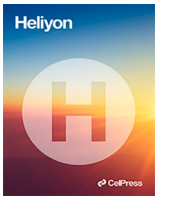
Heliyon 10 (2024) e27617

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon



Research article

Fatalism and depressive symptoms among Chinese college students: Mediation models of locus of control and positive coping

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ARTICLE INFO

Keywords:
Depression
Classic fatalism
Taoist values
Locus of control
Coping styles

ABSTRACT

Fatalistic voluntarism and classic fatalism have opposite effects on depression. This study attempted to measure fatalistic voluntarism with the magnanimity of Taoist values and examined the internal mechanism by which classic fatalism and magnanimity influenced depression. A total of 525 Chinese college students effectively completed self-reported questionnaires. Results showed that classic fatalism is positively correlated with depression, and magnanimity is negatively correlated with depression. Furthermore, classic fatalism and magnanimity can influence depression in Chinese college students through serial mediation by locus of control and positive coping. These findings illuminate the mediating role of locus of control and positive coping, providing specific ways to use two different belief systems, which can help reduce depressive symptoms among college students. In addition, our study may provide some ideas for the development of local culture in the promotion of mental health in different regions.

1. Introduction

College students are a critical part of the population that determines a country's economic growth and success [1]. Many studies have found that the college years are a peak time for the onset of many common mental disorders, with one of the most common mental disorders being depression [2,3]. Depression is a mental disorder that harms people's physical and mental health worldwide, and it is also a serious health hazard, which is an important reason for the increase of suicide rate in the 21st century [4]. Depression is the result of the interaction of social, psychological, and physiological factors. For students, college is a transitional stage in a person's self-dependence. In particular, college students encounter not only academic challenges but also challenges related to independent living [5]. Researchers believe that people in this period have not yet established a stable life structure in identity exploration, feeling in-between, entertaining possibilities, self-focus, and other dimensions. Poor development in each dimension has the potential to lead to serious mental disorder [6]. Data from a survey of first-year students at 19 universities in eight countries showed that major depressive disorder is the most common disorder examined in all countries [1]. Survey data from the Report on the Development of China's National Mental Health (2019–2020) showed that among a group of 8446 college students, 18.5% tended to be depressed, and 4.2% had a tendency to be at high risk of depression [7]. Thus, depression among college students has attracted increasing interest from governments, societies, and academics worldwide. Shahid et al. [8] found fatalistic voluntarism is associated with the mechanism of protection against depression. However, this fatalism may take different forms in each culture [9]. The present study aimed to assess fatalistic voluntarism through the magnanimity of Taoist values [8]. We also examined, in detail, the relationship between locus of

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https://doi.org/10.1016/j.heliyon.2024.e27617
Received 20 September 2023; Received in revised form 12 February 2024; Accepted 4 March 2024
Available online 8 March 2024

control and positive coping and established the first mediating model of classic fatalism/magnanimity and depression. This provided an effective way to alleviate depressive symptoms among college students.

Fatalism suggests that events in life are beyond one's control and are bound to occur regardless of intent or action [10]. Most previous studies have examined the effects of fatalism on cancer patients [11–13]. Since 1980, fatalism has been introduced into health research and studied as a health belief, as several studies found a positive association between fatalism and depression [9,14–16]. Researchers have suggested that fatalism leads to increased vulnerability to depression [17].

Other scholars have argued that there is an agency of fatalism allowing people to be more active regarding setbacks [18,19]. Researchers have described this as fatalism voluntarism and have developed an active fatalism questionnaire to measure it [8]. They also found a significant positive correlation between depression and classic fatalism, as well as a significant negative correlation between depression and active fatalism. However, as a cultural belief, fatalism is strongly influenced by external factors, such as region, culture, and economy [9]. The Chinese Health Information National Trends Survey also confirmed two different beliefs about fatalism in China [20]. We prefer to measure the agency of fatalism within Taoist values. Created by Laozi, the Taoist values center on "Wu Wei" and advocate for embracing nature. They emphasize a free spirit, extricating oneself from earthly restrictions, and aspiring for unity between things and the self [21]. An example teaching is, "the person puts himself last, and finds himself in the foremost place; regards his body as accidental, and his body is thereby preserved." This belief suggests that Taoist values are not attached to life and death, but are bright and magnanimous. Thus, although they also focus on accepting the situation as classic fatalism, the Taoist teachings strongly emphasize on optimism. This optimism is referred to as magnanimity.[1] We suggest that this ideology is a Chinese manifestation of fatalistic voluntarism, and there should be a significant negative correlation between depression. Therefore, this study explored the influence of two kinds of beliefs on depression among Chinese college students by using the magnanimity scale of Taoist values as a measure of fatalistic voluntarism. Based on the above analysis, our first hypothesis was as follows:

Hypothesis H1. Magnanimity and classic fatalism can differentially predict depression.

The focus on external control was common in both the magnanimity and in classic fatalism [21,22]. Locus of control (LOC) depicts how individuals attribute events affecting their lives [23]. Individuals with external control attribute the occurrence of events to external causes, such as luck, chance, and fate. Ones with internal control attribute the occurrence of events to internal factors, such as behavior, attitude, and effort. LOC was closely associated with depression [24,25]. The Dutch Depression and Anxiety Disorders Study also found that people with external LOC are more prone to show symptoms of depression, and anxiety, and develop an unfavorable (chronic) course [26]. Individuals who believe in classic fatalism are more likely to attribute events to external factors, which may increase their risk of depression [9]. On the other hand, while individuals with magnanimity also attribute external control, this may reduce the risk of depression due to their broad-mindedness [27]. For instance, female college graduates with high magnanimity scores have lower levels of depression in China [28]. LOC also plays a mediating role in the relationship between early socioeconomic adversity and depression [29]. Based on these relevant studies, we hypothesized that:

Hypothesis H2. Classic fatalism/magnanimity could influence depression among college students through the mediating role of LOC.

Coping styles refer to the process of managing internal or external demands, and they are divided into positive coping (PC) and negative coping (NC) [30,31]. Classic fatalism attributes events' occurrences to external control factors, such as luck and predestination. Therefore, fatalists are convinced that they have little control over events and are more likely to adopt negative strategies. Previous studies have shown that classic fatalism is significantly and positively related to negative coping and depression [8,32]. By contrast, magnanimity advocates transcending adversity and treating both gains and losses with an optimistic and peaceful mindset. It also emphasized winning without fighting and overcoming difficulties with gentleness [21]. Thus, individuals with magnanimity are likely to adopt positive coping styles. Luo and Cheng [28] found that Taoist values can influence depression and anxiety among female Chinese college graduates through the mediating role of positive coping styles. Accordingly, the following hypothesis was proposed:

Hypothesis H3. Classic fatalism/magnanimity can influence depression among college students through the mediating role of coping styles.

LOC is usually considered moderately stable over up to nine years [33,34]. Thus, classic fatalists with external control may often adopt negative coping styles, thereby intensifying depressive symptoms. Researchers have found that individuals with external LOC use more avoidant coping strategies [35]. LOC also has significantly positive predictive properties regarding negative coping styles [36]. As fatalists typically consider the consequences of events to be determined by external factors, they become more likely to

[1] The difference between magnanimity and tolerance: Magnanimity embodies kindness and generosity, particularly towards those who have treated one poorly or have been defeated. It extends beyond mere acceptance, incorporating a heartfelt acknowledgment of others' viewpoints and behaviors. Conversely, tolerance is characterized by a readiness to accept behaviors and beliefs that diverge from one's own, even if they are not agreed with or endorsed. The *Tao Te Ching*, in its 49th verse, elucidates this distinction: "The Sage has no decided opinions and feelings. But regards the people's opinions and feelings as his own. The good ones I declare good; The bad ones I also declare good. That is the goodness of virtue. The honest ones I believe; The liars I also believe; That is the faith of virtue. The Sage dwells in the world peacefully, harmoniously. The people of the world are brought into a community of heart. And the Sage regards them all as his own children." This verse illustrates that while tolerance is about the passive acceptance of differing views and behaviors, magnanimity actively embraces and internalizes these differences. Thus, tolerance serves as the foundation and prerequisite for the elevated state of magnanimity.

develop the conviction that they do not control events, which results in a higher level of external LOC and a more negative coping style. In contrast, individuals with high magnanimity have a more positive coping style due to their optimistic spirit. The above analyses suggest that classic fatalism/magnanimity may affect depression through the influence of LOC and coping styles; that is, there is potential for LOC and coping styles to serve as serial mediators of the relationship between classic fatalism/magnanimity and depression. Therefore, we proposed the following hypothesis:

Hypothesis H4. Classic fatalism/magnanimity can influence college students' depression through the serial mediation of LOC and coping styles.

This research aims to evaluate how adopting the two different belief systems can help individuals reduce depressive symptoms during college life. Specifically, the present study attempted to measure fatalistic voluntarism with magnanimity. In addition, the multiple mediating effects of LOC and coping style elucidated the underlying mechanism between the two types of belief and depression. This would eventually lead to deeper understanding of the power of Taoist values to aid the development of a healthy mental state, not only in China but possibly worldwide, as well.

2. Materials and methods

2.1. Participants and data collection

This cross-sectional study was conducted in the fourth week of April 2022. All participants were full-time college students from China. We collected data on the Wenjuanxing platform (http://www.wjx.cn/) using convenience sampling. This study was approved by our Research Ethics Committee. All participants provided informed consent prior to participation.

Using polygraph questions to exclude invalid questionnaires, 525 valid ones were obtained. Among 525 participants, 384 (73%) were female. The minority of people (6%) are religious. 173 (33%) participants were from only-child families. Additional demographic information is presented in Table 1. In addition, a post hoc test was used to ensure the statistical power and effect size using G*Power 3.1.9.4. We selected a medium effect size of 0.3, and the α-error probability was 0.05. The results showed that the observed power (1-β) for the two-tailed hypothesis was 0.99, indicating acceptable power and effect size.

2.2. Variables and measurements

2.2.1. Depression

The Depression Anxiety and Stress Scales (DASS-21) was a widely used instrument to assess the mental health status of the non-clinical population. The Chinese version was revised by Gong et al. [37]. The full scale contains 21 items, all scored on a 4-point scale from 0 (does not match) to 3 (always matches). The scale contains three subscales: depression, anxiety, and stress. Higher scores represent higher levels of each construct. In the current study, the Cronbach's Alpha of depression subscale was 0.89.

2.2.2. Classic fatalism

The Chinese Fatalism Scale was revised by Zhang et al. [38]. It consists of 16 items, including 3 subscales of predetermination, luck, and pessimism. The scale was scored on a 5-point scale (1-completely disagree, 5-completely disagree). The higher the score, the higher the individual's level of fatalism. Higher scores represent higher fatalistic cognitions. In the current study, Cronbach's Alpha was 0.88.

2.2.3. Taoist values

The Taoist Values Questionnaire developed by Zhang [27] was adopted. It includes 6 subscales, magnanimity, obeying naturalness, having few desires, negative dialectic, back to nature, and transcendental freedom. Participants respond to 19 items using 4-point scoring (1-disagree, 4-strongly agree). The higher scores represent higher Taoist concepts. And the magnanimity subscale was used

Table 1
Demographic characteristics of the entire participant sample.

Characteristic	$N = 525$	*M*	*SD*
Age		20.00	1.44
Gender			
Male	141	20.09	1.50
Female	384	19.97	1.42
Religion or belief system			
Christianity	8		
Buddhism	19		
Other	5		
No	493		
Only child			
YES	173		
NO	352		

in this study. In the current study, Cronbach's Alpha was 0.80.

2.2.4. LOC

The Locus of Control Scale was developed by Rotter [39]. It contains 29 items, with 6 insertion questions that are not scored. There are two options under each scoring item, and participants can choose only one. One point is given for the external control choice, and the rest are not scored. The lower the score, the more internal control is preferred, and the higher the score, the more external control is preferred. In the current study, Cronbach's Alpha was 0.73.

2.2.5. Simplified coping style questionnaire

The Simplified Coping Style Questionnaire was revised by Xie [40] based on the Coping Style Scale [41]. The scale contains a total of two dimensions: positive coping (12 items) and negative coping (8 items). It uses a 3-point scale from 0 (never) to 3 (very often). High scores for the 2 dimensions correspond to a higher preference for using that coping skill. In the current study, Cronbach's Alpha was 0.80.

2.3. Data analyses

The data were analyzed in SPSS 26.0 and Amos 26.0. First, Spearman's correlation analysis was conducted to examine the relationship between variables of interest. Second, four hypotheses were tested by structural equation modeling. A suite of fit indices, including the root mean squared error of approximation (RMSEA), standardized root mean square residual (SRMR), comparative fit index (CFI), normed fit index (NFI), and Tucker–Lewis index (TLI), was calculated to assess the model's goodness-of-fit. The models with RMSEA and SRMR values below 0.08 and CFI, NFI, and TLI values above 0.90 were regarded as acceptable [42,43]. The models with RMSEA and SRMR values below 0.06 and CFI, NFI, and TLI values above 0.95 were regarded as good [44]. The Bootstrap method was used to estimate the indirect effects.

3. Results

3.1. Common-method biases test

The potential threat of common method bias was measured by Harman's single-factor. The results showed that the eigenvalues of 17 factors were >1, and the first factor explained only 16.28% of the total variance, which was much lower than the critical value of 40% [45]. This suggests that there were no serious common biases in the present study.

3.2. Descriptive statistics and correlation analysis

Descriptive statistics for study measures and the Spearman correlation coefficients between the study variables are shown in Table 2. We found that classic fatalism is positively correlated with depression ($r = 0.38$, $p < 0.001$), LOC ($r = 0.48$, $p < 0.001$), and NC ($r = 0.33$, $p < 0.001$). While magnanimity was negatively correlated with depression ($r = -.27$, $p < 0.001$) and LOC ($r = -.19$, $p < 0.001$). Together, these results indicated that magnanimity and classic fatalism affect depression oppositely.

3.3. Serial mediation model

First, we investigated the direct effect of classic fatalism and magnanimity on depression, and the model was adequate, $\chi^2/df = 2.99$, RMSEA = 0.06, SRMR = 0.05, CFI = 0.99, NFI = 0.98, TLI = 0.96. The results showed that classic fatalism had a positive effect on depression ($\gamma = 0.30$, $p < .001$) and magnanimity had a negative effect on depression ($\gamma = -0.18$, $p < .001$). Thus, H1 was validated (Fig. 1).

Further, the serial mediation model was examined. Results showed the model fit was good, $\chi^2/df = 1.91$, RMSEA = 0.04, SRMR = 0.05, CFI = 0.99, NFI = 0.99, TLI = 0.98. The bias-corrected percentile bootstrap method (sampling was repeated 2, 000 times) was used to construct 95% confidence intervals (CI) to test the significance of mediating effects. Table 3 specifies the standardized estimates and 95% CI for the mediation effects for each indirect path in the model. As presented in Table 3, the 95%CI for the path

Table 2
Correlations among scale scores.

	M	*SD*	1	2	3	4	5	6
1 CF	36.93	10.48	–					
2 Magnanimity	13.51	1.93	−0.17***	–				
3 LOC	10.72	3.95	0.48***	−0.19***	–			
4 PC	25.00	5.24	−0.26***	0.44***	−0.29***	–		
5 NC	10.79	4.40	0.33***	−0.08	0.32***	−0.02	–	
6 Depression	11.31	4.27	0.38***	−0.27***	0.40***	−0.36***	0.46***	–

CF: classic fatalism, LOC: locus of control, PC: positive coping, NC: negative coping.
*$p < 0.05$; **$p < 0.005$; ***$p < 0.001$.

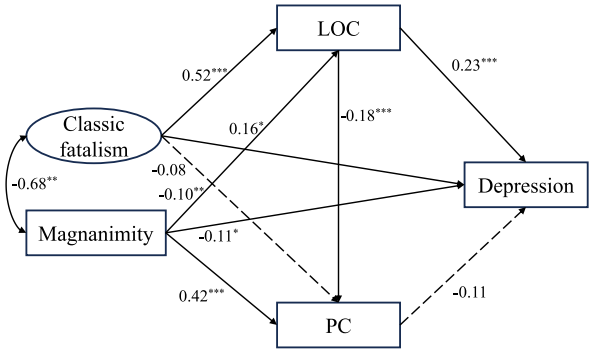

Fig. 1. The structural equation model. All estimates are the standardized coefficients. LOC: locus of control, PC: positive coping. *$p < .05$, **$p < .01$, ***$p < .001$.

coefficients of classic fatalism→LOC→depression and magnanimity→LOC→depression did not include 0, indicating that the mediating effect of LOC was significant. The 95% CI for the path coefficients of classic fatalism→PC→depression and magnanimity→PC→depression both include 0, suggesting no significant mediation by PC. Finally, the 95% CI of the path coefficients for classic fatalism→LOC→PC→depression and magnanimity→LOC→PC→depression did not include 0, indicating a significant serial mediating effect between LOC and PC.

4. Discussion

This study measured fatalistic voluntarism with the magnanimity of Taoist values, examining the influence of both sets of beliefs on depression and the multiple mediating roles of LOC and PC in the relationship between classic fatalism/magnanimity and depression among college students. The research results supported H1. Multiple mediating roles of LOC and PC in the relationship between classic fatalism/magnanimity and depression among college students were found. Specifically, we demonstrated that classic fatalism positively predicted LOC, LOC negatively predicted PC, and PC negatively predicted depression. Magnanimity negatively predicted LOC, LOC negatively predicted PC, and PC negatively predicted depression.

The present study found that both classic fatalism and magnanimity predicted depression using structural equation modeling. This is consistent with previous research results [8,28]. If college students choose to deal with setbacks optimistically and harmoniously, they become more likely to have positive emotional experiences, thus reducing their depressive symptoms. In contrast, if individuals face difficulties passively, this will increase the negative emotional experience and lead to depressive symptoms. Therefore, appropriate education on the magnanimity of Taoist values can help college students regulate their mental health and create positive coping mechanisms that can be helpful in the future. Leung et al. [46] characterized fatalism as a social axiom, emphasizing the development of the individual within a socially structured environment. Therefore, the different interpretations of fatalism in different countries cannot be ignored. According to the writings of Western scholars, fatalism is based on people's religious beliefs [8]. However, the Chinese culture is influenced majorly by traditional ideology than religion. The survey showed that only 14% of Chinese citizens were religious. This study examined both fatalism and magnanimity to explain depression, finding that both had a significant role in the occurrence of depression. This has inspired people worldwide to explore local cultures and combine local values with their own ones to prevent the occurrence of such symptoms. We suggest that society should not only introduce emerging cultures, but also vigorously explore existing local ones to respond to individual mental health problems.

Although previous studies have examined the predictive effects of classic fatalism/Taoist values, LOC, and coping styles on depression, few have analyzed the mechanisms of LOC and the coping styles in the relationship between classic fatalism/magnanimity and depression. The present study revealed the mediating role of LOC between classic fatalism/magnanimity and depression through mediating analysis. Therefore, H2 was validated, showing that the effect of college students' classic fatalism/magnanimity on their depression was partly produced through LOC. An individual with internal LOC can effectively alleviate depressive symptoms. As a

Table 3
Standardized indirect effects using bootstrapping with 2000 resamples.

Pathways	Effect	SE	*p*	95% CI	
				Lower	Upper
Classic fatalism→LOC→Depression	0.118	0.026	<0.001	0.070	0.174
Classic fatalism→PC→Depression	0.009	0.009	>0.05	−0.002	0.035
Classic fatalism→LOC→PC→Depression	0.011	0.007	<0.05	0.001	0.029
Magnanimity→LOC→Depression	−0.022	0.009	<0.01	−0.043	−0.007
Magnanimity→PC→Depression	−0.047	0.025	>0.05	−0.094	0.002
Magnanimity→LOC→PC→Depression	−0.002	0.002	<0.05	−0.007	−0.001

LOC: locus of control, PC: positive coping.

more stable personality trait, LOC represents the way an individual perceives his or her ability to control personal environment and future [23,47]. Individuals with classic fatalism values explain events through external factors, ignoring their own agency. However, individuals with magnanimity can buffer the adverse effects of setbacks and resolve difficulties within the limits of their capabilities [21]. Thus, the distinction between the two groups regarding mental attitudes leads to the different effects of LOC on the two types of belief and depression. Contrary to Hypothesis 3, we did not find a mediating effect of PC on the relationship between classical fatalism/magnanimity and depression. Although magnanimity emphasizes individual agency, it aligns with classical fatalism in acknowledging an external force that predetermines life's events [8,21]. The individual has engaged in positive coping strategies to address the issue and the problem cannot be solved. Consequently, this failure may not have led to a reduction in self-efficacy, potentially resulting in a partial alleviation of the individual's depressive symptoms [48,49]. Another potential explanation for the lack of mediating effect could be methodological. Luo and Cheng [28] demonstrated the mediating effect of PC using the full scale of Taoist values in relation to depression, whereas the current study only employed the magnanimity subscale.

Studies have identified that classic fatalism/magnanimity can influence depression among college students through the serial mediation of the LOC and PC. Thus, H4 was validated. Identifying the mediators of the relationship between classic fatalism/magnanimity and depression will help elucidate why some at-risk individuals experience heightened depressive symptoms while others reach more adaptive functional levels. College students with strong classic fatalistic beliefs are more inclined to attribute events to external causes that are difficult to control by the human. Therefore, positive coping strategies are reduced, resulting in negative self-evaluations which exacerbate depressive symptoms [50,51]. In addition, LOC is closely related to self-efficacy [52,53], and a reduced sense of control makes individuals likely to adopt helpless and negative attitudes towards life, which also increases the risk of depression [54]. Instead, individuals with strong magnanimity beliefs are less likely to attribute events to external causes and more likely to adopt positive coping strategies which alleviate depressive symptoms.

This study has some limitations. The first is the complexity of fatalism in traditional Chinese culture. Only classical fatalism and magnanimity in Taoist values were examined in this study. However, some ideas, such as fate and karma, were not discussed [55]. In addition, intervention procedures could be considered in the future to test the reliability of replacing fatalistic voluntarism with magnanimity. Second, this study used a cross-sectional survey method and could not deduce a causal relationship between fatalism and depression. Third, the sample of the current study included very few religious believers and did not examine the differences between religious believers and non-believers. Finally, self-report measures were used in this research which means it may still be subject to reporting bias despite participants' anonymity.

This study also has theoretical and practical implications. Theoretically, our research established the first mediating model of fatalism and depression, showing that LOC and coping style are key factors of fatalism leading to depression, therefore elucidating the mechanism of fatalism and depression influence. From a practical perspective, changing individuals' external attributions and negative coping styles was proven beneficial for reducing the risk of depression. The occurrence and development of depression can be effectively reduced if students are guided to view fatalism correctly, improve their understanding of traditional Taoist culture, and take active control of their lives to cope positively with difficulties. In addition, the present study provides empirical support for Chinese Taoist cognitive therapy and magnanimous therapy [56,57]. Finally, the present study also provides some reference for using local cultural characteristics to alleviate depressive symptoms.

Funding

This work was supported by the National Social ScienceFoundation of China (No. BIA200182).

Ethics statement

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Research Ethics Committee of Liaoning Normal University (No. LL2022028). Informed consent was obtained from all participants enrolled in the study.

Data availability statement

The raw data supporting the conclusions in this article are available by contacting the corresponding author.

Additional information

No additional information is available for this paper.

CRediT authorship contribution statement

Ya Zhang: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Jinsheng Hu:** Writing – review & editing, Supervision, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

We would like to thank Editage (www.editage.cn) for English language editing.

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