

# The Relationship Between Locus of Control and Depression Among College Students During Covid-19

Chuan Zhu<sup>1, 2, \*</sup>

<sup>1</sup> Work of Harbin Finance University, Harbin 150000, China

<sup>2</sup> School of Lyceum of the Philippines University Batangas, Batangas 6100, Philippines

\*zhuchuan.com@gmail.com

## Abstract

**Background:** The COVID-19 occurred in china in 2019, college students were forced to disrupt their normal study and life due to the impact of the epidemic, resulting in depression. Whether students with different locus of control will have different depression conditions, and what is the relationship between locus of control and depression, all of which deserve our in-depth study. **Method:** A systematic review and meta-analysis were conducted on the locus of control, depression, and their related relationships among college students. **Results:** The prevalence of depression among college students during the COVID-19 was 43.77%. The locus of control showed significant differences on place of birth, only child status, parental education level, average household income and expenditure, while the depression showed significant differences on sex, grade, whether it comes from a single parent family, parental education level, average household income and expenditure. There is a significant correlation between locus of control and depression. **Conclusion:** The average incidence of depression among college students during the COVID-19 is xx%. Faced with the impact of the epidemic and the post epidemic era, more measures should be taken to provide psychological counseling to students at high risk of depression from the perspective of regulating and controlling sources.

## Keywords

Locus of control, Depression, College students, COVID-19.

## 1. Introduction

At the end of December 2019, the first large-scale outbreak of novel corona virus - COVID-19 in Wuhan, Hubei Province, China, quickly swept the world and became the most influential and destructive epidemic disease in human history. The COVID-19 pandemic has posed challenges to all aspects of human life. This epidemic disease will not only cause great harm to individual physical health, but also affect individual mental health, and this impact may exist for a long time. For colleges and universities, it is very important to pay attention to the psychological health of students, especially the emotional health during the closed period of the school. As an important psychological factor that affects people's psychology and behavior, locus of control has become a hot topic in recent years. In 1953, American psychologist Rotter first proposed the term locus of control in the social learning theory section of his book "Social Learning and Clinical Psychology"[1]. He defined locus of control as an individual's universal or generalized expectation of the relationship between their personality, behavior, and outcomes. In the same context, different individuals may have different expectations or expectations for the specific consequences caused by a particular behavior. The term 'depression' originated from the Latin word 'Deprimere', which means 'Downward expression'. By the 17th century, it was used to describe emotional states. American scholar Angold gave a comprehensive description of

depression: depression is an individual's lack of relatively stable and lasting happiness; Depression is when an individual is in a pathological state of low or bad mood; Depression is an unpleasant, sad, or emotionally painful response to certain unfavorable situations or events; Depression is a transition from normal emotions to low emotions, where negative emotions appear every day[2]. Chinese scholar Feng Zhengzheng believes that the concept of depression is a clear and persistent, unpleasant, and sad emotion, mainly depression, that occurs in adolescence and is accompanied by uncomfortable behavior and physical and mental symptoms[3]. Willhana showed a positive relationship between external locus of control (powerful others) and external locus of control (chance) with psychological distress[4]. The implication of this research is that students are able to recognize their locus of control orientation, so that students can be more alert to their weaknesses and strengths, so as to prevent experiencing psychological distress. Especially the troubles of depression.

## 2. Methods

### 2.1. Participants

The participants in the study were college students who were forced to participate in closed classes on campus or online at home during the epidemic period. They were selected from college students of different grades and majors by stratified random sampling. The number of people to be sampled is 1223. Due to the epidemic prevention and control, the questionnaire distribution, including data recovery was conducted online. Collect information through online questionnaires. The questionnaire includes sex, grade, birthplace, family status, family income, whether the child is an only child and other population and social related information. The locus of control scale and The depression scale were used for evaluation.

### 2.2. Measures

#### 2.2.1. Basic information

Including sex, nationality, educational system, subject, grade, place of origin, whether the child is an only child, parents' education level, per capita monthly income of the family, average monthly consumption, are you satisfied with your major, have you ever received a scholarship, etc.

#### 2.2.2. Multidimensional Health Locus of Control Scale, MHLC

The Multidimensional Health locus of control scale (MHLC) developed by Wallston and others is adopted[5, 6]. The MHLC includes three dimensions, namely, Internal health locus of control (IHLC), Powerful health locus of control (PHLC), and Chance health locus of control (CHLC). Each dimension has 6 entries, 18 entries in total, Likert 6 was used for scoring. The answer range was from 1 (very disapproval) to 6 (very approval). The score range of each dimension was 6~36, and the total score range was 6~108. The higher the score, the stronger the subject's tendency in this dimension.

#### 2.2.3. The Depression Scale for Epidemiology Survey Center, CES-D

It is specially designed to evaluate the frequency of current depressive symptoms, focusing on depressive emotion or mood, and trying to use it for comparison of cross-sectional survey results at different time points. There are 20 items in CES-D, which represent the main aspects of depressive symptoms. It was extracted by Radloff through factor analysis of a large number of clinical literature and existing scales[7, 8]. The items reflect the following four aspects of depression: Depressed affect, Positive affect, Somatic and retarded activity, Interpersonal. When filling in the form, the subjects were asked to explain the frequency of symptoms in the last week. Answers include: "Occasionally or not (less than one day)"; "Sometimes (1-2 days)"; "Frequently or half the time (3-4 days)"; "Most of the time or duration (5-7 days)", the assigned

value of each frequency is 0-3. There are four words that point to non depression to prevent patients from answering indiscriminately. The total score range is 0-60. The higher the score, the higher the frequency of depression. The responses of the scale were not significantly affected by respondents' preferences.

### 2.3. Data Analysis

After data verification and manual verification of the electronic questionnaire, SPSS 24.0 software were used to collate and analyze the data. In this study,  $P < 0.05$  was defined as statistically significant.

### 2.4. Ethical Considerations

In order to ensure that the study is conducted in an appropriate manner, the following factors need to be considered. The legitimacy of the research design and the conclusion of the research must be related to the questions raised and the results obtained. The method used in the ethical requirements of research must also be directly related to the research problem. In order to comply with the ethical considerations when conducting the study, all participants voluntarily participated in the study and signed informed consent. The researcher explained in detail the purpose and process of the research. The information provided by the research object must be kept confidential, and the anonymity of the respondents must be protected. In the process of in-depth interviews with participants, the permission of participants should be obtained and recorded. The researchers also solicited the permission of the test authors used in this study by email. In the whole approval process and research process, we should always abide by the code of ethics and integrity and be transparent and open.

## 3. Results

This study surveyed a total of 1223 college students. Among them, there are 393 male students, accounting for 32.1%; 830 female students, accounting for 67.9%. The number of Han ethnic groups is 1069, accounting for 87.4%, while the number of ethnic minorities is 154, accounting for 12.6%. The number of four-year undergraduate students in the educational system is relatively high, at 1134, accounting for 92.7%. The number of two-year vocational students is relatively low, at 89, accounting for 7.3%. Among the subject types, there are 500 students majoring in humanities, accounting for 40.9%, and 723 students majoring in science, accounting for 59.1%. Among the survey subjects, the largest number of students are freshmen and sophomores, with 347 freshmen, accounting for 28.4%, 543 sophomores, accounting for 44.4%. The number of students who have graduated from junior and senior years is relatively small, accounting for a total of 27.3%. There are 650 college students from rural areas, accounting for 53.1%, and 573 from urban areas, accounting for 46.9%. Among these surveyed students, non only child students and only child students account for almost half each; Among them, there are 210 students from single parent families, accounting for 17.2%. Among parents' educational levels, the number of people with a junior high school degree is the highest, with 550 people accounting for 45%. The per capita monthly income of the surveyed households shows a normal distribution, with 752 students, accounting for 61.5%, having the highest average monthly consumption of 1000 to 2000 yuan among these students; The minimum number of students who consume an average of over 3000 yuan per month is 79, accounting for 6.5%. Among the participants in the survey, 934 students, accounting for 76.4%, were relatively satisfied with their current major; There are 289 students, accounting for 23.6%, who are dissatisfied with their current major. Among them, 402 students have received scholarships, accounting for 32.9%; There are 821 students who have not received scholarships, accounting for 67.1%.

The results for the Locus of Control of the respondents indicate that among the three dimensions of Mental Health Locus of Control, Internality ranked first which has a mean score of 20.9836. This was followed by Powerful Others with a mean score of 19.4881 and Chance ranked third with a mean score of 16.4096. The average score of the locus of control scale is 56.88 points (standard deviation=13.90 points). According to the survey results, the average score of college students on the Center for Epidemic Investigation Depression Scale is 14.7122 points (standard deviation=9.46864 points). According to the scoring criteria of this scale: score  $\leq 16$  points, no depression;  $16 < \text{score} \leq 19$ , suspected of depression; Scores greater than 19 indicate a certain degree of depression. It can be seen that among all 1223 college students who participated in the questionnaire survey, 733 were not depressed, accounting for 59.9% of the total number; The number of people in the Suspended Conference is 121, accounting for 9.9% of the total number of people; The number of people with a certificate degree of depression is 369, accounting for 30.2% of the total number. This indicates that during the closure period of the epidemic campus, about 40% of the total number of students were diagnosed with depressive symptoms. It indicates that during the lockdown period of the epidemic, most college students have good emotional states, but there are also some students who experience emotional states and develop depressive emotions. The correlation test results showed a significant correlation between control points and depression. Regression analysis showed a negative correlation between IHLC and depression,  $t=-1.247$ ,  $p=0.213$ ; There was also a significant negative correlation between PHLC and depression,  $t=-1.979$ ,  $p=0.048$ ; There is a significant positive correlation between CHLC and depression,  $t=12.274$ ,  $p=0.000$ .

#### 4. Discussion

From the survey results, we can know that the scores of various factors related to college students' locus of control are at a normal level. The average scores of the three dimensions of internal control, influential others, and opportunity are all within the range of scores obtained when the MHLC scale was developed. The survey results of this study are basically consistent with the norm of the scale. The average score of internal control is the highest, while the average score of opportunity is the lowest, indicating that college students tend to have introverted sources of psychological control. The Internal Control Scale (IHLC) reflects people's level of trust in being able to control their own lives. Gao Xiumei showed in her measurement of the locus of control characteristics of college students that 67.1% of the effective participants had internal control characteristics, indicating that the majority of the surveyed students had internal control characteristics, which is consistent with this survey[9]. This is different from the research results of Yang Yang et al., whose sampling data shows that the scores of the internal control scale of the participants are lower than the norm, with 78.2% of individuals below the norm, indicating that the vast majority of college students participating in the survey have low levels of internal control[10]. However, consistent with the statistical results of Zhou Yilin, her research shows that among the three types of locus of control tendencies, the most common one is internal control, with influential others accounting for the same proportion as opportunities[11]. If the tendency of influential others and opportunities is merged into the tendency to believe that the outcome of events is mostly influenced by external factors, and the tendency to believe that the outcome of events is mainly determined by internal self factors, then 80% of college students belong to the tendency to believe that the outcome of events can be controlled by themselves, emphasizing that the outcome of events is related to their own efforts, In addition, nearly 20% of college students have an external locus of control tendency, which tends to believe that the outcome is not under personal control. Therefore, we believe that during the special period of closed management of the epidemic, the vast majority of students participating in the survey believe that the occurrence of the event depends on their level of effort or relatively persistent characteristics. This concept will make them put in more

effort in their lives and studies to achieve the desired results. For example, in terms of personal health and safety, most students will take more protective and health care measures to avoid being infected and causing illness or other adverse effects. The Powerful Others (PHLC) scale reflects an individual's level of trust in whether others can control events in their own lives. In this study, students with high scores on the influential others scale accounted for a relatively small proportion compared to students with internal control tendencies. The Opportunity (CHLC) scale reflects an individual's level of belief in whether opportunities can affect event outcomes. Powerful others and students with high opportunity scores are generally considered external control types. Individuals with a strong sense of external control are more likely to attribute the outcome of events to external factors and have a stronger dependence on the external environment. Shang Xiaolei analyzed that they usually believe that the outcome of events is controlled by external factors, making it difficult to predict. External controllers believe that the external environment and things have an uncertainty and unreliability, which often leads to them losing their sense of security and becoming at a loss[12]. Especially in the face of sudden public health events such as the epidemic, there will be more dependence on the external environment, such as believing that medical staff, teachers, parents, or friends can provide more shelter for oneself.

According to the survey results, the average score of college students on the Center for Epidemic Investigation Depression Scale is 14.7122 points (standard deviation=9.46864 points). According to the scoring criteria of this scale: score $\leq$ 16 points, no depression; 16<score $\leq$ 19, suspected of depression; Scores greater than 19 indicate a certain degree of depression. It can be seen that among all 1223 college students who participated in the questionnaire survey, 733 were not depressed, accounting for 59.9% of the total number; The number of people in the Suspended Conference is 121, accounting for 9.9% of the total number of people; The number of people with a certificate degree of depression is 369, accounting for 30.2% of the total number. This indicates that during the closure period of the epidemic campus, about 40% of the total number of students were diagnosed with depressive symptoms. It indicates that during the lockdown period of the epidemic, most college students have good emotional states, but there are also some students who experience emotional states and develop depressive emotions. Cai Hui conducted an intervention pathway study on depression among college students, analyzing data from 286 students (174 males and 112 females)[13]. The overall detection rate of depression was 34.3%. Among them, the level of depression is mainly concentrated in non depression and mild depression, with a small proportion of moderate and severe depression. This is roughly consistent with the data in this study, but there are still some differences. For example, in our survey, the proportion of people with A degree of depression is higher, while Cai Hui's study shows that the proportion of people with mild depression is higher. The reason may be related to the background of the epidemic to some extent. Cristina Mazza (2020) showed in a Nationwide Survey of Psychological Distress among Italian People during the COVID-19 Panel, their results showed an increased percentage of people with high and very high levels of stress compared to the European epidemiological statistics Konstantinos N Fountoulakis, et.al Incremental additional and compressive emotions (including subclinical cases) were presented in more than 40% Of individuals with a previous history of depression, 23.31% experienced depression vs. 8.96% of cases without previous history, who specified their first depression episode[14, 15]. The above studies are only aimed at the general public in different countries, and for college students, the comparison of these data may vary due to differences in the tested population Danielle Giovenco, et.al. on the psychological stress among southern U.S. college students in the era of COVID-19 shown that Almost two third of the students reported clinically significant symptoms and 65% were categorized as long[16]. This is similar to the interpersonal dimension we studied in the CES-D scale, but in this survey, the scores of the interpersonal dimension were lower along the four

dimensions, and these students were affected by it to develop compressive syndromes, which is different from the research results of the performer Danielle's article showed that An estimated 64% of students reported self isolating most or all of the time Compared to those self isolating none of the time, students self isolating some of the time were 1.78 times as like to report clinically significant depression symptoms, and students self isolating most or all of the time were 2.12 and 2.27 times as like to report clinically significant depression symptoms, respectively This indicates that the implementation of closed quadrant management during the epic has a certain impact on the occurrence of depression among students.

There was a significant correlation between locus of control and depression. The higher the score of MHLIC, and the more obvious the symptoms of depression exhibited by the subjects. Similar to our research findings, JASDI, N. F. S. conducted a survey of 315 respondents and found that the incidence of depression symptoms among health science students was relatively high (42.9%)[17]. Students who suffered from depression during their university years may be influenced by the source of control, which is considered an important variable in solving students' depression problems. Consistent with some research findings (Yan, Z. 2014), college students with higher internal control scores tend to attribute the success of events to their own abilities and level of effort, believing that they can control their own lives and are more proactive in doing things[18]. Therefore, they experience more control over their lives, which has a positive impact on emotions and is less prone to negative emotions such as anxiety and depression. People who believe that opportunities can have a significant impact on their own lives believe that the success or failure of events comes from luck and fate. Therefore, they tend to be pessimistic and passive towards life, gradually feeling powerless due to losing control of life. This sense of powerlessness can lead to anxiety and depression. There is controversy about the association between influential others and anxiety and depression. Some studies have shown that influential others are positively correlated with anxiety and depression, which increases the risk of anxiety and depression. For example, Hovenkamp Hermelink et al. compared 2052 subjects with anxiety or depression disorders with healthy individuals over 9 years, and found that external control sources (influential others or opportunities) score higher, The higher the severity of anxiety and depression, Hovenkamp Hermelink et al. explained that when individuals believe that their life goals are controlled by others or opportunities, they lose control of their lives, leading to feelings of helplessness, anxiety, depression, and other emotions[19]. However, the research findings of Yeoh et al., a scholar from Malaysia, are exactly the opposite[20]. Yeoh's research found that individuals with higher scores of influential others' locus of control are associated with lower depression scores, which is consistent with the results of this study. The reasons for different research results may be related to different cultures in different countries. Malaysia typically has a collectivist culture that emphasizes interdependence among its members. In such a culture, It is reasonable to expect others to take responsibility for their own lives, health, etc. Moreover, Malaysia is a major country of religious beliefs, with approximately 98% of the population having a certain religious belief. Such a high religious belief rate may be related to a sense of comfort and expectation towards external forces controlling one's own life. Chinese college students often emphasize peer effect and collectivism, where classmates, friends, family, and doctors around them may have an impact on themselves, making them more dependent on others and expecting them to take responsibility for their own lives and health. Therefore, life is more relaxed and less prone to negative emotions such as anxiety and depression. The above results suggest that locus of control is an important factor affecting anxiety and depression. Reducing the level of opportunistic locus of control while improving internal control and the level of influential others' locus of control can effectively prevent the occurrence of anxiety and depression, thereby helping to prevent conscientious and healthy states.

## 5. Conclusions

The majority of the respondents are female, Han Chinese, and four-year undergraduate students. Most of the students are from first, second, third, and fourth year families, and the vast majority come from two parent families. Their parents' education level, family income, and consumption level are at a moderate level. The majority of respondents have an average Mental Health Locus of Control, and moderate levels of depression.

There are significant differences in locus of control in terms of place of birth, only child status, parental education level, average household income, and expenditure. Depression has significant differences in sex, grade, whether it comes from a single parent family, parental education level, average household income and expenditure.

There is a significant correlation between Mental Health Locus of Control and depression. Locus of Control significantly predicted depression.

## References

- [1] Rotter J B. Generalized expectations for internal versus external control of reinforcement [J] *Psychol Monogr*, 1966,80 (1): 1-28.
- [2] Angold, A., & Rutter, M. (1992). Effects of age and pubertal status on depression in a large clinical sample. *Development and psychopathology*, 4(1), 5-28.
- [3] Feng Zhengzheng. A study on the social information processing methods of depression symptoms in middle school students [D]. Southwest Normal University, 2002.
- [4] Willhana, W., & Hastuti, R. (2022, April). Relationship locus of control towards psychological distress of university students in pandemic situation. In 3rd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2021) (pp. 1478-1483). Atlantis Press.
- [5] Wallston, K. A. (2005). The validity of the multidimensional health locus of control scales. *Journal of health psychology*, 10(5), 623-631.
- [6] Wallston, K. A., & Wallston, B. S. (1981). Health locus of control scales. *Research with the locus of control construct*, 1(1), 189-243.
- [7] Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied psychological measurement*, 1(3), 385-401.
- [8] Radloff, L. S. (1991). The use of the Center for Epidemiologic Studies Depression Scale in adolescents and young adults. *Journal of youth and adolescence*, 20(2), 149-166.
- [9] Gao Xiumei (2021). Characteristics of locus of control in college students and its impact on academic performance *Exploration of Higher Education* (09), 63-66. doi: CNKI: SUN: GJTA.0.2021-09-011.
- [10] Yang Yang, Huang Dawei, Zhang Liren & Lu Yanmei (2022). The relationship between locus of control and learning burnout among college students: the mediating role of coping styles *Health Medicine Research and Practice* (01), 16-21 Doi: CNKI: SUN: GXBJ0.2022-01-004
- [11] Zhou Yilin (2021). Research on the Relationship between Physical Exercise and Inferiority among College Students: The Chain Mediating Effect of locus of control and General Self efficacy (Master's Thesis, Nanjing Normal University) <https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202202&filename=1022406960.nh>
- [12] Shang Xiaolei (2020). The relationship between family structure, locus of control, and interpersonal trust among college students *Science and Education Literature Collection (Later Issue)* (06), 175-177+186 Doi: 10.16871/j.cnki.kjwhc.2020.02.081

- [13] Cai Hui, Yan Gaoyuan, Huang Mei. A study on the intervention pathway of positive psychological quality on depression in college students [J]. Journal of Anhui Electronic Information Vocational and Technical College, 2023,22 (02): 91-95.
- [14] Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: immediate psychological responses and associated factors. *International journal of environmental research and public health*, 17(9), 3165.
- [15] Kaparounaki, C. K., Patsali, M. E., Mousa, D. P. V., Papadopoulou, E. V., Papadopoulou, K. K., & Fountoulakis, K. N. (2020). University students' mental health amidst the COVID-19 quarantine in Greece. *Psychiatry research*, 290, 113111.
- [16] Giovenco D, Shook-Sa BE, Hutson B, Buchanan L, Fisher EB, et al. (2022) Social isolation and psychological distress among southern U.S. college students in the era of COVID-19. *PLOS ONE* 17(12): e0279485. <https://doi.org/10.1371/journal.pone.0279485>
- [17] JASDI, N. F. S., & RAHMAN, P. A. (2023). SYMPTOMS OF DEPRESSION AMONG HEALTH SCIENCES STUDENTS AND ITS RELATION TO LOCUS OF CONTROL. *Journal of Sustainability Science and Management*, 18(6), 70-81.
- [18] Zhang Yan, Tan Xiaohong, Huang Surong, et al Understanding the mediating effect of social support between depression, anxiety, and locus of control among college students in disaster areas [J] *Chinese School Health*, 2014,35 (05): 679-681.
- [19] Hovenkamp-Hermelink J H M, Jeronimus B F, van der Veen D C, et al. Differential associations of locus of control with anxiety, depression and life-events: A five-wave, nine-year study to test stability and change[J]. *Journal of Affective Disorders*, 2019,253:26-34.
- [20] Yeoh S H, Tam C L, Wong C P, et al. Examining Depressive Symptoms and Their Predictors in Malaysia: Stress, Locus of Control, and Occupation.[J]. *Frontiers in psychology*, 2017,8.