

The Impact of Work Stress on the Psychological Status of Youth Based on the Findings of the University Student Innovation Project

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Abstract: Based on the research of the University Student Innovation Project, this paper found that work pressure can cause mental illness such as depression in young people, which in turn leads to the unhealthy development of the whole society. In order to quantitatively study the work stress and mental health status, respectively, the number of hits disclosed by the Baidu index is used to replace the number of work stress and young people who may have mental illness, and the unary linear regression model between the two is constructed, combined with the stata software, the parameters of the model are obtained and the tests of the model are completed, so as to study and verify the impact of work stress on the mental health status of young people, and conclude that work pressure does have a significant impact on the mental health status of young people.

Keywords: Working pressure, Youth mental health, A unary linear regression model.

1. Introduction

While people enjoy the convenience of life brought about by rapid economic development and the overall improvement of living standards, they are also experiencing psychological depression and other diseases, which is particularly significant among young people. Behind all kinds of self-harm and suicide incidents are often the helpless actions of young people suffering from depression who cannot bear it. In the 2020 edition of the "Blue Book of Mental Health" "Report on the Development of China's National Mental Health (2019-2020)", it is shown that the regional differences in national mental health status are significant, the eastern region is significantly better than other regions, the urban household registration population is significantly better than the rural household registration population, and the psychological problems of low-income, low-educated, unemployed and unemployed people are more prominent [1]. There are currently both pharmacotherapy and non-pharmacological treatments for treatment of depression. The side effects of drug treatment are large, and the sequelae are obvious, so the advantages of non-drug treatment promotion are more obvious. Based on the research found in the online depression recuperation platform of Anhui Province's provincial-level Dachuang Project, called "Youth Hut", which found that the psychological status of young people is affected by many factors, such as family influence, social and cultural influence, lifestyle, etc. Among them, work pressure has a significant impact on the psychological state of young people. Due to the great impact of work pressure on the psychological condition of young people, and in recent years, such news has been continuous, and many young people have finally led to self-harm and suicide due to work pressure. There is a significant positive correlation between the total score of the International Adaptation Disorder Scale and its stressor scores and the total score of the Symptom Self-Assessment Scale and its various dimensions by triggering psychological disorders in the youth group, which is enough to show that

work stress will have a very adverse impact on youth psychology [2]. In March 2021, the National People's Congress adopted the 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Outline of Long-term Goals for 2035, in which there are three expositions on mental health: In the construction of a high-quality education system, it is proposed to "attach importance to the physical fitness and mental health education of adolescents". In comprehensively promoting the construction of a healthy China, it is proposed to "attach importance to mental health and mental health". In maintaining social stability and security, it is proposed to "improve the social psychological service system and crisis intervention mechanism" [3]. Just as Hu Jian said that only a healthy national psychology can make China's rise have a lasting momentum [4]. National mental health plays a major role in society and the country, in order to specifically understand the impact of work stress on the psychological status of young people, this paper uses sita by establishing a unified linear regression model of work stress factors and youth psychological conditions Software, parameter estimation and significance test, so as to sort out the impact of work stress factors on the psychological status of young people, to further alleviate the depression and other conditions of young people to provide suggestions. Most of the existing literature on the influencing factors of young people's mental health status stays in a qualitative perspective, and only to a certain extent explains which factors affect the mental health status of young people, such as employment, schoolwork, family, etc., or proposes methods to build a system for monitoring the influencing factors of mental health, such as China's mental health monitoring system should contain two parts: The first part is the core content of mental health monitoring in primary and secondary schools - mental health monitoring; The second part is the monitoring of influencing factors of mental health, which aims to provide an in-depth analysis of the influencing factors of mental health [5]. Most literature research surveys target groups of almost a specific group, such as college students, scientific

and technological workers, medical students, and young mobile people. For example, the main factors affecting the mental health level of medical students studied by Zhang Yun and Liu Hongjuan are social withdrawal, somatization, anxiety, depression, and paranoia. Living environment, family, society, self-cognitive regulation, interpersonal relationships, learning and life pressures, etc. are all reasons for their behaviour [6]. There is almost no precedent in the literature for quantitative analysis of factors affecting the health of young people. This paper changes the previous qualitative research, by finding suitable variable data to replace the work stressors, and using the number of clicks in the Baidu index to replace the number of young people who may have mental illness, combined with the sita software to complete the modeling analysis, and finally achieve the purpose of analyzing the factors affecting the mental health status of young people from a quantitative perspective and proposing reasonable countermeasures.

2. Data Sources and Pre-processing

Because the data on work stress and the psychological status of young people are difficult to directly observe and

obtain statistical data, and the measurement of work pressure has not yet been conclusive, such as the research of Li Wenjun, Zhang Jing, Huang Rong, Xu Huaifu, the study has been studied At present, research on the work pressure of hospital pharmacists is relatively rare, and the existing related research is still old and the data is outdated, etc., and it is difficult to measure it [7]. For quantitative modeling, this paper measures work stress and youth psychology based on in-service rate, depression search and total number of information clicks, respectively. The main basis for measuring work pressure by the incumbent rate is that only those who currently have jobs will have work stress, although not all incumbents have mental illness, but according to the survey, it accounts for 70%. The above incumbents have a greater degree of work pressure, that is, after that, they all replace the work pressure with the in-service rate, and the depression search and information clicks disclosed by Baidu Index replace the mental health status of young people, and the corresponding relationship is that the higher the in-service rate, the greater the work pressure, the more clicks, and the more unhealthy the psychological state of youth. The specific data processing is shown in Table 1, the data sources are shown in Table 2, and the final sample data are shown in Table 3.

Table 1. Data processing

Target variable	Metrics	Calculation formula
Working pressure	Incumbency rate	National average monthly unemployment rate in cities and towns (youth group).
Psychological state of youth	Depression search and information clicks	Average number of monthly depression entries search + monthly average number of clicks on depression information

Table 2. Data sources

Variable	Data source	Total number of data
Incumbency rate	From July 2019 to June 2022, the average monthly unemployment rate in cities and towns across the country (youth group: 16 years old to 59 years old).	36
Depression search and information clicks	Baidu Index	36

3. Model Building and Parameter Estimation

3.1. Model Construction

3.1.1. The Trend of Change in Two Variables

As shown in Figure 1 and Figure 2, although the two

variables show a volatile trend over a certain time frame, both have a downward trend in the overall data.

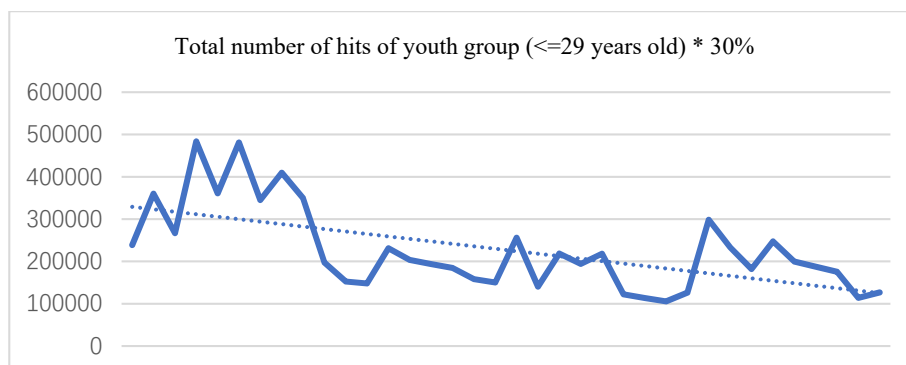


Figure 1. Trend chart of total hits of youth groups

Table 3. Sample data

Time	Depression Information Click Rate (Monthly Average)	Depression Search Index	Sum	Total youth groups (sum * 30%)	Unemployment rate (%)	Incumbency rate (%)
2019.07	782625	13101	795726	238717.8	13.9	86.1
2019.08	1185797	14283	1200080	360024	13.1	86.9
2019.09	875596	13234	888830	266649	13	87
2019.10	1592941	19545	1612486	483745.8	12.4	87.6
2019.11	1187568	14938	1202506	360751.8	12.5	87.5
2019.12	1589920	13897	1603817	481145.1	12.2	87.8
2020.01	1140630	9210	1149840	344952	12.5	87.5
2020.02	1356449	9733	1366182	409854.6	13.6	86.4
2020.03	1153563	12029	1165592	349677.6	13.3	86.7
2020.04	644742	12025	656767	197030.1	13.8	86.2
2020.05	496864	11482	508346	152503.8	14.8	85.2
2020.06	482028	10729	492757	147827.1	15.4	84.6
2020.07	757883	12757	770640	231192	16.8	83.2
2020.08	666046	12385	678431	203529.3	16.8	83.2
2020.09	512277	11395	523672	193758.64	15	85
2020.10	490767	8132	498899	184592.63	13.2	86.8
2020.11	421462	5875	427337	158114.69	12.8	87.2
2020.12	398759	6843	405602	150072.74	12.3	87.7
2021.01	680372	11570	691942	256018.54	12.7	87.3
2021.02	366742	12350	379092	140264.04	13.1	86.9
2021.03	578102	12617	590719	218566.03	13.6	86.4
2021.04	513054	11528	524582	194095.34	13.6	86.4
2021.05	579013	11168	590181	218366.97	13.8	86.2
2021.06	320320	9812	330132	122148.84	15.4	84.6
2021.07	297101	9441	306542	113420.54	16.2	83.8
2021.08	273565	11444	285009	105453.33	15.3	84.7
2021.09	331506	10305	341811	126470.07	14.6	85.4
2021.10	796613	10272	806885	298547.45	14.2	85.8
2021.11	619983	9395	629378	232869.86	14.3	85.7
2021.12	482420	9079	491499	181854.63	14.3	85.7
2022.01	659884	8656	668540	247359.8	15.3	84.7
2022.02	529995	9714	539709	199692.33	15.3	84.7
2022.03	497826	9581	507407	187740.59	16	84
2022.04	465092	9837	474929	175723.73	18.2	81.8
2022.05	298609	9395	308004	113961.48	18.4	81.6
2022.06	334673	8290	342963	126896.31	19.3	80.7

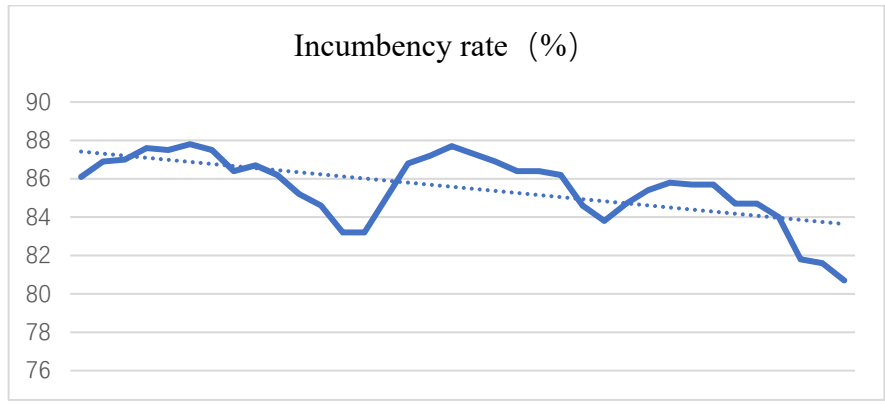


Figure 2. Incumbency trend chart

3.1.2. The Correlation Trend Between the Two Variables

Set work pressure as the explanatory variable and the number of hits for depression in the youth group as the explanatory variable. Import the data from Table 3 into the stata software, use the scatter command, set the explanatory variable to y, the explanatory variable to x, and draw a scatter plot between the two variables as shown in Figure 3, which

can be clearly observed. There is a positive correlation between the number of clicks on the explanatory variable depression search and information and the active rate of the explanatory variable, that is, the higher the incumbent rate, the more clicks on depression search and information are there. This lays the foundation for the next step in building a unary linear regression model.

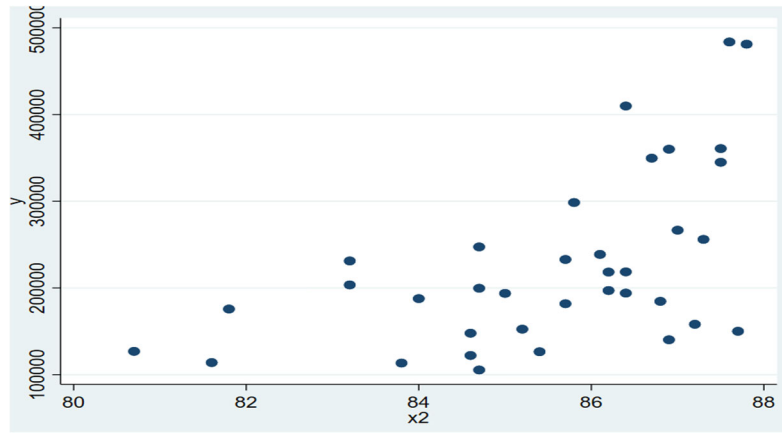


Figure 3. Two variable scatter plot

3.1.3. Model Settings

According to the analysis, there is a unary linear regression relationship between the explanatory variable depression search and information clicks and the explanatory variable incumbent rate, and the explanatory variable depression search and information click number is set to y , and the explanatory variable incumbent rate is X , and the model can be set as follows[8]:

$$y = \beta_0 + \beta_1 X + \mu \quad (1)$$

Due to the large amount of overall data, as shown in Table 3, this article only selects 36 months of data as sample data, that is, the sample regression function can be set to:

$$y = \check{\beta}_0 + \check{\beta}_1 X + \varepsilon \quad (2)$$

3.2. Parameter Estimation

3.2.1. Basic Assumptions

The parameter estimation method used in this paper is the least square method. The parameters obtained by this method are both unbiased and effective. Relatively speaking, the value that best fits the true value can be estimated, but the following assumptions must be met when using this estimation method. (1) Explanatory variables are deterministic variables, not random variables. (2) The random error term has zero mean, same variance and no sequence correlation. (3) The random error term is not related to the explanatory variable. (4) The random error term follows the normal distribution of zero mean, same variance, and zero covariance.

3.2.2. Least Squares

Since the least squares method is the best method for parameter estimation in a unary linear regression model, the estimated estimates satisfy unbiased and validity, so this paper also uses this method to derive estimates of coefficients and constant terms, and the formula is based on the following:

$$\beta_0 = \frac{\sum Y}{n} - \frac{\sum X}{n} \beta_1 \quad (3)$$

$$\beta_1 = \frac{\sum XY - \sum X \sum Y}{\sum X^2 - \sum X \sum X} \quad (4)$$

Using the stata software, combined with the sample data, $\hat{\beta}_0 = -2378112$, $\hat{\beta}_1 = 30459.77$, that is, the sample model is:

$$y = -2378112 + 30459.77X \quad (5)$$

4. Model inspection

4.1. Goodness-of-fit test

The goodness-of-fit test is to test whether the model and the sample data are appropriate, and the proportion of the regression sum of squares in the sum of squares of the total dispersion can be tested, that is, $R^2 = \frac{RSS}{TSS}$, the larger of proportion, the better the goodness of fit.

According to the formula $R^2 = \frac{n\sum XY - \sum X \sum Y}{\sqrt{n\sum X^2 - \sum X \sum X} \sqrt{n\sum y^2 - \sum y \sum Y}}$, combined with stata software and Table 4, $R^2 = 0.3001$. It can be seen from the determination standard of the determinable coefficient that $0 < R^2 < 1$, and the closer R^2 is to 1, the better the goodness of fit of the model. $R^2 = 0.3001$ indicates that the goodness of fit is good to some extent.

4.2. Significance Test

4.2.1. Variable Significance Test

Normalize $\hat{\beta}_1$. Since the variance of the random perturbation term is unknown and the number of sample data is small, the normalized T obeys the distribution with degrees of freedom of $n-2$.

$$T = \frac{\hat{\beta}_1 - \beta_1}{SE(\hat{\beta}_1)} \sim t(n-2) \quad (6)$$

Set the assumption, $H_0 = 0$, $H_1 \neq 0$.

Using stata, in combination with table 4, using the P value corresponding to the explanatory variable shown in the figure, it can be seen that the original assumption $H_0 = 0$ is rejected, the change of X has a significant impact on y .

4.2.2. Constant Term Significance Test

Similar to the variable significance test method, it can be seen from Table 4 that the $P > |t| = 0.001 < \alpha = 0.05$, the constant term can reject the null hypothesis, and the change of the constant term has a significant impact on the interpreted variable.

Table 4. Table of Model Parameter Estimation and Test Results

Source	SS	DF	MS	Number of obs= 36		
Model	1.0524e+11	1	1.0524e+11	F(1,34) =	14.58	
Residual	2.4550e+11	34	7.2205e+09	Prob>F =	0.005	
Total	3.5074e+11	35	1.0021e+10	R-squared =	0.3001	
				Adj R-squared =	0.2795	
				Root MSE =	84974	
y	Coef.	Std.Err	T	p> t	[95% conf.Interval]	
X	30459.77	7978.404	3.82	0.001	14245.7	46673.84
cons	-2378112	682522.1	-3.48	0.001	-3765164	-991060.6

5. Conclusions and Suggestions

Through the quantitative study of the changes in the mental health of young people caused by work stress, this paper draws the conclusion that work stress will cause mental illness represented by depression in young people to a certain extent, which confirms the previous qualitative research, that is, the greater the work pressure, the worse the mental health status of the youth group, and the more likely it is to suffer from mental illness. However, it is important to note that it is normal to have a temporary depression in the face of complex situations or difficulties, and the key is how to distinguish between low mood and mental illness in order to develop effective ways to relieve psychological stress [9]. In order for the positive and healthy development of the psychological status of young people, it is necessary to avoid the emergence of factors affecting their psychological status, such as reducing work pressure. This requires the joint efforts of the government, enterprises and society, that is, the government can formulate more humane work regulations, enterprises in their daily work and life to prevent the formation of 996 atmosphere, with a positive and healthy corporate culture. Taking hospitals as an example, from the perspective of young medical staff themselves, they should correctly understand pressure, improve their own ability to resist setbacks, tend to choose positive and mature coping methods, reduce their psychological defense ability through negative and naïve coping methods, and maintain their own mental health [10]. Or research that combines technology and mental health could be conducted. With the development of network technology and emerging technologies, technology is affecting people's mental health, future research can carry out a variety of big data and mental health combined research, to explore the current situation of mental health of the Chinese, face the face of the real conditions can not be carried out research can be carried out with the help of emerging technologies, such as the use of virtual reality and other technologies to treat speech anxiety and other research, the use of technology to help deal with the solution of mental health problems [11].

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