

# *Survey and Strategy Analysis of the Mental Health Status among Vocational College Students Based on the SCL-90 Scale*

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**Abstract:** This study aims to conduct an empirical investigation and analysis of the mental health status of vocational college students using the Symptom Checklist-90 (SCL-90). The data were collected and analyzed through the methods of quantitative research. Findings indicate that among the 10 factors in the SCL-90, scores for Obsessive-Compulsive Symptoms, Interpersonal Sensitivity, Depression, and Anxiety were relatively higher. Additionally, scores for Paranoia, Hostility, Other, Phobic, Psychotic, and Somatization factors exhibited a decreasing trend. In this study, female students scored higher than male students on both the total score and all factor scores. Significant differences in other demographic variables indicate that family factors and early personal growth experiences significantly impact the mental health of vocational college students. The findings reveal prevalent psychological issues among vocational college students and propose corresponding enhancement strategies based on these results.

## **1. Introduction**

Against the backdrop of comprehensively advancing high-quality development in vocational education, vocational institutions serve as the primary training ground for cultivating technical and skilled talent. The mental health status of their students directly impacts the quality of talent cultivation and the sustainable development of vocational education. In recent years, intensified social competition, mounting employment pressures, and the increasingly distinct characteristics of the vocational education cohort have drawn growing academic and societal attention to the mental health challenges faced by vocational college students. Multiple studies indicate that this group not only confronts common psychological developmental challenges shared by young adults but also experiences heightened psychological stress due to overlapping factors such as academic foundations, social identity, and career positioning. Current observations reveal that mental health issues among vocational college students exhibit both widespread prevalence and unique characteristics. On one hand, a high prevalence of suboptimal mental health states stands out as a prominent feature. For instance, some surveys indicate that over 30% of vocational college students exhibit varying degrees of psychological issues. The top four symptoms affecting mental health levels are obsessive-compulsive tendencies (43.48%), depression (40.04%), sleep disturbances (37.66%), and anxiety (35.01%) <sup>[1]</sup>. A study investigating mental health issues in vocational

education for late adolescents found that 64.4% of students experienced difficulties with at least one problem related to depression, stress, anxiety, or eating disorders. Among the assessed mental health concerns, 36.7% reported suspected eating disorders. Depression, anxiety, and stress accounted for 43.3%, 48.8%, and 29.3% respectively <sup>[2]</sup>. Meanwhile, significant intra-group disparities emerged: female students generally exhibited poorer mental health than males, lower-grade students showed higher rates of adjustment disorders, and students from economically disadvantaged or single-parent families were more prone to psychological imbalances. Notably, vocational students demonstrated low awareness of actively utilizing mental health services, with only 13.5% of participants seeking such assistance <sup>[2]</sup>. Another survey of vocational schools nationwide revealed that only 47.1% of students actively participate in mental health education, while 21.6% believe such education is unnecessary. Although 78.5% of schools have counseling rooms, the actual utilization rate is less than 20%, reflecting the contradiction of “sufficient supply but insufficient demand response” <sup>[3]</sup>. These issues not only affect students' mental health levels but also negatively impact their academic performance, daily lives, and even society. Therefore, conducting surveys and analyses on the mental health status of vocational college students not only helps understand their psychological state but also provides important evidence for promoting their mental health development and enhancing educational quality. This study aims to conduct an empirical investigation to thoroughly analyze the current mental health status of vocational college students, identify their primary psychological issues, and thereby provide reference for mental health education and intervention measures in vocational institutions.

## 2. Survey Population and Methods

### 2.1 Survey Population

This study surveyed students from a vocational college in Gansu Province. Questionnaires were distributed by class, with a total of 9,607 students evaluated. The sample comprised 123 secondary vocational students, 6,318 higher vocational students, 1,061 students pursuing bachelor's degrees through vocational pathways, and 2,105 vocational undergraduate students. Among them, 6,874 were male and 2,733 were female. Students from urban households numbered 1,990, while those from rural households totaled 7,617. Specifically, 1,012 came from single-parent families, 444 from blended families, 1,523 were only children, and 465 had experienced being left-behind children.

### 2.2 Survey Tools

This study primarily employed the Symptom Checklist-90 (SCL-90) to assess students' mental health status. The SCL-90 is a widely used mental health assessment tool comprising 90 items across 10 factors: somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and miscellaneous (sleep disturbances, appetite/weight loss). The scale employs a 5-point rating system ranging from “none” to “severe.” Higher scores indicate more severe psychological symptoms. The SCL-90 demonstrates high reliability and validity, making it widely applied in mental health research and clinical assessments. This survey defines a total raw score  $\geq 160$  or factor scores  $\geq 2$  as positive, indicating potential psychological issues. The Cronbach's  $\alpha$  coefficient for the SCL-90 in this study was 0.974.

### 2.3 Testing Process

Prior to the test, the school's psychological counseling center conducted pre-test training for each

class's psychological committee members. This training guided committee members in understanding the purpose, significance, and precautions of conducting mental health surveys, while also equipping them with specific testing methods. Subsequently, committee members explained the process to their classmates during class meetings. The school-wide assessment was conducted during evening study hall on the designated date. Homeroom teachers were present to address operational issues encountered by students, ensuring smooth testing procedures. After completion, a total of 9,607 questionnaires were collected.

## 2.4 Data Processing

Using SCL-90 test results as the primary data source, SPSS 26.0 statistical software was employed to analyze students' mental health scores and scores across various dimensions. This comprehensive approach aimed to understand the psychological status of vocational college students.

## 3. Analysis of Research Findings

### 3.1 Overall Mental Health Status of Vocational College Students

In this study, all participants scored between 90 and 450 on the SCL-90, with a mean score of  $(127.52 \pm 46.46)$ . Using a total SCL-90 score  $\geq 160$  as the positive screening criterion for mental health, 1,760 freshmen exhibited significant mental health issues, representing a detection rate of 18.32% (1,760/9,607). Using a threshold of  $\geq 2$  points on any single SCL-90 factor as the screening positive criterion, statistical analysis was conducted on the distribution of positive factors among students and their percentage of the total population. Results are shown in Table 1. The frequency of positive symptoms, ranked from highest to lowest, was: Obsessive-Compulsive, Interpersonal, Depression, Anxiety, Paranoia, Hostility, Other, Phobic, Psychotic, and Somatization.

Table 1 Distribution of Positive Cases for Each SCL-90 Factor (n=9607)

factor	Number (n)	Percentage (%)
Somatization	931	9.69
Obsessive-Compulsive	2831	29.47
Interpersonal Sensitivity	1815	18.89
Depression	1512	15.74
Anxiety	1334	13.89
Hostility	1279	13.31
Phobic	1215	12.65
Paranoia	1309	13.63
Psychotic	1018	10.59
Others	1211	12.60

### 3.2 Comparison of SCL-90 Factor Scores among Students in This Study with National Adult Norms

This study utilized data from a 2018 national adult sample of 12,160 individuals by Liu Yuanyuan et al. <sup>[4]</sup> as the standard national adult norm for comparison. Analysis revealed that students in this study scored significantly higher than the national norm on the Obsessive-Compulsive and Phobic factors. Scores for somatization, interpersonal hostility, and paranoia were significantly lower than the national norm. Mean scores for depression, anxiety, and

psychoticism were marginally lower than the national norm, though the differences were not statistically significant. (See Table 2)

Table 2 Comparison of SCL-90 Factor Scores among Students in This Study and National Normative SCL-90 Factor Scores (M $\pm$ SD)

factor	The students in this study N=9607	National Norms Sample Size N=12,160	T	P
Somatization	1.30 $\pm$ 0.48	1.37 $\pm$ 0.46	-11.67	<0.001
Obsessive-Compulsive	1.71 $\pm$ 0.68	1.66 $\pm$ 0.58	5.74	<0.001
Interpersonal Sensitivity	1.49 $\pm$ 0.63	1.51 $\pm$ 0.55	-3.18	<0.01(0.0015)
Depression	1.44 $\pm$ 0.61	1.45 $\pm$ 0.53	-1.27	0.203
Anxiety	1.40 $\pm$ 0.57	1.40 $\pm$ 0.48	0	1.00
Hostility	1.36 $\pm$ 0.57	1.48 $\pm$ 0.57	-15.42	<0.001
Phobic	1.34 $\pm$ 0.54	1.23 $\pm$ 0.39	16.8	<0.001
Paranoia	1.35 $\pm$ 0.54	1.41 $\pm$ 0.50	-8.41	<0.001
Psychotic	1.33 $\pm$ 0.51	1.34 $\pm$ 0.44	-1.53	0.127

### 3.3 Comparison of SCL-90 Scores Between Male and Female Students

Analysis of gender differences in SCL-90 scores among students in this study revealed the results shown in Table 3. Female students exhibited significantly higher mean scores than male students on both the total score and all factor scores, indicating statistically significant differences ( $p<0.001$ ).

Table 3: Comparison of SCL-90 Scores Between Male and Female Vocational High School Students

factor	Males (n=6,874)	Females (n=2,733)	T	p
Somatization	1.27 $\pm$ 0.45	1.38 $\pm$ 0.55	-10.44	<0.001
Obsessive-Compulsive	1.67 $\pm$ 0.68	1.81 $\pm$ 0.71	-9.13	<0.001
Interpersonal Sensitivity	1.47 $\pm$ 0.61	1.55 $\pm$ 0.66	-5.62	<0.001
Depression	1.40 $\pm$ 0.57	1.54 $\pm$ 0.68	-10.74	<0.001
Anxiety	1.36 $\pm$ 0.54	1.49 $\pm$ 0.63	-10.17	<0.001
Hostility	1.34 $\pm$ 0.55	1.43 $\pm$ 0.62	-7.10	<0.001
Phobic	1.28 $\pm$ 0.49	1.48 $\pm$ 0.64	-16.13	<0.001
Paranoia	1.34 $\pm$ 0.53	1.40 $\pm$ 0.58	-4.74	<0.001
Psychotic	1.31 $\pm$ 0.49	1.36 $\pm$ 0.53	-4.24	<0.001
Others	1.38 $\pm$ 0.51	1.44 $\pm$ 0.56	-5.02	<0.001
Total Score	124.72 $\pm$ 44.30	134.58 $\pm$ 50.83	-9.43	<0.001

### 3.4 Comparative Analysis of Differences in SCL-90 Total Scores across Other Demographic Variables

Differential analyses were conducted on SCL-90 scores among students in this study based on demographic variables including “urban/rural residence,” “single-parent family background,” “reconstituted family background,” “only child status,” and “left-behind child experience.” “whether they have experienced being left behind.” The results are shown in Table 4. Except for the variable “whether they are an only child,” significant differences were found across all other variables, with statistical significance ( $p<0.001$ ). Students from urban areas demonstrated

significantly higher overall mental health levels than those from rural areas. Students from single-parent families, reconstituted families, and those with left-behind experiences exhibited significantly lower mental health levels compared to students from non-single-parent families, non-reconstituted families, and those without left-behind experiences.

Table 4: Differences in SCL-90 Total Scores across Other Demographic Variables

	town N=1990	Rural N=7617	single-parent N=1012	Non-single parent N=8595	Reconstituted family N=444	Non-reconstituted family N=9163	only a child N=1523	non-only a child N=8084	left behind N=465	Not left behind N=9142
M	129.54	126.99	134.24	51.94	134.81	127.17	127.84	127.46	135.37	127.12
SD	48.98	45.77	126.73	45.71	49.66	46.27	45.98	46.55	50.18	46.23
T	2.18		4.87		3.39		0.29		3.74	
P	<0.05		<0.001		<0.01		0.77		<0.001	

#### 4. Discussion and Results

The mental health challenges faced by vocational college students warrant serious attention. Findings indicate that students at this institution scored between 90 and 450 on the SCL-90, with a mean score of  $(127.52 \pm 46.46)$ . Using a cutoff of  $\geq 160$  for SCL-90 total scores as the positive detection criterion for mental health issues, 1,760 cases (18.32%, 1760/9607) were identified with significant mental health concerns. This indicates that a substantial proportion of students at this vocational institution exhibit psychological problems. Screening positive results by factor scores revealed higher scores in obsessive-compulsive symptoms, interpersonal sensitivity, depression, and anxiety among the 10 factors. Scores for paranoia, hostility, other, phobic, psychotic, and somatization factors decreased progressively. These findings largely align with studies by Wu Song et al. and Yao Wenqing et al. <sup>[5][6]</sup>. Research indicates that vocational students commonly experience mental health issues such as obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, and hostility. These problems are particularly pronounced during adolescence and early adulthood, as students at this stage have not yet achieved full physical and psychological maturity, exhibiting strong self-awareness coupled with significant emotional volatility. Faced with uncertainty in self-perception, they are prone to compulsive behaviors like repeatedly verifying the appropriateness of actions. Vocational students also encounter significant challenges in interpersonal interactions. Lacking social experience and emotional regulation skills, they often feel confused and pressured when interacting with peers, teachers, and family members. This leads to interpersonal sensitivity and even anxiety, depression, or hostility, which not only disrupts daily relationships but may also exacerbate psychological burdens. Moreover, the pressures on vocational students extend beyond academics to include family expectations and societal biases against vocational education. Many students are labeled as “academically underachieving” or “having limited future prospects.” The interplay of external pressures and internal self-doubt makes them more susceptible to anxiety and unease.

Comparing the scores of students from this school on each factor of the SCL-90 scale with national norms revealed <sup>[4]</sup> that the students in this study scored significantly higher than the national norms on the Obsessive-Compulsive and Phobic factors. Their scores on the Somatic Symptoms, Interpersonal Sensitivity, Hostility, Paranoid Ideation, Depression, Anxiety, and Psychoticism factors were all lower than the national norms, though the differences were not significant for the Depression, Anxiety, and Psychoticism factors. This can be attributed to the increasing emphasis placed by both the nation and schools on student mental health issues, with growing investments of time and resources. Through institutional safeguards, curriculum development, activity design, and social practice initiatives, schools across regions and institutions have fostered the healthy and rapid development of mental health education. This enables students

to promptly recognize changes in their mental state and take immediate action to prevent more severe psychological issues. However, overall, the mental health challenges faced by vocational college students remain concerning and warrant active attention from educators and society at large.

Significant gender differences were observed in both the total score and factor scores of the SCL-90 scale. Specifically, female participants scored significantly higher than males across all factors and overall psychological status. This finding indicates that, overall, female students exhibit relatively lower levels of mental health. This conclusion aligns closely with the research findings of Jiang Lin<sup>[7]</sup> and Gao Lei et al.<sup>[8]</sup>, further validating gender differences in mental health levels. Possible reasons include females being relatively more mature yet possessing a more fragile and sensitive nervous system, experiencing greater emotional fluctuations, and typically exhibiting heightened emotional sensitivity. They may be more susceptible to external environmental influences. Females may react more intensely to conflicts and pressures within interpersonal relationships, leading to mental health issues. Female vocational students may experience heightened anxiety regarding uncertainties in future career development, particularly in traditionally male-dominated industries where they may perceive greater pressure and challenges.

The results of testing differences in mental health levels based on demographic variables such as “whether from an urban household,” “whether from a single-parent household,” “whether from a blended family,” “whether an only child,” and “whether with a history of being left behind” reveal that students from urban areas exhibit significantly higher overall mental health levels than those from rural areas. Students from single-parent households, blended families, and those with a history of “whether left-behind experience” revealed that students from urban areas exhibited significantly higher overall mental health levels than those from rural areas. Students from single-parent families, reconstituted families, and those with left-behind experience demonstrated significantly lower mental health levels compared to their non-single-parent, non-reconstituted family counterparts and those without left-behind experience. This indicates that family factors and early personal growth experiences significantly impact college students' mental health.

Overall, multiple factors contribute to mental health issues among vocational college students. At the individual level, adolescent psychological fluctuations, unclear self-perception, and insufficient resilience serve as internal triggers. At the institutional and environmental level, academic pressure, interpersonal relationships, and career uncertainty constitute primary external stressors. Particularly noteworthy is how societal prejudice and lack of occupational identity exacerbate students' psychological burdens. Many students experience feelings of inferiority due to the “vocational school student” label and lack confidence in their future employment prospects. Research indicates that students with poor teacher-student relationships, limited participation in group activities, and dysfunctional family environments are more prone to psychological issues. Furthermore, inadequate home-school collaboration mechanisms limit the effectiveness of psychological support.

## **5. Analysis of Causes and Countermeasures for Mental Health Issues Among Vocational College Students**

### **5.1 Analysis of Causes**

Overall, mental health issues among vocational college students are influenced by multiple factors. At the individual level, psychological fluctuations during adolescence, unclear self-perception, and insufficient resilience serve as internal triggers. At the institutional and environmental level, academic pressure, interpersonal relationships, and career uncertainty constitute primary external stressors. Particularly noteworthy is how societal prejudice and lack of vocational identity exacerbate students' psychological burdens. Many students develop feelings of inferiority due to the “vocational school student” label and lack confidence in their future



employment prospects. Research indicates that students with poor teacher-student relationships, limited participation in group activities, and dysfunctional family environments are more prone to psychological issues. Furthermore, inadequate home-school collaboration mechanisms limit the effectiveness of psychological support.

## **5.2 Countermeasure Analysis**

Vocational institutions' mental health education requires a tripartite collaboration to generate synergistic effects. Schools provide institutional safeguards and professional support through systematic design; families consolidate emotional foundations through scientifically informed participation; and students achieve self-empowerment through proactive learning. Only through coordinated efforts can these three parties comprehensively enhance students' psychological literacy, laying a solid foundation for their career development and personal growth.

### **5.2.1 School Level: Systematically Building a Professionalized Mental Health Education System**

Schools serve as the primary battleground for mental health education, requiring comprehensive efforts from institutional design and resource integration to concrete implementation. Schools need to establish a new ecosystem of mental health education that integrates moral, intellectual, physical, aesthetic and labor education, and form a new ecosystem of mental health education that combines "teaching and learning, practical activities, counseling services, prevention and intervention, and platform support". A "five-layer early warning network" (school - department - class - dormitory - family) management system should be implemented to conduct early detection and precise intervention for students at risk of psychological crisis. It is necessary to innovate the "three-dimensional education" model that combines "course guidance+ consultation and intervention+ experiential activities", and integrate it with the "one-stop" student community development to ensure that mental health services cover the entire learning process of all students. Regarding resource allocation, measures such as establishing per-student special funds, constructing counseling centers, and appointing full-time faculty ensure the effective implementation of these initiatives.

### **5.2.2 Family Level: Strengthening Home-School Collaboration and Family Education Support**

The family is a significant influence on students' psychological development, and home-school cooperation can create a synergistic educational force. Schools should proactively establish information-sharing mechanisms with families, such as holding regular parent forums and creating parent WeChat groups to promptly communicate students' psychological well-being at school. Establishing parent-school alliances, offering free parenting courses, and providing one-on-one counseling can help parents acquire mental health knowledge and foster collaborative education. Additionally, schools may organize teachers to conduct family education lectures in communities, enhancing parents' psychological support capabilities.

### **5.2.3 Student Individual Level: Enhancing Self-Awareness and Psychological Adaptation Skills**

Students bear primary responsibility for their mental health and must strengthen self-management awareness and potential development. Addressing common challenges among vocational students-academic pressure, interpersonal conflicts, and career uncertainty-schools should guide them through courses and activities to master emotional regulation and stress coping

skills. Schools can adopt a positive development theory framework to construct a positive psychological counseling model, helping students progress from “self-awareness” to “confidence in the workplace” while gradually cultivating positive psychological qualities. Institutions may also utilize tools like the Holland Career Interest Assessment to assist students in clarifying career paths and strengthening professional identity. Activities such as psychological role-playing dramas and group counseling can enhance interpersonal skills and resilience. Additionally, encouraging peer support networks allows students to deepen their own growth through helping others.

## 6. Conclusion

This study investigated the mental health status of vocational school students using the SCL-90 scale, revealing a detectable rate of psychological problems of 18.32%, indicating a situation that demands attention. The primary issues were manifested as obsessive-compulsive symptoms, interpersonal sensitivity, depression, and anxiety. The study found that the mental health level of female students was markedly lower than that of their male counterparts. Furthermore, family environment and personal experiences were identified as key influencing factors, with students from rural areas, single-parent or reconstituted families, and those with a history of being “left-behind children” exhibiting more prominent psychological issues. The conclusion indicates that the psychological problems of vocational college students result from a combination of school, family, and individual factors. In response, it is essential to establish a tripartite support system involving these parties. Only through multi-party collaboration can the psychological well-being of vocational school students be effectively enhanced, laying a solid foundation for their healthy growth and professional development.

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