lack of parental career engagement, which limits the explanatory power of the model. Since there might be at least two different ways of being supportive (e.g., willing or involved) (Boerchi & Tagliabue, 2018),

future research should collect three parents' behaviors and delve how the model works with the three different clusters of vocational college students. Thirdly, although this study adopted a three-wave longitudinal tracking design, it still cannot fully infer the causal relationship and mediating mechanism of relevant variables. In the future, a more rigorous cross-lagged mediation model can be used. Fourthly, since career adaptability only play a partial mediating role in the relation between career-related parental support and subsequent proactive career behavior, which indicating that other mediating mechanisms might also be involved to better explain this linkage. Future research could consider simultaneously three types of intrinsic motivation – “reason to”, “energized to”, and “can do” – as mediators (Parker et al., 2010), and compare the mediating effects of “reason to” and “energized to” with that of “can do” (career adaptability). Lastly, this study only examined the moderating role of individual belief in a just world from a “variable-centered” perspective. In the future, researchers may analyze the heterogeneous types of belief in a just world among vocational college students from an “individual-centered” perspective, and further explore the moderating effect of different types of belief in a just world profiles.

### Strength and implication

In despite of these limitations, we provide relatively rigorous inspections of temporal precedence among career-related parental support, career adaptability, and proactive career behavior by longitudinal studies at three time points, and construct a moderated mediation model identifying the moderating role of belief in a just word. Our study throws light on both the theoretical research about vocational college students' career development and the practical work on their career intervention. Theoretically, this study not only supports the application of the proactive motivation model to the career domain, but also integrates career adaptability into the field of proactive behavior research, confirming that career adaptability is an important “can do” motivation. More importantly, this study shows that belief in a just world is an essential boundary condition that determines the extent to which career-related parental support can facilitate career adaptability and then proactive career behavior. Our study bridges the empirical and theoretical linkage between parental career-related support and children's belief in a just world, integrating the interaction between them into the study of adaptability resources and adapting responses, which also enriches the connotation of career construction theory. Notably, in this study, the use of longitudinal data from multiple time points to map how the mediating and moderating processes unfold over time is also of great significance.

The outcome of this research work is also of great practical value for developing theory-based career educational or interventional strategies for vocational college students. Our findings suggest that vocational colleges and career practitioners should put individual career development into the context of their families. When enhancing vocational college students' proactive career behaviors, they should pay attention not only to individual-level factors, but also to ones related to their family systems. Higher vocational institutions should provide appropriate guidance to students' parents to enhance career-related parental support by improving family-school collaboration system, thereby promoting proactive career behaviors of vocational college students. Furthermore, considering both the low vocational identity and low social recognition of vocational college students (Ling et al., 2021; Zhang et al., 2019a), our study also indicates that while advocating family support for vocational college students' career development, higher vocational colleges and career educators should keep an eye on the important role of belief in a just world in promoting their career adaptability, integrating this belief into career education courses and career-related activities. As such, by placing emphasis on the value of belief in a just world, they could guide vocational college students to better absorb the “nutrition” of parents' career support, so as to effectively promote their career proactive career behaviors.

In conclusion, this study contributes to the developmental literature about career construction theory and the proactive motivation model by investigating the underlying mechanism between career-related parental support and vocational college students' proactive career behavior. Adopting a longitudinal design, we found career adaptability partially mediated this relationship between them. Additionally, the indirect effect of career-related parental support on proactive career behavior via career adaptability was moderated by vocational college students' belief in a just world. Taken together, these findings emphasize the potential importance of increasing career adaptability and belief in a just world for facilitating the positive influence of career-related parental support on vocational college students' proactive career behavior.

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**Code Availability** Not applicable.

## Declarations

**Ethics approval and consent to participate** This research project was approved by the Ethics Committee of Beijing Normal University. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

**Consent to participate** Informed consent was obtained from all individual participants included in the study.

**Consent for publication** Written informed consent for publication was obtained from all participants.

**Conflicts of Interest/Competing interests** On behalf of all authors, the corresponding author states that there is no conflict of interest.

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