

The Impact of Leveraging Mechanisms on Constructing Positive Psychology among College Students: The Chain Mediation Effect of Social Support and Self-Efficacy

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Abstract: This study is based on the perspective of positive psychology, exploring the impact of leverage mechanism on the positive psychology of college students, and focusing on the mediating role of social support and self-efficacy. The results showed that the leverage mechanism was significantly positively correlated with positive psychology ($r=0.323$, $P<0.01$), self-efficacy ($r=0.336$, $P<0.01$), and social support ($r=0.192$, $P<0.01$), as measured by the Achievement Motivation Scale, Warwick Edinburgh Mental Health Scale, Social Support Scale, and General Self Efficacy Scale on 550 college students; Social support and self-efficacy not only play independent mediating roles in the leverage mechanism affecting positive psychology, with mediation effect values of 0.07 and 0.12, respectively, accounting for 17.85% and 30.61% of the total effect, but also jointly form a chain mediation pathway, with a mediation effect value of 0.04, accounting for 10.2% of the total effect. The conclusion indicates that the leverage mechanism not only directly promotes positive psychology among college students, but also indirectly promotes it through multiple mediating pathways of social support and self-efficacy.

1. Introduction

In 2025, the Institute of Psychology, Chinese Academy of Sciences released the "China National Mental Health Development Report (2023-2024)," which indicated that the depression risk level among the 18-24 age group peaks among adults, with over 50% of this group being college students^[1]. As future leaders, college students' psychological issues not only impact academic achievement and physical/mental health but also have long-term consequences for career development. More severely, students exploiting psychological issues to threaten teachers can lead to educators being afraid to manage or teach, reversing the educational hierarchy and undermining educational equity.

Building positive psychology among college students helps address these challenges, making the exploration of its mechanisms critically important.

Positive psychology, founded and developed by Martin E. Seligman, emphasizes studying individuals' positive qualities, fully tapping into their inherent, latent constructive strengths, and exploring how to cultivate and enhance positive emotions to face life's challenges with greater optimism. Moreover, it encompasses the flexible ability to self-regulate for favorable outcomes and the positive emotional experiences during self-regulation ^[2]. Moreover, positive psychology fortifies the psychological foundation essential for personal growth. It encourages individuals to prepare for change with optimism and guides personal development through positive growth goals ^[3]. It exhibits significant positive correlations with work autonomy and proactive coping strategies ^[4-5], and exerts a markedly positive influence on personal growth initiative ^[6]. Currently, mental health education for university students within China's higher education system primarily relies on classroom instruction, specialized lectures, and online education. These approaches lack sufficient practicality and autonomy, resulting in inadequate support for fostering positive psychological momentum among the student population.

The leverage mechanism operates on the principle of "achieving more with less," where a small input (such as effort, capital, or resources) yields a larger output (such as effect, benefit, or change). Originating in physics, this concept has been widely applied in finance, economics, psychology, and other fields. Research indicates that hobbies and interests (such as music or sports) regulate individual emotions. Investing minimal effort in preferred activities can stimulate the release of hormones like endorphins and dopamine, enhancing positive emotional experiences and thereby alleviating depression and anxiety ^[7]. In psychology, numerous mechanisms that achieve substantial change through small interventions can be viewed as possessing leverage functions, such as cognitive biases, nudges, and motivational strategies. Taking motivational strategies as an example, setting immediate rewards enhances extrinsic motivation, increases an individual's readiness for behavioral change, and thereby boosts their initiative. Based on this, this study proposes Hypothesis H1: The leverage mechanism has a positive predictive effect on the development of positive psychology among college students.

Social support can be categorized into objective and subjective support. Objective social support refers to tangible or visible assistance, including direct material aid and social networks; subjective social support denotes perceived or emotional support, representing an individual's emotional experience or satisfaction of feeling respected, supported, and understood within society ^[8]. During their four-year journey from enrollment to graduation, college students face multiple shifts in identity and environment. Social support helps them perform better in adaptation and cognitive tasks. However, differences in students' household registration status and the economic and cultural development of their university's city can lead to variations in the level of social support they receive. Concepts from social psychology, such as social norms or the authority effect, can serve as psychological levers. For instance, encouraging students with statements like "90% of students love sports" can significantly increase their exercise frequency, as humans tend to follow group norms. Alternatively, when schools enhance support for student interests—providing activities, facilities, and recognition—students gain greater engagement and a sense of accomplishment. Existing research indicates that college students with higher levels of social support exhibit better development of positive psychological qualities, showing a significant positive correlation ^[9]. Based on this, this study proposes Hypothesis H2: Social support mediates the lever mechanism in building positive psychology among college students.

Self-efficacy, a concept proposed by Albert Bandura, refers to an individual's assessment of their ability to perform a specific behavior. Research indicates that individuals with high self-efficacy demonstrate greater persistence in the face of challenges and achieve better outcomes in learning,

work, and health behaviors. Norman Garmezy's long-term research revealed that some children who experienced adversity and hardship in childhood did not become troubled youth but instead developed superior qualities and achieved greater success than their peers. These children who survived trauma successfully harnessed setbacks and misfortune as leverage through high self-efficacy, unleashing tremendous energy to proactively tackle every challenge. Based on this, this study proposes Hypothesis H3: Self-efficacy mediates the leveraged mechanism in building positive psychology among college students.

Psychological capital is regarded as a vital form of positive human resources, with self-efficacy serving as one of its core dimensions. Social cognitive theory posits that psychological capital, as a positive psychological force, significantly influences the perception and utilization of social support [10]. Individuals with higher levels of social support typically exhibit stronger environmental adaptability. Concurrently, they experience positive emotional states on the affective level, fostering confidence in self-development and self-worth realization, which enhances self-efficacy [11]. Research indicates that positive feedback and encouraging discourse provided by social support promote the elevation of self-efficacy [12]. Moreover, robust social support effectively alleviates negative emotions such as anxiety [13]. Biochemical studies further indicate that heightened self-efficacy enhances positive psychological states, thereby promoting the secretion of substances like catecholamines. This activates the autonomic nervous system and regulates mental states [14]. Therefore, "psychosocial resources" jointly characterized by social support and self-efficacy can buffer negative emotions. This leads to research hypothesis H4: Social support and self-efficacy exert a chain-mediated effect in the leveraged mechanism of building positive psychology among college students.

2. Subjects and Methods

2.1 Participants

Table 1 Demographic Characteristics of Survey Sample.

Frequency Analysis Results				
		Frequency	Percent	Cumulative Percent
Gender	Male	204	38.20	38.20
	Female	330	61.80	100.00
Grade	Freshman	150	28.09	28.09
	Sophomore	130	24.34	52.43
	Junior	128	23.97	76.40
	Senior	126	23.60	100.00
Household Registration	Urban	293	54.87	54.87
	Rural	241	45.13	100.00
Do you have any hobbies or special skills?	No	93	17.42	17.42
	Yes	441	82.58	100.00
Total		534	100.0	100.0

This study obtained approval from the university's ethics review committee and permission from the guardians and counselors of the surveyed students. To ensure the reliability and validity of the questionnaire, a pre-survey was conducted prior to formal distribution. During the formal administration, convenience sampling was employed to survey 550 college students at a university in Guangxi Province, yielding 534 valid questionnaires (97.1%). Participants ranged in age from 18 to 23 years old, comprising 204 males (38.2%) and 330 females (61.8%). Other demographic details are presented in Table 1.

2.2 Methods

2.2.1 Achievement Motivation Scale (AMS)

The Chinese version developed by Gjesme and Nygard, revised by Ye Renmin and Hagtvet in 1992 ^[15-16], was employed. This scale assesses individuals' achievement motivation levels, providing objective evidence to understand psychological characteristics in goal pursuit. The 30-item scale uses a 4-point scale (1 = strongly disagree, 4 = strongly agree), with higher scores indicating stronger achievement motivation. In this study, the Cronbach's α coefficient for this scale was 0.85.

2.2.2 Warwick-Edinburgh Mental Well-being Scale (WEM-WBS)

The Chinese version developed by Tennant et al. and revised by Liu Yongchuang et al. was used ^[17-19]. This scale integrates three dimensions reflecting mental well-being: positive emotions, positive psychological functioning, and interpersonal relationship satisfaction, to assess individuals' levels of positive mental health. The scale comprises 14 items scored on a 5-point scale (1 = never, 5 = always), with higher scores indicating greater positive mental well-being. In this study, the Cronbach's α coefficient for this scale was 0.93.

2.2.3 Social Support Rate Scale (SSRS)

The Social Support Rate Scale developed by Xiao Shuiyuan ^[20] was adopted. This 10-item scale employs a 4-point rating method to measure three dimensions: objective support, subjective support, and utilization of support. Higher scores indicate greater social support. Given the undergraduate population of this study, certain item formulations were modified, such as replacing "spouse" with "partner," "colleague" with "classmate," and "neighbor" with "roommate." In this study, the Cronbach's α coefficient for this scale was 0.85.

2.2.4 General Self-Efficacy Scale (GSES)

This scale measures an individual's overall belief in their ability to accomplish tasks—specifically, their confidence in effectively coping with challenges across diverse situations ^[21]. It differs from domain-specific self-efficacy by focusing on general beliefs. The scale comprises 10 items scored on a 4-point scale (1 = Not at all true, 4 = Completely true). Higher scores indicate stronger self-efficacy, greater persistence toward goals, and better coping with stress. In this study, the Cronbach's α coefficient for this scale was 0.94.

2.3 Statistical Analysis

Data were organized using SPSS 27, and correlation analyses were conducted among the four variables: leverage mechanism, positive psychology, social support, and self-efficacy. Path analysis and mediation analysis were performed using AMOS 26.

3. Results

3.1 Exploratory Factor Analysis

Factor analysis of the questionnaire revealed a KMO value of 0.973, indicating that the collected data were suitable for factor analysis. Bartlett's sphericity test yielded a p -value < 0.05 , confirming the suitability of the questionnaire for factor analysis. Factors were rotated using the maximum

variance rotation method. All common factor loadings exceeded 0.4, indicating that the association between items and extracted factors met the standard for effective information extraction. Factor loadings for each latent variable exceeded 0.7, confirming that the items assigned to each latent variable were highly representative. The observed variables aggregated under each dimension as theoretically predicted, consistent with prior theoretical expectations, indicating the questionnaire possesses good construct validity.

3.2 Common Method Bias Test

Common method bias refers to artificial covariation between predictor and outcome variables stemming from shared data sources, raters, measurement environments, or item characteristics. This systematic error can severely distort research findings. To assess and control potential bias, the Harman single-factor method was applied for common method bias testing. Results revealed four factors with characteristic roots exceeding 1. The first principal component explained 32.71% of variance, below the critical threshold of 40%. Thus, no severe common method bias was present in this study.

3.3 Correlation Analysis and Descriptive Statistics of Variables

Pearson correlation coefficients were used to measure the strength of relationships. Results indicate that the leverage mechanism exhibits positive correlations with all three variables: positive psychology, self-efficacy, and social support (see Table 2).

Table 2 Descriptive Statistics and Correlation Analysis of Variables.

Pearson Correlation				
	1	2	3	4
Leverage Mechanism	1			
Positive Psychology	0.323**	1		
Self-Efficacy	0.336**	0.566**	1	
Social Support	0.192**	0.533**	0.479**	1

Note: *p<0.05, **p<0.01, ***p<0.001, same below

3.4 Chain Mediation Effects and Testing

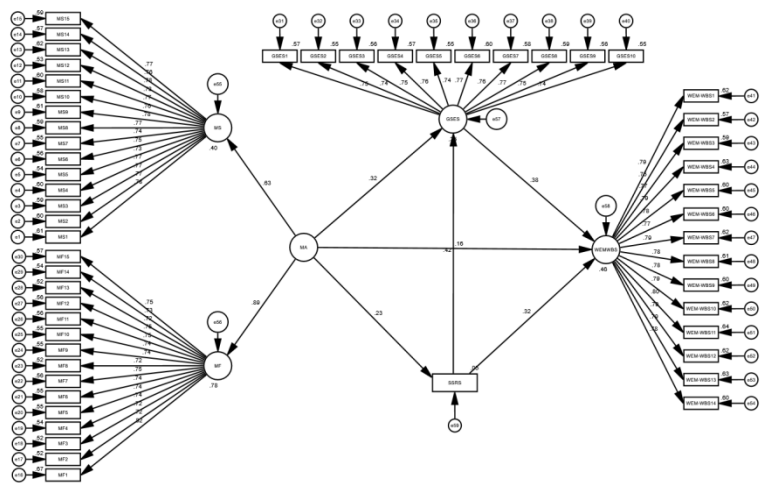


Figure 1: Theoretical SEM Model Diagram.

Building upon the correlation analysis, to further clarify the relationships among leverage mechanisms, positive psychology, self-efficacy, and social support, this study employed AMOS26 software to conduct SEM structural equation analysis on the research hypotheses. The model depicted based on this study's theoretical framework is shown in Figure 1.

Analysis of the raw data indicates that the model fits well, and the results are reliable. Analysis of the relationships between variables shows that all standardized path coefficients are statistically significant ($P < 0.05$). Specifically, the leverage mechanism significantly and directly predicted positive psychological construction, exerting significant positive predictive effects on social support and self-efficacy. Social support significantly and positively predicted self-efficacy. Both social support and self-efficacy significantly and positively predicted positive psychological construction, as shown in Table 3.

Table 3 Analysis of Impression between Variables.

Path	Std. Estimate	Unstd. Estimate	S.E.	C.R.	P
Leverage Mechanism→Social Support	0.231	3.335	0.735	4.535	0.000
Leverage Mechanism → Self-Efficacy	0.324	0.504	0.080	6.315	0.000
Social Support → Self-Efficacy	0.421	0.045	0.005	9.857	0.000
Leverage Mechanism → Positive Psychology	0.157	0.324	0.093	3.490	0.000
Self-efficacy → Positive Psychology	0.375	0.500	0.065	7.664	0.000
Social Support → Positive Psychology	0.322	0.046	0.006	7.943	0.000

Mediation analysis was conducted using the bootstrap method, with 95% confidence intervals calculated as shown in Table 4. Results indicate that the lever mechanism significantly mediates the influence of social support and self-efficacy on college students' development of positive psychological functioning, with a mediation effect value of 0.232. The confidence interval for the mediation path "Leverage Mechanism → Social Support → Positive Psychology" is [0.037, 0.118], which does not include zero, indicating a significant mediating effect for this path. The confidence interval for the mediation path "Leverage Mechanism → Self-Efficacy → Positive Psychology" is [0.077, 0.17], which also does not include zero, indicating a significant mediating effect for this path. The confidence interval for the chained mediating path "Leverage Mechanism → Social Support → Self-Efficacy → Positive Psychology" was [0.02, 0.055], which did not include zero, indicating that the chained mediating effect was significant. The mediating model is shown in Figure 2.

Table 4 Bootstrap Test for Mediating Effects.

Parameter		Estimate	Lower	Upper	P
Leverage Mechanism → Social Support → Positive Psychology	Direct effect	0.157	0.072	0.251	0.001
	Indirect effect	0.074	0.037	0.118	0.000
	Total effect	0.231	0.136	0.331	0.000
Leverage mechanism → Self-efficacy → Positive psychology	Direct effect	0.157	0.072	0.251	0.001
	Indirect effect	0.122	0.077	0.170	0.000
	Total effect	0.278	0.182	0.380	0.000
Leverage mechanism → Social support → Self-efficacy → Positive psychology	Direct effect	0.157	0.072	0.251	0.001
	Indirect effect	0.036	0.020	0.055	0.000
	Total effect	0.193	0.104	0.287	0.000

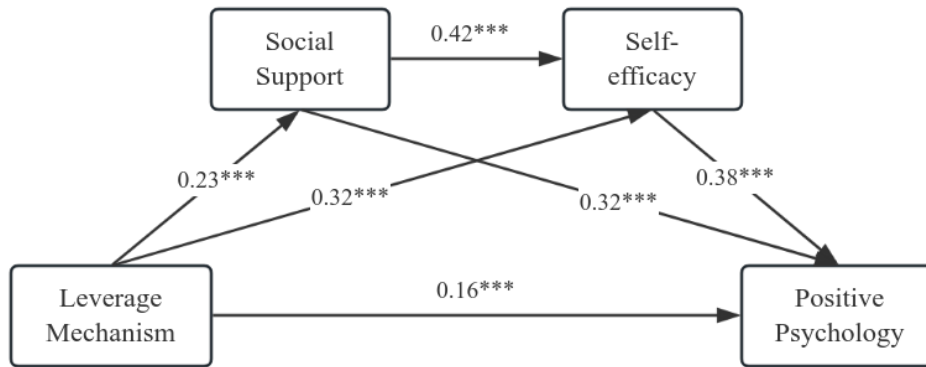


Figure 2: Chain Mediation Effect Model.

4. Discussion

4.1 The Relationship between the Leveraging Mechanism and College Students' Development of Positive Psychology

As mental health issues among college students become increasingly prominent, popularizing and deepening mental health education has emerged as a new requirement and challenge for China's educational reform and development in the new era ^[22]. Correlation analysis in this study indicates that achievement motivation under the leverage mechanism shows a significant positive correlation with positive psychological development, suggesting that schools, teachers, and students themselves can utilize various psychological interventions with leverage functions to foster positive psychological development. Beyond the motivational strategies discussed herein, the "nudge" theory proposed by Richard Thaler and Cass Sunstein exemplifies a classic application of psychological leverage. Minor adjustments to environmental or choice frameworks can significantly alter behavior—for instance, defaulting interest group participation to "auto-enrollment" rather than "opt-in" substantially increases student engagement rates. This supports Hypothesis H1: The leverage mechanism positively predicts college students' development of positive psychology.

4.2 Mediating Role of Social Support

Regarding the mechanism through which leverage mechanisms influence college students' positive psychological development, mediation analysis revealed a distinct mediating effect of social support within the mediation model. The main effect theory of social support posits that multidimensional social support positively influences the ability to cope with stress and anxiety ^[23]. Without a social network structure, individuals in specific situations may become overwhelmed or feel powerless, leading to negative emotions or even emotional disorders ^[11]. The buffering model of social support indicates that social support assists individuals in coping more effectively with stress through emotional comfort, informational guidance, and practical assistance. This enhances their capacity to confront challenges, thereby maintaining mental health—acting as a buffer against negative emotions ^[24]. This validates Hypothesis H2: Social support serves as a bridge within the leverage mechanism, exerting a significant positive mediating effect on college students' development of positive psychology.

4.3 Mediating Role of Self-Efficacy

Within the lever mechanism's role in college students' positive psychological development, mediation analysis revealed a distinct mediating effect of self-efficacy within the mediation model. This indicates that college students with differing levels of self-efficacy—resulting from varying degrees of lever influence—exhibit significant disparities in positive psychological outcomes. Specifically, students scoring higher on the lever mechanism exhibit stronger self-efficacy, which in turn facilitates the formation of positive psychological states. Psychological capital theory posits that individuals adept at leveraging theory tend to preserve self-efficacy by choosing to engage in exercise or divert attention to release pressure and alleviate tension, thereby enhancing self-efficacy to mitigate negative emotions. This supports Hypothesis H3: Self-efficacy mediates the lever mechanism in constructing positive psychology among college students.

4.4 Chain Mediation Effect of Social Support and Self-Efficacy

Within the lever mechanism's role in constructing positive psychology among college students, mediation effect analysis reveals a chain mediation effect between social support and self-efficacy in the mediation model. Previous research has found that leveraged achievement motivation interventions can significantly alter college students' levels of social support, thereby promoting the accumulation of positive emotional experiences and reducing negative emotions. This approach enhances students' life satisfaction and subjective well-being, serving as an effective pathway to improve their mental health. This chain-mediated mechanism indicates that during leveraged intervention, enhanced perceptions of social support strengthen subjective well-being, thereby fostering positive psychological development. This validates Hypothesis H4: Social support and subjective well-being exert a chain-mediated effect on the influence of choral literacy on college students' positive psychological qualities.

From a positive psychology perspective, this study clarifies the mechanism by which the leverage mechanism influences the formation of positive psychological qualities among college students, based on social support and self-efficacy. Given the abundance of psychological intervention mechanisms with leverage functions in psychology, this research holds potential for further expansion. For general higher education institutions, efforts should be made to innovate campus mental health education formats and enhance diversity. This includes expanding the reach, participation, application, and support for interest groups and daily exercise among university students. Continued strengthening of research and application on the lever mechanism in building positive psychology among university students will provide new insights for collaborative education mechanisms in higher education institutions, ultimately contributing to the goal of holistic development.

Data Availability

Due to privacy, the data are not publicly available but can be obtained from the corresponding author upon reasonable request.

Ethical Statement

This study complied with the ethical standards of academic research. All participants voluntarily participated and provided informed consent. Participant privacy and data confidentiality were fully protected. The authors declare no conflicts of interest.

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