

Analysis of the Current Situation of Depression Symptoms and its Influencing Factors among Vocational Undergraduate Students

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Abstract: *Objective:* To investigate the prevalence of depression among vocational undergraduate students and explore its influencing factors to provide theoretical basis for psychological intervention. *Methods:* A questionnaire survey was conducted using general information questionnaire, depression symptom scale, psychological resilience scale, and social support scale among 292 vocational undergraduate students. Data were analyzed using SPSS26.0 software. *Results:* The average depression symptom score among vocational undergraduate students was (13.7±9.5), indicating normal symptom levels without significant depressive symptoms. However, 36.0% of students reached the detection threshold for depressive symptoms. Multivariate analysis revealed that social support, sleep quality, psychological resilience, BMI index, and smoking were independent influencing factors of depressive symptoms among vocational undergraduate students. *Conclusion:* The average level of depressive symptoms among vocational undergraduate students was normal, but some students exhibited significant depressive symptoms. Students with poor sleep quality, low levels of social support and psychological resilience, obesity (BMI), and smoking showed more severe depressive symptoms. Therefore, psychological care should be strengthened for such students to alleviate depressive symptoms and promote mental health.

Keywords: depressive symptoms; influencing factors; vocational undergraduate students

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1. Introduction

Depressive symptoms manifest as physical and mental discomfort, primarily including diminished interest, low mood, and reduced activity. Associated symptoms also include fatigue, changes in weight and appetite, slowed thinking, decreased attention, sleep disturbances, feelings of worthlessness, self-blame, indecisiveness, guilt, and even suicidal ideation^[1]. These symptoms often serve as early warning signs of depression, representing preclinical manifestations that do not yet meet clinical diagnostic criteria. Depression is a common mental disorder characterized by high recurrence rates, disability rates, and suicide rates, making it challenging to treat. Therefore, early recognition of depressive symptoms is crucial.

China's vocational undergraduate education is currently experiencing rapid growth, with the number of enrolled students steadily increasing. Research indicates that vocational undergraduates face dual pressures during their studies,

including academic demands and the stress of obtaining professional certifications, internships, and employment. This dual burden often leads to significant psychological issues^[2]. A study by Yang Kewei et al.^[3] revealed that 44.03% of vocational college students exhibit depressive symptoms, with severe cases not only impairing their mental health but also adversely affecting their future careers. Consequently, the mental health status of vocational undergraduates warrants urgent attention.

As a vital component of China's higher education system, vocational undergraduate education currently sees limited research focus on its student population. Most existing studies predominantly target medical students or general undergraduates. Current research on depressive symptoms lacks comprehensive exploration of influencing factors, while the theory of unpleasant symptoms indicates that symptoms are shaped by physiological, psychological, and social factors. This study aims to analyze the prevalence and contributing factors of depressive symptoms among vocational undergraduate students, providing theoretical foundations for developing efficient, personalized symptom management strategies. The goal is to enhance the efficacy of depressive symptom management, ultimately promoting students' mental health and improving their quality of life.

2. Research methods

2.1. Study subjects

This cross-sectional study employed convenience sampling to enroll students enrolled at a vocational undergraduate institution in Hainan Province from September to December 2025. Inclusion criteria were: ① full-time vocational undergraduate students; ② participants with normal reading and writing abilities who could comprehend the questionnaire content; ③ informed consent and voluntary participation. Exclusion criteria included: ① individuals with cognitive impairments who could not cooperate; ② students who take a leave of absence or drop out.

2.2. Survey tools

2.2.1. General information questionnaire

The general demographic questionnaire included gender, major, monthly living expenses, BMI index, family residence, living style, sleep quality, smoking, drinking, daily mobile phone usage, physical exercise, and cold symptoms.

2.2.2. Connor-davidson resilience scale (CD-RISC)

Xiao Nan et al.^[4] first translated and revised the Chinese version of the Psychological Resilience Scale, which measures an individual's psychological resilience to assess their psychological adaptability. The scale comprises three dimensions: Resilience, Strength, and Optimism. It uses a five-point rating system (0-4), with a total score ranging from 0 to 10. Higher scores indicate greater psychological resilience. Based on the scores, psychological resilience is categorized into four levels: scores below 60 indicate poor resilience, 61-69 represent average resilience, 70-79 signify good resilience, and scores above 80 denote excellent resilience. This scale demonstrates strong reliability and validity, with a Cronbach's α coefficient of 0.91.

2.2.3. The center for epidemiologic studies depression scale (CES-D)

The CES-D scale, developed by Radloff et al.^[5] in 1977, is used to assess depressive symptoms in individuals over the past week. The scale consists of 20 items, primarily covering four dimensions: depressive mood, positive mood, somatic symptoms, and interpersonal relationships. A four-point scoring scale is employed, with positive mood using a reverse scoring method, where higher frequency of positive mood results in lower scores. The final total score is calculated by summing all item scores, with higher scores indicating more severe depression. A total score of <16 points for depressive symptoms indicates no significant depressive symptoms, meeting the detection threshold for depression. In this study, the Cronbach's α of this scale was 0.90.

2.2.4. Perceived social support scale (PSSS)

Huang Li et al.^[6] translated the Perceived Social Support Scale into Chinese, which includes three main dimensions: family support, friend support, and other support. The scale uses a Likert 7-point rating system, with scores ranging from 1 (strongly disagree) to 7 (strongly agree), and measures the perceived level of social support through the total score. Higher scores indicate greater perceived social support. The Cronbach's α coefficients for the three dimensions—family support, friend support, and other support—were 0.90, 0.87, 0.82, and 0.90, respectively, indicating high internal consistency of the scale among the China population.

2.3. Statistical methods

This study employed two-person data entry in Excel and statistical analysis using SPSS26.0 software. The research first conducted descriptive statistics, then performed one-way analysis of variance (one-way ANOVA) with demographic characteristics as independent variables and total depressive symptom scores as dependent variables. Pearson correlation analysis was subsequently applied to examine the relationships between depressive symptoms and social support as well as psychological resilience. Finally, regression analysis was conducted using the total depressive symptom scores as dependent variables, incorporating significant variables identified through one-way and correlation analyses to determine independent influencing factors of depressive symptoms among vocational college students.

3. Results

3.1. General information of vocational undergraduate students

In this study, the age of vocational undergraduate students ranged from 17 to 23 years (20.41 ± 1.66). Among them, there were 124 males (42.5%) and 168 females (57.5%). The majority (62.0%) were enrolled in liberal arts programs (181 cases). Monthly living expenses ranged from 1,000 to 3,000 yuan (74.7%, 218 cases). The BMI index was normal in 199 cases (68.2%). 164 cases (56.2%) resided in urban areas, while 248 cases (84.9%) lived in dormitories. Sleep quality was average in 165 cases (56.5%). No smoking was observed in 248 cases (84.9%), and no alcohol consumption was reported in 239 cases (81.8%). Daily mobile phone usage was frequent in 243 cases (83.2%), while occasional physical exercise was practiced in 144 cases (49.3%). The incidence of frequent colds was low in 256 cases (87.7%). For details, see **Table 1**.

Table 1. General profile of vocational undergraduate students (n=292)

variable	classify	Number of cases	percentage (%)
sex	man	124	42.5
	woman	168	57.5
specialty	Liberal Arts Major	181	62
	science speciality	111	38
Monthly living expenses (yuan)	< 1000	43	14.7
	1000-3000	218	74.7
	> 3000	31	10.6
BMI index number	become thin	40	13.7
	normal	199	68.2
	Overweight and obesity	53	18.2
Home of residence	town	164	56.2
	rural area	128	43.8

Table 1 (Continued)

variable	classify	Number of cases	percentage (%)
the resident manner	dormitory	248	84.9
	Family living together	44	15.1
sleep quality	good	86	29.5
	same as	165	56.5
	difference	41	14
Smoking status	yes	44	15.1
	no	248	84.9
Does he drink alcohol	yes	53	18.2
	no	239	81.8
Daily mobile phone usage	often	243	83.2
	sometimes	49	16.8
	a fat lot	0	0
Physical exercise status	often	41	14
	sometimes	144	49.3
	a fat lot	107	36.6
Do you often catch colds	yes	36	12.3
	no	256	87.7

3.2. Depression symptom scale scores among vocational undergraduate students

The average depression score among 292 vocational undergraduate students was 13.7 ± 9.5 points, with scores below 16 indicating normal levels without significant symptoms. However, 105 students (36.0%) exceeded the 16-point threshold, suggesting a small proportion exhibited marked depressive symptoms. Detailed mean scores across dimensions are shown in **Table 2**. The top three items on the depression scale were “not inferior to others,” “feeling hopeful about the future,” and “feeling happy in life.”

Table 2. Depression symptom levels among vocational undergraduate students (N=292)

Symptoms of depression	Number of entries	Theoretical scoring range	divide equally (\bar{X} false \pm s)
Depressive symptom total score	20	0~60	13.7 \pm 9.5
Positive emotions	4	0~12	5.5 \pm 3.2
Depression	8	0~24	3.9 \pm 4.5
somatization	6	0~18	3.6 \pm 3.4
interpersonal relation	2	0~6	0.7 \pm 1.1

3.3. Comparison of depression symptom scores among undergraduate students with different occupational characteristics

Univariate analysis revealed statistically significant differences in depressive symptom scores among vocational undergraduate students based on gender, major, BMI, sleep quality, smoking, alcohol consumption, and physical exercise

($P < 0.05$).

Specifically, male students exhibited significantly higher depressive symptom scores than females. Science majors scored significantly higher than humanities majors. Students with obesity ($BMI \geq 30$) or underweight ($BMI < 25$) showed significantly higher depressive symptom scores than those with normal BMI. Poor sleep quality was associated with significantly higher depressive symptom scores compared to good sleep quality. Smoking and alcohol consumption were linked to higher depressive symptom scores. Regular physical exercise was significantly more prevalent among students who exercised frequently than those who exercised infrequently. Other factors had no statistically significant impact on depressive symptom scores ($P > 0.05$). See **Table 3** for details.

Table 3. Impact of general data on depression symptoms in vocational undergraduate students (N=292)

variable	classify	Mean score of depressive \bar{X} false symptoms (\bar{X} false \pm s)	F/t	P
sex	man	15.37 \pm 10.40	2.679	0.008
	woman	12.40 \pm 8.53		
specialty	Liberal Arts Major	12.50 \pm 8.46	-2.711	0.007
	science speciality	15.56 \pm 10.69		
Monthly living expenses (yuan)	< 1000	15.19 \pm 9.33	1.564	0.211
	1000-3000	13.70 \pm 9.61		
	> 3000	11.26 \pm 8.40		
BMI index number	become thin	13.10 \pm 8.72	3.931	0.021
	normal	12.90 \pm 8.80		
	Overweight and obesity	16.92 \pm 11.69		
Home of residence	town	13.35 \pm 9.65	-0.640	0.523
	rural area	14.06 \pm 9.26		
the resident manner	dormitory	13.53 \pm 9.27	-0.568	0.570
	Family living together	14.41 \pm 10.62		
sleep quality	good	9.92 \pm 7.97	22.519	< 0.001
	same as	13.75 \pm 8.45		
	difference	21.17 \pm 11.69		
Smoking status	yes	18.20 \pm 11.02	3.521	< 0.001
	no	12.85 \pm 8.95		
Does he drink alcohol	yes	16.72 \pm 10.49	2.623	0.009
	no	12.98 \pm 9.11		
Daily mobile phone usage	often	14.01 \pm 9.43	1.398	0.163
	sometimes	11.94 \pm 9.55		
Physical exercise status	often	17.29 \pm 12.54	9.776	< 0.001
	sometimes	11.33 \pm 8.24		
	a fat lot	15.41 \pm 8.92		
Do you often catch colds	yes	13.14 \pm 9.30	-0.353	0.725
	no	13.73 \pm 9.51		

3.4. Correlation analysis of depressive symptoms in vocational undergraduate students

3.4.1. Correlation between depressive symptoms and social support in vocational undergraduate students

The average score of social support among vocational undergraduate students was (61.82±12.91). Pearson correlation analysis revealed that the total score of social support and its dimensions were negatively correlated with the total score of depressive symptoms and its dimensions among vocational undergraduate students. Specific results are presented in **Table 4**.

Table 4. Correlation analysis of depressive symptoms and social support among vocational undergraduate students (N=292)

variable	relativityscore	Depressive symptom total score (r)	Depression (r)	Positive emotions (r)	somatization (r)	interpersonal relation (r)
Family support	21.24±5.01	-.474**	-.412**	-.304**	-.390**	-.303**
Friends Support	20.45±4.61	-.406**	-.341**	-.293**	-.319**	-.257**
Support from others	20.13±4.57	-.429**	-.364**	-.308**	-.338**	-.257**
Total social support score	61.82±12.91	-.481**	-.411**	-.331**	-.385**	-.300**

Note: **P<0.01

3.4.2. Correlation between depressive symptoms and psychological resilience in vocational undergraduate students

The average score of psychological resilience among vocational undergraduate students was (61.13±17.61). Pearson correlation analysis revealed that the total score of psychological resilience and its dimensions were negatively correlated with the depressive symptoms and their dimensions among vocational undergraduate students, as detailed in **Table 5**.

Table 5. Correlation analysis of depressive symptoms and psychological resilience among vocational undergraduate students (N=292)

variable	relativity score	Depressive symptom total score (r)	Depression (r)	Positive emotions (r)	somatization (r)	interpersonal relation (r)
autonomousness	31.08±9.82	-.396**	-.273**	-.432**	-.270**	-.197**
toughness	31.08±9.82	-.396**	-.273**	-.432**	-.270**	-.197**
Optimism	9.06±3.24	-.264**	-.176**	-.399**	-.129*	0.009
total score of psychological resilience	61.13±17.61	-.390**	-.262**	-.475**	-.243**	-.148*

Note: **P<0.01, *P<0.05

3.5. Multiple linear regression of influencing factors on depression symptoms in vocational undergraduate students

This study employed depressive symptoms among vocational undergraduate students as the dependent variable, with statistically significant independent variables identified through univariate and correlation analyses being incorporated into the regression model. The results demonstrated that five variables—social support, sleep quality, psychological resilience, BMI index, and smoking—were ultimately included in the regression equation. The analysis revealed a high goodness of fit, with an R² value of 0.391 and an adjusted R² value of 0.380, indicating that the model effectively explained the depressive symptoms. Additionally, the F-value was 36.705, with a P-value <0.001. See **Table 6**.

Table 6. Multiple stepwise regression of influencing factors on depression symptoms in vocational undergraduate students (N=292)

argument	B	SE	β	t	P	95%CI
(constant)	30.639	3.99	-	7.679	< 0.001	(22.785, 38.493)
Total social support score	-0.235	0.037	-0.32	-6.292	< 0.001	(-0.308, -0.161)
sleep quality	4.124	0.693	0.28	5.951	< 0.001	(2.76, 5.488)
total score of psychological resilience	-0.139	0.026	-0.259	-5.273	< 0.001	(-0.192, -0.087)
BMI index number	1.88	0.78	0.112	2.412	0.017	(0.346, 3.415)
smoke	-2.925	1.26	-0.111	-2.321	0.021	(-5.405, -0.445)

4. Discussion

4.1. Normal depressive symptom levels in vocational undergraduate students

The study reveals that vocational undergraduate students scored an average of (13.7±9.5) on depression scales. While the overall scores remain within normal ranges, the detection rate of depressive symptoms reached 36.0%—significantly higher than the 28.25% reported by Gao Yuan et al.^[7] for vocational college freshmen. Although the depression prevalence among vocational undergraduates is generally normal, a small proportion of students exhibit severe symptoms. This may stem from their struggle to cope with the dual pressures of academic demands and vocational skill requirements, which could be the primary cause of their severe depression. Furthermore, as an emerging educational model, vocational undergraduate programs face uncertainties in training approaches and career prospects, potentially exacerbating students' psychological burdens and triggering mental health issues.

4.2. Analysis of influencing factors on depression symptoms in vocational undergraduate students

4.2.1. Impact of social support on depressive symptoms

This study demonstrates that higher levels of social support correlate with lower depression symptoms among vocational college students. Research by Gao Changchang et al.^[8] further indicates that social support provides emotional reinforcement, informational guidance, and a sense of belonging, effectively helping students cope with psychological stress. When vocational students face dual pressures from academic demands and career preparation, support from family and friends can significantly alleviate mental burdens and reduce depressive symptoms. Therefore, vocational institutions should establish diversified social support systems, including forming study support groups and enhancing mentorship programs.

4.2.2. Impact of psychological resilience on depressive symptoms

The study reveals that psychological resilience serves as a protective factor against depressive symptoms among vocational undergraduate students, a finding consistent with Pan Lijuan et al. 's^[9] research. As a positive psychological trait, high resilience enables students to better cope with academic pressures and interpersonal challenges. Given the unique educational context of vocational undergraduate programs, which involve dual pressures, cultivating psychological resilience becomes crucial for enhancing resilience to setbacks. Research indicates that psychological interventions such as cognitive behavioral therapy and mindfulness-based stress reduction can effectively improve students' resilience levels, thereby strengthening psychological adaptability and reducing depressive symptoms^[10]. Therefore, schools should prioritize psychological resilience training programs to help students develop stronger mental resilience.

4.2.3. Impact of sleep quality on depressive symptoms

The findings of this study indicate that poor sleep quality is a risk factor for depressive symptoms among vocational

undergraduate students. A survey conducted by Cao Chenxu et al. ^[11] involving 296 students at a university in Jilin Province revealed that sleep quality can predict depression in college students. Chronic poor sleep quality may impair neurotransmitter secretion, thereby disrupting the hypothalamic-pituitary-adrenal axis function and leading to emotional regulation disorders. Vocational undergraduate students are more prone to poor sleep quality due to academic pressure, certification requirements, and employment burdens. The study suggests that maintaining regular sleep schedules and effective sleep management can help alleviate depressive symptoms. Therefore, schools should enhance education and management of healthy sleep routines to help students develop good sleep habits.

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Disclosure statement

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