



# Analysis of the Influence of College Students' Mental Health Based on Statistical Analysis, Data Mining, and Predictive Analysis

## A Regression Analysis based on SPSS

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**Abstract.** This article use SPSS software the survey data to analyze the influence of social support on college students' positive mental health under the current COVID-19 epidemic situation. By using the visualized data quantitatively based on the regression analysis, it presented that social support has a positive impact on students' well-being. Therefore, we suggest that colleges and universities should pay attention to the construction of social support system for college students when carrying out positive mental health education under the current epidemic situation, so as to improve students' mental health level.

**Keywords:** meantal health · regression analysis · SPSS · social support · COVID-19

## 1 Introduction

In early 2020, the COVID-19 epidemic changed people's normal life style and rhythm, and also brought profound changes to college students' study and life, such as epidemic prevention and control at home, online lectures, and online social networking.

Professor Lu (2021) [1] reported that the COVID-19 pandemic has the characteristics of suddenness, rapid spread, treatment complexity, threatening health and life, and damaging interpersonal relationship, which breaks the original balance and confuses individuals. Many people had acute stress reaction during the early pandemic exposure. In this case, the fears of the unknown, the spread of disease and the impacts on people, health, hospitals, and economy increase the anxiety of healthy people and those who have previously had mental health problems.

Mental health is not just the absence of mental illness, while mental well-being, though a related concept, is a measure of the hedonic (positive feelings or positive affect such as subjective well being, life satisfaction, happiness) and eudemonic (positive functioning such as engagement, fulfilment, sense of meaning, social well being) dimensions. In 2004, the World Health Organization published a first report on mental

health promotion, conceptualizing mental health as not merely the absence of mental illness but the presence of “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community”. These definitions affirm the existing behavioral and social scientific vision of mental health as not merely the absence of mental illness but the presence of something positive. Social and psychological scientists have been studying something positive in the domain of subjective well-being—individuals' evaluations and judgment of their own lives—for about 50 years (Keyes, 2006).[2].

Positive psychology is an effective mechanism to help individuals, groups and organizations learn about and raise their sense of happiness by way of scientific research, in a bid to facilitate individuals, groups and organizations to fulfill a flourishing state (Seligman & Csikszentmihalyi, 2014).[3] In this study, positive psychology refers to a new perspective in the exploration of mental health education, it provides theoretical support for epidemic prevention mental health education.

On the basis of two-factor model theory and under the background of the development of positive psychology, Keyes (2007) [4] pointed out that mental health is a complete state in which individuals have no mental illness and obtain subjective well-being, psychological well-being and social well-being. Keyes constructed a positive mental health model, including emotional well-being, social well-being and psychological well-being as indicators of positive mental health. In this study, the adult version of Mental Health Continuity Summary (MHC-SF) developed by Keyes based on the above positive mental health model was used to evaluate the positive mental health status of Chinese college students as the main dependent variable.

Positive psychology emphasizes the importance of the connection between college students' psychological crisis and the ecological environment. The social support department should also actively expand to help college students solve psychological crises. Enable individuals in crisis to be supported by family, friends, teachers, classes, schools and all levels of society, and generate more positive experiences to successfully overcome and improve personal crises.

At the same time, studies have shown that social support, as the stable predictor of well-being, can reflect personal well-being to a certain extent. With the deepening of the research on well-being, it is found that external influencing factors are closely related to well-being. Therefore, the author concludes that there may be a correlation between social support and college students' positive mental health (well-being) under the current COVID-19 epidemic situation.

## **2 Research Materials and Method**

### **2.1 Research Samples**

Inclusion criteria as following: Chinese College Students in Shaanxi Province, China; Including freshmen to seniors, aged 18 to 22.

Exclusion criteria as following: The Colleges and universities are not located in Shaanxi Province; Foreign students studying in colleges and universities; College students who practice outside Shaanxi Province.

## 2.2 Research Method

The adult version of Mental Health Continuum Short Form (MHC-SF) compiled by Keyes is adopted. This scale can be used to effectively evaluate positive mental health status after research test, and has good reliability and validity (Yin & He, 2012). [5] MHC is unique in that it integrates three kinds of well-being as indicators to evaluate positive mental health. MHC-SF (Adult Edition) includes three dimensions: emotional well-being, social well-being and psychological well-being, with a total of 14 items. Participants were asked to evaluate the number of times they felt the problem in the past two weeks to one month. Score from 0 (never) to 5 (every day). In this study, the internal consistency coefficients of the three dimensions of mental health are all higher than 0.80 (the coefficients of the three sub scales are 0.892, 0.822, 0.856), so the questionnaire has good reliability.

In this study, the Chinese version of Perceived Social Support Scale (PSSS), revised by Jiang (2001) [6], is used to measure the degree of social support that college students feel from family, friends and others. The Cronbach  $\alpha$  coefficients of family support, friend support, other support and the whole scale are 0.87, 0.85, 0.91 and 0.88, respectively, which have good reliability and validity (Zhou & Wu, 2021). [7].

## 3 Results and Discussion

### 3.1 Descriptive Analysis

By using SPSS for descriptive analysis, the statistical results show that a total of 843 valid questionnaires were collected in this study, of which 425 were male, accounting for 50.4%; the gender distribution was relatively balanced. In terms of the distribution of grades, the four grades account for about 25% of each grade, and the distribution is relatively balanced. In the total sample, most of the samples are from rural areas, accounting for more than 70%; students from class cadres and non-class cadres account for half each; monthly expenses are concentrated at 1,500–2,000 Yuan, accounting for more than 40%.

The remaining specific proportions are listed in the Fig. 1:

### 3.2 Well-Being

We calculated the mean and standard deviation for overall well-being. According to the results, we defined three groups: low WB (below  $3.9151 - 0.7299 = 3.1852$ ), median WB (between 3.1852 and 4.645), and high WB (above  $3.9151 + 0.7299 = 4.645$ ).

The results of the SPSS data analysis are shown in the table 1 below original by the author:

From the Table 2 (original by the author) we found that there are 1.1% of the students (9 students) in the state of “cheering up” with positive mental health, 84.2% of the students (710 students) in the middle level, and 14.7% of the students (124 students) in the state of negative decadence.

Table demographic information

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	425	50.4	50.4	50.4
	Female	418	49.6	49.6	100.0
Years	First	194	23.0	23.0	23.0
	Second	227	26.9	26.9	49.9
	Third	232	27.5	27.5	77.5
	Four	190	22.5	22.5	100.0
location	Rural	604	71.6	71.6	71.6
	Urban	239	28.4	28.4	100.0
class cadre	Yes	432	51.2	51.2	51.2
	No	411	48.8	48.8	100.0
Monthly expenditure	Less than 1000	59	7.0	7.0	7.0
	1000-1500	295	35.0	35.0	42.0
	1500-2000	363	43.1	43.1	85.1
	More than 2000	126	14.9	14.9	100.0

**Fig. 1.** Descriptive analysis of demographic information (original by the author)**Table 1.** Mean of Well-being (original by the author)

<b>Report</b>		
Well-Being		
Mean	N	Std. Deviation
3.9151	843	.72991

**Table 2.** Group of Well-being (original by the author)

<b>WB_Group</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low WB	124	14.7	14.7	14.7
	median WB	710	84.2	84.2	98.9
	high WB	9	1.1	1.1	100.0
	Total	843	100.0	100.0	

### 3.3 Social Support

From the Fig. 2 below we found that, including social support as the independent variable and mental well-being as the dependent variable, the regression analysis showed that the Adjusted R Square was 78%, indicating that the independent variable can explain the dependent variable.

Figure 3 shows that, as the F value of the regression model is 2978.977 with a p-value less than 0.05, we concluded that the regression model is valid.

From the Fig. 4 below we found that social support has a positive impact on students' well-being.

Table Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883 <sup>a</sup>	.780	.780	.34268

a. Predictors: (Constant), social support

**Fig. 2.** Adjusted R Square of social support (original by the author)

Table ANOVA <sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	349.828	1	349.828	2978.977	.000 <sup>b</sup>
	Residual	98.760	841	.117		
	Total	448.588	842			

a. Dependent Variable: Well-Being

**Fig. 3.** Table ANOVA (original by the author)

Table Coefficients <sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.196	.051		23.359	.000
	social support	.708	.013	.883	54.580	.000

a. Dependent Variable: Well-Being

**Fig. 4.** Table Coefficients (original by the author)

## 4 Conclusions and Recommendations

### 4.1 Conclusions

The research results show that under the current epidemic prevention situation, social support have an impact on college students' positive mental health (well-being). Many surveys show that social support is considered to be one of the most influential factors on well-being.

Newcomb and Michael (1990) [8] concluded that there is evidence that social support influences many aspects of the life of an individual. High social support can improve personal functioning and can buffer or protect a person from negative consequences caused by adversity and stress. The influence of social support on individual mental health is significant and recognized.

Psychologists believe that good social support plays an important role in subjective well-being, life satisfaction, reducing the negative effects of stress and positive emotions (Zhang, Y.Q, Mao, X., & Zou, S.Q., 2012).[9] There is a positive correlation between freshmen's positive mental health and harmonious family atmosphere. Students with higher positive mental health have more harmonious family atmosphere, which is consistent with previous studies (Xiong, 2016).[10].

Studies have shown that social support is beneficial to the development of positive mental health. College students with good social support can keep a positive attitude, and their mental health develops in a positive direction, while college students with relatively poor social support often have a negative attitude, which leads them to face life negatively, thus making them lack positive mental health and even appear psychological diseases. The people and things that college students come into contact with every day also have a great influence on their positive mental health.

According to Maslow's hierarchy of needs theory, good social support can not only meet the needs of love and interpersonal communication of college students, It can also help them get all kinds of feedback information about themselves from all aspects, and at the same time realize the distance between self-ability and reality, and the relationship between real self and ideal self, so that they can carry out effective self-regulation and achieve psychological balance. When a person's psychological development is balanced, he will have a positive psychological attitude towards things, and his positive mental health will be improved.

### 4.2 Recommendations

To sum up, the purpose of this study is to investigate and analyze the impact of social support on college students' positive mental health, in order to provide useful guidance for the cultivation and promotion of college students' well-being. Especially, social support has a positive predictive effect on college students' positive mental health.

- According to the conclusion of this study, colleges and universities should pay attention to the construction of social support system for college students when carrying out positive mental health education under the current epidemic situation, so as to improve students' mental health level.

- According to positive psychology, mental health means that there is no disease in psychology, positive ideals and pursuits, good working conditions and interpersonal relationships, and rich and colorful spiritual life.
- Good interpersonal relationship and social adaptability, as a good positive psychological quality, is also an important index to measure the level of mental health.
- College is a period of rapid establishment and development of social relations, social relations from parents to college students and teachers, as well as a wider network of social support, so the formation of extensive social relations and social support is the most prominent psychological development task of college students.
- More and more researchers have found that in the process of the development of social relations, the level of support obtained by individuals is not only related to their social skills, but also related to their physical and mental health.
- Since the early 1970s, more and more psychologists have gradually begun to pay attention to the promotion and maintenance of “social support” in mental health.
- From a broad perspective, all kinds of important supportive resources obtained by college students from the government, schools, associations and other organizations as well as some outstanding predecessors, and even the different feelings experienced by some individuals that are respected, understood and supported by everyone, are included in the social support system of college students.
- A good social support system will inevitably become an important resource for college students to cope with stress and difficulties, and affect the level of positive mental health (Ren & Yin, 2019).[11]
- The social support system for college students has cushioned the psychological conflicts and crises of college students, and also improved the mental health level of college students.
- For the construction of college students, the social support system should start from the four main fields of school, family, peers and network, and strengthen school and family communication and cooperation.
- Schools should play an overall regulatory role, from the school cultural atmosphere to the overall psychological community and psychological curriculum setting.
- Go deep into the school group to understand students’ psychological needs and problems encountered in communication, increase the training of peer psychological support system, and cultivate the psychological literacy of psychological committee members.
- Build a good network environment and guide students to use the network correctly and actively. In the end, it can enhance social communication skills, have harmonious social and interpersonal relationships, rich and colorful spiritual life, and have positive personality qualities, so that college students can obtain real mental health.

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