

Research on the Connection between Mental Health and Social Life

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Abstract:

In the digital age, the psychological problems brought about by the Internet have had a profound impact on young adults. Given that adolescence is a critical period for psychological development and the incidence rate of mental illness is relatively high, this paper uses a linear regression model to focus on exploring the complex relationship between the mental health status of young people aged from 18 to 24 and their social life. By utilizing data from the Kaggle website, which includes 139 respondents and 18 variables such as age, gender, educational background, and social life conditions, the research results show that life satisfaction has a significant negative impact on depression scores, employment status is significantly negatively correlated with stress levels, and age is significantly positively correlated with depression scores. These findings reveal the complex interaction between specific social life factors and the mental health of young people, highlighting the key role that specific social life factors play in shaping the mental health of young people. Additionally, this can provide some reference for formulating intervention measures to enhance the mental health of young adults.

Keywords: Mental health; social life; anxiety score; depression score; stress level.

1. Introduction

Nowadays, people can easily access online information. Additionally, the content posted on social media is usually carefully planned, which naturally leads to comparisons [1]. This may lead to psychological imbalance and, in turn, disrupt people's own psychological balance, especially for young people. This comparative mentality is closely related to the stage of development that teenagers are in. From a

developmental perspective, young people are in the early years of adulthood, which is the final stage of their educational career and the initial stage of their employment career [2]. They start to engage in some socially recognized adult activities, including working, dating, and the formation of habits [2]. The integration of these experiences helps to clarify their psychological needs [2].

It should be noted that adolescence is the stage when most mental illnesses occur [2]. Additionally, a co-

hort study in the UK found that the degree of psychological distress increases after entering university [3]. There is evidence suggesting that the incidence of mental health problems such as self-harm and suicidal tendencies among college students is on the rise [4, 5]. As a result, the demand of students for mental health services is increasing, and the satisfaction of these demands is supported by nearly twice as many students as before [6]. This also reflected that mental health problems pose a considerable threat to students' mental health and well-being [7, 8].

Recognizing the significance of mental health promotion, the World Health Organization (WHO) has prioritized the prevention, treatment, care, and rehabilitation of mental health [9]. Disability-adjusted life years (DALY) is a kind of way of expressing the stress caused by mental problems among young people. A study conducted in Victoria, Australia, demonstrated that mental illnesses account for 60% to 70% of the total DALYS among individuals aged from 15 to 24 [10]. This emphasized that mental illnesses are the primary cause of disease burden in this age group [11]. In the modern pandemic context, a special syndrome known as "headline stress disorder" can be observed [12]. This syndrome is characterized by a highly emotional response to the endless coverage of the news media, such as stress and anxiety, which may lead to physical symptoms like palpitations and insomnia, and even further develop into physical and mental disorders [12]. The COVID-19 pandemic has further complicated the situation. The damage caused by it to the social, economic, and psychological structure of global communities has led to a lasting impact on the global mental health. Among the general public, there has been a significant increase in the prevalence of depression and anxiety disorders, suicide risk, post-traumatic stress disorder (PTSD), and insomnia [13]. Moreover, a study conducted in January and February 2020, involving 1,210 respondents across 194 Chinese cities indicated that 54% of respondents assessed the impact of the COVID-19 pandemic on their mental health as moderate to severe; 29% people reported having moderate to severe anxiety symptoms; 17% people reported having moderate to severe depressive symptoms [14].

Mental and physical health are closely linked. According to research, people with mental health problems have a higher risk of developing physical illness, which is diagnosed later and has a higher mortality rate. On the contrary, those diagnosed with physical illnesses, especially

those with cardiovascular diseases, diabetes, and cancer, are more likely to experience mental health problems. When mental and physical illnesses occur simultaneously, the overall incidence rate, healthcare utilization rate, and quality of life will all be higher [8]. Furthermore, Unexplained somatic symptoms and syndromes are closely related to common mental illnesses. Additionally, in primary care, approximately 15% of patients suffer from somatization, which is defined as medically unexplained somatic symptoms accompanied by psychological distress and behaviors seeking help [15].

A previous study conducted a meta-analysis by using a longitudinal cohort method, followed by inverse variance and random effect modeling. They also combined sensitivity analysis to integrate the estimated values from each article to get mental health outcomes of adolescent depression [16]. This article will explore the relationship between the mental health status of young people aged 18 to 24 and their social life by establishing a linear regression model. The data used in this study was sourced from the Kaggle website. This research involved 149 respondents, including 18 independent variables such as age, gender, and educational background.

2. Methods

2.1 Data Source

The mental health data used in this article is derived from individual studies. The original data is saved in CSV format. This dataset provides important insights into the correlation between psychological issues and social life. It involves a comparative study of 139 subjects, based on the analysis of 18 variables, including typical symptoms that can reflect psychological issues, such as depression, and activities that can reflect social life, such as physical activities.

2.2 Variable Introduction

The data used in this article consists of 139 research subjects and 18 variables with no missing values. Its variables include basic information, social background, and mental symptoms related to this study, such as anxiety, depression, and stress, as well as variables that can reflect social life conditions, such as loneliness and life satisfaction. All 18 variables are represented in Table 1.

Table 1. Different types of variables

Term	Type	Range
Age	Numeric	18 to 24
Gender	Categorical	0-Female, 1-Male,
Education Level	Categorical	0-High School, 1-Bachelor's, 2-Master's, 3-PhD, 4-Other
Employment Status	Categorical	0-Student, 1-Employed, 2-Unemployed, 3-Retired
Sleep Hours	Numeric	2.0-10.1
Physical Activity Hrs.	Numeric	0-11.2
Social Support	Categorical	1 to 10 degrees
Anxiety Score	Categorical	1 to 20 degrees
Depression Score	Categorical	1 to 20 degrees
Stress Level	Categorical	1 to 10 degrees
Family History Mental Illness	Categorical	0-None, 1-Exist
Chronic Illness	Categorical	0-None, 1-Exist
Medication Use	Categorical	0-None, 1-Occasional, 2-Regular
Financial Stress	Categorical	1 to 10 degrees
Work Stress	Categorical	1 to 10 degrees
Self-Esteem Score	Categorical	1 to 10 degrees
Life Satisfaction	Categorical	1 to 10 degrees
Loneliness Score	Categorical	1 to 10 degrees

2.3 Method Introduction

The method mainly employed in this study is linear regression analysis through SPSSAU. The linear regression analysis can be expressed as:

Simple Linear Regression: This study examines the relationship between the dependent variable y and a single independent variable x . The model form is as follows:

$$y = \beta_0 + \beta_1 x_1 + \epsilon \quad (1)$$

Among them, β_0 represents the interception, β_1 represents the regression coefficient, and ϵ represents the error term.

Multivariate Linear Regression: The study examines the relationship between the dependent variable y and multiple independent variables $x_1, x_2, \dots, x_p$, and the model form is as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_p x_p + \epsilon \quad (2)$$

Here, β_0 represents the interception term, $\beta_1, \beta_2, \dots, \beta_p$ are the regression coefficients corresponding to each independent variable, and ϵ is the error term.

This article will use linear regression to investigate the effects of 15 independent variables, such as age, gender, and educational background, on three dependent variables, including Anxiety Score, Depression Score, and Stress Level.

3. Results and Discussion

3.1 Descriptive Analysis

Before conducting a linear regression analysis on them as the dependent variables, a correlation test was carried out. The test results are as follows. According to the judgment criteria of Table 2 above, it can be observed that there is no correlation between the anxiety score and the 15 independent variables investigated. The coefficient values between the Depression Score and the Age, as well as the Life Satisfaction Score, are statistically significant. Specifically, the coefficient value between the Depression Score and the Age is 0.188, and it is significant at the 0.05 level, indicating a significant positive correlation between the Depression Score and the Age. The coefficient value between the Depression Score and the Life Satisfaction Score is -0.192, and it is also significant at the 0.05 level, suggesting a significant negative correlation between the Depression Score and the Life Satisfaction Score. Additionally, there is no correlation between the Depression Score and the remaining 13 items. Stress Level is significantly correlated with Employment Status, with correlation coefficient values of -0.167, all of which are less than 0, indicating a negative correlation between Stress Level and Employment Status. Meanwhile, Stress Level is not

correlated with the remaining 14 items.

Table 2. Correlation Detection

	Anxiety Score	Depression Score	Stress Level
Age	0.002	0.188*	-0.002
Gender	-0.081	0.107	0.144
Education Level	0.044	-0.022	-0.067
Employment Status	0.026	0.034	-0.167*
Sleep Hours	0.044	0.008	-0.047
Physical Activity Hrs.	0.053	-0.011	0.004
Social Support Score	0.053	0.109	0.044
Family History Mental Illness	0.06	-0.071	-0.046
Chronic Illnesses	-0.056	-0.077	-0.037
Medication Use	0.001	-0.049	0.055
Financial Stress	-0.096	0.018	0.047
Work Stress	0.042	0.151	0.055
Self-Esteem Score	0.069	0.02	0.1
Life Satisfaction Score	0.1	-0.192*	0.03
Loneliness Score	-0.066	-0.094	-0.129

* $P < 0.05$ ** $P < 0.01$

Furthermore, a scatter plot is used for a more intuitive observation of the correlation between x and y. Figure 1

presents a scatter plot of Depression Scores and Age, and the linear trend between them. The two variables are positively correlated.

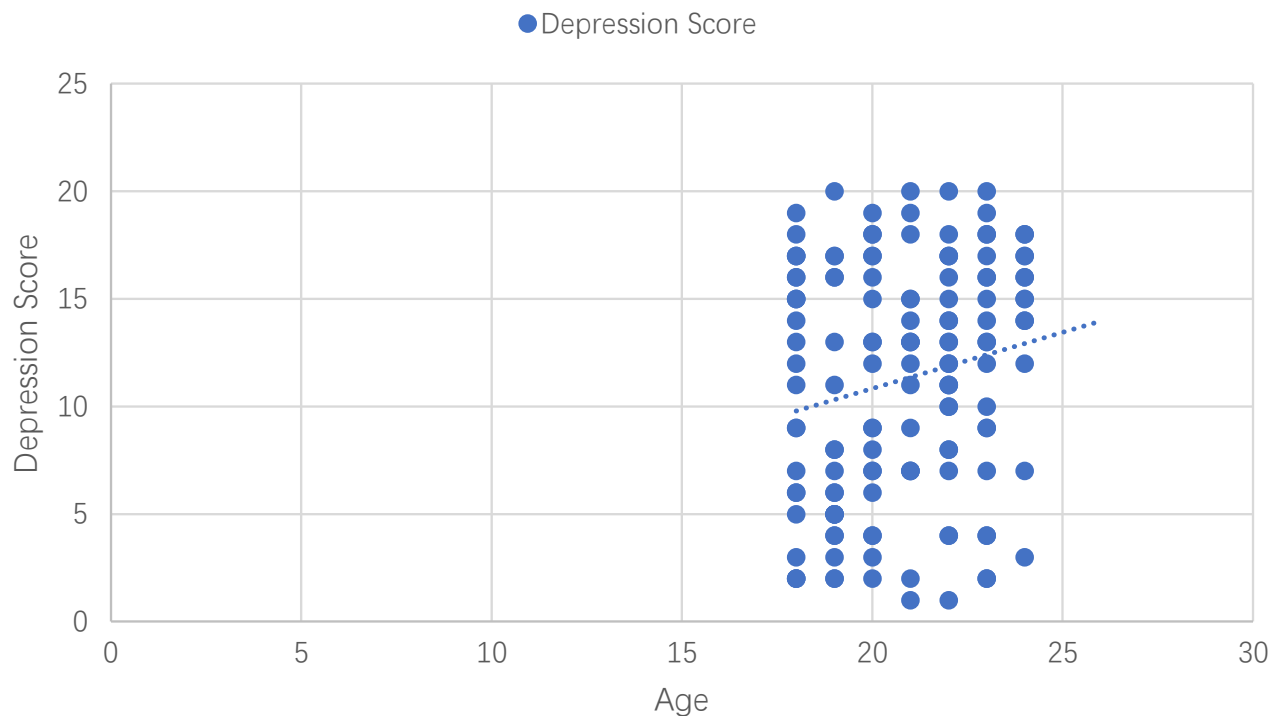


Fig. 1 Scatter plot of Depression Score and Age (Picture credit: Original)

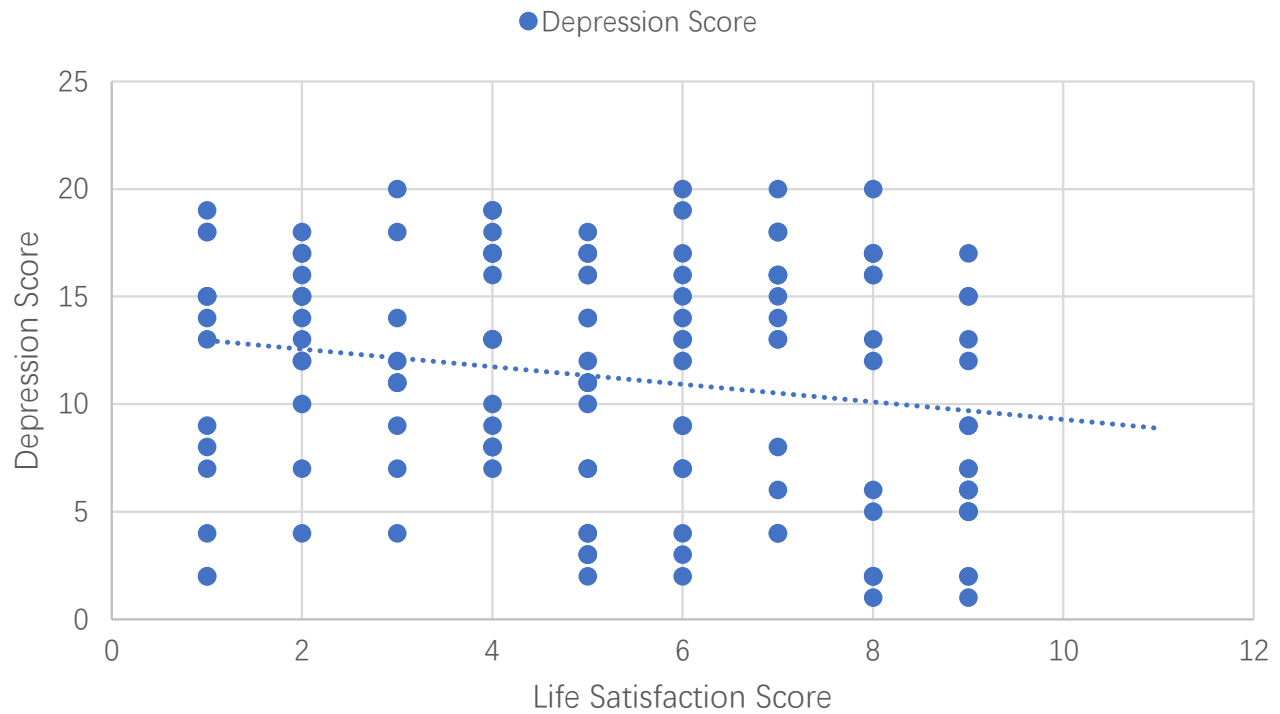


Fig. 2 Scatter plot of Depression Score and Life Satisfaction Score (Picture credit: Original)

Figure 2 presents a scatter plot of Depression Scores and Life Satisfaction and the linear trend between them. The two variables are negatively correlated.

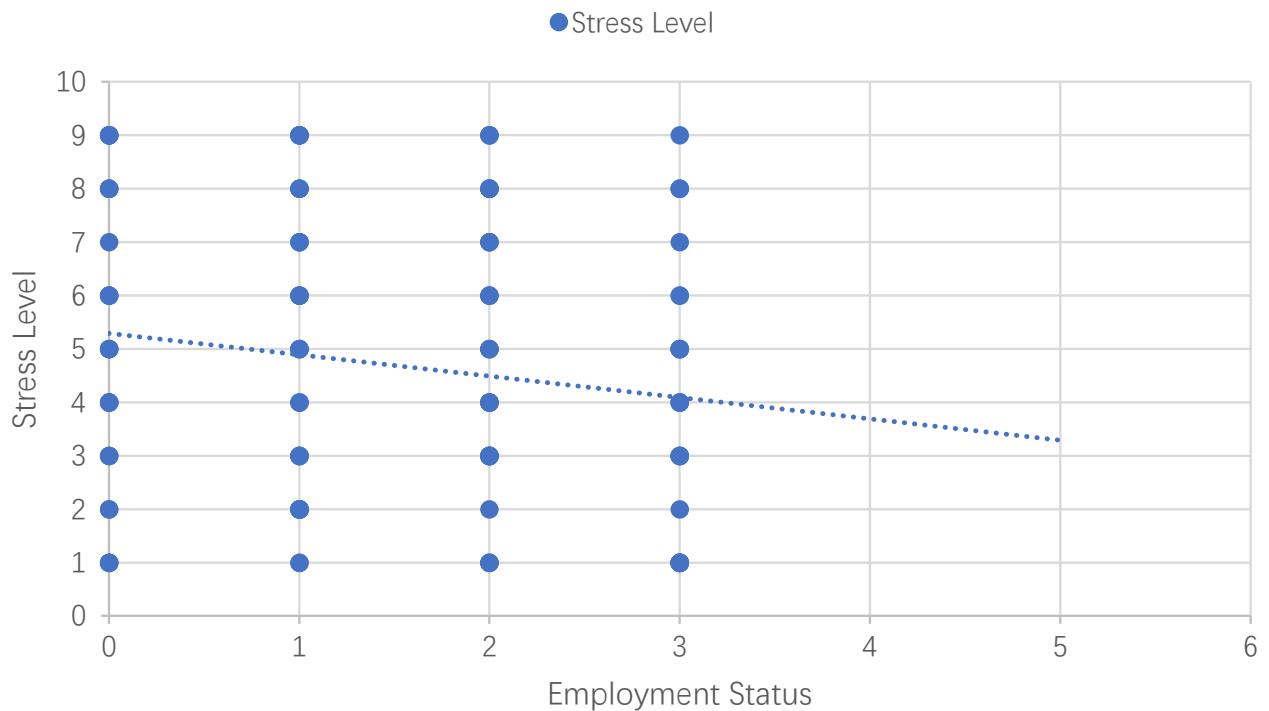


Fig. 3 Scatter plot of Stress Level and Employment Status (Picture credit: Original)

Figure 3 presents a scatter plot of Stress Levels and Employment Status and the linear trend between them. The two variables are negatively correlated.

3.2 Linear Regression Analysis

From Table 3, when Age is taken as the independent variable and Depression Score as the dependent variable and Depression Score as the dependent variable and Employment Status as the independent variable, the linear regression analysis results are as follows:

dent variable for a linear regression analysis, it can be seen from the table that the model formula is: $DepressionScore = 0.409 + 0.521 * Age$. The R^2 is 0.035, indicating that Age can explain 3.5% of the variation in

Depression Score. When conducting an F-test on the model, it was found that the model passed the F-test ($F = 4.996$, $p = 0.027 < 0.05$), which means that Age will have an impact on Depression Score.

Table 3. Analysis of Linear Regression Model 1 Results

	Non-standardized Coefficient		Standard coefficient	t	p	Collinearity	
	B	Standard error				Diagnosis	VIF Tolerance
Constant	0.409	4.86	-	0.084	0.933	-	-
Age	0.521	0.23	0.188	2.235	0.027*	1	1
R2	0.035						
Adjust R2	0.028						
F	$F(1,137) = 4.996, P = 0.07$						
D-W Value	2.184						

Note: Dependent variable = Depression Score

* $P < 0.05$ ** $P < 0.01$

The regression coefficient value of Age is 0.521 ($t = 2.235$, $p = 0.027 < 0.05$), indicating that Age will have a signif-

icant positive impact on Depression Score. Therefore, based on the above analysis and verification, it can be concluded that Age has a significant positive impact on Depression Scores.

Table 4. Analysis of Linear Regression Model 2 Results

	Non-standardized Coefficient		Standard coefficient	t	p	Collinearity	
	B	Standard error				Diagnosis	VIF Tolerance
Constant	13.369	1.03	-	12.867	0.000*	-	-
Life Satisfaction Score	-0.409	0.17	-0.192	-2.284	0.024*	1	1
R2	0.037						
Adjust R2	0.03						
F	$F(1,137) = 5.218, P = 0.024$						
D-W Value	2.24						

Note: Dependent variable = Depression Score

* $P < 0.05$ ** $P < 0.01$

The regression coefficient value of Life Satisfaction Score is -0.409 ($t = -2.284$, $p = 0.024 < 0.05$), indicating that Life Satisfaction Score will have a significant negative

impact on Depression Score. Therefore, based on the above analysis and verification, it can be concluded that all the Life Satisfaction Scores have a significant negative impact on the Depression Scores (Table 4).

Table 5. Analysis of Linear Regression Model 3 Results

	Non-standardized Coefficient		Standard coefficient	t	p	Collinearity	
	B	Standard error				Diagnosis	VIF Tolerance
Constant	5.295	0.37	-	14.295	0.000**	-	-
Employment Status	-0.401	0.20	-0.167	-1.989	0.049*	1	1
R2	0.028						
Adjust R2	0.021						
F	$F(1,137) = 3.954, P = 0.049$						
D-W Value	1.988						

Note: Dependent variable = Stress Level

* $P < 0.05$ ** $P < 0.01$

From Table 5 above, it can be seen that when conducting a linear regression analysis, Employment Status is taken as the independent variable and Stress Level as the dependent variable. It can be observed from the table that the model formula is: $StressLevel = 5.295 - 0.401 * EmploymentStatus$. The R^2 is 0.028, indicating that Employment Status can explain 2.8% of the change in Stress Level. After conducting an F test on the model, it was found that the model passed the F-test ($F = 3.954$, $p = 0.049 < 0.05$), which means that Employment Status has an impact on Stress Level. The final detailed analysis shows that:

The regression coefficient value of Employment Status is -0.401 ($t = -1.989$, $p = 0.049 < 0.05$), indicating that Employment Status has a significant negative impact on Stress Level. Therefore, from the above analysis and verification, it can be concluded that all employment statuses have a significant negative impact on Stress Level. However, since none of the independent variables has a significant impact on Anxiety Score, it cannot be used as the dependent variable in a linear regression analysis.

4. Conclusion

This study analyzed the data of 149 respondents aged 18 to 24 from the Kaggle website using linear regression analysis, including 18 variables. Through this analysis, some key conclusions were drawn. It is particularly important to note that life satisfaction has become a significant negative predictor of depression scores. For every one-unit increase in life satisfaction, the depression score decreased by 0.409 units. Employment status was found to have a significant negative impact on stress levels, while age showed a significant positive correlation with depression scores. These findings emphasize the important influence of certain aspects of social life on the mental health of young people, providing important references for formulating targeted mental health intervention strategies. However, this study has certain limitations. The sample size is relatively small, and all are from a single source, which may lead to selection bias and limit general applicability of research results. Future research should benefit from expanding the sample size and diversifying the sampling sources. Additionally, longitudinal studies can be conducted to explore more deeply the complex relationships between different aspects of social life and mental health, and to investigate potential causal mechanisms. This will further enrich the understanding of young people's mental health and provide more solid evidence for the formulation of effective mental health promotion plans.

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