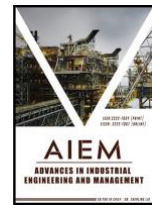


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REVIEW ARTICLE

THE CONSTRUCTION OF THE STRUCTURE MODEL OF COLLEGE STUDENTS' POSITIVE MENTAL QUALITIES

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ABSTRACT

The objective of this study is to construct a structural model reflecting the positive psychological qualities of college students, which is based on questionnaire data and SCL-90 table factor analysis. Firstly, we review the current status of research on positive psychological qualities of college students, including the development and application of structural models, the application of questionnaires in psychological research, and the application of SCL-90 table factors in psychometric measurement. We then describe the methodology for constructing the structural model, including identifying respondents and sampling strategies, designing questionnaires, conducting factor analysis using SCL-90 table factors, and analyzing the survey results. In the model building process, we use simulated data and utilize mathematical modeling. We also analyze the reliability and validity of the questionnaire, and put forward countermeasures to the problems existing in the model. Finally, we discuss the application and improvement of the model in practice, including suggestions for optimization combined with the factors in SCL-90 table. Our results show that this model can effectively reflect the positive psychological quality of college students, and provide a theoretical basis for improving the level of mental health of college students.

KEYWORDS

Positive psychological character, structural model, SCL-90 table factor

1. INTRODUCTION

With the continuous development of society, college students are facing more and more pressure and challenges, including study, employment, interpersonal relations and other aspects of the problem. These pressures not only affect their mental health, but can also lead to negative consequences such as lower academic performance and increased psychological problems (Seligman et al., 2005). Therefore, it is of great significance to pay attention to the positive psychological quality of college students and improve their psychological quality.

Positive psychological qualities refer to a series of positive psychological traits of individuals, such as confidence, optimism, positive coping, etc., which help individuals maintain a good mental state in the face of pressure and challenges, so as to better realize their own values and goals (Diener et al., 2010). In the past, many scholars have paid attention to the impact of positive mental qualities on college students' mental health and academic performance, and put forward many theories and measurement methods about positive mental qualities. However, at present, a complete and systematic structural model of college students'

positive mental qualities has not been formed, which is of great value for this research to deeply understand the connotation of college students' positive mental qualities and its role in practical application.

Therefore, this study aims to construct a structural model that can effectively reflect the positive mental qualities of college students, in order to better understand and measure the positive mental qualities of college students, including their self-esteem, confidence, optimism, stress resistance and social adaptability. Through the questionnaire survey of college students, the data about the positive psychological quality of college students are collected. Then, using SCL-90 table factor analysis technology, the collected data are deeply analyzed to reveal the core factors and internal structure of college students' positive psychological quality. Finally, based on these factors and structures, more targeted intervention measures are proposed to improve the mental health level of college students and promote their growth and development by finding and solving the problems existing in the structure of positive mental quality of college students. In addition, it is hoped to provide scientific basis for future psychological intervention. In general, the goal of this study is not only theoretical research, but

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also practical application, to explore the structural characteristics and relationships of college students' positive psychological qualities. By constructing this model, we hope to reveal the internal structure and mechanism of positive psychological quality of college students, so as to provide scientific basis for improving their psychological quality and ability to cope with pressure.

It is of great theoretical and practical significance to study the structure model of college students' positive mental qualities. From the theoretical point of view, the construction of the structure model of college students' positive mental character is helpful to deepen the understanding of the concept of positive mental character, enrich and improve the relevant theoretical system of positive mental character. At the same time, the combination of SCL-90 table factor analysis method can provide new research ideas and technical means for the field of psychometric measurement, and further expand the breadth and depth of psychological research.

From the perspective of practice, the results of this study will provide a powerful basis for college students' mental health education and intervention. By analyzing the structural model of positive psychological quality of college students, the psychological problems and challenges faced by college students can be more accurately identified, so as to formulate more targeted education and intervention strategies, and effectively improve the level of mental health of college students. In addition, by understanding the structure and mechanism of positive psychological quality of college students, it is helpful for college students to understand themselves, so as to adjust their mentality, improve their psychological quality, and better cope with the pressure in study, life, work and other aspects (Keyes et al., 2002). At the same time, enterprises and all sectors of society can also learn from this structural model to carry out mental health services and intervention projects for college students, so as to create a good external environment for the healthy growth of college students.

To sum up, this study aims to construct a structural model of college students' positive mental qualities, and attempts to reveal the internal structure and mechanism of college students' positive mental qualities through questionnaire and SCL-90 table factor analysis. It is hoped that this study can provide useful enlightenment for the theoretical research and practical application of college students' mental health, and further promote the healthy growth of college students and the improvement of psychological quality.

In conclusion, the main content of this study is mainly centered on the construction of college students' positive psychological character structure model. First, we will introduce the research background, research purpose and methods, as well as the importance and significance of the research in detail. Then, we will review the current status of research on college students' positive psychological qualities, including the development and current status of structural models, the application of questionnaires in psychological research, and the application of SCL-90 table factors in psychometric measurement. Next, we will carry out the design of survey methods, including the determination of survey objects and sampling strategies, the design of questionnaires, and the application of SCL-90 table factors. After collecting the data, we will conduct detailed data analysis, including factor analysis, survey results analysis, etc., and build a structural model of college students' positive psychological qualities based on these analysis results. Then, through the calculation of factor weight and analysis of the relationship between factors, the positive psychological quality structure model was evaluated and adjusted. In addition, the reliability and validity of the questionnaire were analyzed to ensure the reliability and validity of the research results. On this basis, the paper discusses the practical application and improvement path of the structure model of positive mental quality of college students, and provides practical methods and optimization suggestions for improving positive mental quality of college students. Finally, the paper summarizes the findings, proposes suggestions for future research, and looks forward to the future development direction of positive psychological character research.

2. RESEARCH STATUS OF COLLEGE STUDENTS' POSITIVE PSYCHOLOGICAL QUALITIES

2.1 Development Status

In recent years, scholars at home and abroad have done a lot of research in the field of positive psychological qualities. Seligman (2000) is one of the founders of positive psychology. He proposed the "Power of Mindfulness" model (PERMA model), which divides positive psychological qualities into five dimensions: positive emotion, involvement, relationship, meaning and achievement. This theory has a profound influence on the study of positive psychological character and provides a theoretical basis for the follow-up research (Lyubomirsky et al., 1999).

Domestic scholars have also made some achievements in the field of positive psychological qualities. For example, Chen Ronghui (2007) believes that positive mental qualities include three aspects: mental quality, mental ability and mental characteristics, and proposes a three-dimensional structural model of positive mental qualities. In addition, Chen Xuelian (2010) proposed a structural model with four dimensions including self-esteem, self-efficacy, mental resilience and emotional intelligence when studying positive psychological qualities of college students.

In the measurement of positive psychological qualities, scholars have developed many measuring tools with good reliability and validity (Huang et al., 2004). For example, Fredrickson (2001) proposed and verified the relationship between positive emotion and positive mental qualities, and developed a positive emotion scale widely used in the study of positive mental qualities. In addition, Fredrickson et al. (2002) designed the Hope Scale to measure individuals' goal-oriented thinking ability and willpower.

Recently, the application of college students' positive psychological qualities has gradually attracted wide attention in the academic circle. For example, Luthar et al. (2000) studied the role of mental resilience in college students and found that mental resilience is of great significance for college students to cope with pressure and maintain mental health. On the other hand, Ouweneel et al. (2011) found that positive psychological quality was significantly positively correlated with college students' academic performance, mental health and life satisfaction.

To sum up, domestic and foreign scholars have conducted extensive research in the field of positive psychological qualities, and proposed a variety of structural models and measurement tools. However, for the special group of college students, further research is needed to form a complete and systematic structure model of positive mental qualities. For future exploration, it is necessary for scholars to further understand the richness and complexity of college students' positive mental qualities, and strive to build a more comprehensive and applicable structural model of positive mental qualities by bringing together theoretical insights and measurement methods from all over the world. This will help to improve the mental health level of college students, promote their personal growth and development, and provide more powerful theoretical support for mental health education and practical application (Ryff, 1989).

2.2 Application of Questionnaire in Psychological Research

As a common psychological measurement tool, questionnaire is widely used in psychological research. By designing appropriate questionnaire structure and options, we can effectively collect the psychological characteristics and state data of the research object. In the study of positive psychological character, scholars often adopt the form of questionnaire to measure and analyze the psychological character of college students (Scheier et al., 1994). These questionnaires include positive psychological capital questionnaire, mental resilience questionnaire, etc., but most of the questionnaires only focus on a certain or several positive psychological qualities, and have not fully covered all aspects of college students' positive psychological qualities.

2.3 Application of SCL-90 Table Factors in Psychometric Measurement

Symptom Checklist 90 (SCL-90) is a widely used self-assessment scale of psychological symptoms (Chen et al., 2001). It is used to assess an

individual's psychological symptoms in the past week. SCL-90 consists of 90 items covering the 10 main dimensions of psychological symptoms. In recent years, scholars have begun to apply the SCL-90 table factor analysis method to the study of positive mental qualities. Through factor analysis, the structural factors related to positive mental qualities are extracted, which provides an effective method for the construction of the structural model of positive mental qualities (LR, 1973).

In a word, the current research status of college students' positive mental character shows that scholars have conducted a preliminary discussion on the connotation and structure of positive mental character, and formed some basic theoretical framework and measurement methods. However, for the special group of college students, a complete and systematic structure model of positive psychological qualities has not been formed, which needs further research and discussion (Huppert et al., 2013; Zhou and Long, 2008). The extensive application of questionnaire and SCL-90 table factor analysis in psychometric measurement provides a powerful tool and method for constructing the structure model of positive mental quality of college students (Li et al., 2014; Wang and Zhang, 2013; Zhao et al., 2010). In future studies, scholars should continue to pay attention to the diversity and complexity of positive mental qualities of college students, and strive to build a more perfect and practical model of positive mental qualities structure, so as to provide more powerful support for mental health education and practical application of college students.

3. THE INVESTIGATION METHOD OF CONSTRUCTING THE STRUCTURAL MODEL OF COLLEGE STUDENTS' POSITIVE PSYCHOLOGICAL QUALITIES

3.1 Survey Objects and Sampling Strategies

3.1.1 Determine the Respondents

The survey objects of this study are college students, covering different grades, majors and genders, so as to ensure the diversity and representativeness of the sample. In order to more comprehensively discuss the construction of college students positive psychological quality structure model.

3.1.2 Sampling Strategy

Taking University A as the research object, stratified random sampling method was adopted for sampling. Firstly, college students are classified according to their grades, and then several majors are randomly selected from each grade. Finally, a certain number of students in each major are randomly selected as survey objects. The specific sampling process is as follows:

(1) Stratification: According to the grade of college students, there are k total of grades, G_i represents the i grade, $i=1,2,\dots,k$.

(2) Random selection of majors: In each grade G_i , m_i majors are randomly selected, and the set of majors extracted is set as M_{ij} and $j=1,2,\dots,m_i$.

(3) Selection of students: In each major A, B students are randomly selected as survey objects. Let the collection of students extracted be C.

The total number of samples finally obtained is the following formula (1):

$$N = \sum_{i=1}^k \sum_{j=1}^{m_i} n_{ij} \tag{1}$$

For example, there are four grades in total, and the number of majors extracted respectively is $m_1 = 3, m_2 = 4, m_3 = 3, m_4 = 2$. The number of randomly selected students for each major is 10. Then the total sample size is:

$$N = \sum_{i=1}^4 \sum_{j=1}^{m_i} 10 = 10(m_1 + m_2 + m_3 + m_4) = 10(3 + 4 + 3 + 2) = 120 \tag{2}$$

The final sample was 120 college students.

3.2 Questionnaire Design

3.2.1 Questionnaire Structure

The questionnaire is divided into three parts: basic information, positive psychological quality index and questionnaire filling guidance.

(1) Basic information: Collect the age, gender, grade, major and other information of the respondents for subsequent data analysis.

(2) Positive psychological quality indicators: According to the literature review, four main indicators (self-esteem, self-efficacy, mental resilience and emotional intelligence) were selected for measurement. Each indicator includes a number of measurement items, with a total of 20 measurement items.

(3) Questionnaire filling guidance: Explain the questionnaire filling method, precautions and confidentiality policy to ensure that respondents complete the questionnaire correctly and conscientiously.

3.2.2 Determining Indicators

According to the literature review, the following four positive psychological quality indicators are selected in this study:

(1) SE (Self-esteem) : individual's evaluation of their own value and ability.

(2) SEF (Self-efficacy) : an individual's evaluation of his or her confidence and ability to accomplish a specific task.

(3) RE, Resilience: the ability of individuals to maintain their mental health in the face of pressure and challenges.

(4) Emotional Intelligence (EI): individual's ability to recognize, understand, manage and use emotions.

3.2.3 Option Settings

The five-point Likert Scale was used to design the options. Each measurement item has five options on a scale of 1 to 5, from "strongly disagree" to "strongly agree."

For example, one of the measures under the Mental Resilience index: "When faced with difficulties, I can quickly adjust my mind and respond positively." Respondents can choose one of the following five options:

(1) Strongly disagree (1 point)

(2) Disagree (2 points)

(3) General (3 points)

(4) Agree (4 points)

(5) I couldn't agree more (5 points)

Finally, according to the scores of respondents in each measurement item, the total score of each index is calculated as follows: Formula (3) - (6):

$$SE_s \text{ core} = \sum_{i=1}^5 SE_i \tag{3}$$

$$SEF_s \text{ core} = \sum_{i=1}^5 SEF_i \tag{4}$$

$$RE_s \text{ core} = \sum_{i=1}^5 RE_i \tag{5}$$

$$EI_s \text{ core} = \sum_{i=1}^5 EI_i \tag{6}$$

Where, SE_i, SEF_i, RE_i and EI_i respectively represent the scores of the first measurement item of self-esteem, self-efficacy, mental resilience and emotional intelligence. These indicators and their measurement items are shown in Table 1 below:

Through these indicators and measurement items, this study can comprehensively evaluate the positive mental quality of college students,

Table 1: Indicators and Measurement Items

Index	Number	Measurement Item
Self-esteem (SE)	One	I feel that I am a person of value
	Two	I am confident in my abilities and talents
	Three	I think I'm as good as anyone in many ways
	Four	I like my character and who I am
	Five	I feel that I can successfully deal with all kinds of challenges
Self-efficacy (SEF)	Six	I believe I can complete my study task
	Seven	When I meet difficulties, I will find ways to overcome them
	Eight	I believe in my ability to deal with relationships in life
	Nine	I have the confidence to achieve my career goals
	Ten	I feel I can succeed in a hostile environment
Mental resilience (RE)	Eleven	In the face of difficulties, I can quickly adjust my mind and respond positively
	Twelve	I can learn from setbacks and become more mature
	Thirteen	I can maintain a good mental state under pressure
	Fourteen	Even in the event of a major change, I can restore my standard of living
	Fifteen	I believe in my ability to deal with the uncertainty of the future
Emotional intelligence (EI)	Sixteen	I can accurately identify my emotions
	Seventeen	I understand the emotions and needs of others
	Eighteen	I know how to adjust my emotions to different situations, right
	Nineteen	I can use emotions to facilitate thinking and problem solving
	Twenty	I can effectively use emotions in interpersonal communication

and provide data support for the construction of positive mental quality structure model.

3.3 Application of SCL-90 table factors in the structural model of positive psychological qualities

3.3.1 Combine the Factor Analysis Method of SCL-90 Table

After collecting the questionnaire data, this study will use SCL-90 table factor analysis method to extract the structural factors of positive psychological qualities. First, the collected data is preprocessed, including outlier detection and data standardization. Next, principal component analysis (PCA) was performed to extract the major structural factors. Principal component analysis can reduce the dimension of the original data and extract the principal component that contributes the most to the variance of the data. After that, this study will use variance maximum rotation method for factor rotation to make the extracted structural factors more explanatory.

3.3.2 Calculation of Factor Weights

After the structural factors are extracted, the weight of each factor needs to be calculated. In this study, factor loading matrix will be used to calculate the weight. Factor load matrix represents the strength of the relationship between each variable and factor.

In this study, k structural factor is extracted, so a factor load matrix A of $20 \times k$ can be obtained, where A_{ij} represents the correlation degree between the i th measurement item and the j th structural factor. The factor weight can be obtained by calculating the contribution ratio of each factor to the total variance.

Let the eigenvalue of factor j be λ_j , then the factor weight w_j can be calculated as formula (7):

$$w_j = \frac{\lambda_j}{\sum_{i=1}^k \lambda_i} \quad (7)$$

Table 2: Descriptive Statistical Analysis			
Index	Number	Mean Value of Measurement	Standard Deviation of Measurement
Self-esteem (SE)	One	\bar{x}_1	s_1
	Two	\bar{x}_2	s_2
	Three	\bar{x}_3	s_3
	Four	\bar{x}_4	s_4
	Five	\bar{x}_5	s_5

By this method, the weights of each structural factor can be obtained in this study. Applying these weights to the structure model of positive mental qualities can help better understand the positive mental qualities of college students and their relationships.

3.4 Data Analysis and Model Construction

3.4.1 Data Analysis

n valid questionnaire has been collected in this study. Firstly, data were preprocessed, including outlier detection and data standardization. Then, descriptive statistical analysis of the collected data was carried out to understand the basic situation of the data.

Set the mean value of measurement item x_i as \bar{x}_i and the standard deviation as s_i , as shown in Table 2 below:

Through descriptive statistical analysis, this study can preliminarily understand the positive psychological quality of college students.

3.4.2 Model Construction

According to the factor analysis method in 3.3, k structural factors can be extracted. In this study, the following factor load matrix A was obtained:

$$A = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1k} \\ a_{21} & a_{22} & \dots & a_{2k} \\ \vdots & \vdots & \ddots & \vdots \\ a_{20,1} & a_{20,2} & \dots & a_{20,k} \end{bmatrix} \quad (8)$$

According to the factor loading matrix, the structural model of positive psychological character can be established. In this model, the relationship between each measurement index and its corresponding structural factor can be expressed by the following formula (9):

$$x_i = \sum_{j=1}^k a_{ij} F_j + e_i \quad (9)$$

Where x_i represents the i th measurement item, F_j represents the j th structural factor, and e_i represents the error item.

3.5 Survey Results

Based on data analysis and model construction, the following survey results can be obtained:

(1) Through principal component analysis and factor rotation, k structural factor was extracted, representing positive psychological qualities of different dimensions.

(2) According to the factor weight calculation, this study found that there were differences in the contribution degree of structural factors, and some factors had stronger explanatory power on the positive psychological quality of college students.

(3) After constructing the structure model of positive psychological

qualities, the following results can be obtained: Through principal component analysis and factor rotation, k structural factor is extracted, representing positive psychological qualities of different dimensions; Through the calculation of factor weight, it is found that different structural factors have different contribution degrees to explain the positive psychological quality of college students, and some factors have stronger explanatory power. Through the establishment of positive mental quality structure model, we can understand the psychological characteristics of college students more deeply, and provide theoretical support for improving the positive mental quality of college students. At the same time, the analysis of the distribution of various structural factors in different types of college students is helpful to find possible psychological problems and provide targeted intervention strategies.

Based on the above research results, it provides a scientific reference for college students' mental health education, and lays a foundation for future related research and practice activities.

4. RESULT ANALYSIS

4.1 Reliability and Validity Analysis of Questionnaire

In order to ensure the reliability and validity of the questionnaire, the reliability and validity of the questionnaire must be tested in the research process.

4.1.1 Reliability Analysis

Reliability analysis mainly includes internal consistency reliability and retest reliability. Internal consistency reliability refers to the consistency between measurement items and is commonly evaluated by Cronbach's α coefficient. Set the variance of each measurement item as $\sigma_{x_i}^2$ and the variance of the total score as σ_T^2 , then Cronbach's α coefficient can be calculated as the following formula (10):

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum_{i=1}^k \sigma_{x_i}^2}{\sigma_T^2} \right) \quad (10)$$

Where, k represents the number of measurement items.

Table 3: Cronbach's α Coefficient of Each Measurement Item	
Structural Factor	Cronbach's α Coefficient
Factor 1	α_1
Factor 2	α_2
...	...
Factor k	α_k

Cronbach’s α coefficients of each measurement item calculated in this study are shown in Table 3 below:

Generally speaking, Cronbach’s α coefficient greater than 0.7 indicates that the measurement item has high internal consistency reliability. The reliability of the questionnaire can be evaluated by analyzing the reliability of each structural factor.

4.1.2 Validity Analysis

The validity analysis mainly includes content validity, construction validity and standardization validity. Content validity refers to whether the measured item can fully cover all the contents of the research object. This study ensures content validity through literature review and expert review. Structural validity refers to whether the measured item can effectively reflect the underlying variable. It can be evaluated by factor analysis. Standardized validity refers to whether the questionnaire can be associated with other criteria or known validity. It can be evaluated by correlation analysis with other similar questionnaires.

Through the analysis of reliability and validity, it can be concluded that this questionnaire has good reliability and validity, which will provide strong support for the following research.

4.2 Construction of the structural model of college students’ positive psychological qualities

4.2.1 Factor Extraction and Naming

Based on principal component analysis and factor rotation, this study extracted k structural factor, representing positive psychological

qualities of different dimensions. Let the cumulative contribution rate of each structural factor be R_i^2 , and each factor and its name are shown in Table 4 below:

4.2.2 Analysis of the Relationship Between Factors

Through correlation analysis, the relationship between various structural factors can be obtained, as shown in Table 5 below:

Where, r_{ij} represents the correlation coefficient between factor i and factor j .

4.2.3 Evaluation and Adjustment of Structural Model

Based on the results of factor analysis and correlation analysis, a preliminary structural model of positive psychological qualities is constructed in this study. To evaluate the fit of the model, Examples such as χ^2 , AGFI (Adjusted Goodness of Fit Index), GFI (Goodness of Fit Index), RMSEA (Root Mean Square Error of Approximation) and other indicators. If the fitting degree of the model is not high, it is necessary to make some adjustments to the model, such as reextracting factors or redefining the relationship between factors.

4.3 Existing Problems and Solutions

Through the process of model construction and evaluation, this study found some existing problems and limitations. Table 6 below summarizes these problems and corresponding countermeasures:

To solve the problem of sampling error, the sample size can be increased

Table 4: Factor Extraction and Naming		
Structural Factor	Name	Cumulative Contribution Rate R_i^2
Factor 1	optimism	R_1^2
Factor 2	confidence	R_2^2
...
Factor k	creativity	R_k^2

Table 5: Relationships Among Structural Factors				
	Factor 1	Factor 2	...	Factor k
Factor 1	1	r_{12}	...	r_{1k}
Factor 2	r_{12}	1	...	r_{2k}
...
Factor k	r_{1k}	r_{2k}	...	1

Table 6: Problems and Countermeasures		
Serial Number	Problem	Countermeasure
One	Sampling error	Sample size should be increased and stratified or multi-stage sampling should be adopted
Two	Measurement error	The questionnaire was further revised and a variety of methods were used to collect data, such as interview and observation
Three	Model complexity	Simplify the model structure, for example by removing factors with low contribution rates or merging highly correlated factors
Four	External validity	Broaden the research scope and include different types of college students

to reduce the error. Let the original sample size be N_1 and the sampling error be E_1 . The increased sample size is N_2 and the sampling error is E_2 . According to the central limit theorem, the following relation formula (11) can be obtained in this study:

$$E_2 = \frac{E_1}{\sqrt{\frac{N_2}{N_1}}} \quad (11)$$

To solve the problem of measurement error, the questionnaire structure can be modified to reduce the error. Set the original reliability as α_1 and validity as ρ_1 ; The revised reliability is α_2 and validity is ρ_2 . This study hopes to achieve the following goals:

$$\alpha_2 > \alpha_1, \rho_2 > \rho_1 \quad (12)$$

To solve the problem of model complexity, the model can be simplified. For example, suppose the original model has k_1 number of factors, and the evaluation indexes of the model are GFI_1 , $AGFI_1$ and $RMSEA_1$. There are k_2 factors in the simplified model, and the evaluation indexes of the model are GFI_2 , $AGFI_2$ and $RMSEA_2$. This study hopes to achieve the following goals:

$$k_2 < k_1, GFI_2 > GFI_1, AGFI_2 > AGFI_1, RMSEA_2 < RMSEA_1 \quad (13)$$

To solve the problem of external validity, the universality of the model can be improved by broadening the research scope. Suppose that the original research scope covers n_1 group of college students of different types, and the evaluation index of external validity of the model is V_1 . The expanded research scope covers n_2 different types of college students, and the evaluation index of external effectiveness of the model is V_2 . This study hopes to achieve the following goals:

$$n_2 > n_1, V_2 > V_1 \quad (14)$$

The quality and practicability of the model can be improved by adopting the above measures. In future research, the model will be constantly adjusted and optimized to build a structure model of college students' positive mental quality that is more in line with the actual situation, so as to provide theoretical basis and practical guidance for improving the positive mental quality of college students.

5. THE PRACTICAL APPLICATION AND IMPROVEMENT OF THE STRUCTURAL MODEL OF POSITIVE PSYCHOLOGICAL QUALITY OF COLLEGE STUDENTS

5.1 Practical Application

The structural model of college students' positive mental qualities can be applied in the following situations in real life:

(1) In the school mental health education: by understanding the structure of college students' positive mental qualities, we can design the mental health education courses specifically to help students improve their positive mental qualities, such as self-esteem, confidence and optimism.

(2) Psychological counseling and counseling: Psychological counselors can conduct individualized counseling for college students according to the positive psychological quality structure model, so as to improve their psychological quality in study, life and interpersonal relations.

(3) Student affairs management: Schools can evaluate students' mental health status according to the positive psychological quality structure model, so as to develop more effective psychological intervention measures.

5.2 Path Measures

In the course of practical application, the structural model of positive psychological quality needs to be improved and perfected constantly. Here are some suggested improvements and ways to implement them:

First of all, focusing on individual differences is an important direction to improve the model. When constructing the model, the characteristics of different student groups should be considered, such as gender, grade, major, etc. In addition, factors such as family background and growth experience of college students can be included in the model to reflect the positive psychological qualities of college students more comprehensively.

Secondly, it is necessary to enhance the reliability and validity of the questionnaire by enhancing its empirical research. In the process of designing the questionnaire, it is necessary to ensure that all indicators have high reliability and validity, so as to ensure the reliability of the survey results. At the same time, it is also necessary to revise and update the questionnaire regularly to adapt to the constant changes of social environment and psychological needs of college students.

Third, combine qualitative research methods to deepen understanding. Although quantitative research methods can provide strong data support for the structural model of positive psychological qualities, qualitative research methods can not be ignored. For example, individual information of college students can be collected through observation, interview and other methods to further understand the connotation of college students' positive psychological qualities and its influencing factors.

Fourthly, strengthen the combination with practice to improve the practicability of the model. Researchers should actively devote themselves to the practical activities of college students' mental health education and apply the results of theoretical research into practical actions. For example, the positive mental character structure model can be applied to the mental health curriculum design, psychological counseling and counseling, psychological evaluation and so on, in order to improve the training effect of positive mental character of college students.

Finally, the structural model of positive psychological qualities should be perfected and optimized constantly. In the process of research, we should pay attention to relevant research trends at home and abroad, learn from advanced concepts and methods, so as to make the structural model of positive psychological qualities more scientific and effective. At the same time, multi-disciplinary and cross-field cooperative research should be encouraged to promote the in-depth development of research on positive psychological qualities.

5.3 Optimization Suggestions Combined with Factors in SCL-90 Table

SCL-90 has great application value in the structure model of positive psychological qualities, but it needs to be optimized and improved constantly in the practical application process. Here are some suggestions for optimizing recommendations in combination with table factors of SCL-90:

First, adjust and improve the index system of SCL-90 table factors. In the process of research, it is necessary to pay close attention to the psychological variables related to positive psychological qualities, such as self-esteem, self-efficacy, emotional regulation, etc., and incorporate these variables into the index system of SCL-90 factor. At the same time, we should pay attention to the characteristics of college students' psychological development, and properly adjust and optimize the factors of SCL-90.

Secondly, the optimization factor analysis method is needed to improve the accuracy of the structural model. When using SCL-90 table factors for factor analysis, appropriate analysis methods should be selected, such as principal component analysis, exploratory factor analysis, etc. In addition, we also need to pay attention to the problems that may occur in the process of factor analysis, such as collinearity, multiplicity, etc., and adopt appropriate solutions to ensure the accuracy of the structural model.

Thirdly, strengthen the empirical verification of SCL-90 table factors in the positive psychological quality structure model. When constructing the model, we should make full use of empirical data to verify the

application effect of SCL-90 table factors in the model of positive psychological quality structure. Through comparative analysis, the differences of SCL-90 table factors in different student groups were found to improve the applicability of the model.

Fourth, focus on the combination of SCL-90 table factors with other psychometric tools. In practical application, it can be considered to integrate SCL-90 table factors with other psychological measurement tools (such as PANAS scale, Big Five Personality Inventory, etc.), so as to reflect the positive psychological qualities of college students more comprehensively.

Finally, strengthen the international cooperation and exchange of SCL-90 table factors in the study of positive psychological qualities. By participating in international academic conferences and publishing international academic papers, we can understand international research trends and learn from foreign advanced concepts and methods in order to further optimize the application of SCL-90 table factors in the structure model of positive psychological qualities.

6. CONCLUSION

This study aims to construct the structure model of college students' positive mental qualities. Through literature review, questionnaire survey, factor analysis and other methods, the structure and related influencing factors of college students' positive mental qualities are systematically discussed. The study found that the positive psychological quality has a multidimensional structure, and there is a certain degree of correlation between each factor. Through reliability and validity analysis, it is proved that the model has high reliability and validity. In terms of practical application and improvement, some concrete case analysis, promotion path and optimization suggestions combined with SCL-90 table factors are put forward for the cultivation of positive psychological quality of college students. These suggestions aim to improve the positive psychological qualities of college students so as to promote their all-round development. In conclusion, this study provides a comprehensive perspective for the study of college students' positive psychological qualities, and provides a valuable reference for relevant educational practices. For future research, we can further expand the scope of investigation, enrich the research methods, and carry out interdisciplinary research, etc., so as to further promote the enrichment and development of the research on positive psychological qualities of college students.

Suggestions for future research can be deepened and expanded from many aspects. Firstly, the scope of the survey is expanded to different regions and different types of universities to improve the generalization ability and applicability of the model. Secondly, it combines qualitative research methods, such as interview and observation, so as to reveal the connotation and characteristics of college students' positive psychological qualities more comprehensively. In addition, interdisciplinary research can also be conducted to discuss the relationship between positive psychological quality and mental health, interpersonal relationship, academic performance and other aspects, so as to provide more enlightenment for the all-round development of college students. Researchers can pay attention to the individual differences of college students' positive psychological qualities and explore personalized intervention strategies for different characteristics and needs, so as to improve the pertinence and effectiveness of psychological quality training. In addition, we should actively carry out long-term follow-up research to deeply explore the development rules and influencing factors of positive psychological quality of college students, so as to provide a solid theoretical basis for mental health education and intervention. At the same time, we also need to pay close attention to the application of science and technology in the field of mental health, and actively combine cutting-edge technologies such as big data and artificial intelligence with the study of positive mental qualities, so as to create new possibilities for the work related to mental health.

In the future, the study of positive psychological quality of college students will achieve greater development in the aspects of refined intervention strategies, long-term follow-up studies and the integration of science and technology and mental health. Specifically, the study can explore individualized intervention strategies for different positive

psychological qualities, so as to provide more targeted support for improving the psychological quality of college students. Through long-term observation and tracking the change of psychological quality of college students, to understand its development law and influencing factors, to provide a strong basis for mental health education and intervention; In addition, with the development of science and technology, big data, artificial intelligence and other technologies will be more widely applied in the field of mental health, providing new possibilities for the study of positive psychological qualities.

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