Research on the Relationship between Family Function, Psychological Resilience and Depressive Psychology of College Students Based on the Mediation Effect Model

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Abstract: Nowadays, the psychological problems of contemporary college students are becoming more and more prominent, and the factors affecting their depression psychology have gradually attracted attention from all walks of life. Family factors are involved in different mental resilience models, which shows that family function plays an important role in the mental resilience model. At the same time, the model also proposes that if family factors enable individuals to meet their psychological needs, they will promote their physical and mental health. Therefore, this report takes Guangzhou University Town as an example to explore the influence path of family functional intimacy and adaptability on college students' depression and the mediating effect of mental toughness by constructing a structural equation model. The results of the study show that psychological resilience has a completely mediating effect between family intimacy and adaptability and depression. Among them, intimacy and adaptability are highly correlated, and the difference between the effects of the two on mental toughness is small. This report hopes that the research can provide feasible suggestions for better exerting family functions to improve college students' mental toughness, promote college students' mental health, and better carry out the psychological guidance and adjustment of college students' depression, and call on all sectors of society to pay attention to college students' mental health problems.

1. Introduction

The mental health of college students has always been a concern of society. Some policy leaders have long noticed the related problems and seriousness of college students' mental health. In 2005, the Ministry of Education and others further clarified the overall requirements of college students' mental health education, and effectively established and improved the leadership system and working mechanism of college students' mental health education [1]. In 2018, the Ministry of Education issued related documents [2], further clarifying the necessity of psychological education for college students. But in fact, relevant policy documents involving family factors and psychological problems caused by family functions do not give good guidelines and implementation measures.

At the same time, college students leave school due to psychological problems, drop out of school, commit suicide, and commit murders from time to time. For example, at about 15:00 on March 9, 2015, a boy from the School of Mechanical and Electrical Engineering of a school fell from a building due to depression, but he was fortunate enough; on June 5, 2018, a student from Wuhan University fell from a hotel and died. It is reported that the incident occurred the school previously diagnosed the student as suicidal, but his parents did not pay attention; on October 24, 2019, the body of a female student from Jinan University was found in the waters of the Pearl River. It is reported that she suffered from depression during her lifetime; another example is "Ma Jiajue" Incident", "Ma Xiaoming killed his relatives" and so on. Such news reports are not uncommon, which shows that the mental health of college students cannot be ignored in the social system. Among them, family functions have a greater impact on the mental health of college students. And how family functions affect the mental health of college students, what are the interactions and

mechanisms of the internal factors of family function and mental health, what are the differences in the mental health and family functions of people of different family types, and how to maximize family functions? It has not been well explained.

College students' depression psychology is getting more and more attention from the academic community. A study published in Science in the journal Science [3-4] shows that depression occurs frequently among college students and has become an important factor affecting college students' study and life. factor. Therefore, how to reduce the trouble of depression for college students is the main purpose of this research.

This report is intended to pass the analysis and results of the report:

1) Help parents and children of college students to maximize their family functions, gain a deeper understanding of the current status of contemporary college students' mental health problems and effective solutions, and provide feasible suggestions for college students' mental health education and guidance and solutions to psychological problems.

2) By exploring the impact of family factors such as single and double parents with different family intimacy and adaptability on the mental health of college students' children, it provides reference evidence and feasibility for parents, schools and other related organizations to help and guide college students with different family types Suggest.

In order to refine the research direction of college students' mental health problems, this research focuses on the analysis from the perspective of family function and depression mental level. On the premise of maintaining timeliness, the research mainly adopts the following innovative methods for discussion and analysis: by constructing a three-dimensional and diversified scale, by comparing and studying differences in family attributes, in order to compare the impact of differences in family functions on college students' mental health; Analyze the mediation model, explore the influence path and factors, and analyze the corresponding mediation.

2. Basic concepts and definitions

2.1 Family functions

The family is the basic unit of society and an important place for people to grow and live. A harmonious and warm family relationship is an important guarantee for the healthy growth of individuals and a better life. The concept of "family function" appeared in the 1970s. As an important indicator of measuring family relationships and overall state, it has also attracted more and more attention from academic researchers. Chinese scholar Fang Xiaoyi [5] and others believe that the current family function theory can be divided into two orientations, namely the structural orientation and the process orientation. Among them, the most influential theory in academic circles, the most widely used is Olson's ring model theory (1978), he believes that the realization of family functions and family intimacy and adaptability is a curvilinear relationship. Intimacy and adaptability are too high or too low are not conducive to the realization of family functions, only proper intimacy and adaptability can maximize family functions [6].

This article uses Olson's theory to study family function, which evaluates family function through family intimacy and adaptability.

2.2 Mental resilience

The field of psychological resilience was first studied by American scholars in 1970, but the academic community has not yet given a unified definition of the concept of psychological resilience. Chinese scholar Li Hailei summarized the current operational definition of psychological resilience in academic circles. Three viewpoints: (1) Researchers of trait theory or ability theory believe that mental toughness, as a personality trait, has relative stability, and mental toughness is characterized by the ability to overcome and overcome adversity and return to normalcy, Defined as the psychological characteristics of an individual who maintains a good state in adversity or recovers from adversity; (2) The result theory believes that psychological resilience is a kind of psychological phenomenon, which can still perform well under threat or adversity conditions. The

result of adaptation or smooth development is defined as an individual's ability to actively adapt to a good result in a major difficult or dangerous situation; (3) Process theory emphasizes the psychological change and development process of an individual when experiencing catastrophic time, and believes that psychological resilience is A dynamic process in which an individual achieves good adaptation or successfully copes when faced with adversity, threat, trauma or other major pressures, defined as the individual's ability to successfully cope with a series of dynamic interactions when faced with major life adversities And fast recovery process.

Therefore, this research positions "mental resilience" as the ability of an individual to actively adapt and cope with external adversities such as frustration, misfortune, and pressure.

2.3 Depression

Depression is a negative emotional state with abnormally low mood, which is characterized by an emotional experience of depression, discomfort, pessimism, and reduced reflexivity. The American scholar Angold described the concept of "depression" as: (1) Depression is the fluctuation of the normal mood to a lower level than usual; (2) Depression is unpleasant, sad or mentally distressed, which is a kind of negative situation and time. Reflect; (3) Depression, as a feature, refers to an individual's characteristic manifestation of persistent anhedonia; (4) Depression, as a symptom, refers to a pathologically low or bad mood that is depressive mood. Chinese scholar Meng Zhaolan (1989) believes that depression is a complex emotional experience. Unlike general sadness, the experience of depression is stronger than any single negative emotion, lasts longer, and causes greater pain.

3. Research preparation

3.1 Definition of the research population

This report explores the relationship between family function, mental resilience and depression of college students. Taking into account the large sample size of college students, it was decided to select Guangzhou University Town as the research site. At the same time, 10 universities in Guangzhou University Town (Zhong University, Guangdong University of Foreign Studies, University students from Huagong, Guangzhou Traditional Chinese Medicine, Huashi, Guangyao, Guanggong, Guangmei, Xinghai) were used as the research subjects, and the method of sending questionnaires online and on-site was combined. The designed questionnaire divides the surveyed college students into 24 different types of survey objects according to different genders, different family types, different family residences and whether they are only children. In order to ensure that samples with different attributes are collected as much as possible, and to make the samples more representative and random, our survey site is selected in the university canteens and their nearby areas in the university town with a large number of people and a wide coverage. Investigators conduct multi-period random surveys, which is conducive to improving the accuracy and validity of the questionnaire. At the same time, conducting online questionnaire surveys to analyze the results of the survey can modify the questionnaire structure to test the validity of the questionnaire, and provide a strong guarantee for investment in formal research.

3.2 Determination of sample size

1) Determination of the overall quantity
Through the survey of the number of college students in 10 universities in Guangzhou University Town, and the rounding of the number, the distribution of the number of college students in each university is shown in Figure 1.
2) Issuance and collection of questionnaires
The questionnaire survey was conducted in an anonymous manner to eliminate the concerns of the interviewed students and ensure the authenticity and reliability of the information collected. This study conducted a small-scale pre-survey of questionnaires, using online questionnaires for three days. Finally, 75 questionnaires were collected and 67 valid questionnaires were collected.

The questionnaire pass rate reached 89.3%. In this survey, a total of 521 questionnaires were distributed and 521 were recovered. The recovery rate was 100%. There were 428 qualified questionnaires. The qualified rate of questionnaires reached 82.14%, of which 110 were offline questionnaires and 411 were online questionnaires. It shows that the efficiency of this survey is relatively high.

3.3 Research ideas

On the basis of literature review, a questionnaire was constructed using three psychological scales: FACESII-CV, CD-RISC and SDS, and distributed and collected data for Guangzhou University Town college students. Statistical analysis was conducted through SPSS 25.0, and the data was interpreted using methods such as reliability and validity analysis, descriptive statistics, and significant difference analysis. At the same time, Amos 25.0 was used to carry out confirmatory factor analysis, to construct a structural equation model (SEM) for family functions (intimacy and adaptability), mental resilience and depression psychology, to measure the relationship between various latent variables, and to conduct mediation effect test and correlation Path analysis.

3.4 Research methods

1) Literature review method

This study reviewed the literature on family function, mental resilience, depressive psychology, scale revision, and related research methods. On this basis, the literature was sorted out and the literature review was written, and the shortcomings of previous studies were found and the original The entry point of the research lays the foundation for follow-up research.

2) Questionnaire survey method

In this study, students from Guangzhou University Town were selected as samples, and online questionnaires and offline questionnaires were combined to obtain the data needed by the research, combined with the family function scale (FACESII-CV), the self-rating depression scale (SDS) and The psychological resilience scale (CD-RISC) was developed and tested to explore its reliability and validity and the relationship between the three variables. At the same time, in order to ensure the quality of the questionnaire, the questionnaire survey is divided into pre-survey and formal survey stages.

3) Statistical analysis

Statistical analysis was conducted through SPSS 25.0, and the data were analyzed using descriptive statistics, reliability and validity analysis, independent sample t-test, confirmatory factor analysis and other methods. At the same time, Amos 25.0 was used to measure the relationship between various latent variables, and to conduct mediation effect test and related path analysis.

4. Basic data analysis

4.1 Basic situation of research objects

The subject of this research takes Guangzhou University Town as an example. Therefore, the location of this research is selected as the University Town of Panyu District, Guangzhou City.

As an educational research topic, this topic uses sampling research, questionnaire surveys and other survey methods to collect samples, which makes it easier to obtain enough reliable data to explain the overall situation and accurately infer the overall situation. Since this research is to explore the relationship between psychological resilience as an intermediary variable and college students' depression and family function, the main object of this research is the college students in Guangzhou University City.

4.2 Descriptive statistical analysis

1) Basic situation of the sample

This survey adopted a questionnaire survey method and collected a total of 521 samples. The first part of this questionnaire is designed based on general demographic surveys, and surveys the respondent's gender, family residence, whether or not only child, and family type. The data on the

distribution of family residences (Figure 3-2) is close to the current urban and rural population proportions in Chinese society, so the data is more authentic and reliable. In the survey of only-child status (Figure 3-3), the data is closer to the true proportion of only-children of contemporary college students, so the data is also more reliable. In the survey of family situation (Figure 3-4), the proportion of single-parent families is relatively too small, and the contribution to the overall data is limited. Therefore, it was decided to delete the family type classification that distinguishes single parents in the later stage of the survey. Generally speaking, although there are shortcomings, the sample data adopted in this survey still has a certain degree of accuracy and authenticity.

2) Family intimacy and adaptability

The FACESII-CV scale consists of two dimensions, namely intimacy and adaptability. According to the scoring standards and methods of the scale, this study calculated the scores of each respondent for the 30 questions in the scale, and divided all participating families into 16 family types in the "arch pole mode".

The intimacy is divided into four levels. The specific situation is shown in Figure 4-1. There are obvious differences in the family intimacy of the interviewees. Among them, the proportion of respondents whose family intimacy was "entangled" was the highest (63.15%), followed by "intimacy" (26.30%), and the lowest was "free" (7.49%) and "loose" (3.07%).

In terms of survey respondents' family adaptability, this dimension is also divided into four levels according to scores. The specific situation is shown in Figure 4-2. The difference in family adaptability of respondents is relatively insignificant. Among them, the proportion of respondents whose family adaptability is "flexible" is the highest (63.15%), followed by "regular" (26.10%) and "irregular" (25.72%), between the two and the highest proportion of both The gap between "flexible" is not large, and the lowest percentage is "stiff" (12.86%). This set of data illustrates the fact that the family adaptability of contemporary college students is generally more flexible, and reflects the fact that people's lives are becoming more and more unconstrained and not easily affected by various changes. But at the same time, the research results also show that 12.86% of the respondents are still in "rigid" adaptive families.

3) Psychological problems of Chinese college students

In the assessment scale for the psychological problems of Chinese college students, this report divides the grading standards into no or very little time, a small part of the time, a considerable amount of time, most or all of the time. The scale is divided into positive scoring questions and 10 reverse scoring questions each. The total rough score per capita of the scale is 34.2, and the standard per capita score is 42.8. The total rough score per capita is close to the upper limit of normal of 41 points for the SDS total rough score, so the average state of college students is not very good; there is also a cut-off value of 53 points for the SDS standard score, and the average standard score per capita is not yet critical. But it has not yet reached the level of depression. The average standard deviation of the data is 0.76, indicating that the data is more authentic and credible.

The mental health of adolescents has always been a hot issue of social concern. Numerous studies have shown that adolescence is a period when the incidence of emotional disorders in an individual's life course rises sharply, and depression is one of the most common problems; depression has a higher incidence in adolescents the detection rate among Chinese adolescents is between 5.8% and 17.0%.

The data results are shown in the table below. Most male and female college students are not depressed. The mental state of college students living in rural areas is slightly better than that of college students living in urban areas. The mental state of college students with only child is slightly worse than that of college students with non-only child. In addition, single-parent families may also affect the psychological problems of college students.

4.3 Significance test of difference

1) Entropy method to calculate the comprehensive score of each scale

Principle of entropy method: Entropy method is an evaluation and analysis of a certain index system under a given evaluation object. The obtained index weight is a reflection of the relative

intensity of each index based on a set of specific data in the sense of competition. The entropy weight method uses the inherent information of the evaluation object to calculate the comprehensive evaluation value of each evaluation object by calculating the weight of each evaluation index, and the result obtained is more objective and closer to reality. The evaluation steps of the entropy method are as follows:

(a) Select evaluation indicators.

Collect realistic data of each indicator, formulate an evaluation system, and construct an m×n-level evaluation matrix R=(rij)m×n. Among them, m is the number of evaluation objects, n is the number of evaluation indexes, and rij represents the evaluation value of the i-th evaluation object under j evaluation indexes.

(b) Perform dimensionless processing on the evaluation matrix, that is, select the optimal value of each column in the evaluation matrix R. The calculation formula is as follows:

$$r'_{ij} = \frac{\text{Max } (r_{ij}) - r_{ij}}{\text{Max } (r_{ij}) - \text{Min } (r_{ij})}$$

$$r'ij = \frac{r_{ij} - \text{Min } (r_{ij})}{\text{Max } (r_{ij}) - \text{Min } (r_{ij})}$$

Formula ① is to select an inverse indicator, the larger the indicator value, the smaller the risk value; the formula ② is to select a positive indicator, the smaller the indicator value, the smaller the risk value. Finally, the dimensionless matrix is obtained $R' = (r'_{ij})_{m \times n.}$

(c) According to the definition of information entropy in information theory, the information entropy Hj of a set of data is calculated as follows:

$$H_j = -k \sum_{i=1}^{m} f_y \cdot lnf_y$$

Among them, fij represents the proportion of the i-th evaluation object under the j-th evaluation index,

$$f_{ij} = \frac{r'_{ij}}{\sum_{i=1}^{m} r'_{ij}} ;$$

k is the undetermined constant, $k = \frac{1}{\ln m}$

(d) After obtaining the information entropy Hj of each index, calculate the weight ωj of each index. The formula is as follows:

$$\omega_j = \frac{1 - H_j}{\sum_{j=1}^{n}(1 - H)} = \frac{1 - H_j}{n - \sum_{j=1}^{n} H_j}$$

(e) Finally calculate the score Zi of each evaluation object, the formula is as follows:

$$Z_i = \sum_{j=1}^{n} r'_{ij} w_j$$

It can be seen from the above formula that the smaller the entropy value, the greater the entropy weight. The entropy weight method reflects its importance according to the degree of index difference, which has the advantage of objectivity.

Combining formula ④, the collected questionnaire answers are set as the original data, and the weights of the factors of the two dimensions are calculated. Finally, the score of each dimension is calculated by formula ⑤.

2) Difference analysis

Independent sample t test based on gender differences:

The independent sample t test is used to compare whether the means of two samples are significantly different. The conditions for the use of t-test include independent samples and the population from which the samples come from should obey or approximately obey a normal distribution. Respondents do not affect each other when the questionnaire is distributed, so the samples are independent of each other. At the same time, using SPSS 25.0 software to draw the P-P

diagram of the data, it can be seen that the points of the sample are approximately distributed on a straight line, which roughly conforms to the normal distribution. Based on the above two points, it is considered that the t-test conditions are met.

Take gender as a factor and mental toughness as a dependent variable to do an independent sample t test. It can be seen from Table 5 that there are significant differences in optimism between men and women. At the same time, it can be seen from Table 6 that men are more optimistic than women, which indicates that there are certain differences in the mental toughness of different genders.

4.4 Structural equation model

Structural Equation Modeling (SEM) is recognized as the most powerful modern statistical method for analyzing the relationship between latent variables, and it is one of the most commonly used analytical methods in the fields of psychology, education, and behavior, It is a comprehensive statistical method based on the covariance matrix of variables to analyze the relationship between variables.

Traditional SEM includes two parts: measurement model and structure model. The measurement model associates the explicit variables with the corresponding latent variables. It is usually a confirmatory factor analysis model, which is mainly used to test the factor structure of the latent variables. Its definition is as follows:

$$y_i = \mu + \Lambda w_i + \mathcal{E}_i \quad \text{i=1,2,}\cdots\text{,n}$$

The structural model is mainly used to analyze the "causal effect" between latent variables, and its definition is as follows:

$$\eta_i = \Pi\eta_i + \Gamma\xi_i + \delta_i = \Lambda_w w_i + \delta_i$$

The structural equation model of this study uses Maximum Likelihood to estimate model parameters. The preliminary model report does not involve latent variables. Based on the theories and correlations of family function, mental resilience, and depression, AMOS is used Establish a structural equation model.

In the first step, intimacy was used as the dependent variable and the depression level of college students was used as the predictor variable to perform regression analysis. The standardized regression coefficient of the regression equation obtained was -0.3423 (P<0.001), indicating that the coefficient c was significant. In the second step, the psychological toughness of college students was used as the dependent variable, and the depression level of college students was used as the predictor variable to perform regression analysis. The standardized regression coefficient of the regression equation obtained was -0.5474 (P<0.001), indicating that the coefficient a was significant. In the third step, the degree of intimacy is used as the dependent variable, and the depression level of college students and the total score of college students' mental toughness are regressed. The standardized regression coefficients of the regression equations obtained are 0.4485 (P<0.001), indicating that the coefficient b is significant, -0.0713 (P= 0.1532>0.05), indicating that the coefficient c'is not significant.

In the test procedure, the first three t-test results of a test are significant, so the indirect effect between the intimacy of mental toughness in family function and the depression level of college students is significant. The fourth t-test result is not significant, so the direct effect between intimacy in family function and depression level of college students is not significant. It shows that there is only a mediating effect between the adaptability of family function and the depression level of college students, which is a complete mediating effect.

Furthermore, using the bootstrap method of AMOS 25.0 to further test the significance of the mediating effect of mental resilience, a 95% confidence interval is set, and the number of random samples is 5000.

The mediating effect value of family functioning intimacy, mental toughness and depression level is -0.2710, which is smaller than the total effect: -0.3423, the P value of the mediating effect is

0.0000, the confidence interval is [-0.4117, -0.2612], the confidence interval Does not contain 0, which proves that mental toughness has a significant mediating effect between intimacy and depression level of college students. According to the formula, the percentage of the mediating effect in the total effect is: 0.5474 x (-0.4951)/(-0.3423)=79.1%.

In summary, Hypothesis 7 is established, that is, college students' mental toughness plays a mediating role between the intimacy of family functions and the depression level of college students, and it is a complete mediating effect.

5. Conclusions and recommendations

5.1 Research conclusion

1) This study explored the relationship between different family functions (different intimacy and adaptability levels) on the mental health of college students and its mechanism of action. Based on the above survey data and demonstration analysis, this study draws a conclusion

According to the survey results, there is no significant difference between family functions (intimacy and adaptability) and college students' mental health in demographic variables such as gender, only-child status, and family status.

2) Through the structural equation model, this study concluded that family functions (intimacy and adaptability) can indirectly affect psychological depression through the mediating variable of mental toughness. The path of action is shown in the figure below, showing a completely mediating effect as a whole.

Since improving mental resilience is very helpful in reducing psychological barriers, especially depression levels, the overall family type should be transitioned from "intermediate" to "balanced", and focus on improving the optimism level of college students, thereby improving psychological resilience , In order to reduce depression.

5.2 Suggestions

The mental health education of college students is not only an important part of moral education in colleges and universities, but also an important part of family harmony. In order to improve the mental health of college students, under the premise of correctly understanding the relationship between family function, mental toughness and depression, the work of different objects should be started from the following aspects.

1) Parent-child co-construction, "enhanced loop". From the perspective of family intimacy and adaptability, increasing the level of intimacy and adaptability can reduce depression. From the perspective of the family, increasing intimacy through regular phone calls and correspondence can make the family more tolerant and open. Only in a more open family atmosphere, college students can better solve the problems encountered by the university. When they encounter negative emotions such as psychological changes and loneliness, they will be more willing to communicate with their parents. Once the problem is resolved, the family relationship will become closer. In this way, a positive circulation is formed and the loop is strengthened. That is, the more open the family, the higher the intimacy.

2) "Internal and external" training, strong mentality. "Inner" refers to oneself. By improving one's own strength, tenacity, optimism, etc., one's mental toughness can be significantly improved. Among them, college students should focus on providing optimism to improve psychological resilience; "outside" refers to the external environment such as family and school. Families use regular family outings, walks, and dinner parties to promote parent-child conversation to improve intimacy and adaptability. Schools can also Regular parent-child travel, reading and other home-school joint activities are held to allow school parents to participate together to enhance family intimacy. This will help college students improve their mental resilience.

3) Remedy for depression: "Toughness" is the guide, and "family" is the medicine. Only by improving psychological resilience and adopting the method of establishing a close and open family can the problem of depression psychology be effectively solved.

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