Research on the Incidence Rate of Depression based on Lifestyle Factors

Ruiyang Zhu *

Department of Ulink college, Guangzhou, China

* Corresponding Author Email: ruizhu2617@ulinkcollege.com

Abstract. Depression is a mental illness characterized by three main symptoms: low mood, delayed thinking, and motor inhibition. Depression is mainly manifested as low mood, decreased interest, pessimism, delayed thinking, lack of initiative, self-blame and guilt, poor diet and sleep, fear of suffering from various diseases, feeling unwell in multiple parts of the body, seriously disturbing the patient's life and work, and bringing a heavy burden to the family and society. According to survey data from the World Health Organization, the prevalence of depression has skyrocketed 10 to 20 times globally in the past 30 years, becoming one of the four major diseases in the world. Depression can be divided into endogenous depression, reactive depression, drug-induced depression, postpartum depression, menopausal depression, and geriatric depression. This study analyzed various data on depression in the Kaggle dataset and selected life data from 1429 patients. Through the analysis of these data and image comparison, this paper can summarize the life factors that affect the incidence rate of depression, which can better help people prevent the occurrence of depression.

Keywords: Incidence rate; lifestyle factors, depression

1. Introduction

Currently, the number of people with depression is increasing, however, the life factors affecting the incidence rate of depression are still unknown. According to the statistics of the World Health Organization, the global incidence rate of depression is about 11%, and there are about 340 million depression patients worldwide [1]. About 3% of adults worldwide suffer from depression, with a high prevalence rate of 10.3% in the United States, about 7% in European countries, and about 5% in Chinese cities [2]. The Sex ratio of male to female patients with depression is 1: 1.7. Women are more than men. Most of them are aged 31-60, accounting for 68.73% of the total number of patients [3]. Depression can be divided into endogenous depression, reactive depression, drug secondary depression, postpartum depression, menopausal depression and senile depression [4]. According to the World Health Organization, depression may become the second disease after heart disease by 2020. According to conservative estimates, the incidence of depression in the world is about 11% [5]. 15% of severe patients will choose suicide to end their lives. Two-thirds of patients have had suicidal thoughts, and the number of suicide deaths from depression is estimated to be as high as 1 million every year [6].

It is reported that depression is a mental illness characterized by continuous depression and loss of interest in life, and the inability to carry out daily activities for at least 14 days. Nowadays, the spread of depression is close to an epidemic. From 2005 to 2015, the number of patients with depression increased by 18%. At the same time, the World Health Organization has found a close link between depression and other diseases. Among them, depression causes diabetes and heart disease [7]. Depression is a typical case of depression. The pathogenesis is not clear, and it may be related to genetic factors, social factors, environmental factors and other causes. Clinical manifestations include low mood, thinking disorders, decreased willpower, cognitive impairment and somatic symptoms [8].

The cause of depression is mainly caused by heredity or certain damage to the nervous system. In addition, it is also closely related to the social environment. If you encounter some stimulating events in your life, it is also easy to cause depression [9]. Not only that, depression also imposes a lot of financial burden on patients and families. A collaborative study on the global Disease burden jointly

conducted by the World Health Organization, the World Bank and the Harvard School of Public Health in the United States shows that depression causes US $43.7 billion in losses to the US economy every year [10]. A large amount of research data indicates that maintaining a good mental state is an effective measure to prevent depression. For example, maintaining good sleep and paying attention to the focus of life. In addition, maintaining effective exercise and good venting are effective ways to prevent depression [11].

This article analyzes the development trend, pathogenesis, causes, main groups, and preventive measures of depression. The aim is to focus on the risk factors that affect depression, predict and judge the important influencing factors that can be changed to determine whether they can be prevented by improving lifestyle.

2. Methods

2.1. Data sources and description

The main data of this study is the data set of depression from Kaggle official website and the dataset has 23 columns or dimensions and a total of 1432 rows or objects. The target variable diabetes_binary has two classes.0 means no depressed and 1 means depressed.

2.2. Variable Selection

Table 1 shows the variables used in this study.

Table 1. Variables description.

Variable	Done	Not do
Sex	1	0
Age	Number	-
Married	1	0
Number_children	Number	-
Education_level	Number	-
Total_members (In the family)	Number	-
Gained_asset	Number	-
Durable_asset	Number	-

3. Results and Discussion

Depression is a serious mental disorder characterized by sadness, emptiness, anxiety and sleep disorder, as well as general loss of initiative and interest in activities. In addition, there may be symptoms of guilt or lack of value, decreased energy, and lack of concentration, suicide, and mental illness. Depression is related to circadian disturbances caused by environmental disturbances, such as seasonal changes during the day, shifts in work, or changes in social rhythms caused by longitude travel; In addition, the Circadian rhythm related to lifestyle is inconsistent with the natural daylight cycle. The occurrence of depressive symptoms is not only related to alcohol and drug abuse, but also to physical health issues, medical side effects, life events, and social factors, which can also lead to the occurrence of depressive symptoms in everyone. The global lifetime prevalence of depression is about 15%, but the incidence of episodes that do not meet the diagnostic requirements for depression is much higher.

3.1. Descriptive Analysis

Kaggle dataset collected 1429 depression patients from around the world and their survey data. This section will analysis the statistics of visual data. The distribution of Sex data is shown in the following Figure 1.

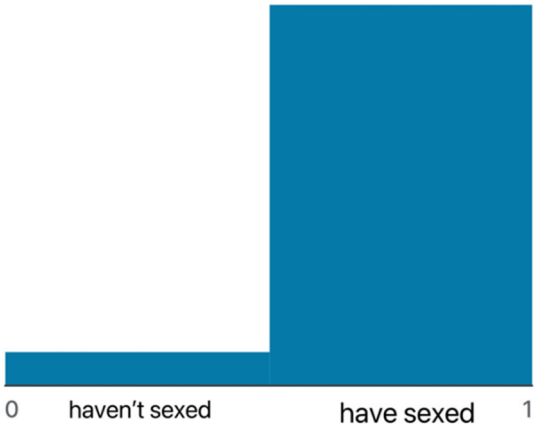


Fig 1. Sex information histogram.

According to the statistical results of the data, the mean value is 0.92, and the quartiles are both 1. The standard division is 0.27. Age in the dataset is discrete data, and the distribution of data is shown in the following Figure 2.

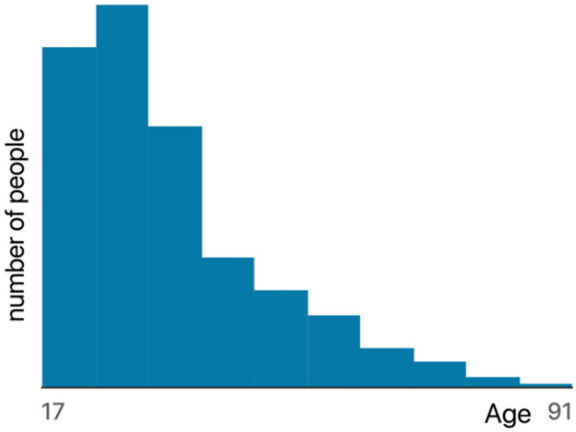


Fig 2. Age information histogram.

According to the statistical results of the data, the biggest data is 91 and the smallest data is 17. The mean value is 34.8, and the quartiles are 25 and 42. The standard division is 14. The distribution of married data is shown in the following Figure 3.

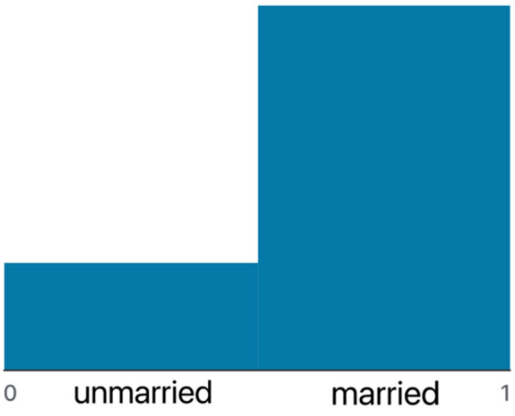


Fig 3. Married information histogram.

According to the statistical results of the data, the mean value is 0.77, and the standard division is 0.42. Number of children in the dataset is discrete data, and the distribution of data is shown in the following Figure 4.

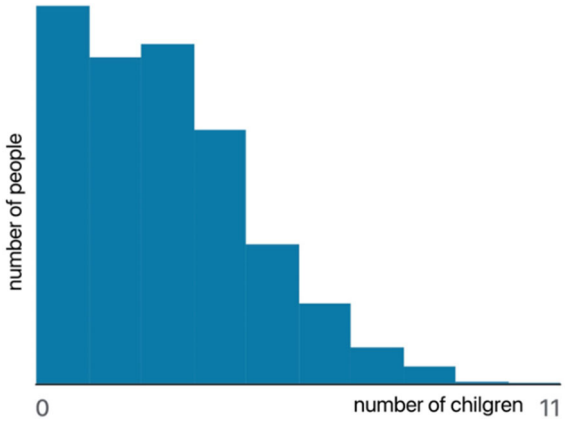


Fig 4. Number of children information histogram.

According to the statistical results of the data, the biggest data is 11 and the smallest data is 0. The mean value is 2.88, and the quartiles are 2 and 4. The standard division is 1.87. Total members in the dataset are discrete data, and the distribution of data is shown in the following Figure 5.

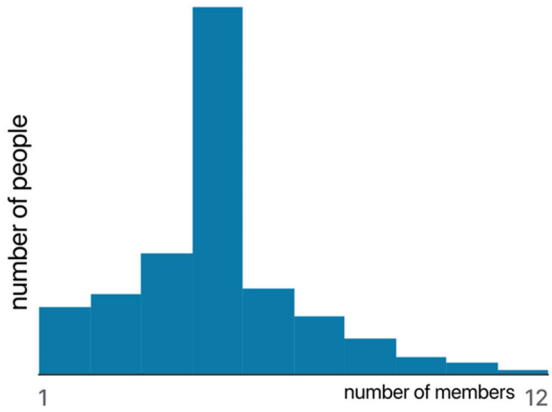


Fig 5. Total members information histogram.

According to the statistical results of the data, the biggest data is 12 and the smallest data is 1. The mean value is 4.97, and the quartiles are 4 and6.The standard division is 1.79. Education in the dataset is discrete data, and the distribution of data is shown in the following Figure 6.

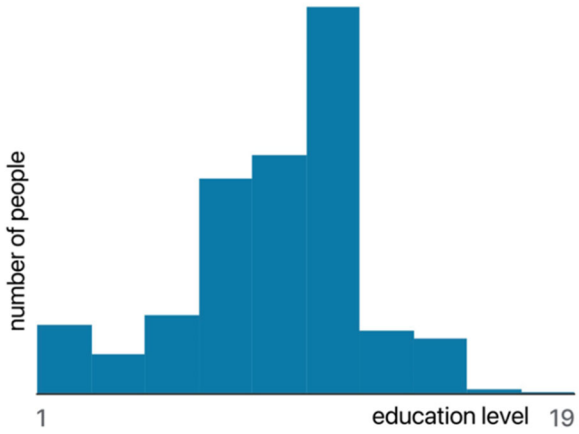


Fig 6. Education information histogram.

According to the statistical results of the data, the biggest data is 19 and the smallest data is 1. The mean value is 8.69, and the quartiles are 8 and 10.The standard division is 2.92. Gained asset in the dataset is discrete data, and the distribution of data is shown in the following Figure 7.

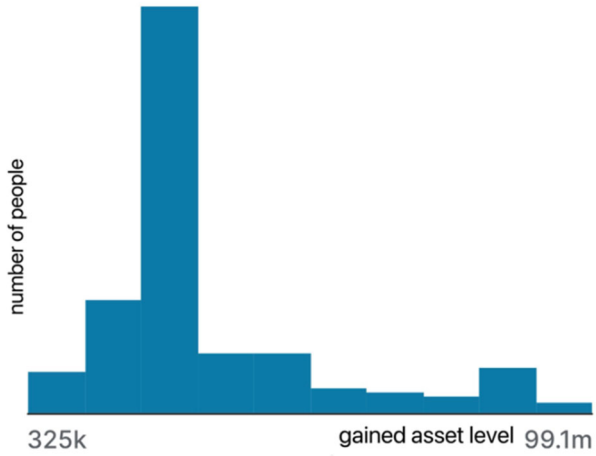


Fig 7. Gained asset information histogram.

According to the statistical results of the data, the biggest data is 99.1m and the smallest data is 325k. The mean value is 33.6m, and the quartiles are 23.3m and 37.2m.The standard division is 20m. Durable asset in the dataset is discrete data, and the distribution of data is shown in the following Figure 8.

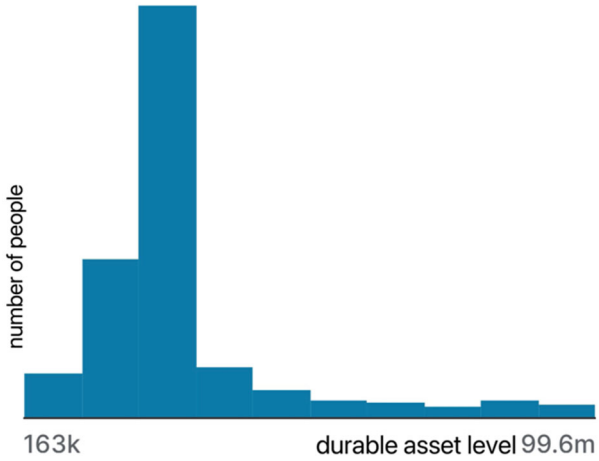


Fig 8. Durable asset information.

According to the statistical results of the data, the biggest data is 99.6m and the smallest data is 163k. The mean value is 27.2m, and the quartiles are 19.3m and 26.6m.The standard division is 18.2.

3.2. Discussion

Through Figure 1, this study found that most of the patients with depression have experienced sexual behavior, which shows that the incidence of depression may be affected by the feelings in life. In addition, this study found that among the 1429 patients randomly selected, patients aged 17 to 35 accounted for more than 50%, which also shows that the onset of depression will be affected by age and most of them are middle-aged people.

Figure 3 shows the marital status of patients with depression, most of whom are married, which also proves that the onset of depression is affected by emotional problems. Figure 4 shows the number of children of patients with depression. The average value is 2.88, which is slightly higher than the world average. This also indicates that the onset of depression may be affected by the life problems caused by multiple children. Next, this study investigated the family size of patients with depression, and the average value was 4.97, which was far lower than the world average, which also showed that the incidence of depression would be affected by family problems.

Figure 6 shows the education level of these 1429 patients, of which only a small part received high-end education, which shows that the onset of depression may be affected by the lack of education.

Figure 7 shows the asset status of the patients. The average value is 33.6m, which is lower than the world average of 47.4m. This shows that poverty also has a certain negative impact on the incidence of depression. At the same time, the data in Figure 8 also reflect this point.

4. Conclusion

In this study, this paper collected data on depression from the Kaggle dataset to predict and determine the life factors that affect the onset of depression. Specifically, this study selects indicators that have a greater impact on the risk factors of incidence rate of depression, and analyzes the actual impact of each indicator and its performance in specific life through chart comparison.

However, this study has limitations, including sampling errors and self-reporting bias, which may affect the accuracy and reliability of the results. In addition, some potential influencing factors, such as genetic and environmental factors, were not considered, which may affect the risk of depression onset. Future research needs to consider more factors and use various methods for analysis and evaluation, expand the dataset, and increase the sample size. To improve the reliability of the analysis.

References

[1] Jiang Lin. Depression "ravages" the world. Reference for Party and Government Officials, 2015, (9): 54-55.

[2] Zhao Haijing. Attribution analysis of depression related factors and their relationship with TCM syndrome types. Beijing University of Chinese Medicine Beijing University of Chinese Medicine, 2011.

[3] Wang Zhenjie. Clinical study on neurotransmitters in peripheral blood of patients with depression at different syndrome stages. Beijing University of Chinese Medicine, 2012.

[4] Huang Yongjin, Ding Baokun. Classification of depression. Chinese Rural Doctor, 2000, 15(3): 13-14.

[5] Jessica. Depression, a Severe 'Emotional Cold'. Science 24 Hours, 2016 (12): 2.

[6] Luo Binhao, Fang Yingzhong, Zheng Jie. Listening to Depression Patients Tell Their Stories. Southern People Weekly, 2019.

[7] Ke Xiaotao. Heart disease, diabetes, depression: the death triangle of mutual influence. Cardiovascular disease prevention and treatment knowledge, 2009 (11): 1.

[8] Feng Lu. Study on the effect and mechanism of Wulingji powder against depression and Guhong injection against cerebral ischemia-reperfusion injury. Peking Union Medical College Chinese Academy of Medical Sciences, 2008.

[9] Qin Hongqun. Can stimulation cause depression? General Nursing, 2005, (7): 28-28.

[10] Yang Xia, Wu Yelan. Boarding the Mental Health Express: Healing Depression with "Heart". Xi'an Shitu Publishing House, 2008.

[11] Guo Zhihua. 10 Key Points for Preventing Depression Recurrence. Family Medicine, 2016.