

Innovation of Mental Health Education Talent Cultivation Mode Based on Environmental Influence

Zhuo Bian^a

^aArt Academy of Northeast Agriculture University, Harbin, Heilongjiang, 150001, China

Abstract. Actively explore the influencing factors existing in the construction process of mental health education personnel training mode, and find out the countermeasures for the reform and innovation of mental health education personnel training mode. The article takes the characteristics and problems in mental health education as the entry point, sorts out the problems and relevant environmental influencing factors in mental health education, and establishes the mental health education talent training model by combining with the Internet technology. Taking the students of five colleges and universities in N province as the research object, the Kessler10 scale was used to quantify the mental health level scores of the students, and the quality analysis model of mental health education talent cultivation was established based on the multivariate linear regression model estimated by the least squares method. We explored the quality of mental health education talent cultivation under the influence of the environment through regression analysis, heterogeneity analysis and robustness test, and used it to propose optimization strategies for mental health education talent cultivation. For every 1-unit increase in the level of family education, students' mental health scale scores decrease by 0.147 units. Compared with female students, male students' total mental health scale score increases significantly by 1.35 points for every 1 standard deviation increase in environmental influences. Mental health education talent training model needs to fully consider the synergistic linkage of family, society and colleges and universities, and the integration of Internet technology into it can effectively promote the quality of talent training.

1. Introduction

China in the 21st century, political, economic and cultural fields are constantly developing forward, China's development needs all kinds of talents at all levels, and educational talents play a vital role in it. Accompanied by the transformation of society and the increase of students' psychological pressure, there is a growing need for mental health education talents to fill the ranks of educators [1, 2]. The state has attached great importance to the cultivation and re-education of mental health education talents, but the research on cultivating mental health education teachers is still in the exploratory stage. When it comes to talent cultivation mode, there seem to be different views, but in essence, they all follow a certain law together, that is, they all recognize the target, relative stability, development, ideology and practice of talent cultivation [3, 4]. Therefore, the so-called talent cultivation mode refers to the relatively stable organizational style and operational mechanism formed under the guidance of certain educational ideas, educational theories and educational policies and guidelines to achieve certain talent cultivation goals, which has certain practical benefits and manifests itself as a continuous and constantly reproducible talent cultivation activities [5, 6]. Similarly, the cultivation mode of mental health education talents refers to the stable organizational form of talent cultivation and educational operation mechanism formed to achieve a continuous supply of mental health education talents, guided by the principles and ideas of mental health education [7]. The construction of a reasonable mental health education personnel training model based on environmental impact is an important issue for the healthy development of education.

Corresponding author: Zhuo Bian, mail address: bianzhuo@neau.edu.cn

Received: 5 March 2026; Accepted: 20 July 2026; Published: 15 August 2026

Keywords. Least squares method; Multiple linear regression; Heterogeneity; Robustness test; Mental health education

2010 Mathematics Subject Classification. 62J05, 62P15, 97K80

Cited this article as: Bian, Z., Innovation of mental health education talent cultivation mode based on environmental influence, Engineering and Its Applications, 3 (1), 2026, 1-13

© 2026 Engineering Journals. Published by Engineering Journals.

Literature [8] takes the practice of talent cultivation mode in private colleges in Guangdong Province as an example, based on the talent cultivation program with the main line of students' mental health cultivation and employability enhancement, it realizes the integration and progress of theory and practice, and the educational effect is remarkable. Literature [9] aims to explore school psychology graduate students' perception, interest and experience of distance education, and experiments have proved that a blended teaching method combining online and offline is more favorable than a completely online course, discussing the significance of psychology training programs and future research. Literature [10] provides further insight into the goals of cultural competency training and procedures for training psychologists, the process includes lectures, discussions, case scenario use, cultural immersion, role-playing, contact with diverse individuals, and self-reflective service learning with client interactions. Literature [11] briefly reviews international graduate students in professional psychology who face language barriers and legal limitations on their ability to work and study, suggests training techniques that can be adopted by programs, and emphasizes the need for international students applying to psychology to be prepared for international challenges. Literature [12] reported data on student populations in doctoral education in psychology and found an overall lack of demographic diversity in the professional psychology pipeline from training to the workforce, with significant differences in numbers and educational attainment between races, evidencing high attrition rates in psychology doctoral programs. Literature [13] describes how the Model Training Program in Counseling Psychology was written to reflect new developments in counseling psychology, the American Psychological Association, and the world, and is intended to guide the development and maintenance of counseling psychology, identifying with multiculturalism and social justice.

On the basis of discussing the performance of the characteristics of mental health education, this paper analyzes the problems existing in the cultivation of mental health education talents, sorts out the impact of external environmental factors on mental health education, and establishes a model of cultivating mental health education talents by combining with Internet technology. Students from five colleges and universities in four districts of N province were selected as the research samples, and the mental health education scale was utilized to quantify the mental health level of the students, and the research hypotheses were put forward from four dimensions: family, society, school and students. Based on the multiple linear regression model with parameter estimation by the least squares method, a regression model of the quality of mental health education personnel training was established by designing the independent variables and dependent variables. Data analysis was carried out by correlation, regression, and heterogeneity, and robustness testing was also conducted for the results, and optimization strategies for mental health education personnel training were proposed based on the analysis results.

2. Constructing a Training Model for Mental Health Education Personnel

Mental health education personnel training mode refers to the stable organization and educational operation mechanism of personnel training formed to achieve a continuous supply of mental health education personnel, guided by the principles and ideas of mental health education. Along with the transformation of society and the increase of students' psychological pressure, people need more and more mental health education talents to fill the team of educators. Our country has attached great importance to the cultivation and re-education of mental health education personnel, but as a base for training future educators, the research on cultivating mental health education teachers is still in the exploratory stage.

2.1. Characteristics and Problems of Mental Health Education

2.1.1. Characteristics of Mental Health Education

College students' mental health education is an important part of the ideological and political work of national colleges and universities, and the establishment of mental health education personnel training model is an important initiative for the development of modern education [14]. The mental health education of college students should be reformed from the concept of education, team building, classroom teaching, three-level network system, student activity mode, and then deepen the school-enterprise cooperation to realize the whole process of education, all-round education, and help the development of modern vocational education. Under the mental health education personnel training model, its educational characteristics are as follows:

1. Changes in the main body of education. Talent cultivation requires the common resume of many parties, and requires close cooperation between them, good communication at all levels, and the joint development and implementation of mental health education programs according to the actual situation of their respective units. Do a good job of mental health maintenance for college students, improve mental health, enhance mental health quality, and solve mental health problems in a timely manner.

2. Flexible education time. The time for students to receive education at school should be set flexibly according to the training program, and the time for students to receive education in the enterprise is affected by the market changes and the production plan, and the time for receiving mental health education is relatively flexible according to the time.
3. Complex educational tasks. On the one hand, the pre-task of mental health education for students in traditional education is to help students deal with the confusion of adapting to the campus environment, students' learning and success, and interpersonal communication among classmates. On the other hand, in traditional education, students choose their majors when they enter school and choose their careers when they graduate, and the confusion of choosing a career and finding a job is highlighted in the group of graduates, which is mainly concentrated in the late stage of their study career, and solving this kind of confusion is the main task of the late stage of mental health education for higher vocational students.

2.1.2. Mental Health Education Issues

The core of education is not to impart knowledge, but to cultivate students' sound personality, and students with positive and healthy psychological state can cope with their studies and life better. The level of psychological development of students in the university stage sets the general tone of their psychological state in their subsequent life, so it is extremely important to do a good job in the psychological education of students in the university stage. However, due to the influence of the external environment, the mental health problems of college students are prominent, the main manifestations of which are shown in Figure 1, including the increase of study pressure, the insufficiency of family education, the lack of school education, the influence of the social environment, and the emotional problems arising from the changes of puberty, and so on.

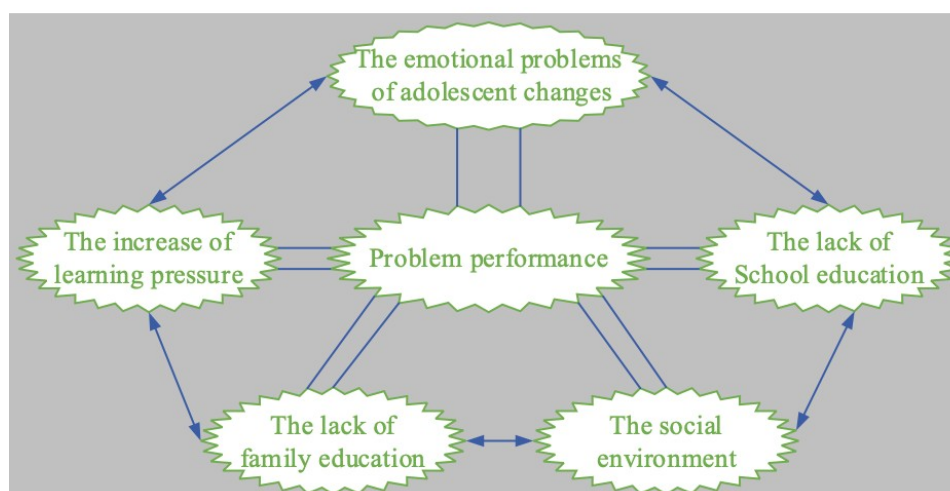


Figure 1: The problem of mental health education

Unresolved mental health problems will affect the future development of students, so it is especially important to do a good job of students' mental health education. Families, schools and society should pay more attention to students' mental health problems, strengthen the close cooperation between schools and families, fully mobilize the enthusiasm of both sides, and guide students to establish a correct view of talent.

2.2. Mental Health Education Personnel Training Model

2.2.1. Mental Health Environmental Influences

In modern society, people's work and life pace is obviously accelerated, the pressure faced by members of the society is getting bigger and bigger, and the number of people with psychological problems is also increasing. College students, as the main force of the new era, are undergoing profound and drastic changes in their psychology and thoughts, and the psychological pressure they have to bear and the situations they have to face are far greater than those before the reform and opening up. Psychological health is the foundation of the all-round development of college students, and it is also an important condition for them to adapt to the workplace in the future. The environmental influences that cause psychological health problems of contemporary college students are as follows:

1. Social environment influence: Social environment influences mainly include culture, economy, education, social relations and so on. The rapid development of society and economy inevitably produces many incongruous factors between people and society, people and material, and people and people. These factors for the growing young students in the psychological impact, these influences come from the money, material, power, status of all aspects, to a certain extent, will bring psychological pressure to the college students.
2. Influence of family environment: Many of the problems that college students have in school are seeds that have been formed in their early growth process. Unhealthy family environment factors are likely to cause abnormal psychological behavior of family members, and these will affect the personality, academic performance, adaptability and other aspects of college students.
3. Influence of school environment: School is one of the places that students mainly face. Therefore, many factors of the school (such as the conditions of the school itself, the conditions of the learning atmosphere, the conditions of the geographical location, the relationship between teachers and students, etc.) have a great influence on the physical and mental health of students.
4. Individual Environmental Influences: Individual factors mainly include physiological factors and psychological factors. Individual physiological factors generally include individual genetic factors and physical diseases or physiological dysfunctions, and individual psychological factors mainly include cognition, emotion and personality, etc. Different individual factors will affect the mental health of college students to a certain extent.

2.2.2. Mental Health Education Model

Currently in the era of high-speed development of Internet technology, in consideration of the external environment, based on the influence of college students' mental health education talent training mode needs to rely on Internet technology in order to achieve more significant progress and reform results. To carry out mental health education talent training, not only to give full play to the positive guiding role of the school, but also to actively develop and utilize the educational resources of the family and society [15]. Internet-based mental health education personnel training model is shown in Figure 2, which mainly consists of three parts, including the receiving body, receiving intermediary and receiving object, through the interaction of the three to realize the construction of mental health education personnel training model.

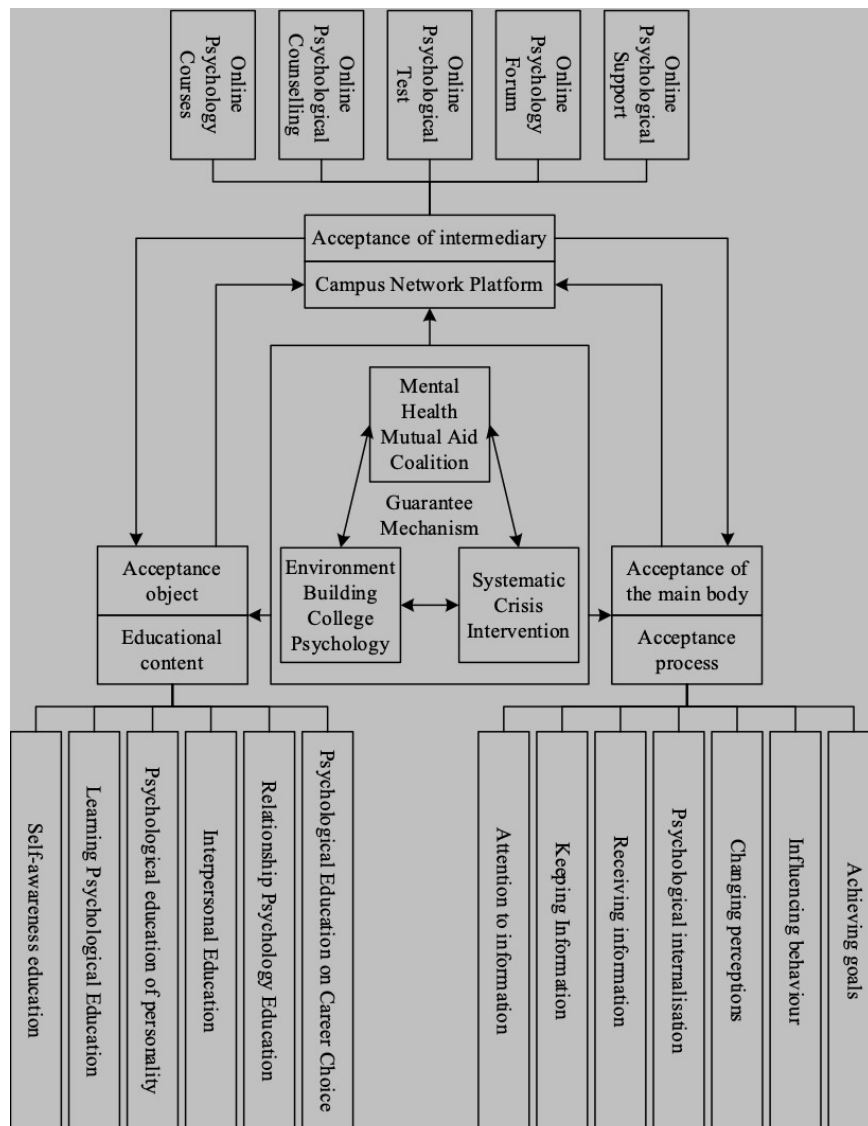


Figure 2: Mental health education talent training mode

Under the mental health education personnel training model, while teaching activities such as online course teaching, online psychological counseling and online psychological forums are effectively implemented, it is also necessary to carry out online discussions on mental health education through parents, communities and other means, and to actively explore methods and experiences regarding mental health education. School experts and teachers can guide families and the community through the Internet to cultivate students' healthy habits, skills in getting along with others and positive attitudes towards life, and parents and other members of the community can respond to the effects of mental health education and their own opinions through the Internet, forming a synergy in the mental health education network and realizing the all-around development of students' mental health education in the spatial dimension.

3. Mental Health Education Personnel Training Quality Research Design

Mental health education talent cultivation in colleges and universities has been increasingly emphasized by educators in recent years. Through the learning of mental health knowledge and skills, students' stress resistance, skills of interacting with others, ability to correctly understand things, and learning ability will be improved, so the importance of mental health education talent cultivation mode is self-evident. How to effectively improve the quality of mental health education talent training under the influence of the external environment has also become an important research direction for colleges and universities to promote the reform of talent training quality.

3.1. Study Sample and Scale Selection

3.1.1. Study Sample Selection

Referring to the sampling method in the “Workbook for the Research on Students' Physical Fitness and Health and the Review of National Students' Physical Fitness Standard”, 2469 college students aged 18 to 22 years old in N province who participated in the “2019 National Research on Students' Physical Fitness and Health” were selected as the target of the survey. The samples were students from five colleges and universities in four prefecture-level cities in Inner Mongolia Autonomous Region. The surveyed schools were the point schools of the National Research on Students' Physical Fitness and Health established in 1985, including students in the “three zones” of good, medium and poor economic development, which is a good representation of the population. There were 841 students in urban areas and 1,628 in rural areas, with 1,343 male students and 1,126 female students. The design of the survey was ethical and the subjects gave informed consent.

3.1.2. Mental Health Education Scales

The questionnaire was derived from the Chinese version of the Kessler 10 scale (K10) of the Student Physical Fitness and Health Research Questionnaire. The scale consists of 10 items that answer the question “How often have non-specific mental health related symptoms such as anxiety and stress levels been experienced in the past 4 weeks”. The frequency of each entry was categorized into 5 levels (all of the time, most of the time, some of the time, occasionally, and hardly ever) and was scored on a 5-point scale of 5 to 1. The total score was calculated by summing the scores obtained from each of the 10 entries and was recorded as the K10 score. Individuals' mental health status was categorized into 4 levels according to the K10 score, 10-15 points (level 1, good mental health, low risk of mental illness), 16-25 points (level 2, average mental health, low risk of mental illness), 26-35 points (level 3, poor mental health, high risk of mental illness), 36-50 points (level 4, poor mental health, high risk of developing psychological disorders). The K10 scale was divided into two equal parts for the folded-half reliability test, and the Cronbach's alpha coefficients of the two parts of the K10 scale were 0.827 and 0.935, respectively, with a folded-half reliability of 0.924 ($P < 0.01$). The results of internal consistency reliability test showed that the Cronbach α coefficient of K10 was 0.952 ($P < 0.01$), and the questionnaire had a high reliability to meet the needs of the study.

Using the maximum likelihood estimation method, exploratory factor analysis was conducted on the K10 scale, and the results showed that the KMO was 0.937, and the p-value corresponding to the Bartlett's test of sphericity was 0.000, and its cumulative variance explained was 71.59%, which made the validity of extracting one first-order factor more reasonable. All participants in the field test and questionnaire survey were trained in unified mental health education at all levels, and the field questionnaire survey was conducted from March to May 2024. Data collection was strictly in accordance with the relevant requirements, questionnaires were uniformly distributed in school classrooms, students filled in the questionnaires themselves, recovered on the spot, and omissions and errors were found to be revised in a timely manner, which ensured the authenticity and reliability of the questionnaire data.

3.2. Research Hypotheses and Modeling

3.2.1. Statement of Research Hypotheses

With the acceleration of the pace of development of modern society, social competition is becoming more and more intense, today's college students are facing the double pressure of further education and employment, and the double pressure is contrasted with the increasingly fragile psychological endurance of contemporary college students. Therefore, it is important to understand the mental health problems of college students through the mental health education personnel training mode and grasp the factors affecting the mental health of college students.

Based on the previous analysis, it can be seen that the family is the most important base to cultivate the psychological quality of college students, and family education is the foundation of school education, which occupies an important position in college students' mental health education. The root causes of depression, anxiety, obsession, personality disorder and mental illness of college students can be traced from their family environment. The society is increasingly in need of all-round talents with higher comprehensive quality and higher level, which forces college students not only to face the pressure of study and life, but also to face the pressure of employment. If college students want to gain a foothold in such fierce social competition, they have to work hard and keep striving in their studies, which to a certain extent aggravates the psychological pressure of college students.

In addition, after entering the university, students from the high school of intense revision stage transition to the university of independent school stage, students learning goals are not clear, encounter heavy

coursework will be at a loss, can not adjust the mentality in a timely manner, prone to self-loathing, nervousness and anxiety and other bad moods. Moreover, college students are eager to make friends with the opposite sex in their youth, and even eager for love. In the interaction with the opposite sex lack of reason, easy to emotional, if not deal with the relationship with the opposite sex, may cause psychological imbalance.

Synthesizing the above effects of external environment on the quality of mental health education training, this paper proposes the following hypotheses:

H1: The level of family education will have a significant effect on the quality of mental health education training.

H2: The level of social competition will have a significant effect on the quality of mental health education training.

H3: School environment pressure will have a significant effect on the quality of mental health education.

H4: Individual's own emotion has a significant effect on the quality of mental health education.

3.2.2. Research Modeling

1. Multiple linear regression model

Multiple linear regression analysis is to analyze the relationship of quantitative changes between two or more explanatory variables and an explanatory variable in the context of linear correlation [16]. In fact, a phenomenon is often associated with multiple factors, and the use of one independent variable to predict or estimate the explanatory variables often has limitations, when the introduction of the optimal combination of multiple explanatory variables to jointly predict or estimate the explanatory variables will be more effective and improve the usefulness of the model. Therefore, multiple linear regression is more practical than univariate linear regression.

The problem of studying the regression of dependent variable y with independent variable x is a univariate regression analysis, and in practice, there is more than one independent variable, so y can be related to $x_1, x_2, \dots, x_n$, and then the category of study is multiple regression. The most traditional method of parameter estimation for general linear equations is the method of least squares, which yields linear unbiased estimates with minimum variance: the unknown parameters are chosen such that the sum of the squares of the differences between the theoretical and the true values of the sample points is minimized.

2. Influence model construction of mental health education training quality

Based on the multiple linear regression model and research hypotheses given in the previous section, this paper takes mental health education cultivation quality (MHECQ) as the explanatory variable, and chooses family education level (FEL), social competition level (SCL), school environment pressure (SEP), and individual's own emotion (INE) as the explanatory variables for the construction of multiple linear regression model:

$$MHECQ_i = \alpha_0 + \alpha_1 FEL_i + \alpha_2 SCL_i + \alpha_3 SEP_i + \alpha_4 INE_i + \alpha_5 Control_i + \epsilon_i$$

Where α_0 is the constant term, $\alpha_1 - \alpha_5$ is the regression coefficient of each variable, $Control_i$ is the control variables, including gender (SEX), academic performance (AP), family economic status (SES), and nature of school (SN), etc., and ϵ_i is the random perturbation term. The data on the quality level of mental health education personnel training were obtained through the Mental Health Education Quality Scale given in the previous section, and the explanatory variables were quantified by the level of parental education, the level of socio-economic development, the level of teaching quality of the school, and the level of one's own emotion, respectively.

4. Analysis of the Impact of the Quality of Mental Health Education Personnel Training

At this stage, the development of mental health education in colleges and universities stems from the parochial orientation of talents, and it is necessary to clarify the mental health level of students in the process of talent cultivation, and to understand the factors affecting the quality of talent cultivation, in order to facilitate the innovative development of mental health education talent cultivation mode. To this end, this chapter uses the multiple linear regression model to analyze the external environmental influencing factors of the mental health education talent training mode, in order to provide support for the optimization of the mental health education talent training mode.

4.1. Multiple Regression Analysis

4.1.1. Correlation Analysis

Before carrying out multiple linear regression, it is necessary to test the multicollinearity and correlation of the variables in the model as a way to eliminate the impact of multicollinearity on the regression results. In

this paper, Pearson correlation coefficient is used to test the correlation of model variables, and Table 1 shows the correlation test results of variables. The **, * in the table represent correlation at 1% and 5% level respectively.

From the table, it can be seen that there is a significant negative correlation of $p < 0.01$ between the quality of mental health education personnel training and the level of family education, the pressure of the school environment, and the individual's own emotions, and the correlation coefficient values are -0.128, -0.157, and -0.114, respectively. There is a significant positive correlation of $p < 0.01$ between the quality of mental health education personnel training and the level of social competition, and the correlation coefficient value of 0.206. Among the control variables, except for the positive correlation between gender and the quality of mental health education personnel training at the 5% level, the remaining variables showed a negative correlation at the 5% level. In addition, the correlation coefficients of all the research variables are lower than 0.3, which indicates that there is no obvious multicollinearity problem among the variables and regression analysis can be carried out.

Table 1: Correlation test results of variables

Variable	MHECQ	FEL	SCL	SEP	INE	SEX	AP	SES	SN
MHECQ	1	-	-	-	-	-	-	-	-
FEL	-0.128**	1	-	-	-	-	-	-	-
SCL	0.206**	0.215*	1	-	-	-	-	-	-
SEP	-0.157**	0.148*	0.035*	1	-	-	-	-	-
INE	-0.114**	0.016*	0.041*	0.041*	1	-	-	-	-
SEX	0.123*	0.072*	0.006*	0.033*	0.051*	1	-	-	-
AP	-0.076*	0.034*	0.017*	0.052*	0.034*	0.017*	1	-	-
SES	-0.045*	0.069*	0.027*	0.017*	0.046*	0.031*	0.024*	1	-
SN	-0.109*	0.043*	0.019*	0.005*	0.024*	0.044*	0.038*	0.015*	1

4.1.2. Analysis of Regression Results

Based on the regression model designed in this paper, the model parameters were estimated using the least squares method, and the regression results of the effect of explanatory variables on the quality of mental health education personnel training were obtained as shown in Table 2. Where model (1) to (4) are the regression results on the quality of mental health education personnel training after adding explanatory variables respectively, and model (5) is the regression results on the quality of mental health education personnel training after adding all variables. In the table, ***, **, * represent significant effects at the 1%, 5% and 10% levels, respectively, and robust t-values are in parentheses.

The results of model (1) show that, controlling for other variables, the level of family education has a significant negative effect on the quality of mental health education personnel training ($p < 0.01$), with a regression coefficient of -0.147, which indicates that for every 1-unit increase in the level of family education, the score of the mental health scale of the students is reduced by 0.147 units, and as a result, the quality of the training of mental health education personnel is all enhanced, and H1 was verified. The results of model (2) show that, under the premise of controlling other variables, the level of social competition and the quality of mental health education personnel training show a significant positive effect at the 1% level, with a regression coefficient of 0.407, i.e., the higher the level of social competition, the higher the quality of mental health education personnel training, and H2 is verified. Model (3) and model (4) illustrate that the school environment pressure and individual's own emotion will have a significant negative effect on the quality of mental health education personnel training, the significance of the test level is less than 0.01, the regression coefficient is -0.183, -0.129, respectively. The lower the pressure of the school environment and the lower the score of the mental health of the students when students recognize their own emotion more intuitively, the level of mental health will be higher. At this point, H3–H4 can be verified.

In addition, after adding four different explanatory variables to model (5), the effect of each variable on the quality of mental health education personnel training has decreased, which indicates that the combined effect of multiple variables will effectively change the quality of mental health education personnel training. From model (1) to model (5), its adjusted R^2 value increased from about 0.09 to about 0.74, and the explanatory degree of each variable on the quality of mental health education personnel training increased by leaps and bounds. This also shows that in the training of mental health education personnel, we need to pay attention to the level of family education, the level of social competition, the pressure of the school environment and the individual's own emotions and other external environmental influences, in order to improve the quality of mental health education personnel training to provide optimization of the program to support the development of the quality of mental health education.

Table 2: The result of regression

Variable	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
FEL	-0.147*** (0.348)	-	-	-	-0.135*** (0.321)
SCL	-	0.407*** (0.559)	-	-	0.383*** (0.528)
SEP	-	-	-0.183*** (0.427)	-	-0.167*** (0.403)
INE	-	-	-	-0.129*** (0.306)	-0.118*** (0.281)
SEX	0.106** (0.334)	0.105** (0.318)	0.104** (0.302)	0.102** (0.298)	0.085** (0.267)
AP	-0.092** (0.278)	-0.098** (0.282)	-0.096** (0.281)	-0.095** (0.279)	-0.083** (0.235)
SES	-0.071** (0.345)	-0.075** (0.352)	-0.074** (0.349)	-0.073** (0.347)	-0.062** (0.323)
SN	-0.124* (0.208)	-0.129* (0.216)	-0.121* (0.202)	-0.132* (0.223)	-0.109* (0.198)
Con	5.247*** (0.176)	5.249*** (0.181)	5.242*** (0.168)	5.248*** (0.179)	2.109*** (0.058)
Sig.	0	0	0	0	0
Adj. R ²	0.095	0.092	0.093	0.096	0.741

4.1.3. Heterogeneity Analysis

In order to analyze the mental health education of college students with different characteristics under the influence of the environment, this paper uses the method of multiple regression analysis to test for heterogeneity. Separate regressions were conducted for college students of different genders, academic performance, parental relationship, family economic status and school nature to analyze the relationship between external environmental influences and students' mental health education scores. Table 3 shows the results of the heterogeneity analysis.

The regression results show that there is heterogeneity in the effects of different genders, academic performance, family economic status, and nature of school on the total scores of students' mental health level scale under external influences. For every one standard deviation increase in external influences, the total mental health scale score of male students significantly increased by 1.35 points (significant at 5% level of significance) compared to female students. For every 1 standard deviation increase in external influences, the total K10 scale score for high academic achievers was significantly lower by 1.07 points (significant at 5% level of significance) compared to low academic achievers. In addition, for every 1 standard deviation increase in the external influences of students with high family economic status and students from dual-tier universities, the total score of the mental health scale was significantly reduced by 0.96 and 1.25 points, respectively, compared with those of students with low family economic status and students from ordinary universities, both significant at the 10% level of significance. Therefore, there are differences in the mental health level scores of students with different characteristics, which also indicates that the mental health education personnel training model needs to be targeted to carry out teaching in order to effectively enhance the quality of mental health education personnel training.

Table 3: Heterogeneity analysis results

Variable	Model (1)	Model (2)	Model (4)	Model (5)
FEL	-0.131*** (0.317)	-0.135*** (0.321)	-0.132*** (0.319)	-0.134*** (0.320)
SCL	0.386*** (0.535)	0.381*** (0.517)	0.388*** (0.541)	0.385*** (0.532)
SEP	-0.169*** (0.412)	-0.165*** (0.401)	-0.165*** (0.401)	-0.167*** (0.403)
INE	-0.124*** (0.285)	-0.128*** (0.289)	-0.114*** (0.269)	-0.118*** (0.281)
SEX	1.35** (2.419)	-	-	-
AP	-	-1.07** (1.328)	-	-
SES	-	-	-0.96* (3.402)	-
SN	-	-	-	-1.25* (1.284)
Con	3.519*** (1.268)	3.523*** (1.279)	5.528*** (1.283)	5.515*** (1.261)
Adj. R ²	0.025	0.024	0.023	0.026

4.1.4. Robustness Tests

Robustness testing refers to the means of examining the explanatory power of the indicator and the stability of the evaluation method. If the sign and significance of the estimated results of the regression do not change with changes in the variable measurement method, survey time, model setting, and parameter selection, it means that the indicator and the evaluation method retain a consistent and stable interpretation of the estimated results, and can prove that the results of the study are not a chance event and are robust.

In order to further verify the stability of the result and enhance the persuasiveness and credibility of the result, starting from the measurement method, this paper chooses different regression models to estimate the same data and variables to see whether the results of the regression change to test the robustness of the estimation results. In this paper, on the basis of using multiple linear regression models, the estimated models

are replaced with ordered probit regression models to re-estimate the variable coefficients of the data to verify the robustness of the multiple linear regression results. Table 4 shows the results of the robustness test of the replacement model. Models (1) and (3) in the table show the results of multivariate linear regression, which are used to compare with the results after the replacement model, and Models (2) and (4) report the results of Probit regression estimation of external environmental influences on the quality of talent development in mental health education, respectively.

From the estimation results of model (2), it can be seen that the regression coefficients of the external environmental influences of family education level, social competition level, school environment pressure, and individual's own emotion are -0.136, 0.381, -0.162, and -0.115, respectively, and passed the test at 1% significance level, and the sign of the coefficients is also consistent with that of the results of multiple linear regression. From the estimation results of model (4), it can be seen that each variable passes the test at the same level of significance as in the previous section. Therefore, it indicates that the robustness test of the replacement model was passed, and further verified that the external environmental influences family education level, social competition level, school environment pressure and individual's own emotion have significant positive or negative influence relationship on the quality of mental health education personnel training.

Table 4: Stability test results of the replacement model

Variable	Model (1)	Model (2)	Model (3)	Model (4)
FEL	-0.135*** (0.321)	-0.136*** (0.327)	-	-
SCL	0.383*** (0.528)	0.381*** (0.516)	-	-
SEP	-0.167*** (0.403)	-0.162*** (0.395)	-	-
INE	-0.118*** (0.281)	-0.115*** (0.274)	-	-
SEX	-	-	0.085** (0.267)	0.074** (0.241)
AP	-	-	-0.083** (0.235)	-0.089** (0.246)
SES	-	-	-0.062** (0.323)	-0.058** (0.314)
SN	-	-	-0.109* (0.198)	-0.115* (0.203)
Con	5.131*** (0.127)	5.215*** (0.138)	5.242*** (0.168)	5.248*** (0.179)
Adj. R ²	0.056	0.055	0.078	0.072

4.2. Talent Training Optimization Strategy

4.2.1. Creating a Harmonious Campus Environment

A good campus environment affects the mental health of college students to a certain extent, and it is crucial to create a harmonious campus environment for students to live and study with ease and pleasure. In addition, it is also very necessary to create a positive campus culture for students, so that when carrying out campus cultural activities and social practice, it can purify the students' minds and help them form a correct outlook.

4.2.2. Innovative Approaches to Mental Health Education

Although the mental health education school for college students has never stopped, but most of the mental health education content is relatively old, serious lack of novelty, so that students feel single and boring, so it is necessary to constantly reform the education method. The first step is to raise the proportion of mental health education courses, put this course and other courses in the same position, so that teachers and students attach great importance to mental health education courses. The second is to change the teaching method of teachers, make full use of the power of the team to carry out social practice, gradually let students know themselves, and advocate the diversification of psychological education activities. Teachers can organize relevant mental health knowledge lectures for students, so that students can correctly view mental health problems. Finally, students should be able to really like the mental health education program, understand the inner needs of students, communicate with students more, and constantly stimulate the enthusiasm of students to learn.

4.2.3. Utilizing Internet + Education

Mental health education can be carried out through the form of campus network, Internet education in higher education institutions, there are many advantages, the current higher education institutions network popularization, the frequency of students using the Internet has increased significantly, mental health education through the Internet can not only reduce the classroom burden of students. Moreover, mental health education through the Internet breaks through the limitations of time and space, teachers can regularly release

some classic movies or short videos about mental health on the campus network, encouraging students to watch them.

5. Conclusion

On the basis of analyzing the influence of the external environment of mental health education, this paper establishes a mental health education talent cultivation model based on Internet technology, and analyzes the relevant factors affecting the quality of mental health education talent cultivation through the multiple linear regression model. In the regression model of mental health education talent cultivation quality, for every 1 unit increase in the level of social competition, the quality of mental health education talent cultivation will increase by 0.407 units. In addition, the level of family education, the pressure of the school environment and the expression of one's own emotions all have a negative effect on the quality of mental health education personnel training at the 1% level. Under the external environmental influences, students with different characteristics show differences in mental health level, and for every 1 standard deviation increase in the external influences of male students compared to female students, the total score of the mental health level scale increases significantly more by 1.35 points (significant at the 5% level of significance). Therefore, to improve the quality of mental health education personnel training in colleges and universities, it is necessary to have multi-party synergy between home-school-society, and also to be good at applying Internet technology to empower the training of mental health education personnel, in order to ensure that the society has more professional mental health personnel.

References

- [1] Lopez-López, W. I., Caycedo, C., Triana, C. A., Hurtado-Parrado, C. A., Silva, L. M., & Aguilar-Bustamante, M. C. (2018). Training, academic, and professional development in psychology. En D. M. McCarthy, S. Karandashev, W. E. Pickren, & J. Brewer (Eds.), *Teaching psychology around the world* (Volumen 4, pp. 53-71). Cambridge Scholars Publishing.
- [2] Mikail, S. F., & Nicholson, I. R. (2019). The national summit on the future of professional psychology training: Overview and recommendations. *Canadian Psychology/Psychologie canadienne*, 60(4), 228–238. <https://doi.org/10.1037/cap0000180>
- [3] Bingham, R. P. (2015). The role of university and college counseling centers in advancing the professionalization of psychology. *American Psychologist*, 70(8), 792–800. <https://doi.org/10.1037/a0039570>
- [4] Soroka, O., Kalaur, S., & Balendr, A. (2019). Diagnostics of leadership qualities of specialists of “man-man” type of professions in military and civil higher education institutions: Psychological and pedagogical approach. *Romanian Journal for Multidimensional Education*, 11(1), 1-14. <https://doi.org/10.18662/rrem/120>
- [5] Jing, Y. (2022). Evaluation of talent training model taking into account the knowledge recognition algorithm of multiple constraint models. *Mathematical Problems in Engineering*, 2022(1), Artículo 4507246. <https://doi.org/10.1155/2022/4507246>
- [6] Wang, J. (2022). Optimization design of international talent training model based on big data system. *Frontiers in Psychology*, 13, Artículo 949611. <https://doi.org/10.3389/fpsyg.2022.949611>
- [7] Wei, Y. (2023). The framework and thinking of the talent training mechanism of. *Adult and Higher Education*, 5(6), 19-23.
- [8] Wang, Y., Liang, Y., & He, X. (2023). Research and practice of talent training mode of private colleges and universities in the new era based on mental health shaping and employability improvement. *Adult and Higher Education*, 5(7), 36-46.
- [9] Viola, S., Saeki, E., & Hendricker, E. (2019). Distance education in graduate training programs: Lessons learned from school psychology students. *Journal of Educators Online*, 16(2), Artículo n2. <https://doi.org/10.9743/jeo.2019.16.2.8>
- [10] Benuto, L. T., Casas, J., & O'Donohue, W. T. (2018). Training culturally competent psychologists: A systematic review of the training outcome literature. *Training and Education in Professional Psychology*, 12(3), 125-136. <https://doi.org/10.1037/tep0000193>
- [11] Lee, K. C. G. (2013). Training and educating international students in professional psychology: What graduate programs should know. *Training and Education in Professional Psychology*, 7(1), 61-70. <https://doi.org/10.1037/a0031186>
- [12] Callahan, J. L., Smotherman, J. M., Dziurzynski, K. E., Love, P. K., Kilmer, E. D., Niemann, Y. F., & Ruggero, C. J. (2018). Diversity in the professional psychology training-to-workforce pipeline: Results from doctoral psychology student population data. *Training and Education in Professional Psychology*, 12(4), 273-284. <https://doi.org/10.1037/tep0000211>

- [13] Scheel, M. J., Stabb, S. D., Cohn, T. J., Duan, C., & Sauer, E. M. (2018). Counseling psychology model training program. *The Counseling Psychologist*, 46(1), 6-49. <https://doi.org/10.1177/0011000018755512>
- [14] McGivern, P. (2024). Commentary on promoting the mental health and wellbeing benefits of using student response systems (SRS) in higher education: More than just a learning device. *Mental Health and Social Inclusion*, 28(4), 283-288. <https://doi.org/10.1108/MHSI-06-2023-0023>
- [15] Luo, L. (2024). Research on practical education model of mental health development of college students in higher education institutions in the context of big data. *Applied Mathematics and Nonlinear Sciences*, 9(1), Artículo 01001. <https://doi.org/10.2478/amns2024-01001>
- [16] Katayama, A., Abe, T., Hase, A., & Miyatake, N. (2024). Relationship between driving ability and physical fitness factors in older adults: A multiple linear regression analysis. *International Journal of Environmental Research and Public Health*, 21(6), 660. <https://doi.org/10.3390/ijerph21060660>