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The Influence of Body Investment on Depression in Chinese College Students: A Moderated Mediating Effect

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ABSTRACT

An individual's perception, attitude, feeling and behavior about their body are important factors for mental health (depression). This study aims to explore the impact of body investment on depression, and the role of self-efficacy and self-esteem in this connection. A hypothetical model about the relationship between body investment, self-efficacy, self-esteem and depression was tested. Using convenient sampling methods, a self-rated cross-sectional survey comprised of paper-based and online modes was conducted among 1,164 college students in Yunnan Province, China from July 2021 to August 2021. The data collection used the body investment scale, self-efficacy scale, self-esteem scale and depression scale. The results show that there is a low to moderate positive correlation (ranging between -0.11 and -0.59) between the research variables. The body investment of college students has a negative predictive effect ($B = 16.23$, $SE = 0.65$) on depression. This connection is also regulated by the mediating role of self-esteem and self-efficacy. All these factors explain 37.83% variability of research participation. These findings show how body investment affects the depressive state of college students. Further, these results help to demonstrate that self-efficacy and self-esteem are academically important for optimizing students' depression, so as to promote a good mental state.

KEYWORDS

Depression; body investment; self-esteem; self-efficacy

1 Introduction

Depression is one of the world's biggest health problems, affecting more than 300 million people [1]. It is characterized by a consistently low emotional state and a marked decrease in interest or pleasure in activities [1,2]. Experts warn that by 2030, depression is expected to outnumber all cardiovascular diseases combined and become the world's leading cause of disability [3,4]. Depression is of concern to researchers due to its high prevalence across cultures, in terms of the increasing progress of age-specific symptom severity and the serious potential health consequences [5]. It has a broad impact on all aspects



of life. People affected by depression may suffer great pain, leading to severe individual dysfunction in many areas, including social roles and social functioning, academic and professional performance, well-being and overall quality of life [6,7]. Depression is universal for all ages, especially prominent in young people aged between 18 to 25 [1,8]. For these individuals, college is a time of mental instability, seeking proof of identity, and transition to adulthood. It can seriously affect academic performance and attendance, lead to a gradual withdrawal from society, and/or increase isolation and loneliness [3]. Worse, at its worst, depression can lead to suicide, which is the second leading cause of death among 15- to 29-year-olds [3,4].

In order to minimize the risk of depression and improve the lives of depressed people as much as possible, a large number of studies are devoted to understanding the factors associated with the onset and treatment of depression [8,9]. Social role stressors, attachment patterns, family support, social networks, and individual vulnerability may significantly increase the risk of depression [8]. Recently, van Mierlo et al. [1] found that body investment significantly affected depressive symptoms of Dutch emerging adults. The results showed that higher physical satisfaction and greater body investment were associated with fewer depressive symptoms. The relationship between body investment and depression was stronger than that of physical satisfaction [1]. Thus, this study hypothesizes that body investment is a direct negative predictor of depression (H1).

However, the understanding of the relationship between body investment and depressive symptoms is inconsistent. Orbach et al. [10] found no correlation between body investment and depression—although authors suggest this lack of association may be due to limitations with sample sizes and depression measures—this non-significance may also suggest that not all body investment affects depression. This is because it is not necessarily the objective reality that affects an individual's attitude and behavior, but how they perceive their own experience [11]. Self-esteem is a person's evaluation of themselves, mainly based on how much they like or dislike themselves. The higher the level of self-esteem—the more positive body image feelings and attitudes, the higher the comfort level of touch, the higher the level of concern for the body, and the lower the depressive symptoms due to the sense of control over the body. Therefore, this study hypothesized that the direct prediction of body investment on depression was mediated by self-esteem (H2).

People with a high sense of self-efficacy have a sense of competence and a high level of enthusiasm when encountering problems. At the same time, people with a low sense of self-efficacy have a low sense of competence, which leads to insufficient internal motivation support and makes things more likely regress. The most direct activity with which the body is involved is exercise. During exercise, the individual improves this perception and belief about their body, enhancing their emotional relationship with the body through this specific behavior [12]; thereby improving one's sense of competence, belief in their body, and increasing one's sense of self-efficacy. Recent studies have found a close relationship between self-efficacy and depression in Chinese college students, and that self-efficacy can negatively predict their depression [13]. Scholars believe that depression occurs when an individual fails an attempt to achieve a key goal successfully; depression sometimes subsides when individuals give up pursuing an unattainable goal. Therefore, this study hypothesized that body investment might negatively predict depression through the moderating effect of self-efficacy, and the mediating effect of self-esteem may also be affected by the moderating effect of self-efficacy (H3).

In summary, based on existing studies, this study constructs a moderated mediation model (see Fig. 1). It examines the relationship between body investment, self-efficacy, self-esteem and college students' depression. Specifically, this study intends to investigate the mediating (self-esteem) and regulating (self-efficacy) mechanisms of body investment in predicting college students' depression, in order to clarify the cognitive mechanism and individual differences between body investment and college students' depression and to provide empirical support and theoretical guidance for improving depression.

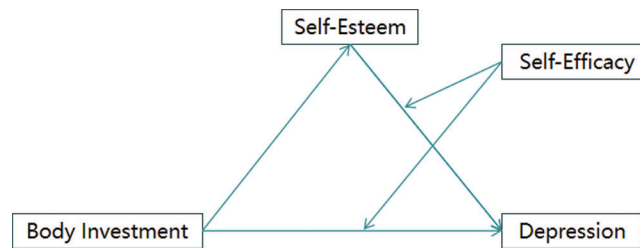


Figure 1: A hypothetical model of the effects of body investment, self-efficacy, and self-esteem on depression

2 Method

2.1 Participants

With small correlation (0.10) and 90% power for a two-tailed test, expected sample size is 1,047 [14]. In this study, the convenience sampling technique was utilized for sample selection. Participants surveyed included 1,300 college students from Yuxi Normal University (Yunnan, China) collected from July to August 2021, with 90% of the subjects coming from different parts of Yunnan Province and 10% from other provinces. There are more than 13,000 college students in Yuxi Normal University, and 1/10 of them were selected as the survey objects. The selection of subjects is mainly based on grade, major, gender, birthplace and other factors, so as to ensure the representativeness of sample. After the completion of the survey, the answer scale was rechecked, and 136 invalid questionnaires including missing questions and conventional questions were removed, with a total of 1,164 valid questionnaires. Participants' age ranged from 17 to 22 years ($M = 19.3$; $SD = 1.2$ years). Among them, 961 (82.6%) were female and 203 (17.4%) were male.

2.2 Procedure

According to the principle of convenient sampling, a total of 1,300 students from 25 classes in two universities in Yunnan Province, China were selected. The university psychology teachers conducted the offline survey, and the anonymous field test was carried out in the class unit. The trained head teachers conducted the online survey and the questionnaires were distributed to the WeChat groups of each class. Participants were instructed that if they already participated in this study in any mode (offline or online) to not partake again. The answered scale was checked, and 136 invalid questionnaires (such as missing answers) were eliminated, and a total of 1,164 valid questionnaires were obtained; the effective rate was 86.7%. SPSS 26.0, AMOS 24.0, and PROCESS v.3.3 were utilized for data management and data analysis.

2.3 Measures

2.3.1 Body Investment Scale

The Body Investment Scale [10] was translated (forward-backward procedure) to use in this study. A master and a doctoral student majoring in psychology forward translated the scale into Chinese, and then synthesized it into one. This translated version was then back-translated into English by two other students. After synthesizing those versions into one, the original version and back-translated versions were compared to identify discrepancies in meaning. There was no such discrepancy. Then a small range test was conducted on a sample of 10 graduate students of psychology and found the Chinese version of the scale understandable in meaning. The scale contains 24 questions, including body image (e.g., “despite my imperfect physical appearance, I still like it”), body touch (e.g., “being hugged by a close person can comfort me”), and body care (e.g., “I use a lot of body care products”). Participants rated their answers utilizing a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A higher score indicates greater body investment. The scale has been shown to have good reliability and

validity [1]. In this study, we verified the scale's applicability to Chinese college students for the first time, and the results showed signs of high effectiveness. Cronbach's α of the scale is 0.82, and the results of confirmatory factor analysis show good model fits: $\chi^2/df = 5.17$, Comparative Fit Index (CFI) = 0.97, Normative Fit Index (NFI) = 0.96, Goodness of Fit Index (GFI) = 0.96, Tucker–Lewis Index (TLI) = 0.95, Root Mean Square Error of Approximation (RMSEA) = 0.06, and Standardized Root Mean Squared Residual (SRMR) = 0.05. Besides, the exploratory factor analysis (Principal component analysis, maximum orthogonal rotation) explored four factors, and factor loadings ranged between 0.586 and 0.802.

2.3.2 General Self-Efficacy Scale

The Chinese version of General Self-Efficacy Scale (Original [15], Chinese [16]) was utilized to assess the self-efficacy of participants. There were 10 items in the scale (e.g., “I can always solve problems if I try my best”). Participants rated their opinion in this scale using a four-point Likert-type scale, ranging from 1 (*not at all true*) to 4 (*exactly true*). Total scores ranged between 10 to 40. The higher the total score, the higher the self-efficacy. This scale has been shown to have good reliability and validity [13], and the Cronbach's α of this scale in this study is 0.91.

2.3.3 Self-Esteem Scale

The self-esteem scale [17] was used to assess overall feelings about self-worth and self-acceptance. It is the most widely used self-esteem assessment tool in Chinese psychology. The scale consists of five positive items (e.g., “I feel that I am a valuable person, at least on the same level as others”) and five negative items (e.g., “I do not have much to be proud of”). Studies have shown that cultural differences require reverse scoring of Question 8 (“I wish I had earned more respect for myself”); however, instead of a positive score [18], this study adopted the method of removing Question 8. The scale adopts four rating levels of consistency, 1 (*very consistent*), 2 (*consistent*), 3 (*inconsistent*), and 4 (*very inconsistent*). The higher total score denotes higher the self-esteem. This scale has good reliability and validity [19]. In this study, the Cronbach's α of this scale is 0.77.

2.3.4 Center for Epidemiological Studies Depression Scale

The Chinese version of Center for Epidemiological Studies Depression Scale (Original [20], Chinese version [21]) was used to evaluate the frequency of current depressive symptoms, focusing on depressive emotion or mood. The scale contains 20 questions, 4 of which are scored in reverse (e.g., “I feel as good as anyone else”). When filling out the form, the subjects were asked to state the frequency of symptoms in the last week. Participants responded utilizing a four-point Likert-type scale from 0 (*Occasionally or none [less than a day]*) to 3 (*Most of the time or duration [5–7 days]*). The total scores ranged from 0 to 60, with the higher the score, the higher depressive symptoms. This scale has good reliability and validity [21], and the Cronbach's α of this scale is 0.91 in this study.

2.4 Ethics

Human subjects were used in this study, so we followed the Helsinki Declaration and its subsequent amendments. This study has been approved by the Ethical Committee of Yuxi Normal University, Yuxi, China (ERB No. 2021011, dated: 22/5/2021). Before the survey began, students were informed of the survey intentions, costs and benefits, the time required for completion, and data confidentiality. To make sure students understood the nature of the research, they provided their informed consent to participate in this study.

3 Results

3.1 Common Method Bias

The self-rating scale was used in this study, which may cause common method bias (CMV). Therefore, in the testing process, the privacy of the subjects was protected; some items were controlled by reverse

scoring, and Harman single factor analysis method was used to test the deviation of the common method during data processing. The results showed that a total of 23 eigenvalues greater than 1 explained 62.18% of the variation, and the variance explained by the first factor was 11.29%, far less than the 40% threshold, indicating that the effect of common method deviation was not significant.

3.2 Descriptive Statistical Analysis

Table 1 presents the descriptive statistics of the study variables. Kim [22] recommends that when the skewness value is greater than or equal to 2, and the kurtosis value is greater than or equal to 7, the data is non-normal. In this study, the data skewness of Chinese variables ranged from 0.77 to -0.04 , and the kurtosis ranged from -0.17 to 1, all of which were lower than the recommended critical values for evaluating normality. The correlations between body investment, self-efficacy and self-esteem were positive, while depression was negatively correlated with the other three variables. The correlation between the variables was statistically significant ($p < 0.01$).

Table 1: Descriptive statistics of the study variables ($n = 1,164$)

Variables	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	1	2	3	4
1. Body investment	3.58	0.46	-0.04	1	1			
2. Self-efficacy	3.41	0.66	-0.34	0.86	.27**	1		
3. Self-esteem	2.79	0.42	0.43	1.41	.36**	.45**	1	
4. Depression	16.39	10.84	0.77	-0.17	$-.59$ **	$-.11$ **	$-.28$ **	1

Note: *M* = mean; *SD* = standard deviation. ** $p < 0.01$.

3.3 The Mediating Effect of Self-Esteem

The PROCESS Model 4 (consistent with the theoretical hypothesis model of this study) in SPSS macro developed by Hayes [23] was used for regression analysis to test the mediating effect of self-esteem between body investment and depression. When gender and ethnicity were controlled, the results (see Tables 2 and 3) showed that, firstly, the regression equation was established with body investment as the independent variable, and self-esteem and depression as the dependent variables. The results showed that body investment had a significant positive predictive effect on self-esteem ($B = 0.39$, $SE = 0.03$, $t = 13.34$, $p < 0.001$). It had a significant negative predictive effect on depression ($B = -16.23$, $SE = 0.65$, $t = -25.13$, $p < 0.001$). Secondly, self-esteem was the independent variable and depression was the dependent variable, and the regression analysis was conducted. The results showed that self-esteem ($B = -1.85$, $SE = 0.65$, $t = -2.87$, $p < 0.001$) had a significant negative predictive effect on depression. After adding self-esteem, the effect of body investment on depression was still significant ($B = -15.50$, $SE = 0.69$, $t = -22.39$, $p < 0.001$); and self-esteem played a mediating role between body investment and depression. In addition, the bootstrap 95% confidence interval of the direct effect of body investment on depression and the mediating effect of self-esteem did not contain 0 (see Table 3), indicating that body investment can not only directly predict depression, but can also predict depression through the mediating effect of self-esteem. The direct effect ($B = 15.50$, $SE = 0.73$) and the mediation effect of the total effect ($B = 16.23$, $SE = 0.65$) were respectively 95.5% and 4.5%.

3.4 The Regulating Effect of Self-Efficacy

Moderating effect of self-efficacy was tested through Model 15 of the PROCESS macro [23]. Model 15 assumes that the latter half of the mediation model and its direct path are adjusted, which is consistent with the theoretical basis of the model in this study. After adding self-efficacy into the model (see Tables 4 and 5), the product term of body investment and self-efficacy and the product term of self-esteem and

self-efficacy had significant predictive effects on depression (body investment \times self-efficacy: $B = -2.85$, $SE = 0.94$, $t = -3.02$, $p < 0.001$; Self-esteem \times self-efficacy: $B = 3.36$, $SE = 0.82$, $t = 4.09$, $p < 0.001$). These results indicated that self-efficacy moderated the direct prediction of body investment on depression and moderated the prediction of self-esteem on depression. Simple slope analysis further showed that self-efficacy moderated the direct prediction of self-esteem on depression (see Figs. 2 and 3). As seen in Fig. 2, for subjects with low self-efficacy ($M - 1 SD$), body investment had a significant negative predictive effect on depression (simple slope = -13.95 , $t = -15.01$, $p < 0.001$). For subjects with a high level of self-efficacy ($M + 1 SD$), body investment also had a significant negative predictive effect on depression, and its predictive effect became larger (simple slope = -17.73 , $t = -18.96$, $p < 0.001$). This indicates that as the level of individual self-efficacy increases, the predictive effect of body investment on depression gradually increases (see Table 5).

Table 2: Mediation model test of self-esteem

Variables	Self-esteem				Depression				Depression			
	coeff	SE	t	p	coeff	SE	t	p	coeff	SE	t	p
Sex	-0.06	0.03	-1.90	0.06	-1.21	0.68	-1.79	0.07	-1.32	0.67	-1.95	0.05
Nationality	-0.03	0.03	-1.02	0.31	0.19	0.57	0.34	0.74	0.14	0.57	0.25	0.80
Body investment	0.39	0.03	13.48	<0.001	-16.23	0.65	-25.13	<0.001	-15.50	0.69	-22.39	<0.001
Self-esteem									-1.85	0.65	-2.87	<0.001
<i>R-sq</i>	0.14				0.36				0.36			
<i>F</i>	60.93				215.99				165.06			

Note: Coeff = coefficient; SE = standard error.

Table 3: Total effect, direct effect and indirect effect

	Effect	Boot SE	Boot LL CI	Boot UL CI	Effect size (%)
Total Effect	-16.23	0.65	-17.50	-14.96	
Direct Effect	-15.50	0.69	-16.86	-14.14	95.50
Mediating Effect	-0.73	0.28	-1.28	-0.20	4.50

Note: SE = standard error; LL = lower level; UL = upper level; CI = Confidence interval.

Table 4: Tests for moderated mediating effects

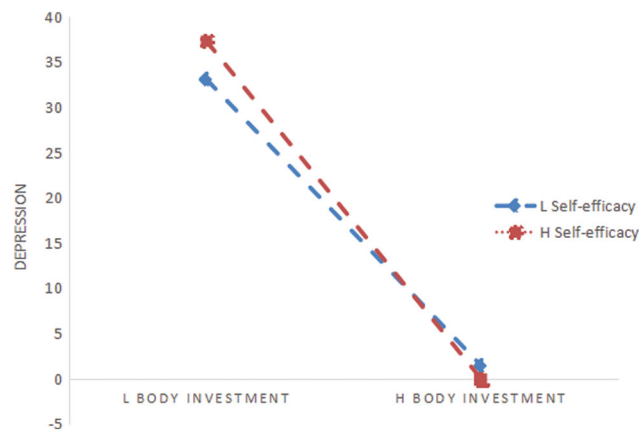
Variables	Self-esteem				Depression			
	coeff	SE	t	p	coeff	SE	t	p
Sex	-0.06	0.03	-1.90	0.06	-1.19	0.67	-1.76	0.08
Nationality	-0.03	0.03	-1.02	0.31	0.21	0.56	0.37	0.71
Body investment	0.39	0.03	13.48	<0.001	-15.84	0.69	-22.91	<0.001
Self-esteem					-2.94	0.70	-4.20	<0.001
Self-efficacy					1.38	0.44	3.14	<0.001
Body investment * Self-efficacy					-2.85	0.94	-3.02	<0.001
Self-esteem * Self-efficacy					3.36	0.82	4.09	<0.001
<i>R-sq</i>	0.14				0.38			
<i>F</i>	60.93				100.48			

Note: Coeff = coefficient; SE = standard error.

Table 5: Direct effects and indirect effects on different levels of self-efficacy

	Self-efficacy	Effect	Boot SE	Boot LL CI	Boot UL CI
Direct effects	2.75($M - 1 SD$)	-13.95	0.93	-15.77	-12.12
	3.41(M)	-15.84	0.69	-17.20	-14.48
	4.07($M + 1 SD$)	-17.73	0.94	-19.56	-15.89
The mediating effect of self-esteem	2.75($M - 1 SD$)	-2.04	0.47	-3.03	-1.15
	3.41(M)	-1.16	0.32	-1.84	-0.55
	4.07($M + 1 SD$)	-0.28	0.37	-0.10	0.45

Note: M = mean; SD = standard deviation; SE = standard error; LL = lower level; UL = upper level; CI = confidence interval.

**Figure 2:** The moderating effect of self-efficacy on body investment and depression

In Fig. 3, for subjects with low self-efficacy ($M - 1 SD$), self-esteem had a significant negative predictive effect on body investment and depression (simple slope = -5.16 , $t = 5.58$, $p < 0.001$). However, for subjects with a high level of self-efficacy ($M + 1 SD$), self-esteem had no significant predictive effect on body investment and depression (simple slope = -0.71 , $t = -0.84$, $p < 0.05$), indicating that with the increase of individual self-efficacy, the predictive effect of self-esteem on depression gradually decreases. In addition, the three levels self-efficacy when accounting for the mediating role of self-esteem had varying levels of significance with depression. The low level of self-efficacy ($M - 1 SD$) as well as the intermediary level for it when accounting for the mediating role of self-esteem produced significant effects with depression. However, the relationship between depression and the high level of self-efficacy ($M + 1 SD$), when accounting for the mediating role of self-esteem then becomes not significant (see Table 5). Namely, this demonstrates that as the level of self-efficacy of the subjects increases, body investment is less likely to alleviate their depression by improving their self-esteem.

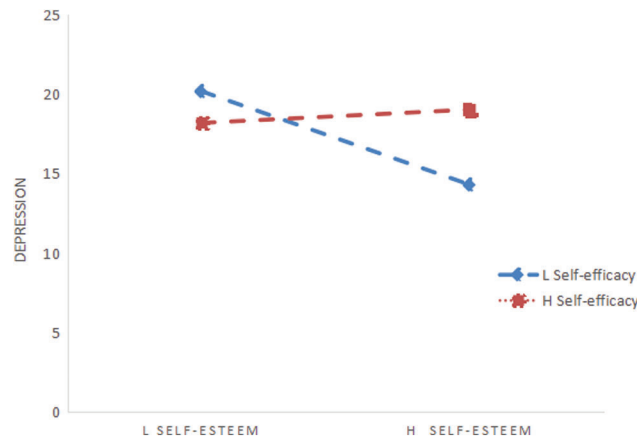


Figure 3: The moderating effect of self-efficacy on self-esteem and depression

4 Discussion

In this study, the current depression status of college students was investigated by using the Central Depression Scale. The results of the study were focused mainly on discussing the influence of body investment on depression, as well as the important role of self-esteem and self-efficacy. We all experience emotional problems, such as depressed states, either long or short. The perception of one's body has a great influence on mental health outcomes, especially depression [24]. So by understanding these impacts, creating effective intervention programs to identify and treat mental health problems and reduce the substantial level of psychological risk factors is a necessary next step to this research [25]. Different people have different ways to resolve emotional problems, it may be listening to music, shopping, eating and so on. In recent years, with the rapid development of society and the economy, we are experiencing more and more negative emotions, and depression has become the most important factor that endangers our physical and mental health. With this, people are paying more attention to their physical and mental health. The older people may engage in “square dancing” to entertain themselves, whereas the young may rely on gyms to keep fit. They all experience the pleasure brought by paying attention to the body in activity. For those who are not seriously depressed, experts recommend simple self-help measures to prevent depression, including physical exercise [26]. The results of this study indicate that body investment in young people can significantly and negatively predict depression. These results are consistent with prior research in young people which found that body investment can predict depression—a relationship also consistent across cultures, such as in Israel [10], the United States [27], Russia [25], and the Netherlands [1]. The results of this study confirmed that body investment in Chinese adolescents can also negatively predict depression, that is, the higher the body investment, the less depressive symptoms; results were independent of gender and ethnicity. Adolescence is characterized by emotional, social and physical changes, followed by the most common physical and mental disorders, such as poor body image, depression and eating disorders. A series of studies have shown that higher levels of physical activity are associated with lower levels of depression [28,29]. College students in adolescence pay attention to their own bodies through activities, such as taking care of and protecting it to form recognition and acceptance of their own bodies. In another form, body investment and depression reflect the relationship between the physical self and the psychological self [30], which is also an effective method for individuals to establish a positive relationship with the body, promote physical and mental health, and improve depression.

This study also found that self-esteem played a mediating role in the path of body investment on depression, that is, body investment of college students not only directly predicted depression, but also

indirectly affected depression through the role of self-esteem. In the model, the direct effect of body investment on depression was greater than the indirect effect of self-esteem. This means that individuals' attention, love, and care for their own body will improve their love, evaluation, and attitude of themselves, which can reduce depressive symptoms. The results of this study are consistent with existing studies; body investment is closely related to self-esteem, and self-esteem is closely related to the development of depression [31,32]. Furthermore, the subjects in this study are college students from universities in Yunnan Province, China. This region is a frontier region in southwest China and a province with the most ethnic minorities in China. Compared with the central and eastern regions, the economic development of this region is relatively slow. In addition, China's policy towards ethnic minorities has always been to adhere to ethnic equality and unity and to respect the customs and habits of ethnic minorities. In order to develop the economy, society and culture of ethnic minorities, the Chinese government will need to formulate some specific policies that are more favorable to ethnic minority areas. Under this national policy, college students in minority areas can have a better attitude and evaluation of themselves and more positive emotional states, active thinking, and higher volitional activity.

This study also found that body investment negatively predicted depression through the moderating effect of self-efficacy; and the mediating effect of self-esteem was also affected by the moderating effect of self-efficacy. Self-efficacy can affect the relationship between body investment and depression, and self-efficacy can also affect self-esteem and depression. Specifically, with the improvement of individual self-efficacy, the predictive effect of body investment on depression gradually increases, while the predictive effect of self-esteem on depression gradually decreases. Moreover, body investment is less likely to alleviate depression by improving self-esteem of college students. Self-efficacy is an individual's belief in their own ability to influence events in life. This speculation about one's ability or inability to meet the requirements of a task is a persistent individual difference. It has three meanings: first, it belongs to the category of perceptual ability, but does not equal to ability; second, the expectation of achieving a goal precedes the activity; third, it is a subjective judgment on whether a person can achieve a certain goal [33]. Self-efficacy can stimulate a person's enthusiasm level. People with a high sense of self-efficacy have a sense of competence and a high level of enthusiasm when encountering problems, while people with a low sense of self-efficacy have a low sense of competence, which can lead to insufficient internal motivation support and makes things more likely to regress. Concerns about the body and how it looks are common in early adolescence, when attention turns to the developing body. Individuals with a high sense of self-efficacy believe that they have the ability to influence their own body. Further, their attention, love, and care for their body can reduce the negative emotions brought by physical changes. At the same time, the evaluation of one's own body was improved by the emotional investment of one's body, which in turn increased positive attitudes towards oneself and reduced depressive symptoms.

5 Limitations and Future Research Implications

There are also some limitations in this study, which need to be improved upon in future research. First, this study was cross-sectional by design, so the results of the study cannot extrapolate causality. In the future, a longitudinal design or experimental study should be adopted to explore the causal relationship between body investment and depression through an aggregation crossover design, multi-layer linear model or manipulation of independent and intermediary variables. Second, during the epidemic period, part of the survey was conducted online, which to some extent failed to control for the authenticity of the subjects' answers; although strict rules were adopted to screen the answers. Finally, the investigation target was teaching college. There are many female students in teacher colleges in China, so the proportion of male students in the sample is low. Besides, this limitation prevailed due to the female participant's volition for inclining the survey response. Certainly, the present study is not gender representative, but the result is justified since there was no comparative study between two genders in previous literature. In addition,

due to this practical consideration (i.e., expense, time), this limitation prevails. In future research, the data of college students should be more comprehensive, so that male students can be assessed as well. Furthermore, the present study found a significant correlation between body investment and depression, mediated by self-esteem and moderated by self-efficacy; so this predictive role could help mental health professionals to ensure an effective intervention plan for treating depression in college students.

6 Conclusions

To conclude, this research is unique for distinguishing the concept body investment and its correlates with depression in Chinese college students. For exploring the existing literature, the findings of the present study embodied the depressive outcomes and other related factors, and revealing the effects of body investment, self-esteem and self-efficacy on college students' depression. We found that college students' body investment can predict depression, self-esteem plays a mediating role, and self-efficacy plays a moderating role in this predictive relationship. The results of this study are helpful to improve depression among college students. Body investment may be an important way in reducing depression, but it may vary from person to person. After all, self-esteem and self-efficacy also need to be considered.

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Conflicts of Interest: This study was carried in the absence of any personal, professional, or financial relationships that could potentially be constructed as a conflict of interest.

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