



## The Influence of Social Support on Health-related Quality of Life: Exploring the Mediating Role of Self-Efficacy Among the Zhengzhou Sample

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### ABSTRACT

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University students are in the stage of emerging adulthood and face multiple challenges related to academics, employment, and social adaptation. These challenges have important implications for their health-related quality of life (HRQoL). With the guidance of the social ecological framework, this research examined the relationships between social support, self-efficacy, and HRQoL in university students and tested the mediating role of self-efficacy. In June 2025, a questionnaire was conducted using convenience sampling with 598 university students in Zhengzhou, China. The survey employed standardized instruments, and all items were rated on a five-point Likert scale. Data were analyzed using SPSS 27.0 and PROCESS 4.1. The results indicated that HRQoL was positively associated with both social support and self-efficacy. In addition, self-efficacy significantly mediated the relationship between social support and HRQoL, accounting for 60.46% of the total effect. These findings underscore the crucial role of social support in enhancing students' HRQoL, largely by strengthening self-efficacy. This study extends the theoretical understanding of the psychological mechanisms underlying HRQoL and provides practical implications for higher education practices. Furthermore, the findings are aligned with the United Nations' Sustainable Development Goals (SDGs) and emphasize the importance of supportive educational and social environments in promoting sustainable development.

### 1. INTRODUCTION

Health-related quality of life (HRQoL) is a key construct that reflects university students' overall health status and social adaptation, and improvements in HRQoL have significant practical implications for both individual well-being and sustainable social development [1-3]. According to the United Nations Sustainable Development Goals (SDGs), the health and development of university students are regarded as a core issue matter for sustainable development, extending beyond individual-level concern [4-7]. As a core component of SDG 3: Good Health and Well-Being, the concept of HRQoL suggests that health is more than the absence of illness, encompassing psychological well-being, supportive social relationships, and overall life satisfaction [8]. For university students in the emerging adulthood stage, the level of HRQoL has a direct impact on their academic adjustment, lifestyle choices, and future career and social development trajectories [5, 6].

Recent research increasingly demonstrates that psychosocial resources play a significant role in improving HRQoL among university students [9-12]. In particular, social support functions as a key external factor that helps students to better cope with pressures arising from academic demands and daily life [11]. This support can come from family, friends,

and significant others in the form of emotional, informational, and instrumental assistance, as well as from schools, neighborhoods, and government entities [13]. Social support can directly alleviate negative emotions and foster positive health behaviors by enhancing coping confidence [14]. Additionally, it offers vulnerable student groups additional psychological and material resources, enabling them to better adapt and develop during the transitional phase of emerging adulthood [15]. This closely aligns with SDGs Goal 10 (Reducing Inequalities), highlighting social support as a crucial component of well-being and a pathway to advancing equity in education and health.

In social cognitive theory, Bandura proposed that self-efficacy refers to the belief in one's ability to complete tasks or overcome challenges [16]. As a core psychological resource, self-efficacy shapes whether students have the motivation to persevere and engage when facing challenges [17]. Moreover, self-efficacy influences university students' persistence and effort in academics and interpersonal relationships and plays a vital role in stress regulation and the development of healthy behaviors [18]. Higher levels of self-efficacy enhance confidence and motivation, support academic and mental well-being, and contribute to improved HRQoL [19]. Additionally, the development of self-efficacy often depends on institutional and social resources, including

campus mental health services, supportive relationships between teachers and students, and community organization initiatives [20]. In overview, social support and self-efficacy are critical determinants of HRQoL among university students, shaping their overall academic, psychological, and social adaptation.

Accordingly, investigating the interplay between social support and self-efficacy contributes to a deeper understanding of HRQoL among university students, particularly when examined through the lens of sustainable development. In addition, this research provides practical guidance for health education, psychological interventions, and the development of social support networks within higher education institutions. Furthermore, this study offers important implications for advancing the implementation of SDGs 3 (Good Health and Well-Being), 4 (Quality Education), and 10 (Reduced Inequalities).

## 2. LITERATURE REVIEW

### 2.1 Social ecological theory

Social ecological theory posits that health is shaped not by any single factor but by the combined influence of multiple levels, including the individual, interpersonal, organizational, and social environments [21]. In this context, social support is situated at the interpersonal level. By receiving emotional and instrumental support from family, friends, and significant others, university students are better able to manage stress, adopt positive health behaviors, and improve their HRQoL [13]. Meanwhile, self-efficacy operates at the individual level. As a fundamental psychological resource, self-efficacy reflects the confidence and perseverance of university students when they tackle challenges, motivating them to actively engage in healthy behaviors and psychological adaptation [22]. From the perspective of social ecological theory, the relationships among social support, self-efficacy, and HRQoL are dynamic and operate across multiple levels. Social support provides a contextual resource that strengthens individuals' confidence in managing challenges, which in turn fosters more adaptive health behaviors. Together, these processes collectively shape the broader construct of HRQoL, while self-efficacy also serves as a central psychological mechanism directly influencing students' overall well-being [23]. Collectively, these elements constitute a pivotal mechanism underpinning the well-being and sustainable development of university students.

### 2.2 Social support and HRQoL

Research conducted across different countries has consistently demonstrated a strong association between social support and HRQoL among university students. For instance, Ifroh et al. [6] found that social support was not only positively associated with HRQoL but also indirectly enhanced Indonesian university students' quality of life by encouraging healthy lifestyles. Moreover, a study conducted among medical students in South Korea also showed that higher levels of social support were associated with better quality of life outcomes across the physical, psychological, social relationship, and environmental dimensions [24]. Such findings underscore the key role of social support in fostering better HRQoL among university students. Furthermore, the

survey of German university students indicated that social support and integration were significant factors influencing HRQoL [25]. These factors also represent important entry points for enhancing student resilience. Taken together, these cross-cultural studies demonstrate that social support functions as a crucial external factor that significantly enhances the HRQoL of university students across diverse educational contexts.

Despite the contributions of prior research, there remains a lack of comprehensive studies exploring how social support and self-efficacy jointly influence HRQoL in Chinese university students within their specific educational context [26]. Chinese university students face a highly competitive educational environment that emphasizes academic performance, along with strong family expectations regarding success and employment. Simultaneously, influenced by traditional cultural values such as "collectivism" and "face culture," students often show greater restraint in seeking external assistance or expressing psychological distress [27]. These cultural and educational factors may shape the way in which social support is accessed and utilized, thereby affecting the pathways that influence HRQoL in unique ways. Thus, this study examines the impact of social support on the HRQoL among Chinese university students.

### 2.3 Social support and self-efficacy

Research has shown that social support can promote the adaptation and development of university students by enhancing their self-efficacy. For instance, Lu et al. [22] reported that social support facilitates the development of self-efficacy among Chinese university student populations. Similarly, Jia and Wang [28] found that the combined impact of social support and self-efficacy was particularly evident during the COVID-19 pandemic, when these resources helped reduce emotional strain and safeguarded university students' mental well-being by strengthening their coping capacity. Overall, existing research consistently shows that social support provides emotional and instrumental resources and enhances individuals' confidence in overcoming challenges by increasing their self-efficacy.

However, there is still limited research on this topic. Only a few studies have examined this issue in Chinese university students, and these are largely domain specific [28]. Such an approach does not adequately explain the relationship between social support and general self-efficacy [12]. In addition, most existing research focuses primarily on academic or contextual self-efficacy [27]. There is insufficient exploration of overall psychological self-efficacy, and the underlying mechanisms remain poorly understood [28]. The available evidence suggests that contextual and group-based factors shape the relationship between social support and self-efficacy. Based on this, the second aim of this research is to examine how social support affects self-efficacy among Chinese university students.

### 2.4 Self-efficacy and HRQoL

Although most studies focus on specific contexts or behavioral domains, existing research generally supports the important role of self-efficacy in the HRQoL of university students. For example, Tao et al. [29] reported that higher self-efficacy is associated with better HRQoL among university students, partly because activities such as physical exercise

can enhance self-efficacy and help reduce anxiety while improving mental health. Another study also confirmed that self-efficacy is positively linked to HRQoL in university students, and its effect may be reinforced when combined with factors like self-esteem and emotional well-being [30]. These findings clearly indicate that self-efficacy is essential to supporting and enhancing university students' HRQoL.

However, it should be noted that such studies often restrict self-efficacy to specific domains, such as physical exercise or emotional regulation. These studies emphasize the indirect effects of self-efficacy on psychological aspects and individual behaviors but lack a systematic examination of overall HRQoL. In other words, existing literature has primarily highlighted the positive role of self-efficacy in specific areas. Nevertheless, comprehensive research on the multidimensional nature of quality of life, including physical, psychological, and social adaptation, remains insufficient. Based on this, the third purpose of this research is to examine how self-efficacy affects HRQoL among Chinese university students. The goal is to address existing gaps in the literature and provide more systematic, localized empirical support for improving the HRQoL of university students.

## 2.5 Self-efficacy as mediator

Extensive evidence highlights self-efficacy as an essential psychological mechanism through which social support influences HRQoL. For instance, Zhou and Yu [31], using evidence from Chinese university students, found that social support significantly improved online learning well-being by enhancing online learning self-efficacy. This finding demonstrates that social support can indirectly influence important behaviors and well-being. Furthermore, emerging research has continued to expand the applicability of this mechanism across diverse contexts. Shi et al. [32] found that, among nursing students in China, the positive effects of social support on eHealth literacy were partially mediated by enhanced self-efficacy, which influenced behavioral outcomes by facilitating stress coping and promoting family health. Together, these studies illustrate the pivotal role that self-efficacy plays in mediating the relationship between social support and health-related outcomes.

However, existing research primarily focuses on specific skills, such as online learning or eHealth literacy, or behavioral outcomes. There has been a lack of systematic empirical testing of the linkage among social support, self-efficacy, and HRQoL at the overall HRQoL level among Chinese university students.

Regarding the literature review, hypotheses are developed:

H1: There is a significant impact of social support on HRQoL among university students in China.

H2: There is a significant effect of social support on self-efficacy among university students in China.

H3: There is a significant effect of self-efficacy on HRQoL among university students in China.

H4: Self-efficacy mediator the influence of social support on HRQoL among university students in China.

## 3. METHODOLOGY

### 3.1 Participants

The present study selected Zhengzhou, the capital city of

Henan Province, as the study area. As a national central city and a major transportation hub in central China, Zhengzhou is highly accessible and regionally influential, and reflects the overall characteristics of university students in central China. Additionally, the city concentrates higher education resources and features a diverse range of institutions, including comprehensive universities, teacher training colleges, and vocational colleges. This diversity results in a rich student population structure that provides an ideal sample base for this research.

Against this backdrop, a questionnaire was conducted in Zhengzhou in June 2025. The survey was conducted in the Longzihu University Town area of Zhengzhou, which hosts a high concentration of higher education institutions and a diverse student population. Three universities located within this area participated in the study. A campus-based convenience sampling approach was employed, with students approached in teaching buildings, libraries, and other public areas on campus. A total of 620 questionnaires were distributed. After data screening, 22 questionnaires were excluded because they were either not completed or showed the same responses across all items, which indicated invalid answering. A completion rate of below 5 percent was applied as the criterion for identifying questionnaires with substantial missing data [33]. After removing these cases, 598 valid questionnaires were retained for the subsequent analysis, resulting in an effective response rate of 96.4 percent. Participants completed the self-report questionnaire in approximately 15-20 minutes.

During the data collection process, all participants voluntarily participated in this study after being fully informed about its purpose and procedures. Students were explicitly informed that they had the complete autonomy to withdraw at any time without facing negative consequences. In addition, the research team was committed to strictly protecting the privacy and personal information of the participants. All data were recorded and analyzed anonymously and were used exclusively for academic purposes in this study. The data were not used for commercial purposes nor disclosed to third parties.

## 3.2 Measures

This study employed three standardized and validated instruments. All measurement instruments in this study employed a five-point Likert scale, ensuring consistency and comparability across variables. Specifically, to measure the independent variable of social support, this study employed the 12-item Multidimensional Scale of Perceived Social Support (MSPSS), which captures support from family, friends, and significant others [33, 34]. Among university students, this instrument has been shown to demonstrate strong reliability and validity [35]. To measure the mediator, self-efficacy, the research employed the General Self-Efficacy Scale (GSES), which comprises 10 items designed to assess confidence in overcoming difficulties and challenges [35, 36]. This scale is widely applied among Chinese university students [37].

HRQoL (the dependent variable) was measured using the KIDSCREEN-10 Index. The Chinese versions of this 10-item single-factor scale have been validated [38]. Prior to data collection, the KIDSCREEN-10 items were adapted and subsequently assessed for content validity to determine their suitability for use among university students. Following

standard procedures for evaluating content validity [39], two experts, one specializing in psychology and the other in education, independently assessed the relevance of each adapted item independently using a four-point scale. Interrater consistency was examined using Cohen's Kappa coefficient [40]. The percent agreement between the reviewers was 70%, resulting in a Kappa value of 0.783. According to the interpretive guidelines proposed by Landis and Koch [41], this value represents a substantial level of agreement and provides acceptable support for the content validity of the adapted items when administered to a university student population.

This study performed reliability analyses on each scale to assess the internal consistency of the instruments used. The results showed that the Cronbach's  $\alpha$  coefficient for the Multidimensional Scale of Perceived Social Support (MSPSS) was 0.902. For its three dimensions, the  $\alpha$  coefficients were 0.844 for Family Support, 0.778 for Friend Support, and 0.848 for Significant Other Support. All values exceeded commonly accepted thresholds for high reliability. The GSES showed a Cronbach's  $\alpha$  of 0.838, and the KIDSCREEN-10 Index reported a Cronbach's  $\alpha$  of 0.826. Values above 0.70 indicate acceptable reliability [42]. Hence, each of the methods used in this research showed strong internal consistency (see Table 1 for detailed results).

**Table 1.** Reliability statistics (N = 598)

Variable	Item	Cronbach's Alpha	Overall Cronbach's Alpha
MSPSS	Family	0.844	0.902
	Friends	0.778	
	Significant Other	0.848	
	GSES	0.838	
KINDSC		0.826	0.826
REEM-10			

### 3.3 Data analysis

This study utilized SPSS version 27.0 for data analysis. Initially, descriptive statistics were performed on the participants' basic demographic characteristics (e.g., gender, age, grade, major, and arrangement) to present their fundamental characteristics. Then, Pearson correlation analyses were performed to investigate the two-way relationships among social support, self-efficacy, and HRQoL. To assess internal consistency, Cronbach's  $\alpha$  coefficients were calculated for each scale. Following this, multiple regression analyses were carried out to determine the direct effects of social support on HRQoL. Finally, to test whether self-efficacy mediated the relation found between social support and HRQoL, a mediation analysis was performed using the SPSS PROCESS Macro (version 4.1). Bias-corrected bootstrapping was employed to estimate the mediation effect and its 95% confidence interval, and mediation was deemed significant if zero was not contained within the confidence interval [43].

## 4. RESULTS

### 4.1 Common method variance test

Using Harman's one-way method to evaluate the presence

of common method variance, all measurement items were subjected to an exploratory factor analysis using an unrotated principal component extraction. The analysis produced eight components with eigenvalues greater than 1.0. The first component accounted for 30.852% of the total variance, which is below the commonly accepted threshold of 40% [44]. As no single factor dominated the variance structure, common method variance was unlikely to pose a serious threat to the validity of the findings.

### 4.2 Participants demographic

The respondents comprised 598 university students recruited in Zhengzhou, China. In terms of gender, 289 participants were male (48.3%), and 309 were female (51.7%), showing a nearly balanced distribution. Regarding age, 19-year-old students (166) accounted for 27.8%, 20-year-old students (180) for 30.1%, 21-year-old (177) for 29.6%, and 22-year-old (75) for 12.5%, indicating that the sample was concentrated within the typical undergraduate age range. The grade distribution was relatively balanced among first year (27.6%), second year (31.1%), and third year (28.9%) students. The proportion of fourth year students (12.4%) was lower by comparison, likely because many were engaged in internships or preparing for graduate entrance examinations.

In terms of academic discipline, students majoring in science and engineering constituted the largest group (48.7%), followed by humanities and social sciences (18.4%), arts and design (17.6%), and medical and health sciences (15.4%). This distribution reflects the diversity of the students' academic backgrounds. Regarding living arrangements, most students (71.2%) lived in on-campus dormitories, while 28.8% lived off campus. Overall, the demographic profile of the sample indicates a relatively balanced distribution across gender, age, grade, academic discipline, and living arrangement, which supports the representativeness and reliability of this research. Further details of the distributions can be found in Table 2.

**Table 2.** Demographic profile (N = 598)

Demographic	Value Label	Frequency	Valid Percent
Gender	Male	289	48.3
	Female	309	51.7
Age	19	166	27.8
	20	180	30.1
Grade	21	177	29.6
	22	75	12.5
Major	Freshman	165	27.6
	Sophomore	186	31.1
	Junior	173	28.9
	Senior	74	12.4
Arrangement	Humanities and Social Sciences	110	18.4
	Science and Engineering	291	48.7
On-campus dormitory	Medical and Health Sciences	92	15.4
	Arts and Design	105	17.6
Off-campus dormitory	426	71.2	
	172	28.8	

### 4.3 Descriptive and correlation analysis

Descriptive and correlation analyses were performed for

social support, self-efficacy, and HRQoL to identify distributional patterns and basic relationships among them. The results (shown in Table 3) indicate that all three variables had moderately high mean scores ( $M = 3.814 - 3.859$ ) and relatively small standard deviations ( $SD = 0.591 - 0.653$ ), suggesting a high degree of responses consistency across participants. In terms of correlations, social support was significantly and positively associated with self-efficacy ( $r = 0.719, p < 0.01$ ) and HRQoL ( $r = 0.411, p < 0.01$ ). In addition, self-efficacy was significantly positively correlated with HRQoL ( $r = 0.450, p < 0.01$ ). These findings provide preliminary support the hypothesized associations and indicate close relationships among the three variables.

**Table 3.** Descriptive statistics (N = 598)

Variable	Mean	SD	1	2	3
Social Support	3.814	0.653	--		
Self-efficacy	3.859	0.591	0.719**	--	
HRQoL	3.820	0.605	0.411**	0.450**	--

#### 4.4 Multicollinearity test

Multicollinearity was assessed by examining the variance inflation factor (VIF). The VIF value for the independent variables was 2.091, well below the commonly accepted threshold of 5 [45]. This indicates that multicollinearity was not a significant issue in this analysis and that the regression estimates were not significantly affected by increased variance.

To validate the proposed hypotheses, regression analyses and mediation testing were conducted to empirically investigate the interrelationships between social support, self-efficacy, and HRQoL.

A regression analysis was conducted to test Hypothesis 1 (H1), which proposed that social support positively predicts HRQoL. Results revealed that HRQoL was significantly and positively predicted by social support ( $B = 0.381, SE = 0.035, \beta = 0.411, t = 11.013, p < 0.001$ ). The regression model explained 16.8% of the variance in HRQoL ( $R^2 = 0.168$ ). These results support H1, showing that greater social support corresponds to higher HRQoL in university students (see Table 4).

Testing Hypothesis 2 revealed that, according to the regression results, social support exerts a significant positive

influence on self-efficacy. The unstandardized coefficient was positive, meaning that greater social support corresponded to higher levels of self-efficacy. The standardized coefficient was approximately 0.72, reflecting a strong predictive impact of social support and self-efficacy. The effect was confirmed as highly significant by the t-test ( $p < 0.001$ ), suggesting the robustness of the relationship. An  $R^2$  value of 0.517 for the model suggests that social support explained more than half of the variance in self-efficacy. Overall, these results support H2, demonstrating that greater social support is associated with stronger self-efficacy among university students (see Table 5).

Hypothesis 3 predicted that self-efficacy would positively influence HRQoL. The regression results confirmed this expectation, showing a positive unstandardized coefficient ( $B = 0.461, SE = 0.037$ ), a standardized coefficient of 0.450, and a significant t-value of 12.308 ( $p < 0.001$ ). With an  $R^2$  of 0.201, the model was able to explain 20.1% of the variance in HRQoL. Results show that higher levels of self-efficacy are associated with better HRQoL among students, lending support to H3 (see Table 6).

Hypothesis 4 proposed that self-efficacy serves as a mediator in the relationship between social support and HRQoL. After controlling for gender, age, grade, major, and living arrangement, the analysis showed that the total effect of social support on HRQoL remained significant ( $\beta = 0.392, 95\% \text{ CI } [0.318, 0.467]$ ). Specifically, the direct effect was  $\beta = 0.155$  ( $95\% \text{ CI } [0.052, 0.258]$ ), while the indirect effect through self-efficacy was  $\beta = 0.237$  ( $95\% \text{ CI } [0.158, 0.318]$ ). Because the confidence intervals did not cross zero, both the direct and indirect effects reached significance. In other words, social support improved HRQoL both directly and by primarily enhancing students' self-efficacy (see Table 7).

As shown in Figure 1, the conceptual framework constructed in this study specifies social support as the independent variable, self-efficacy as the mediating variable and HRQoL as the dependent outcome. Social support exerted a significant direct effect on HRQoL ( $\beta = 0.411$ ), and an indirect effect through self-efficacy. Specifically, social support significantly predicted self-efficacy ( $\beta = 0.719$ ), and self-efficacy significantly predicted HRQoL ( $\beta = 0.450$ ). These results illustrate a theoretical framework for understanding university students' health and well-being by revealing how interpersonal factors (social support) translate into higher levels of HRQoL through individual factors (self-efficacy).

**Table 4.** The impact analysis of social support (SS) on HRQoL (N = 598)

DV	IV	Unstandardized Coefficients		Standardized Coefficients		t	P
		B	SE	b			
HRQoL	Constant	2.368	0.134			17.703	0.000
	SS	0.381	0.035	0.411			
	R <sup>2</sup>			0.168		11.013	0.000
	F			121.285			

**Table 5.** The effect analysis of social support (SS) on self-efficacy (SE) (N = 598)

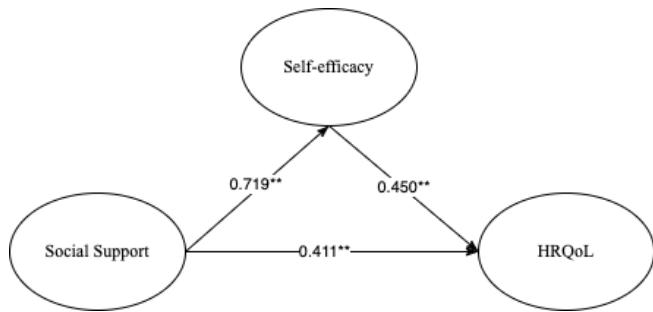
DV	IV	Unstandardized Coefficients		Standardized Coefficients		t	P
		B	SE	b			
SE	Constant	1.378	0.100			13.830	0.000
	SS	0.650	0.026	0.719			
	R <sup>2</sup>			0.517		25.254	0.000
	F			637.759			

**Table 6.** The effect analysis of self-efficacy (SE) on HRQoL (N = 598)

DV	IV	Unstandardized Coefficients		Standardized Coefficients		t	P
		B	SE	b			
	Constant	2.042	0.146			13.974	0.000
SE	HRQoL	0.461	0.037	0.450	0.201	12.308	0.000
	R <sup>2</sup>			151.485			
	F						

**Table 7.** Mediating analysis

SS-HRQoL	Point Estimate (b)	Bootstrap SE	Z	Bootstrapping 95% CI		Mediation Effect Proportion
				Lower	Upper	
Total effect	0.392	0.038	10.316	0.318	0.467	--
Direct effect	0.155	0.053	2.925	0.052	0.258	--
Indirect effect (SE)	0.237	0.041	5.780	0.158	0.318	60.46%

**Figure 1.** Conceptual framework

## 5. DISCUSSION

Hypothesis H1 was supported, showing that social support significantly and positively influences HRQoL among university students. The evidence suggests that students who perceive higher social support tend to experience better HRQoL. Social support accounted for approximately 16.8% of the variance in HRQoL. This finding is consistent with the emphasis placed on social support in cross-cultural research. Specifically, social support provides emotional comfort and functions as a key resource for enhancing HRQoL by alleviating stress and promoting positive behaviors. Evidence from Indonesia indicates that social support effectively promotes HRQoL of university students by helping them establish healthy lifestyles and coping mechanisms [6]. Similarly, evidence from Korean medical students demonstrates that social support significantly enhances HRQoL, potentially through its role in improving mental health and strengthening resilience in highly stressful academic contexts [24]. Additionally, a survey of German university students offers a complementary perspective, showing that social support influences individuals' psychological well-being and mitigates academic and life pressures at the broader social level. This significantly enhances happiness and satisfaction [25]. Collectively, the evidence emphasizes the crucial role of social support as a reliable factor across different cultural contexts. The findings of this research further demonstrate that this role applies equally to Chinese college students, particularly during the "emerging adulthood" stage, when students experience greater psychological independence alongside a rapid expansion of their social ties.

A likely explanation for the specific circumstances of Chinese university students lies in their developmental stage

of "emerging adulthood." During this period, their psychological independence and social relationships are still in process of development, making them particularly sensitive to external resources. Support from family, friends, and significant others helps alleviate academic and life pressures and enhances confidence in and adherence to healthy behaviors, thereby improving HRQoL [46]. Furthermore, Chinese universities typically feature arrangements, such as collective dormitories and class systems, that strengthen access to interpersonal support networks [47]. The present study highlights the essential importance of social support within the cultural and educational context of China. These results help address the gaps in the literature identified during the review, further demonstrating that social support plays a critical role in promoting HRQoL among Chinese university students.

The analysis provides evidence supporting Hypothesis H2, revealing that social support notably and effectively influences university students' self-efficacy. Social support accounted for more than half of the variance in self-efficacy, suggesting a substantial contribution to university students' self-efficacy levels. This finding is consistent with Cassaretto et al. [48], who discovered that social support significantly enhances young adults' self-efficacy levels by providing emotional encouragement and instrumental resource. These results demonstrate that external support systems offer immediate assistance in specific situations and shape individuals' broader beliefs about their capabilities.

It is worth noting that this study selected general self-efficacy rather than focusing solely on academic or situation-specific self-efficacy. Unlike contextual measures such as academic or athletic self-efficacy, general self-efficacy provides a more comprehensive reflection of college students' overall confidence in handling tasks and their perseverance across diverse challenges, including academic, social, and life adaptation challenges [43-45]. This approach enabled the study to examine the relationship between social support and the overall well-being of university students, instead of limiting the analysis to one specific domain. Consequently, this research, which is applicable across diverse cultural contexts, emphasizes the fundamental role of social support in fostering self-efficacy among university students. Given the realities faced by Chinese university students, a likely explanation lies in the cultural emphasis on collectivism and family dependence in China. This cultural orientation predisposes students to seek psychological comfort and practical assistance from family, peers, and teachers when confronting academic and life pressures. Such support

alleviates their anxiety at emotional level and strengthens their confidence at cognitive level in tackling challenges. Thus, the study's outcomes corroborate earlier findings and empirically demonstrate the particular nature of how social support relates to self-efficacy among Chinese university students.

Hypothesis H3 was upheld, as the findings confirmed that self-efficacy significantly and consistently improves HRQoL among university students. Self-efficacy accounted for about 20.1% of the variance in HRQoL, indicating its role as a core psychological resource that significantly contributes to students' overall health and well-being. This finding corroborates the conclusion from the literature review that self-efficacy as a psychological resource that support both learning outcomes and broader aspects of quality of life including HRQoL. As shown by Joseph et al. [30], higher self-efficacy among university students was connected to significantly better psychological well-being and living standards relative to those with lower self-efficacy. This suggests that self-efficacy influences overall well-being beyond specific task-related contexts. Similarly, Tao et al. [29] discovered that enhanced self-efficacy helps university students achieve exercise and health goals, reduce anxiety, and improve psychological well-being. Taken together, these findings indicate that self-efficacy supports students' success across both academic and daily life domains, serving as a generalized psychological resource that shapes adaptation and HRQoL across multiple life domains.

Facing the dual challenges of academic pressure and social adaptation, Chinese university students increasingly rely on self-efficacy as a crucial internal driving force that influences their HRQoL [49]. Students with high self-efficacy can maintain a positive mindset and engage in healthy lifestyles when facing academic competition, employment pressures, or interpersonal challenges [50]. This capacity contributes to their physical and mental well-being, thereby enhancing their HRQoL. Conversely, students exhibiting lower self-efficacy may be particularly vulnerable to negative affect and maladaptive behaviors when exposed to stress [51]. Thus, the results of this study are consistent with prior research and provide empirical support that deepens understanding of the link between self-efficacy and HRQoL in Chinese university students.

This study further validated Hypothesis H4, revealing that self-efficacy significantly mediated the relationship between social support and HRQoL, with the indirect effect accounting for 60.46% of the total effect. This finding implies that social support exerts a direct effect on improving the HRQoL of university students and primarily operates indirectly by enhancing their self-efficacy. Through this pathway, students are better able to actively tackle academic and life challenges, ultimately leading to improvements in their HRQoL [22]. This result is consistent with the studies carried out by Shi et al. [32] and Zhou and Yu [31], both of which validate self-efficacy as a core psychological resource. These studies explain how social support consistently influences HRQoL in different educational and cultural contexts. This mediating mechanism appears to be particularly salient within the Chinese cultural context. Moreover, this external support translates into enhanced self-efficacy, helping students navigate academic competition, employment pressures, and interpersonal adaptation more effectively. Consequently, it significantly improves their HRQoL during the critical stage of "emerging adulthood." Hence, these findings extend previous conclusions and provide new empirical evidence in the context

of Chinese university students.

This research holds considerable significance, encompassing both theoretical and practical implications. At the theoretical level, the study employs social ecological theory to systematically elucidate the pathways linking social support, self-efficacy, and HRQoL. Moreover, the study specifically stresses the importance of self-efficacy as a factor that mediates outcomes. The study enriches existing knowledge of university students' mental health and quality of life while providing fresh insights into how interpersonal and individual levels jointly shape health outcomes. For practical purposes, the findings suggest that universities should prioritize the development and implementation of social support systems for health promotion and psychological interventions. Students' self-efficacy can be enhanced by drawing on support from family, friends, and significant others, thereby indirectly improving their psychological and physical health, as well as their HRQoL. Lastly, in the unique context of Chinese university students navigating their "emerging adulthood," this initiative provides academic support to advance the achievement of three SDGs: Goal 3 (Good Health and Well-Being), Goal 4 (Quality Education), and Goal 11 (Sustainable Cities and Communities).

## 6. LIMITATIONS

Although the conclusions of the study were meaningful, it is essential to acknowledge its limitations. First, the cross-sectional design can reveal only correlations between variables, not the causal direction. Future research could use longitudinal tracking or experimental designs to more accurately validate the causal mechanisms linking social support, self-efficacy, and HRQoL. Second, although the present study offers meaningful evidence on the relationships among social support, self-efficacy, and health-related quality of life, the sample was drawn solely from 598 university students in Zhengzhou. The reliance on a single geographic area may limit the generalizability of the findings to students in other regions or cultural settings. Future investigations would be conducted by incorporating participants from multiple provinces or more diverse institutional settings to strengthen the broader applicability of the results. Third, reliance on self-report measures (MSPSS, GSES, and KIDSCREEN-10) may introduce social desirability and recall biases. Future research could integrate multiple data sources, including teacher assessments or health records, and supplement quantitative data with qualitative interviews to strengthen the reliability and validity of the results. Finally, despite using established scales, the measurements of variables remained general and did not distinguish between different types of social support or specific domains of self-efficacy. This limitation may hinder deeper insights into underlying mechanisms.

## 7. CONCLUSIONS

In summary, this study reveals that social support both directly enhances HRQoL and primarily operates indirectly through self-efficacy. These findings are based on a survey of 598 university students in Zhengzhou, Henan. Moreover, these findings advance understanding of the mechanisms linking social support, self-efficacy, and HRQoL. Also, they

emphasize the particular significance of this mechanism within the cultural and educational context of Chinese university students' "emerging adulthood." From a sustainable development perspective, these findings align with SDG 3 (Good Health and Well-Being) by promoting the physical and mental health of youth, with SDG 4 (Quality Education) by highlighting the importance of educational systems providing psychological and social support, and with SDG 11 (Sustainable Cities and Communities) by improving the overall quality of life of university students through broader, more supportive social environments. Overall, this research expands the theoretical foundation for studying university students' mental health and quality of life and offers practical insights for higher education management and sustainable development policies.

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