

The effect of family cohesion and adaptability on career choice self-efficacy of graduates: The mediating effect of State Anxiety

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Abstract.

BACKGROUND: As one of the most significant background factors affecting individuals' growth and development, family environment has a specific and essential impact on individuals' career choices.

OBJECTIVE: To examine the effect of family cohesion and adaptability on career choice self-efficacy

METHOD: This study was conducted with 584 graduates. Self-report questionnaires were used to collect data.

RESULTS: The results showed that: (1) There is a significant positive correlation between family cohesion and adaptability; (2) State anxiety is significantly negatively correlated with career choice self-efficacy and family cohesion and adaptability; (3) State anxiety plays a completely mediating effect between family cohesion and career choice self-efficacy, and (4) State anxiety plays a partial mediating role in the relationship between family adaptability and career choice self-efficacy.

CONCLUSION: The current study focused on the two aspects of family function and revealed the relationship between family cohesion and adaptability and career choice self-efficacy of graduates.

Keywords: Family cohesion and adaptability, career choice self-efficacy, state anxiety, graduates

1. Introduction

With the rapid development of society and education system reform, the fierce talent competition and intensive demands pose a threat to fresh graduates, as these cause the increasing of employment pressure gradually [1]. Statistics showed that at the end of 2019, the number of Chinese college graduates reached a high record of 8.33 million, and fresh graduates are facing both challenges and opportunities in job hunting. In face of the severe employment situation, relevant surveys showed that the mentality

of job hunting might be the biggest obstacle to the employment of recent graduates [2], which indicated that in addition to the objective impact of the complex and changeable employment situation, graduates should seek breakthroughs from personal internal factors, and prepare for employment with a more positive attitude and stronger measures [3]. Looking back for the employ-ability of graduates in recent years, internal psychological factors played a significant role in the process of career choosing [4]. Specifically, a few career studies have found that career choice self-efficacy has an important impact on

individual career choice and employment [5]. Career choice self-efficacy was first proposed by Betz et al. [6] based on the self-efficacy theory of Bandura, which refers to the self-perception of individuals' ability to achieve job-related tasks. In fact, career choice self-efficacy is much more significant than the ability of actually engaging in a certain career. A high level of career choice self-efficacy can stimulate the development of individual career exploration and professional skills, and greatly improve the rationality of career choices [7]. Given the significant influence of career choice self-efficacy on graduates' career choices and development, it is urgent to further improve the understanding and grasp of the factors related to graduates' career choice self-efficacy, for which we can further improve the career development and choice of graduates.

Currently, a significant aspect affecting graduates' career choice self-efficacy can be reflected in family [8]. The social cognitive career theory (SCCT) points out that as an open process of two-way choice, career choice might be affected by the interaction of individuals and environment, and external environmental factors have an important influence on the career choice process, such as the family environment. The family environment is a key context for individuals' development [9]. Individuals' career choices and development rest within the inner interaction and emotion contact in the family. Embedded within a well-functioning family context, individuals can promote positive developmental outcomes, get more support and are more encouraged to act publicly and express their feelings, effectively promote the development of autonomy and ultimately shape the career choice self-efficacy. For example, Wolfe et al. [10] found that the close attachment relationship between individuals and their parents can positively predict their career choice self-efficacy, Trivette et al. [11] also pointed out that the positive interaction between parents and children could enhance individuals' self-efficacy and the development of their abilities.

To sum up, family factors may have an essential impact on graduates' career choice self-efficacy, which further affects their career choices and development, and the process might be mediated by other factors. The current study based on SCCT, combining family cohesion and adaptability, state anxiety and career choice self-efficacy to explain the problem. Specifically, the family cohesion and adaptability of graduates may affect their state anxiety level in different ways to finally affect their career choice

self-efficacy. Currently, there are only a few studies have explored the psychological and social factors that affect graduates' career choice self-efficacy, and no research further conducted the question from the perspective of family cohesion and adaptability. Focusing on the fact, this research aims to take graduates to comprehensively investigate the influence between family cohesion and adaptability in the current social and cultural background of China, in order to enrich relevant research in this field.

1.1. The relationship between family cohesion and adaptability and career choice self-efficacy

The concept of family cohesion and adaptability was first proposed by Olson [12], who pointed out three dimensions of family function in the family circumplex model theory (FCMT). Family cohesion refers to the support that family members provide to one another as well as the sense of involvement and closeness among them [13], and family adaptability is defined as the ability and adaptation of the family system to adjust to changes in the external environment. The psychological development and behavioral shaping of individuals cannot be separated from the influence of family function [14], and family cohesion and adaptability are two important indicators to measure it. Although graduates' self-awareness develops rapidly, the solidified thinking formed by family atmosphere and living conditions still plays a subtle role on them, affecting their career choices and development. Focusing on the research available in the family and career development field, the influence of family factors on college students' career choices was proposed in Roe's parental impact research as early as the year of 1957, however, it was not until the arise of family dynamics and system theory in recent years that the importance of family on individual's career development has been paid attention again. And most of the current studies still tend to consider family factors as a whole to consider their relationship with career choice self-efficacy, no studies have taken family cohesion and adaptability as separate antecedent variables to investigate their impact on career choice self-efficacy. Hence, the current study intends to further explore the relationship between family cohesion and adaptability and career choice self-efficacy of graduates based on related theories.

Family cohesion and adaptability might have a positive effect on promoting career choice self-efficacy of graduates, promoting family functions and provid-

ing significant assistance for cultivating graduates' career choice self-efficacy. According to SCCT, family cohesion and adaptability may affect graduates' career choice self-efficacy from two aspects. First of all, family cohesion and adaptability will affect graduates' career choice self-efficacy through affecting their ability and desire to transform goals into behaviors [15]. The formation of career choice self-efficacy needs to interact with family environment, from which individuals can obtain beliefs in achieving target behaviors. Families with high cohesion and adaptability are more likely to construct a safe and healthy attachment with their children, and family members can adopt active communication to understand each other. With the situation, individuals can moderately highlight the perception of their own abilities, produce more autonomy, avoiding compare with other people and keep positive attitude and are more likely to be seen as a positive or self-directed person [16], thereby further shaping the career choice self-efficacy, promoting behavioral and cognitive activation and improving positive affect [17]. Secondly, individuals in a family with high cohesion and adaptability might can obtain more opportunities for skill development, increasing their career interest by stimulating specific skill acquisition behaviors, thereby further improving career choice self-efficacy [18]. After reaching a specific level of operation and adaptation, individuals can better internalize their self-belief, standards, and results expectation, more concentrating on their real life [19], through which generating higher career choice motivation and self-efficacy.

To conclude, the current study made a primary prediction for the relationship between family cohesion and adaptability and graduates' career choice self-efficacy: family cohesion and adaptability has a positive effect on graduates' career choice self-efficacy (Hypothesis 1). In order to test this hypothesis, this study attempts to further explore the mechanism between them with establishing related models.

1.2. The mediating effect of state anxiety on the relationship between family cohesion and adaptability and career choice self-efficacy

Anxiety is considered as a mental state characterized by an intense sense of tension, worry or apprehension, relative to something adverse that might happen in the future [20]. Olson [12] further

divided anxiety into trait anxiety and state anxiety. Trait anxiety is thought to belong to a list of characteristic traits of an individual's personality, and it can be associated with different psychopathological conditions and constant high arousal. Conversely, state anxiety is a more transient intense emotional state, associated with a temporary increased sympathetic nervous system activity, but with no specific pathological conditions.

On the one hand, family cohesion and adaptability may be negatively correlated with individual's state anxiety. Accumulating studies have found that high family cohesion and adaptability can help relieve individual's anxiety [21]. When immersed in high family cohesion, family members can better express their feelings and respect each other [22]. And high family adaptability indicates that the individual's family environment is flexible, and members rely on each other while maintain appropriate independent space [12], and when faced with personal choices, family members will take a highly controlled approach to provide help to individual, thereby reducing individuals' anxiety when facing uncertain events, such as career choices. High family cohesion and adaptability suggest a more active family relationship. The studies available pointed out that family mainly affects individual's psychological state through parenting, communication with children, and handling of disagreements between parents and children [23]. For families with high cohesion and adaptability, they are more likely to adopt positive and warm parenting methods for their children, and communicate with them in a more positive way to resolve differences. In such an environment, individuals can obtain more strength and help from the family, and it is more difficult for them to produce state anxiety [24], and thereby face career choices much more actively. On the other hand, consistent with studies available, state anxiety may have a negative predictive effect on the individual's career choice self-efficacy. According to the cognitive model of anxiety, individuals are more likely to have negative evaluations and beliefs about themselves under anxiety state, and reducing their self-efficacy. In summary, based on the literature review, we can speculate that graduates living in families with higher cohesion and adaptability may have less state anxiety when faced with career choices, thereby enhancing their career choice self-efficacy. And we propose Hypothesis 2 that state anxiety has a mediating effect in the relationship between family cohesion and adaptability and career choice self-efficacy. Currently, there are no stud-

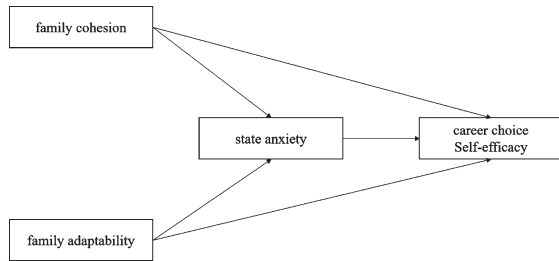


Fig. 1. Theoretical model.

ies have tested this influence mechanism. Therefore, this research intends to explore the path of family cohesion and adaptability \rightarrow state anxiety \rightarrow career choice self-efficacy with graduates.

To conclude, this study indicated that the effect of family cohesion and adaptability on career choice self-efficacy of graduates can be described by a mediating model (Hypothesis 3). The research model is shown in Fig. 1. In addition, considering that graduates of different genders may have different path effects, they are included as control variables in the model test.

2. Methods

2.1. Sample and procedures

We collected data from Shandong Normal University and randomly invited 600 graduates to participate voluntarily. We received 584 valid responses (467 women). In terms of single child or not, 54.8 % are single children, and in terms of residence, 43.7% come from a city. No participants had any neurological or psychological conditions.

The study was conducted after obtaining informed consent from participants. All experimenters were performed by experienced psychologists. The test began after the first experimenter had read the instructions. All questionnaires were completed anonymously, and it was emphasized that there were no right or wrong answers. All participants were required to answer questions independently according to their actual conditions. It took around 10 minutes for participants to complete the questionnaire. Participants were told that they could withdraw from the study at any time if they did not want to complete the questionnaire. All procedures followed were in accordance with the ethical standards of the Academic Board of Shandong Normal University.

Participants provided informed consent and verbal consent to participate before completing the questionnaire.

2.2. Measures

2.2.1. The career choice self-efficacy scale

Career choice self-efficacy was measured using the Career Decision Making Self Efficacy Scale-Short Form (CDMSE-SF), which is a 15-item scale proposed by Betz et al. [25]. The scale dimensions include self-evaluation, information collection, target screening, plan making and problem solve (e.g., “I can accurately evaluate my abilities”). Participants responded to each item on a 5-point Likert scale ranging from 1 (no confidence at all) to 5 (totally confident), whereby higher scores indicated a greater level of career choice self-efficacy. In this study, the Cronbach’s α coefficient of the scale was 0.95.

2.2.2. Family cohesion and adaptability scale

Family cohesion and adaptability was measured using a 12-item family adaptability and cohesion evaluation scale (FACESII-CV) proposed by Olson [26]. The scale includes assesses the two dimensions of cohesion and adaptability (e.g., “Family members will do their best to support each other when encountering difficulties”). Participants responded to items on a 5-point Likert scale, whereby higher scores indicated a greater level of family function. In this study, the Cronbach’s α coefficient of the scale was 0.8, and the Cronbach’s α coefficients of the two dimensions were 0.85 and 0.73.

2.2.3. State anxiety scale

State anxiety was measured using a 20-item State-Trait Anxiety Scale (STAI) proposed by Spielberger [13] that assesses state anxiety (e.g., “I feel calm”). Participants responded to items on a 54-point Likert scale ranging from 1 (hardly) to 4 (obviously), and higher scores indicated a greater level of state anxiety. In this study, the Cronbach’s α coefficient of the scale was 0.78.

2.3. Data analysis

Based on the datasets of all samples included in this study, the multiple linear regression analyses was performed to conduct descriptive and association analyses for the variables (family cohesion and adapt-

Table 1
Comparison of the goodness of fit between the measured models (N = 584)

| Model | χ^2 | df | χ^2/df | RMSEA | CFI | TLI | SRMR |
|-------------------------------|----------|-----|-------------|-------|-------|-------|-------|
| Three factors model (A, B, C) | 1310.58 | 545 | 2.40 | 0.49 | 0.928 | 0.922 | 0.47 |
| Two factors model (A+B, C) | 3082.18 | 559 | 5.51 | 0.088 | 0.763 | 0.748 | 0.079 |
| One factor model (A+B+C) | 4731.38 | 560 | 8.45 | 0.113 | 0.608 | 0.584 | 0.106 |

Table 2
Correlations between family cohesion and adaptability, stage anxiety and career choice efficacy (N = 228)

| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------|------|------|--------|---------|--------|---------|--------|--------|---|
| Family cohesion | 3.61 | 0.63 | 1 | | | | | | |
| Family adaptability | 3.46 | 0.63 | 0.81** | 1 | | | | | |
| Stage anxiety | 2.08 | 0.44 | -0.10* | -0.10* | 1 | | | | |
| Carrer choice efficacy | 3.46 | 0.55 | -0.09* | -0.41** | 0.34** | 1 | | | |
| Gender | 1.82 | 0.39 | -0.02 | 0.01 | -0.4 | -0.18** | 1 | | |
| Single child or not | 1.49 | 0.53 | -0.10* | -0.05 | -0.01 | -0.11** | 0.14** | 1 | |
| Residence | 1.45 | 0.50 | -0.10 | -0.08 | 0.00 | -0.07 | -0.07 | 0.51** | 1 |

Gender: male = 1, female = 2, single child or not: single child = 1, not single child = 2; residence city = 1; village = 2.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

ability, state anxiety and career choice self-efficacy) in this study using SPSS 25.0 and a PROCESS macro (Hayes, Columbus, USA). We also calculated 95% bootstrap confidence intervals (CIS) based on 5000 bootstrapped samples.

3. Results

3.1. Common method bias

The collected data were tested for common method bias using Harman's single-factor test. This method assumes that if a single factor is extracted, or if the explanatory power of a factor is particularly large, then there is a serious common method bias. The results of the explanatory factor analysis extracted twelve factors that could explain 58.96 % of the total variance, with the biggest factor accounting for 16.38 % of the variance. Although this process did not completely exclude the possibility of common method bias, the results showed that the data collected in this study did not have serious common method bias. In addition, using Mplus7.0 statistical analysis software to perform confirmatory factor analysis on the observation data, the results are shown in Table 1. The results show that the fit between the observed data and the hypothetical model (three-factor model) is the best. Among them, the RMSEA value is 0.049, the CFI value is 0.928, the TLI value is 0.922, and the SRMR value is 0.047, all of which meet the requirements. Based on the above results, it can be considered that the measured variables in this study have good discriminative validity.

3.2. Sample characteristics and preliminary analyses

The means, SDs, and bivariate correlations for all variables are presented in Table 2. The associations analysis indicated that family cohesion and adaptability were significantly correlated with career choice self-efficacy ($r = 0.09$, $p < 0.05$; $r = 0.13$, $p < 0.001$). There was a significant negative correlation between family cohesion and adaptability and state anxiety ($r = -0.10$, $p < 0.05$; $r = -0.10$, $p < 0.05$), state anxiety was negatively associated with career choice self-efficacy ($r = -0.33$, $p < 0.001$). In addition, analyzing the differences of graduates' family cohesion and adaptability, state anxiety and career choice self-efficacy can provide a scientific reference for college career research and management. The demographic variables are analyzed on gender, single child or not and residence. The results are as follows: gender was significantly correlated with career choice self-efficacy ($r = -0.18$, $p < 0.001$), single child or not was significantly associated with family cohesion ($r = -0.10$, $p < 0.01$) and career choice self-efficacy ($r = -0.11$, $p < 0.01$). Residence was significantly correlated with family cohesion and adaptability ($r = -0.10$, $p < 0.05$). Therefore, gender, single child or not, and residence are included as control variables.

3.3. Testing for the mediation effect of state anxiety

The mediation effect test procedure proposed by PROCESS of SPSS version 25.0 was used to test

the mediation effect of state anxiety, with family cohesion and adaptability as the independent variable, career choice self-efficacy as the dependent variable. To measure the relationship between variables more accurately, we controlled for gender, single child or not and residence in the subsequent analysis.

First, using family cohesion as the independent variable, career choice self-efficacy as the dependent variable, and state anxiety as the mediating variable, we found that family cohesion has a significant negative effect on state anxiety ($\beta = -0.124$, $p < 0.05$), state anxiety has a significant negative effect on career choice self-efficacy ($\beta = -0.33$, $p < 0.001$), family cohesion has no directed positive effect on career choice self-efficacy ($\beta = 0.059$, $p = 0.22$), and state anxiety plays a complete mediating role in the influence of family cohesion on career choice self-efficacy. The 95% CI of the mediating effect was [0.006, 0.079], and the mediating effect was 0.04, accounting for 68.9% of the total effect, so the complete mediation effect was significant. Second, using family adaptability as the independent variable, career choice self-efficacy as the dependent variable, and state anxiety as the mediating variable, we found that family adaptability has a significant negative effect on state anxiety ($\beta = -0.123$, $p < 0.05$), state anxiety has a significant negative effect on career choice self-efficacy ($\beta = -0.33$, $p < 0.001$), family adaptability also has a directed positive effect on career choice self-efficacy ($\beta = 0.111$, $p < 0.05$), and state anxiety plays a partial mediating role in the influence of family adaptability on career choice self-efficacy. The 95% CI of the mediating effect was [0.007, 0.077], and the mediating effect was 0.04, accounting for 35.5% of the total effect, so the partial mediation effect was significant. The research model is shown in Fig. 2.

4. Discussion

4.1. The relationship between family cohesion and adaptability and career choice self-efficacy

Career choice self-efficacy is individual's belief or confidence in the ability to achieve career behavior goals. High career choice self-efficacy can promote individual's development of career exploration, which is of great significance to career choice. According to SCCT, the interaction between individ-

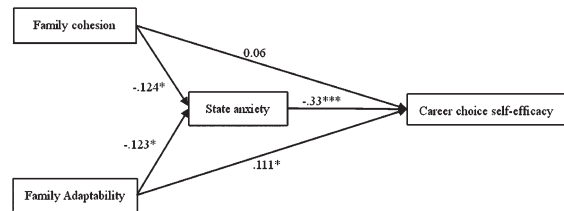


Fig. 2. A mediation model of the influence of family cohesion and adaptability on career choice self-efficacy.

uals and environment is of great significance to the cultivation and development of the individuals' career choice self-efficacy through affecting their thinking, emotions and behaviors. In order to further explore the influence of family factors on individual career choice and development, this study aimed to reveal the effect of family cohesion and adaptability on career choice self-efficacy from the perspective of family function.

First, the current study found that family cohesion and adaptability was positively associated with career choice self-efficacy in graduates, which indicates that strengthening family cohesion and adaptability could help graduates to promote career choice self-efficacy. On the one hand, for family cohesion, we found that families with low cohesion lack support and communication, which would limit graduates' well-being and self-esteem, reducing their task orientation and thus cannot make effective career development [27]. In addition, according to Bem's self-perception theory [28], individual's cognition of the inner state is inferred based on observations of the external behavior and the environment in which the behavior occurs. Considering the inner cues are relatively vague, individuals need to infer their inner state from the perspective of outside observer. Hence, a family with higher cohesion can give graduates more positive reactions and emotional interactions, improving their benign self-assessment in face of uncertain events, and thereby they can put into career choice with a higher sense of self-efficacy. On the other hand, family adaptability has a direct impact on individual's career choice self-efficacy, which could be explained by the family adaptability elastic model. According to the model, a family's ability to cope and recover from high-stress life events reflects the family's adaptability. Highly adaptive family can understand the needs of family members and make efforts for their active adaptation, provide sufficient family resources to give sufficient family support, and actively improve

family communication and coping strategies. As a result, individuals living in more adaptable families could get more strategies for self-adjustment and improvement [29], and increase their resistance to stressful events. When faced with career planning or employment problems, they can actively adjust their adaptability and quickly assimilate into a new environment, thereby further improving their efficacy in career choice and decision-making.

To conclude, the current study focused on the two aspects of family function and revealed the relationship between family cohesion and adaptability and career choice self-efficacy of graduates. This enriches our knowledge about the antecedents of career choice self-efficacy and provides a new perspective for future research of career development.

4.2. The mediating role of state anxiety in the relationship between family cohesion and adaptability and career choice self-efficacy

Secondly, the current study found that state anxiety plays a mediating role in the relationship between family cohesion and adaptability and career choice self-efficacy.

Specifically, the effect of family cohesion on career choice self-efficacy was completely mediated by state anxiety, while state anxiety played a partial mediating role in the relationship between family adaptability and career choice self-efficacy. These findings and their implications are discussed in more detail in the following paragraphs.

On the one hand, for the family cohesion → state anxiety → career choice self-efficacy link, we found that state anxiety plays a complete mediating role between them, which indicated that family cohesion could affect individual's career choice self-efficacy through state anxiety. When family cohesion is high, graduates can accumulate psychological capital in the positive interaction with family members, gain support and respect through caring behaviors and finally generate more communication. In this case, individuals can feel more family and social support [30], which could greatly satisfy their relationship needs and extremely alleviating anxiety, confusion and other negative emotions caused by the increased employment pressure through the sense of security and belonging, forming a protective factor against anxiety, and thereby effectively promoting career choice self-efficacy and motivation.

On the other hand, this study indicated that state anxiety played a partial mediating role in the relationship between family adaptability and career choice self-efficacy. The studies available have pointed out that low family adaptability may trigger individuals' anxiety. Choosing a career and entering the labor market are challenging tasks that can trigger anxiety. Although a certain amount of anxiety (due to both a personality trait and an emotional state) appears to be beneficial to motivate adolescents to begin the career exploration process, anxiety has also repeatedly been associated with career indecision and indecisiveness. Indeed, low family adaptability, such as unharmonious family atmosphere and poor coordination, may increase individual's sense of pressure, fail to provide adequate family support, and make it difficult for individuals to resist changes in policies and environment, lacking appropriate coping styles and daring not to take action [31], which would in turn trigger state anxiety when facing stressful events or choices. After state anxiety develops, individuals may reduce career intentions and confidence, resulting in a decrease of career choice self-efficacy. Currently, a growing body of research has concentrated on the emotional construction in career choice and decision-making process, and compared with trait variables, situation and state variables have a more significant impact on the career choice process [32]. Specifically, according to SCCT, individual's career choice process might be affected by their own psychological state, they may experience anxiety when unable to engage in a certain occupation due to difficulties [33]. Under the situation, the individual's ability to reason and solve problems may decline, unable to better respond to various needs in the career selection process [34], thereby reducing self-assessment, resulting in a low sense of career choice self-efficacy and finally affect their career choice.

At last, the current study found that compared with family adaptability, family cohesion is more closely related to the state anxiety of graduates, which may be because that cohesion reflects the interpersonal relationship between family members, refers to the emotional connection between family members [35]. This can help graduates relieve anxiety, promoting their emotion and even further healthy development of career choice self-efficacy. In addition, according to the family system theory, high family cohesion can create a series of psychological and social development convenience conditions for individuals' development, improving individual's problem-solving ability, and greatly reducing their

state anxiety [36]. At present, although many studies have explored the influence of family factors on individual career choices, this research revealed the relationship between family cohesion and adaptability and career choice self-efficacy of graduates for the first time. This research supports the significance of family function to individual's career choice, and we can further propose corresponding career choice intervention measures.

4.3. *Limitations and future work*

Study limitations need to be considered when interpreting the findings. First, we used self-report questionnaires to collect data, which may have meant that the measure over-reported or under-reported their family cohesion and adaptability, state anxiety and career choice self-efficacy. This may have resulted in biased conclusions. Furthermore, we used a cross-sectional data collection method. In future work, we should collect data from multiple time points to avoid the effect of common methodological biases. Second, this study only collected data from one college from one major, so it is unclear whether our findings can be generalized to other populations. Future research should increase the number of participants, and the characteristics of graduates in other majors should be investigated. Given that different cultures have different values and family systems, cross-cultural studies should also be conducted to explore these differences. Third, in the current sample, males account for a small proportion, which affects the scientific nature of the data to a certain extent, which needs to be further strengthened and improved in future research. Given the large differences in occupational preferences and choices between individuals of different genders, this variable should be further studied in the future. Fourth, the current study only found that state anxiety can affect career choice self-efficacy of graduates, however, the reduction of career choice self-efficacy might play an important role for increasing graduates' state anxiety by creating challenge for themselves. Future research is needed to further explore the interaction effect between state anxiety and career choice self-efficacy. Finally, since the current only investigated the mediating mechanism between family adaptability and cohesion and career choice self-efficacy, future research may need to investigate other potential moderating or protective factors, with a view to providing new ideas for improving career choice self-efficacy.

4.4. *Practical contributions*

This study helps to elucidate the mechanism that underlie the pathway between family function and career choice self-efficacy in graduates. Importantly, our findings may aid the development of interventions to improve career choice and decision for graduates from the perspective of family function. Actually, a few studies have emphasized that family association and function can be a potential source of career choice and decision-making difficulties [37, 38]. The prerequisite for the smooth development of career choice is to achieve a balance between the cohesion and adaptability in the family [39]. This study found that high family cohesion and adaptability is associated with the increasing of career choice self-efficacy of graduates, which suggests that we can facilitate the career choice and development process by providing ways to explore and intervene with the perspective of family function in future work.

First, this research highlights the crucial role that family plays in helping graduates career development. On the one hand, this study found that family cohesion could influence the career choice self-efficacy of graduates through state anxiety, from which we can enhance the communication and connection of family members to improve the family cohesion of graduates. Hartung et al. [40] emphasized that the interaction patterns and emotional connections of family members are the focus of career choices and decisions. Family members should improve their communication, coordination and emotional expression skills, as parents need to increase their care and help for their children during job selection, and graduates should take communication measures to interact with their parents. It is essential to increase family cohesion from the perspective of improving communication functions, and finally improve career choice self-efficacy. On the other hand, the current study found that family adaptability was directed related with career choice self-efficacy. As high family adaptability could be the primary sources to promote family support and the well-being of family members, improving family adaptability plays a critical role in adapting positive coping style with careers and further improving career choice self-efficacy. Hence, group counseling can be applied to family members, especially parents, to raise the level of career choice awareness, pay attention to the improvement of family behavior control and problem solving, promoting the coordination among family members. If necessary, career counseling also

could be used with the functional family therapy principles.

In addition to family cohesion and adaptability, the current study found that state anxiety was negatively related to career choice self-efficacy, which showed that the state anxiety reduction intervention can be established to promote career choice. For graduates, apart from continuously accumulating their knowledge of their career choice, they also need to enhance their ability to control emotions and use positive emotion strategies, through which combating career choice anxiety. At last, a focus solution model could also be adopted in career counseling to reduce graduates' state anxiety.

5. Conclusions

The current study examined the effect of family cohesion and adaptability on career choice self-efficacy in graduates and found that (1) family cohesion and adaptability was positively related with career choice self-efficacy, and (2) state anxiety was negatively related with career choice self-efficacy. (3) The effect of family cohesion on career choice self-efficacy was fully mediated by state anxiety. (4) The relationship between family adaptability and career choice self-efficacy was partly mediated by state anxiety.

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Conflict of interest

The author has no conflicts of interest.

References

- [1] Jaafar SN, Zakaria N, Rasheid NA. Career choice and employability skills for vocational college students. *Journal of Physics Conference Series*. 2008;1049(1):012050.
- [2] Chen CW, Hu GY. An empirical study of the influence of the concept of "job-hunting" on graduates' employment. *Frontiers of Education in China*. 2008;3(4):569-84.
- [3] Santos GG, Ferreira AP, Pinho JC. Career attitudes and employability: Analysis of mediation via career strategies. *Employee Relations*. 2019;42(2):417-36.
- [4] Hensel E, Kroese BS, Rose J. Psychological factors associated with obtaining employment. *Journal of Applied Research in Intellectual Disabilities*. 2010; 20(2):175-81.
- [5] Chun-Chen C. The relationship among social support, career self-efficacy, career exploration, and career choices of Taiwanese college athletes. *Journal of Hospitality, Leisure, Sport and Tourism Education*. 2018;22:105-9.
- [6] Betz NE, Hackett G. The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology*. 1981;28(5):399-410.
- [7] Abel TG, Teresa LM, María RAD. Occupational therapy, self-efficacy, well-being in older adults living in residential care facilities: A randomized clinical trial. *Frontiers in Psychology*. 2018;9:1414.
- [8] Kovar A, Carmichael H, Harms B, Nehler M, Tevis S. Over worked and under paid: How resident finances impact perceived stress. *Career Choices, and Family Life*. 2021;258:82-7.
- [9] Masarik AS, Conger RD. Stress and child development: A review of the Family Stress Model. *Current Opinion in Psychology*. 2017;13:85-90.
- [10] Wolfe JB, Betz NE. The relationship of attachment variables to career decision-making self-efficacy and fear of commitment. *Career Development Quarterly*. 2004;52(4): 363-9.
- [11] Trivette CM, Dunst CJ, Hamby DW. Influences of family-systems intervention practices on parent-child interactions and child development. *Topics in Early Childhood Special Education*. 2010;30(1):3-19.
- [12] Olson D. Circumplex model of marital and family systems. *Journal of Family Therapy*. 2000;22:144-67.
- [13] Spielberger CD. Anxiety as an emotional state. *Anxiety*. 1972;1(6-7):23-49.
- [14] Ryan RM, Claessens A, Markowitz AJ. Associations between family structure change and child behavior problems: The moderating effect of family income. *Child Development*. 2014;86(1):112-27.
- [15] Hui KY, Lent RW. The roles of family, culture, and social cognitive variables in the career interests and goals of Asian American college students. *Journal of Counseling Psychology*. 2017;65(1):98-109.
- [16] Simpson EG, Vannucci A, Ohannessian CM. Family functioning and adolescent internalizing symptoms: A latent profile analysis. *Journal of Adolescence*. 2018;64:136-45.
- [17] Hu Y, Wu X, Chen X, Maguire P, Wang, D, et al. Can increased cognitive load help people with subthreshold depression to forget negative information? *Journal of Affective Disorders*. 2021;283:384-94.
- [18] Kim M. Family background, students' academic self-efficacy, and students' career and life success expectations. *International Journal for the Advancement of Counselling*. 2014;36(4):395-407.
- [19] Hu YX, Guo JH, et al. Investigating the attentional bias and information processing mechanism of mobile phone addicts towards emotional information. *Computers in Human Behavior*. 2020;110.
- [20] Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*. 1988;56(6):893-7.
- [21] Park YY, Jeong Young-jin, Lee J, Moon N, Bang I, Jeon Tae-hee. The influence of family adaptability and cohesion on anxiety and depression of terminally ill cancer patients. *Support Care Cancer*. 2018;26:313-21.

- [22] Dunkel CS, van der Linden D, Fullerton EI, Hengartner MP. Family cohesion and the general factor of personality: Examining differences in monozygotic twin pairs. *Evolutionary Psychological Science*. 2018;4(4):384-90.
- [23] Fosco GM, Mak HW, Ramos A, Lobraico E, Lippold M. Exploring the promise of assessing dynamic characteristics of the family for predicting adolescent risk outcomes. *Journal of Child Psychology and Psychiatry*. 2019;60(8):848-56.
- [24] Weymouth BB, Buehler C, Zhou N, Henson RA. A meta-analysis of parent-adolescent conflict: Disagreement, hostility, and youth maladjustment. *Journal of Family Theory & Review*. 2016;8(1):95-112.
- [25] Betz NE, Klein KL, Taylor KM. Evaluation of a short form of the career decision-making self-efficacy scale. *Journal of Career Assessment*. 1996;4(1):47-57.
- [26] Olson D. Circumplex Model VII: Validation studies and FACES III. *Family Process*. 1986;25:337-51.
- [27] Shek DT. Adolescent positive mental health and psychological symptoms: A longitudinal study in a Chinese context. *Psychologia*. 1998;41(4):217-25.
- [28] Bem DJ. Self-perception theory. *Advances in Experimental Social Psychology*. 2010;6:1-62.
- [29] Choi HK, Riper MV. mHealth family adaptation intervention for families of young children with down syndrome: A feasibility study. *Journal of Pediatric Nursing*. 2020;50:69-76.
- [30] Glozah FN, Pevalin DJ. Social support, stress, health, and academic success in Ghanaian adolescents: A path analysis. *Journal of Adolescence*. 2014;37(4):451-60.
- [31] Wang JK, Chen YH, Tan CC, Zhao XD. Family functioning, social support, and quality of life for patients with anxiety disorder. *International Journal of Social Psychiatry*. 2016;62(1):5-11.
- [32] Isen AM, Means B. The influence of positive affect on decision-making strategy. *Social Cognition*. 1983;2(1):18-31.
- [33] Jung H, Park IJ, Rie J. Future time perspective and career decisions: The moderating effects of affect spin. *Journal of Vocational Behavior*. 2015;89:46-55.
- [34] Lee TP. The Joint roles of career decision self-efficacy and personality traits in the prediction of career decidedness and decisional difficulty. *Journal of Career Assessment*. 2019;27(3):457-70.
- [35] Wu SM, Zheng X. The effect of family adaptation and cohesion on the well-being of married women: A multiple mediation effect. *Journal of General Psychology*. 2020;147(1):90-107.
- [36] Adams BLM, Vasilis S, Burleigh TL, Liew LWL, Beard CL, Griffiths MD. Internet gaming disorder behaviors in emergent adulthood: A pilot study examining the interplay between anxiety and family cohesion. *International Journal of Mental Health and Addiction*. 2019;17(4):828-44.
- [37] Gati I, Krausz M, Osipow SH. A taxonomy of difficulties in career decision making. *Journal of Counseling Psychology*. 1996;43(4):510-26.
- [38] Saka N, Gati I. Emotional and personality-related aspects of career decision-making difficulties: Facets of career indecisiveness. *Journal of Vocational Behavior*. 2007;71(3):340-58.
- [39] Eigen CA, Hartman BW, Hartman PT. Relations between family interaction patterns and career indecision. *Psychological Reports*. 1987;60(1):87-94.
- [40] Hartung PJ, Lewis DM, May K, Niles SG. Family interaction patterns and college student career development. *Journal of Career Assessment*. 2020;10(1):78-90.