

Research on the correlation between stress perception levels and depressive tendencies in daily life

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Abstract. This study aims to explore the relationship between stress perception levels and depressive tendencies in daily life and further investigate the role of self-esteem in this relationship. The questionnaire survey method was adopted in this research. The Perceived Stress Scale (CPSS), the Patient Health Questionnaire-9 (PHQ-9), and the Self-Esteem Scale (SES) were used to collect data, and statistical analysis was performed on 188 valid questionnaires. The research results show that there is a significant positive correlation between stress perception levels and depressive tendencies. That is, the more stress an individual perceives, the higher their depressive tendency. In addition, there is a significant negative correlation between self-esteem and depressive tendencies, indicating that individuals with higher self-esteem levels have lower depressive tendencies. However, after controlling for the age factor, the impact of stress on depressive tendencies remains significant, while the impact of self-esteem on depressive tendencies does not reach a significant level. This study further emphasizes the importance of stress management in preventing depression and proposes that future research should focus on the impact of psychological resilience and social support networks of different groups on depressive tendencies.

Keywords: stress perception, depressive tendency, self-esteem, mental health

1. Introduction

In recent years, the incidence of depression, a mental health problem, has been on the rise, imposing a heavy burden on individuals, families, and society. Previous studies have revealed various influencing factors of individual depression, including life events, coping styles, stress perception, social support, altruistic behavior, chronic stress, and the tendency to ruminate. The World Health Organization (WHO) pointed out that approximately 10% of global depression cases are caused by long-term unrelieved stress [1]. In today's society, people are faced with an increasing number of stressors, ranging from academic pressure, family conflicts, to interpersonal relationship problems in daily life. Stress has become an important factor affecting an individual's physical and mental health. A longitudinal study has shown that chronic stress has a cumulative negative impact on the mental health of adolescents [2, 3] verified the relationship between life events and depression by integrating multiple literatures. Life events, especially negative life events, are significantly correlated with depression [3, 4]. However, some studies have also pointed out that stressful life events can predict the onset of depression, but cognitive and biological stress responses interact with each other, jointly contributing to the relationship between stress and depression [5]. Positive coping styles (such as problem-focused coping) and altruistic behavior can reduce the risk of depression [6, 7]. Stress perception and coping styles are important mediating variables of depression [8].

As an individual's subjective cognition and experience of stressors, stress perception plays a crucial role in the stress-coping process. Therefore, this study focuses on the relationship between stress perception and depression. When an individual perceives stress, the body initiates a series of physiological and psychological stress responses. When in a state of high-stress perception for a long time, physiologically, disorders in the neuroendocrine system may lead to the continuous high-level secretion of stress hormones such as cortisol, which in turn affects the balance of neurotransmitters in the brain, such as serotonin and dopamine. These neurotransmitters are closely related to emotional regulation [9]. At the psychological level, excessive stress perception may trigger negative thinking patterns, such as excessive self-doubt and pessimistic expectations for the future. These thinking patterns are important psychological foundations for the occurrence and development of depression.

Self-esteem refers to an individual's overall evaluation of their own value and abilities, reflecting the degree of acceptance and respect a person has for themselves. People with high self-esteem usually have a positive attitude towards themselves and believe

that they have the ability to cope with the challenges in life. In contrast, those with low self-esteem may have a negative view of themselves, lack confidence, and are prone to doubting their abilities. Self-esteem is an individual's overall evaluation of self-worth, and low self-esteem is closely related to depressive tendencies [10]. At the same time, self-esteem is also related to stress perception. Individuals with high self-esteem have a high degree of recognition of their own value, are confident and self-accepting. When facing stressors, they can respond with a positive and optimistic attitude, regarding them as challenges rather than threats, and thus have a lower stress perception level [11]. Self-esteem plays a buffering role between stress perception and depression. When an individual faces stress, high self-esteem can buffer the negative impact of stress on mental health. For example, Johnson et al. [3] found that high self-esteem employees had lower levels of negative emotions such as depression and anxiety when facing work stress compared to low self-esteem employees.

In-depth research on the relationship between stress perception and depression has important theoretical and practical significance. Theoretically, it helps to further improve the stress-coping theory and the etiology theory of depression, and deepen the understanding of the influencing mechanism of mental health. Practically, it can provide a scientific basis for the early prevention, intervention, and treatment of depression, help individuals better cope with stress, reduce the risk of depression, improve mental health levels, and promote the harmonious and stable development of society.

2. Research Methods

2.1. Research participants

An electronic questionnaire was distributed through Wenjuanxing, and participants were randomly selected. The questionnaire was distributed from October 2024 to December 2024. A total of 190 questionnaires were distributed, and 188 valid questionnaires were collected, with a recovery rate of 98%. Among them, there were 115 minors, accounting for 61.2%, and 73 adults, accounting for 38.8%.

2.2. Research tools

- The Perceived Stress Scale (CPSS) consists of 49 questions, mainly asking about the frequency of participants' feelings and thoughts about stress. It includes positively-scored questions (such as feeling that things are going smoothly) and negatively-scored questions (such as finding oneself unable to handle all the things one has to do). Both positively-scored questions (1 = never, 5 = always) and negatively-scored questions (1 = always, 5 = never) are scored on a 5-point Likert scale. Finally, the average value is taken, and the larger the average value, the lower the stress perception.
- The Patient Health Questionnaire-9 (PHQ-9) consists of 8 questions, mainly asking about the frequency of participants' depressive symptoms. It is scored on a 4-point scale (1 = none, 4 = nearly every day). Finally, the average value is taken, and the larger the average value, the higher the depressive tendency.
- The Self-Esteem Scale (SES) consists of 10 questions, mainly asking about the degree of participants' agreement with their self-esteem status. It includes positively-scored questions (such as I think I am a valuable person, at least as good as others) and negatively-scored questions (such as I tend to think of myself as a loser). Both positively-scored questions (1 = strongly disagree, 4 = strongly agree) and negatively-scored questions (1 = strongly agree, 4 = strongly disagree) are scored on a 4-point scale. Finally, the average value is taken, and the larger the average value, the higher the self-esteem level.

2.3. Statistical processing

In this study, SPSS 18.0 was used to conduct statistical processing on the sample data. First, descriptive statistical analysis was performed, followed by an independent-samples T-test. Then, Pearson correlation analysis was carried out, and finally, regression analysis was performed.

3. Research results

3.1. Descriptive analysis

Table 1. Descriptive statistical analysis

Variable	Mean	Standard Deviation	Maximum Value	Minimum Value
Stress Perception	2.57	0.26	3.73	2.14
Depressive Tendency	2.20	0.47	4	1
Self-Esteem	2.43	0.28	3.30	1.70
Age	17.84	4.91	61	15

Note: N = 188

As shown in Table 1, the mean value of stress perception is 2.57, indicating that the average stress of the sample is relatively high. The mean value of depressive tendency is 2.20, indicating that the average depressive state of the sample is relatively low. The mean value of self-esteem is 2.43, indicating that the average self-esteem of the sample is average. The mean value of age is 17.84, indicating that the sample is mainly composed of adolescents. The youngest age is 15 years old, and the oldest is 61 years old.

3.2. Independent-samples T-test

Table 2. T-test of each variable

Variable	Group	Mean	Standard Deviation	Standard Error	F-value of Levene's Test for Equality of Variances	T
Stress Perception	Minor	2.56	0.26	0.02	0.63	-0.71
	Adult	2.59	0.28	0.03		
Depressive Tendency	Minor	2.26	0.46	0.04	0.12	2.27*
	Adult	2.10	0.47	0.05		
Self-Esteem	Minor	2.46	0.29	0.03	0.22	1.40
	Adult	2.40	0.26	0.03		

Note: N = 188; * $p < 0.05$. ** $p < 0.01$

As shown in Table 2, first, through the variance homogeneity test, it can be seen that there is no significant difference in the variances of the minor and adult groups for each variable. Therefore, the variances of the two groups of samples are equal for each variable. Second, based on the above conclusion, a further T-test found that there is no significant difference in the mean values of stress perception and self-esteem between the minor and adult groups. However, for depressive tendency, there is a significant difference in the mean values between the minor group ($M_{minor} = 2.26$) and the adult group ($M_{adult} = 2.10$) ($t = 2.27, P < 0.05$). The depressive tendency of the minor group is significantly higher than that of the adult group.

3.3. Correlation analysis

To determine the relationships between variables, a correlation analysis was performed on stress perception, depressive tendency, self-esteem, and age.

Table 3. Correlation analysis table of each variable

	1	2	3
1 Stress Perception			
2 Depressive Tendency	0.28**		
3 Self-Esteem	-0.09	-0.14*	
4 Age	0.41**	0.35**	-0.14

Note: N = 188; * $p < 0.05$. ** $p < 0.01$

As shown in Table 3, there is a significant positive correlation between depressive tendency and stress perception ($\beta = 0.28, P < 0.01$), indicating that the greater the stress, the higher the degree of depression. There is also a significant negative correlation between depressive tendency and self-esteem ($\beta = -0.14, P < 0.05$), indicating that the higher the level of self-esteem, the lower the degree of depressive tendency. In addition, there is a significant positive correlation between age and stress perception ($\beta = 0.41, P < 0.01$), indicating that as age increases, stress increases. There is also a significant positive correlation between age and depressive tendency ($\beta = 0.35, P < 0.01$), indicating that as age increases, the degree of depressive tendency increases.

3.4. Regression analysis

Table 4. Regression analysis

Variable	Variable	Depressive Tendency Model 1 (β -value)	Depressive Tendency Model 2 (β -value)	Depressive Tendency Model 3 (β -value)
Independent Variable	Stress Perception		- 0.30*	
	Self-Esteem			0.16
Control Variable	Age	- 0.03**	- 0.03**	- 0.03**
	Constant	2.79**	3.43**	2.37**
Regression Result	F	25.23**	15.39**	13.67**
	R ²	0.12	0.14	0.13

Note: N = 188; * $p < 0.05$. ** $p < 0.01$

As shown in Table 4, compared with Model 1, Model 2, which adds the independent variable of stress perception, has a stronger explanatory power for depressive tendency than Model 1 (R^2 increases by 0.02). Stress perception ($\beta = 25.57, P < 0.01$) has a significant negative impact on depressive tendency, indicating that as stress increases, the depressive tendency increases. However, Model 3 shows that self-esteem has no significant impact on depressive tendency.

4. Conclusion and Discussion

4.1. Conclusion

This study found that there is a significant positive correlation between an individual's stress perception level and depressive tendency. That is, the higher the stress level an individual perceives, the higher their depressive tendency. Stressors in daily life, such as work stress, financial difficulties, or interpersonal conflicts, are often accompanied by symptoms of depression such as low mood and loss of interest. This result is consistent with previous studies, indicating that in daily life, the higher the degree of stress perception, the more likely an individual is to develop depressive tendencies [9]. Stress may affect an individual's emotional regulation ability through the regulatory effect of the neuroendocrine system, thus exacerbating depressive symptoms. Therefore, individuals should actively establish a stress management mechanism by regularly recording stress events, distinguishing between controllable and uncontrollable factors, and giving priority to dealing with the controllable part.

In addition, the research results show that there is a significant negative correlation between self-esteem and depressive tendency. That is, the higher the self-esteem level, the lower the depressive tendency. This indicates that individuals with high self-esteem usually have more positive self-cognition and emotional regulation abilities and are therefore less likely to be negatively affected by stress [3]. In contrast, individuals with low self-esteem tend to selectively focus on negative feedback and are more likely to interpret others' neutral evaluations as criticism, forming a "self-verification" cycle. Moreover, individuals with low self-esteem are more likely to adopt negative coping strategies such as avoidance or self-blame [12], which exacerbates the risk of depression. Therefore, at the individual level, one can learn Cognitive-Behavioral Therapy (CBT) to improve self-esteem and relieve depressive tendencies by correcting negative self-cognition. For example, replacing "I always fail" with "I didn't succeed this time, but I can summarize my experience". One can also perform self-affirmation exercises by recording 3 personal achievements (regardless of size) every day to strengthen a positive self-image and enhance self-efficacy by learning new skills (such as programming or painting). At the family level, parents should avoid excessive criticism and adopt "encouraging feedback". At the school level, self-esteem-building courses can be offered to help individuals understand and improve their self-esteem. In addition, considering the large fluctuations in self-esteem during adolescence, schools need to strengthen emotional education and establish a peer support system.

However, after controlling for the age factor, the impact of stress on depressive tendency remains significant, while the impact of self-esteem on depressive tendency does not reach a significant level. This may indicate that stress plays a more direct role in the formation of depressive tendencies, while the impact of self-esteem may be regulated by other variables.

4.2. Implications

The findings of this study have important theoretical and practical significance. Theoretically, this study enriches the research on the relationships among stress perception, depressive tendency, and self-esteem and provides new empirical support for stress management theory. Practically, this study emphasizes the crucial role of stress management in maintaining mental health. It suggests that individuals can reduce the risk of depression by enhancing self-esteem, seeking social support, and adopting positive stress-coping strategies. Previous studies have also shown that positive coping styles and social support can effectively reduce the risk of depression [6, 7, 12]. Therefore, strategies such as problem-solving and seeking social support [12] should be adopted

instead of avoidance or self-blame to deal with stress in life. In addition, in the collectivistic culture of China, the buffering effect of social support on stress is particularly significant [10]. Therefore, one can enhance one's sense of belonging through family gatherings

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