

# Mental Health Status of College Freshmen and Influencing Factors

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## Abstract

**Objective:** This study combines quantitative research of personality traits with demographic data to analyze the influencing factors of the mental health of freshmen in colleges and universities, and provides a reference to/from future college freshmen's mental health education and management. **Methods:** A census method was used to survey freshmen admitted to the Yangtze University, including general demographic characteristics, a 16-person cartel questionnaire (16-PF), and a 90-item self-assessment scale (SCL-90). **Results:** The mental health status of freshmen in colleges and universities was good, with 16.2% (1488 persons) being tested positive. Among the positive screened samples, obsessive-compulsive symptom factor, interpersonal relationship sensitivity factor, anxiety factor, depression factor, and increased scores were the main characteristics. The results of binary classification logistic regression analysis showed that humanities and social sciences, non-urban household registration, and non-sturdy families, undergraduate and college students are at higher risk of being screened for SCL-90. **Conclusion:** Freshmen in colleges and universities are generally in good mental health. Under the interaction of biological, psychological, and social factors, some freshmen are more prone to neurological symptoms such as depression, anxiety, and obsessive-compulsive symptoms. At the same time, they are also more likely to be troubled by interpersonal relationships. The appearance of neurological symptoms and the classification of people that are troubled by interpersonal relationships are also special. According to the conclusions of this study, the emphasis is on accurately identifying the symptoms of neonatal neurosis in colleges and universities, and early intervention, and managing high-risk groups that may have the above symptoms, and reducing the prevalence of psychological and mental disorders in college freshmen.

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## Keywords

Colleges and Universities, Freshmen, Personality Traits, Mental Health

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### 1. Introduction

The World Health Organization (WHO) made a clear definition of mental health in 1946: “Health is not just free of disease and infirmity, but a state of good physical, psychological and social functions”. College freshmen facing the problems of adapting to the new environment, interpersonal communication, love, and academics, they are in a period of transition to the stage of psychological development. The impact on various values of the period of social transition can lead to a disordered state of their behaviors and emotions (Yang, 2019), mainly manifested as compulsive behavior. The emergence of emotions such as anxiety and depression, if not identified and processed in a timely manner, may develop into mental disorders such as obsessive-compulsive disorder, anxiety, and depression, which may lead to an individual’s inability to conduct normal learning and social life, and serious self-injury, suicide or injury, killing and other adverse events (Gili, Castellvi, Vives et al., 2019). In recent years, with the rapid development of socio-economic level, the incidence of mental disorders among college students in China has shown an increasing trend year by year. A good level of mental health is of great significance in guaranteeing personal happiness, family harmony, and social stability (Yang, 2019). Therefore, it is particularly critical to prevent the prevalence of psychological and mental disorders among freshmen in colleges and universities. Behavior, anxiety, depression and other behavioral emotions are accurately identified, and high-risk groups who may have psychological and mental disorders are managed. Although many studies have shown that the mental health of freshmen in colleges and universities may be related to personality traits, gender, age, or native family conditions, etc, at the same time, quantitative research on personality traits and demographic data is used to analyze the freshmen in colleges and universities. Research on the influencing factors of mental health status is still lacking in China, so this article will analyze the factors that may affect the mental health of college freshmen through the characteristics of demographic data and personality characteristics of college freshmen, and provide a reference to/from the mental health education of college freshmen in China.

### 2. Materials and Methods

#### 2.1. Source

Using the census method, a total of 9013 freshmen from 2018 Yangtze University in Jingzhou City, Hubei Province was selected for questionnaire testing, including 4635 males and 4578 females. There are 5924 science students, 3289 humanities and social students. There are 5924 science students. There were

6544 non-urban household registrations and 2669 urban household registrations. There are 8374 people in the family and 839 people in the family. The monthly family income is >5000 yuan for 6173 people, and the monthly family income is <5000 yuan for 3040 people. There are 258 college students, 8243 undergraduates, 680 graduate students and 32 doctoral students. With the assistance of the counselor, the assessments were conducted in batches, and the testees were informed of the specific situation and agreed to participate voluntarily. There is no penalty for not participating in the survey, and the data reports are reported as group results from/of involving personal information. The test results are mainly used to establish college students' psychological files, and will not be used in any other areas not related to mental health. No one other than a full-time teacher at the school health center will get psychological test results and evaluations. Finally, 9013 valid questionnaires were obtained, and the effective rate was 100%. This study was approved by the Ethics Committee of the Institute of Mental Health, Yangtze University.

## 2.2. Research Methods

In September or October after the start of new students every year, the survey will be carried out by the college student mental health education center. Prior to the formal investigation, at the school level, uniformly deploy and issue psychological census arrangement documents. The second-level college and its specialty are uniformly arranged, unified instructions are written, and the testing process is unified. The staff who participated in the test are trained uniformly. The trained staff organize students to focus on unified guidance and testing, with the cooperation of the second-level college's political counselor and the class teacher. The research was conducted using a cartel 16 personality factor questionnaire (16-PF) and a 90-item list of symptoms (SCL-90) for the school's psychological management system online platform. Firstly, by focusing on the four dimensions of 16-PF anxiety and adaptation, introversion and extroversion, emotional affairs and serene alertness, and environmental adaptation, we can understand the personality characteristics of college freshmen in different classifications. Compare the national youth norms to understand the current mental health status of college freshmen. After that, according to the SCL-90 national youth norms, the total score of the scale will exceed 160 points, the number of positive items will exceed 43 and any 3 samples with subscale factor scores greater than 2 were screened as positive, and the main problems faced by freshmen in colleges and universities were analyzed by analyzing the dimensional scores in the positive samples. Finally, the classification is based on demographic data, and single-factor analysis is performed in the groups in each classification to select the factors that have statistical differences; combined with the analysis of personality characteristics obtained from the survey in this study, meaningful factors in single-factor analysis are simultaneously analyzed. Put in regression equations to analyze factors that may be related to mental health issues.

## 2.3. Statistical Methods

All data were entered by two people and analyzed by SPSS 21.0 software. Measurement data uses KS test for normality test, descriptive statistics on the mean  $\pm$  standard deviation ( $x \pm s$ ) of the normal distribution, and single-sample t-test method, independent t-test, and analysis of variance analysis; using binary logistic regression to analyze the correlation between each demographic data classification and SCL-90 subscale score. The difference was statistically significant when  $P < 0.05$ .

## 3. Result

### 3.1. General Mental Health of Freshmen

This study found that the SCL-90 scores in all dimensions of the overall sample did not meet the criteria for positive screening, suggesting that the mental health of freshmen in this grade is generally normal. As seen in **Table 1**, except for the paranoid factor, the differences between the scores of the overall sample and the norms reached statistically significant levels ( $P < 0.05$ ). Among them, the scores of somatization, interpersonal relationship, depression and hostility are lower than the norm; the scores of the four factors of compulsion, anxiety, terror and psychosis are the same as the total score, the total average score and the number of positive items.

### 3.2. Groups with Different Demographic Characteristics Have Different Personality Traits

**Table 2** shows that among adaptation and anxiety, men, humanities and social sciences, family monthly income  $> 5000$  yuan, non-sound families, undergraduates, college students have higher scores; humanities and social sciences, family monthly income  $> 5000$  yuan, urban household registration and undergraduate and college students score higher inward and outward; male, natural science, family monthly income  $< 5000$  yuan, and undergraduate and college students have higher scores in emotional affairs and serenity; among environmental adaptation factors, natural sciences, monthly household income  $< 5000$  yuan, non-urban and undergraduate, college students score higher.

**Table 1.** Differences between the scores of SCL-90 in various dimensions and the national norms for freshmen in colleges and universities in 2018 ( $x \pm s$ ).

Project	Somatization	Obsessive-compulsive symptoms	Interpersonal relationship	Depression	anxiety	hostility	terror	Paranoid	Psychotic	Total score	Overall average	Number of positive items
Overall sample	1.28 $\pm$ 0.41	1.82 $\pm$ 0.62	1.61 $\pm$ 0.61	1.44 $\pm$ 0.53	1.45 $\pm$ 0.52	1.37 $\pm$ 0.50	1.43 $\pm$ 0.51	1.43 $\pm$ 0.51	1.42 $\pm$ 0.49	131.82 $\pm$ 40.99	1.46 $\pm$ 0.46	26.82 $\pm$ 21.29
Norm	1.37 $\pm$ 0.48	1.62 $\pm$ 0.58	1.65 $\pm$ 0.51	1.50 $\pm$ 0.59	1.39 $\pm$ 0.43	1.48 $\pm$ 0.56	1.23 $\pm$ 0.41	1.43 $\pm$ 0.57	1.29 $\pm$ 0.42	129.95 $\pm$ 38.76	1.44 $\pm$ 0.43	65.08 $\pm$ 18.33
t value	-20.543	30.398	-6.383	-10.318	11.88	-20.683	26.861	0.727	26.267	4.371	5.207	8.577
P value	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	>0.05	<0.05	<0.05	<0.05	<0.05

**Table 2.** Scores of different categories in the four dimensions of 16-PF ( $\bar{x} \pm s$ ).

Variable	Adaptation and anxiety	Introverted and Extroverted	Emotional and serene alertness	Environmental adaptation factors
gender				
male	5.99 ± 1.73	5.41 ± 1.88	5.83 ± 1.49	22.05 ± 3.69
female	5.79 ± 1.74	5.42 ± 1.91	5.05 ± 1.55	21.97 ± 3.72
t value	5.127	-0.378	22.944	1.012
P value	<0.001	0.705	<0.001	0.312
Subject				
Humanities and Social Sciences	5.95 ± 1.74	5.59 ± 1.91	4.88 ± 1.54	21.67 ± 3.74
Natural sciences	5.86 ± 1.73	5.32 ± 1.89	5.74 ± 1.5	22.19 ± 3.67
t value	2.208	5.871	-24.144	-6.048
P value	0.027	<0.001	<0.001	<0.001
Monthly household income				
>5000 yuan	5.86 ± 1.73	5.48 ± 1.9	5.42 ± 1.57	21.93 ± 3.71
<5000 yuan	5.94 ± 1.73	5.28 ± 1.89	5.51 ± 1.56	22.18 ± 3.68
t value	-2.051	4.427	-2.425	-2.795
P value	0.04	<0.001	0.015	0.005
Birthplace				
Non-town	5.91 ± 1.73	5.33 ± 1.89	5.45 ± 1.56	22.11 ± 3.7
town	5.84 ± 1.74	5.64 ± 1.9	5.44 ± 1.6	21.74 ± 3.7
t value	1.673	-6.729	0.254	3.991
P value	0.094	<0.001	0.799	<0.001
family situation				
sound	5.87 ± 1.73	5.41 ± 1.89	5.46 ± 1.56	22.03 ± 3.7
Non-sound	6.04 ± 1.72	5.43 ± 1.94	5.35 ± 1.66	21.81 ± 3.71
t value	-2.496	-0.182	1.755	1.527
P value	0.013	0.856	0.08	0.127
Cultural level				
postgraduate student	5.29 ± 1.79*▲	5.69 ± 1.81*▲	5.84 ± 1.53*▲	23.19 ± 3.73*▲
undergraduate	5.94 ± 1.72	5.39 ± 1.91	5.42 ± 1.57	21.92 ± 3.68
College	5.89 ± 1.7	5.45 ± 1.83	5.41 ± 1.42	21.6 ± 3.82
F value	40.849	7.152	20.574	34.897
P value	<0.001	<0.001	<0.001	<0.001

“\*” indicates that there is a significant difference between the master’s degree and the undergraduate degree; “▲” indicates that there is a significant difference between the master’s degree and the college.

### 3.3. Factor Scores of Different Dimensions for College Freshmen's Positive Samples

The positive rate of SCL-90 in the overall sample was 16.2% (1488 people). Among the samples that were positive for SCL-90 screening, the scores of obsessive-compulsive factor, anxiety factor, depression factor, and interpersonal sensitivity factor all exceeded 2. The details are shown in **Table 3**.

### 3.4. Determinants of Overall Mental Health of College Freshmen

Positive screening for positive symptoms of obsessive-compulsive symptoms, positive anxiety factors, positive depression factors, and interpersonal relationship sensitivity factors were used to determine whether the neurological symptoms and interpersonal relationship sensitivity were positive (No = 0, Yes = 1). After univariate analysis of variance, the six categories of gender, scientific classification, birthplace, family situation, economic status, and educational level were used as independent variables for binary classification logistic regression analysis. As shown in **Table 4**, the results show that compared to the natural sciences, students in the humanities and social sciences are 1.264 times more likely to be screened as positive; non-urban students are 1.142 times more likely to be urban students; students who are not able to grow a healthy family are 1.481 times, and the undergraduate and junior college students were 2.769 times and 3.158 times the master and doctor students, respectively.

**Table 3.** SCL-90 screening positive samples scores in all dimensions (x ± s).

Somatization	Obsessive-compulsive symptoms	Interpersonal sensitivity	Depression	anxiety	hostility	terror	Paranoid	Psychotic	other	Total score
1.9 ± 0.58	2.76 ± 0.5	2.59 ± 0.54	2.35 ± 0.57	2.34 ± 0.56	2.02 ± 0.64	2.03 ± 0.62	2.02 ± 0.57	1.80 ± 0.55	2.00 ± 0.58	205.81 ± 37.25

**Table 4.** Binary logistic regression analysis of neurological symptoms and positive interpersonal relationship screening (n = 9213).

Independent variable	$\beta$	SE	$\chi^2$	P	OR (95% CI)
Gender (reference group = female)					
Male	0.09	0.06	2.237	0.14	1.094 (0.972 - 1.231)
Subject Classification (reference group = natural science)					
Humanities and social sciences	0.234	0.062	14.434	<0.001	1.264 (1.120 - 1.426)
Birthplace (reference group = town)					
Non-town	0.133	0.066	4.023	0.05	1.142 (1.003 - 1.300)
Family situation (reference group = sound)					
Non-sound	0.393	0.09	18.884	<0.001	1.481 (1.241 - 1.769)
Economic status (reference group = non-poverty)					
poverty	0.098	0.062	2.482	0.12	1.102 (0.976 - 1.245)
Educational level (reference group = master's degree and doctoral degree)					
Bachelor degree	1.018	0.196	27.067	<0.001	2.769 (1.980 - 5.035)
Associate degree	1.15	0.238	23.33	<0.001	3.158 (2.012 - 5.356)

## 4. Summary and Prospective

Although the freshmen's mental health is generally good, some students still have psychological problems. In this study, students who were screened positive by SCL-90 had high scores on neurological symptoms factors (such as obsessive-compulsive symptoms, anxiety, depression, etc.), similar to the study by Shi (2018), but with high interpersonal. The relationship sensitivity factor score is also easy to attract attention. At the same time, the number of people who have positive scores on four factors of interpersonal sensitivity, obsessive-compulsive symptoms, depression and anxiety account for almost half of the total number of positive samples screened, and among the students of humanities and social sciences, non-healthy family growth, and junior colleges. It is particularly common, which may indicate that there are a lot of college freshmen who suffer from interpersonal relationships and have neurosis symptoms, and there are obvious differences between different categories. According to Engel's 1977 model of biological, psychological, and social medicine, the results of this study will be explained from these three aspects.

### 4.1. Biological Factor

Whether it is compulsive behavior, or depression, anxiety and other emotions, they have adapted to the life of their ancestors (Jiang & Liu, 2006). These behaviors or emotions can warn humans to avoid and stay away from danger. We often feel anxious about things that are unknowable and uncontrollable. Anxiety motivates us to give full play to our subjective initiative, turning uncontrollable into controllable and unknowable into knowable. Depression can help us avoid the option that makes people feel depressed when we face the same choice again next time. There is also a lot of evidence that compulsive behavior, anxiety, and depression are determined by the regulation of gene expression. Therefore, genes that express these behaviors or emotions are a tool to help humans to adapt to society in the beginning. It greatly hinders humans from normal social activities. When faced with an unfamiliar environment, such as freshmen entering school, compulsive behavior, anxiety, and depression are easily manifested; young people who have just experienced the college entrance examination generally have problems such as insufficient sleep, lack of physical exercise, and weak health awareness, etc., generating psychological problems such as depression, anxiety, and helplessness (Shi, Yu, & Liu, 2016; Zvolensky, Kauffman et al., 2019).

### 4.2. Psychological Factors

The study by Wang, Z.G. and Xue, H.X. (2017) pointed out that the intense learning atmosphere in high school makes students devote themselves to learning and their lives are tense and orderly. The neurotic symptoms can be hidden to a certain extent, but they are sensitive, suspicious, sentimental, indecision, and perfect Psychological characteristics such as self-centeredness will be stable.

In this study, energetic, but often neglecting the details of life, often dissatisfied with what they want to achieve, etc., are the more prominent characteristics of this college student. Most of the undergraduate and college students are only children. They respect and treat themselves at home and like to be self-centered. They are in a period when their bodies and minds are just maturing, and are more sensitive to emotional experience and relationships (Zhan, Lian, & Wang, 2016; Zhou, 2017; Liu & Sang, 2018; Kong, 2019). Students of orientation are more likely to have problems with sensitive relationships and neurotic symptoms. They may be generally romantic, emotional, rich in imagination, and flexible in their work. However, more extreme situations may become impractical, dreamy, and practical. It is related to the characteristics that are easy to produce negative emotions when there is a gap in ideals. The test of the personality traits of humanities and social science students in this research also proves that they have higher requirements for life or themselves, have more concerns, and are emotionally troubled. Students with sound family growth are more likely to have a negative impact on themselves due to problems with family upbringing or a bad family atmosphere, resulting in a negative emotional experience that is not easy for students with sound family growth, and low self-awareness and evaluation (Wang, Zheng, & Zhu, 2015). At the same time, insecure attachments with parents, lack of social support, loneliness, etc. Su Jun may also be an important cause of outstanding neurological symptoms in this part of the population (Chen, Zhao, & Zhao, 2017); this study also suggests that students with a monthly family income of less than 5000 yuan are less adaptable to the environment than students with a monthly family income of more than 5000 yuan, and have poor environmental adaptation. In this case, the symptoms of neurosis are prone to occur.

### 4.3. Social Factors

At the university level, study and living arrangements are relatively free and there is much free time. As a result, interpersonal relationships and love have been promoted to unprecedented importance. After leaving the nanny-like life, a person alone in a completely unfamiliar environment may face problems such as language barriers, inability to communicate with one another, and inability to adapt to local customs and habits. When a classroom is getting along, the “post-00s” with a low social experience may be unavoidable in getting along with others (Wang, 2017). At the same time, in a relatively relaxed campus environment, they are full of longing for love, but they are also in love. It is easy to encounter problems, such as being rejected by friends of the opposite sex or being unable to understand each other in the process of dealing with the opposite sex; in this study, the undergraduate and college students’ ability to adapt to the environment is weaker than that of the master and doctoral students, and may not be rich enough. Related to the imbalance between supply and demand in the job market and the setting of “high thresholds” for academic qualifications by various employers. Compared with master and doctoral graduates, students in ju-



nior colleges and colleges may suffer from unsatisfactory choices in majors and find that there will be dim prospects in them (Beiter, Nash et al., 2015). They are more worried about encountering setbacks during the job search process, and are more likely to have bad feelings thread. The problem of academic stress (Li, Wan, & Gu, 2017) and the excessive use of smartphones (Elhai, Dvorak et al., 2017) are also closely related to the emergence of neurological symptoms.

Under the interaction of the above three factors, college freshmen are prone to neurological symptoms such as obsessive-compulsive symptoms, depression, and anxiety. Studies by Pan, X.D. and Guan, N.N. (2019), Bruffaerts, R., Mortier, P., Kiekens, G. et al. (2017) have suggested that the symptoms of neurosis greatly affect the academic level and interpersonal communication of college students. In the short term, the neurological psychological problems exposed at the university stage may make students mentally debilitated, indifferent interpersonal relationships, low learning efficiency, and even give up, degrade themselves, and suffer huge physical and mental suffering.

In summary, the identification and timely treatment of neurological symptoms of college freshmen, and the guidance of college freshmen to correctly understand interpersonal relationships, has become an important part of the psychological health work of colleges and universities. It is recommended to start from the following aspects: 1) For the samples that are positive for SCL-90 screening, test again to eliminate the possibility of false positives caused by students filling in random answers; 2) For samples that are positive again for screening Establish a psychological file, test SCL-90 again at least every two months, and conduct psychological intervention at the same time. At present, many studies at home and abroad have confirmed that Morita therapy and mindfulness therapy (Tomlinson, Yousaf et al., 2018; Liu & Zhang, 2016) have ideal intervention effects on psychological disorders of college students; 3) For students who have not intervened repeatedly, they should cooperate with local general hospitals and mental health centers to eliminate physical or other mental disorders in a timely manner; 4) Encourage college freshmen to participate more in social activities. Or class as a unit, regularly organize activities, strengthen interaction and communication between freshmen in colleges and universities, and correctly guide them on how to establish normal interpersonal relationships.

This study uses a cross-sectional analysis method, combining qualitative research of personality traits with demographic data, and in-depth analysis of the factors that affect the psychological health of college students from a biological-psycho-social perspective, but this study only represents the freshmen's time Of mental health status, whether there is a correlation or causal relationship between demographic classification and mental health status, can continue to conduct prospective cohort studies or case-control studies to verify.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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