The Research of Relationship among the Stress, Resilience and Subjective Well-being of University Students

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Abstract: Subjective well-being refers to an individual's evaluation of their quality of life based on their own criteria. This study aims to explore the relationship between stress, resilience, and subjective well-being among college students, with a deep analysis of the mediating effect of resilience in predicting subjective well-being in the context of stress. The research aims to enrich the existing literature on subjective well-being and provide valuable insights for enhancing the psychological well-being of college students.

1. Introduction

In recent decades, China has witnessed rapid development in various areas, including its military, economy, and education. This development has brought new opportunities and hope to people, but on the other hand, it has also brought increased challenges and stress. Particularly for contemporary college students, who serve as an intermediary group in society, the pressures they face are evident to everyone. Incidents of suicide or harm to others among university students due to stress have occurred repeatedly. The different sources of stress lead college students to seek various ways of resilience, resulting in diverse subjective well-being experiences, which, in turn, further impact their lives and studies. While moderate stress can serve as a driving force for personal development, excessive stress can hinder individual growth and hinder their ability to adapt effectively to society.

Through a review of relevant literature, it has been observed that research on stress and subjective well-being among college students is relatively mature at present. However, there is limited focus on whether resilience plays a mediating role in predicting subjective well-being in the context of stress. It is essential for us to propose corresponding intervention measures to enrich theoretical research in this area, thereby fundamentally alleviating the various pressures faced by college students, enhancing their subjective well-being, and promoting their healthy growth and comprehensive development[1-3].

2. Research methodology

2.1. Research object

In a university in China, a random sampling method was used to select 800 undergraduate students from the first to the fourth year, and questionnaires were distributed to them. All 800 questionnaires were successfully collected, resulting in a 100% response rate. Out of the collected questionnaires, 637 were considered valid, yielding an effective rate of 79.6%.

2.2. Research tools

(1) Stress Scale

In this study, Chinese researcher Zhang Lin (2005) and others developed the Psychological Stress Scale for University Students. The questionnaire consists of 63 questions and encompasses two dimensions. The first dimension is personal stress, which includes aspects such as students' family, health, adaptation, love, feelings of inferiority, and self-imposed pressure. The second dimension pertains to the pressure induced by social environmental stress, encompassing areas such as interpersonal relationships, career choices, school environment, and academic pressures. All items in the questionnaire are rated using a 5-point scale, ranging from 1 to 5, corresponding to "none," "very light," "average," "significant," and "extreme," respectively. Higher scores on the questionnaire indicate higher levels of psychological pressure experienced by the subjects.

The KMO value was calculated to be 0.898, and the Bartlett test indicated a significant difference, demonstrating that the scale exhibited good reliability and validity and could be effectively used in research. The stress scale's reliability and validity in this study were 0.969 and 0.964.

(2) Resilience Scale

In this study, the Resilience Scale for College Students, developed by Chinese researcher Yang Yi（2005）, was employed. This scale comprises 31 questions organized into six dimensions as follows: (1) Self-efficacy, (2) Self acceptance, (3) Emotional stability, (4) Problem-solving, (5) Support from friends, and (6) Support from family. Among these dimensions, self-acceptance, self-efficacy, emotional stability, and problem-solving ability represent internal protective factors, while support from friends and family represent external protective factors. The weightings of each dimension in the overall scale are as follows: friend support 25%, stability 23%, family support 16%, self-efficacy 16%, self-acceptance 10%, and problem-solving ability 10%. The scale employs a 5-level scoring system, with 1 denoting "completely inconsistent" and 5 indicating "completely consistent." The total score achievable on the scale is 155. Reverse-scored questions within the questionnaire will be appropriately handled during data analysis.

The KMO value was calculated to be 0.848, and the Bartlett test revealed significant differences, indicating that the scale exhibited good reliability and validity and could be effectively utilized in research. In this study, the reliability and validity of the resilience scale were determined to be 0.876 and 0.916.

(3) Subjective Well-being Scale

In this study, the General Well-Being (GWB) Scale, compiled by Chinese researcher Duan Jianhua (1996), was utilized to assess the subjects' levels of happiness. This scale comprises 18 questions divided into 6 factors, corresponding to: Satisfaction and interest in life (6 and 11); Health concerns (10 and 15); Energy (1, 9, 14, and 17); Melancholy and cheerful mood (4, 12, and 18); Emotional and behavioral control (3, 7, and 13); Relaxation and tension (2, 5, 8, and 16).

The scoring method involves reverse scoring for questions marked with an asterisk *, including questions 1, 3, 6, 7, 9, 11, 13, 15, and 16. A higher total score indicates a higher level of subjective well-being.

The correlation between the subscales and the total scale ranged from 0.56 to 0.88, and the internal consistency coefficient was 0.91 for males and 0.95 for females. The retest's internal consistency coefficient was 0.85, indicating its suitability for research. In this study, the reliability and validity of the subjective well-being scale were determined to be 0.756 and 0.865.

3. Research Procedure

(1) Literature research
Through the review and analysis of relevant literature, this study has completed a comprehensive literature review on stress, resilience, and subjective well-being among university students. It has also formulated research questions to establish a strong theoretical foundation for future research.
(2) Questionnaire survey
Based on a review of relevant literature, appropriate questionnaires were chosen for this study. These questionnaires include the "College Students' Psychological Stress Scale" developed by Chinese researcher Zhang Lin and colleagues, the "Compilation and Application of College Students' Resilience Scale" created by Yang Yi in 2005, and the "General Well-Being Scale" (GWB) adapted by Chinese researcher Duan Jianhua. Valid data were input, and data analysis was conducted using SPSS 24.0. Subsequent research will be conducted based on the analysis results.
(3) Data processing
SPSS 24.0 software was employed to input and process the valid data, followed by conducting the corresponding data analysis. Subsequently, based on the statistical results and in comparison with findings from previous relevant studies, a comprehensive discussion and analysis were conducted. This analysis led to the formulation of conclusions and the presentation of recommendations based on these conclusions.

4. Research results

4.1. The relationship among the Stress, Resilience and Subjective Well-being

(1) The relationship between subjective well-being and stress of university students.
Through Pearson correlation analysis, the relationship between subjective well-being and stress, as well as their respective dimensions, was examined. The results are presented in Table 1:

Table 1: Correlation analysis between subjective well-being and stress

	Total stress	Personal stress	Social environmental stress
Total subjective well-being	-.484***	-.427**	-.503***
Satisfaction and interest in life	-.183***	-.105***	-.252***
Health concerns	.022	.000	.044
Energy	-.356***	-.298***	-.387***
Melancholy and cheerful mood	-.462***	-.420***	-.467***
Emotional and behavioral control	-.135***	-.130***	-.129***
Relaxation and tension	-.404***	-.376***	-.400***

*** $p < 0.001$

As can be seen from Table 1, college students' pressure, including personal stress and social environmental stress, has an extremely significant negative correlation with subjective well-being. There were extremely significant negative correlations with five dimensions of subjective well-being: satisfaction and interest in life, energy, Melancholy and cheerful mood, Emotional and behavioral

control, relaxation, and tension."

(2) The relationship between subjective well-being and resilience of university students.

Through Pearson correlation analysis, the relationship between subjective well-being and resilience, as well as their respective dimensions, was examined. The results are presented in Table 2:

Table 2: Correlation analysis between subjective well-being and resilience

	Total resilience	Self acceptance	Emotional stability	Support from family	Self-efficacy	Problem solving	Support from friends
Total subjective	.584***	.426***	.412***	.311***	.455***	.353***	.379***
Satisfaction and interest in life	.340***	.302***	.181***	.139**	.361***	.264***	.207**
Health concerns	-.147***	-.232**	.091*	-.172***	-.130***	-.173***	-.115***
Energy	.533***	.461***	.224***	.344***	.455***	.371***	.372***
Melancholy and cheerful mood	.600***	.514***	.310***	.353***	.456***	.382***	.443***
Emotional and behavioral control	.187***	.111***	.224***	.092*	.101**	.169***	.046
Relaxation and tension	.347***	.180***	.360***	.186***	.218***	.142***	.204***

*** $p < 0.001$

It summarizes findings from Table 2, indicating that six dimensions of university students' resilience (self-acceptance, emotional stability, support from family, self-efficacy, problem solving, and support from friends) are positively correlated with subjective well-being. Furthermore, university students' resilience is significantly positively correlated with five specific dimensions of subjective well-being: satisfaction and interest in life, energy, melancholy and cheerful mood, emotional and behavioral control, and relaxation and tension. There is also a significant negative correlation between university students' resilience and health concerns.

(3) The relationship between stress and resilience of university students.

Through Pearson correlation analysis, the relationship between stress and resilience, the results are presented in Table 3:

Table 3: Correlation analysis between stress and resilience

	Total stress	Personal stress	Social environmental stress
Total resilience	-.509***	-.481**	-.495***
Self acceptance	-.344***	-.328***	-.330***
Emotional stability	-.296***	-.275***	-.292***
Support from family	-.376***	-.381***	-.337***
Self-efficacy	-.322***	-.289***	-.329***
Problem solving	-.285***	-.245***	-.304***
Support from friends	-.380***	-.360***	-.368***

*** $p < 0.001$

According to Table 3, it can be seen that there is a significant negative correlation between stress and resilience. The total level of stress is positively and negatively correlated with each dimension of resilience. There is a significant negative correlation between each dimension of stress and the total level of resilience.

4.2. Regression analysis of stress and resilience on subjective well-being of university students

(1)Regression analysis of various dimensions of stress on subjective well-being of university

students

Using regression analysis, the total subjective well-being was taken as the dependent variable and each dimension of stress as the independent variable, the regression equation was entered to test the predictive effect of stress on subjective well-being of university students. The results obtained are shown in Table 4.

Table 4: Regression analysis of different dimensions of stress on subjective well-being

	R^2	F	Beta	T	Sig
Social environmental stress	.259	110.970**	-.487	-.8122***	.000

*** $p < 0.001$

According to the above Table 4, the regression analysis of university students' subjective well-being was performed with each dimension of stress as the independent variable and the total score of subjective well-being as the dependent variable. Notably, the dimension of an individual's own psychological pressure in stress did not enter the regression equation. However, the dimension of social environmental stress was found to be a significant predictor of subjective well-being. Specifically, as social environmental stress increased, subjective well-being decreased, and the R^2 value for social environmental pressure in explaining subjective well-being was 25.9%.

(2) Regression analysis of different dimensions of resilience on subjective well-being.

Using regression analysis, the total score of subjective well-being was taken as the dependent variable and each dimension of resilience as the independent variable, the regression equation was entered to test the predictive effect of resilience on subjective well-being of university students. The results are shown in Table 5.

Table 5: Regression analysis of different dimensions of resilience on subjective well-being

	R^2	F	Beta	T	Sig
Self acceptance	.182	140.923**	.426	11.871***	.000
Emotional stability	.222	181.551**	.472	13.474***	.000
Support from family	.097	68.012**	.311	8.247***	.000
Self-efficacy	.207	165.951**	.455	12.882***	.000
Problem solving	.124	90.101**	.353	9.492***	.000
Support from friends	.144	106.655**	.379	10.327***	.000

*** $p < 0.001$

According to the above Table 5, the total score of subjective well-being was used as the dependent variable, and each dimension of resilience was employed as an independent variable in a regression analysis of university students' subjective well-being. All dimensions of resilience were included in the regression equation and were found to predict subjective well-being. The dimension of stability had the highest R2 value at 22.2%, indicating that it explained the most variance in subjective well-being. Self-efficacy contributed to 20.7% of the variance in subjective well-being, followed by self acceptance at 18.2%, Support from friends at 14.4%, problem solving at 12.4%, and Support from family at 9.7%. Therefore, higher scores in each dimension of resilience were associated with higher levels of subjective well-being.

5. Suggestion

5.1. To gain a precise understanding of the sources of stress among college students [4], alleviate the societal and environmental pressures on college students, and enhance their subjective well-being.

Through regression analysis, it was determined that the dimension of social environmental stress can predict university students' subjective well-being, with an explanatory rate of 25.9%. In this study, social environmental pressure primarily refers to the campus living environment.

Among contemporary university students, many are leaving the protection of their parents for the first time and entering a new and unfamiliar environment on their own. Although university students are generally physically mature, they may not yet be fully mature psychologically and sociologically. When they step into this new environment, they are bound to experience moments of unease. The university serves as a place where individuals experience rapid personal growth and serves as a bridge to society. At such a pivotal juncture, as contemporary university students, it is important to quickly find one's own direction. While diligently studying academic knowledge, it is equally essential to enrich one's extracurricular activities. By immersing oneself in both learning and activities, you can enhance your abilities, boost self-confidence, reduce stress, and consequently improve your subjective well-being.

5.2. Improve cognitive, foster rational attributions, and make extensive use of the social support system.

Contemporary college students, upon encountering stress, often find themselves in a unique situation as they have recently transitioned from the sheltered environment of their parents to the complexities of society. They may tend to confront pressure by attempting to solve problems independently, neglecting the potential benefits of a social support system. This disregard for the strength of social support can hinder their ability to find adaptive coping mechanisms, resulting in a decrease in resilience as pressure continues to mount. Therefore, it is essential to continually enhance college students' cognitive attitudes toward challenges, foster rational attributions, avoid superficial thinking, and analyze and predict their behaviors, psychological states, and the contexts in which they occur [5]. This way, they can recognize the positive aspects of challenges and effectively utilize the social support system to regain the capacity for a normal and balanced life.

5.3. Strengthen resilience and subjective well-being.

It has been observed that each dimension of resilience has a predictive impact on the subjective well-being of university students. The higher the score in each dimension of resilience, the greater the subjective well-being experienced by university students.

As university students in the new century, they encounter various pressures related to academics, employment, and family. The ability to swiftly recover from these pressures and adapt to life effectively is crucial for contemporary university students. In this study, the dimension of stability in resilience primarily refers to emotional stability. When individuals can manage their emotions and maintain emotional stability, they are better equipped to find constructive outlets when they feel unhappy. For example, when they face challenges, they may seek advice and support from family and friends, gaining confidence and courage, accepting their shortcomings, and working towards self-improvement. They actively listen to the perspectives and feedback of those around them and gradually find effective ways to restore themselves. When people's physiological needs are met, the need for safety, belonging, and love becomes essential. If individuals experience a sense of security,

belonging, and love within their social groups, they are more likely to experience positive emotions through mutual support and naturally derive greater life satisfaction. As a result, their subjective well-being continues to rise.

6. Conclusions

(1) There is a significant negative correlation between the total level of stress and the subjective well-being of university students. Additionally, there is a significant negative correlation between stress and the subjective well-being of university students across five dimensions: "Satisfaction and interest in life," "Energy," "Melancholy and cheerful mood," "Emotional and behavioral control," and "Relaxation and tension." "Social environmental stress" within stress has a stronger negative predictive effect on subjective well-being.

(2) There is an extremely significant positive correlation between the total level of resilience and the subjective well-being of university students. Furthermore, university students' resilience exhibits a significant positive correlation with five dimensions of subjective well-being: "Satisfaction and interest in life," "Energy," "Melancholy and cheerful mood," "Emotional and behavioral control," and "Relaxation and tension." However, there is a significant negative correlation with the dimension of health concern. All dimensions of university students' resilience have a positive predictive impact on subjective well-being, with the "stability" dimension having the highest explanatory power at 22.2%.

Acknowledgement

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