



## Undergraduate happiness and its influential factors: A meta-analysis of domestic and international quantitative studies

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**Abstract:** In the post-pandemic era, college students' well-being has become a key indicator of higher education quality. Although existing studies highlight individual, social, and school-level factors, their findings remain fragmented. This study conducted a meta-analysis of empirical research published between 2020 and 2024 to compare the relative effects of these three dimensions and examine whether sample source or publication type moderates the relationships. Results indicate that students' happiness is primarily shaped by individual traits and cognitive mechanisms, while social connection and support exert additional positive effects. In contrast, structural factors at the school level show relatively limited influence. Moderation analysis reveals that cultural context and publication type exert only weak moderating effects and cannot fully account for the observed heterogeneity. These findings underscore the multifaceted nature of college students' well-being and highlight the differential roles of individual, social, and school-level factors in shaping their happiness.

**Keywords:** College students; well-being; influencing factors; meta-analysis; quantitative research

### Introduction

The pursuit of happiness by humanity has a long-standing historical background, and the scientific exploration of happiness within psychology commenced in the 1960s. However, up to now, only a limited number of studies have attempted to use meta-analysis to explore the influencing factors of happiness. For instance, [Jin et al. \(2016\)](#) conducted a meta-analysis on the relationship between sense of meaning in life and subjective well-being in a Chinese sample, but this study only focused on a single factor and did not cover the broader dimensions of individual, social, and school. [Huang and Huang \(2024\)](#) conducted a meta-analysis on the influencing factors of subjective well-being in primary and secondary school students, but the research subjects were not college students. Additionally, [Yu and Wang \(2015\)](#) provided a theoretical review of college students' happiness without using quantitative techniques. Therefore, existing studies have not yet systematically integrated quantitative evidence on the multidimensional factors associated with college students' well-being. Meta-analysis is an important and effective method for addressing controversial issues, as it reveals the overall effect by synthesizing effect sizes across multiple studies on a specific topic ([Lipsey & Wilson, 2001](#)). Based on this approach, the present study uses meta-analysis to synthesize findings from 39 quantitative studies, compare the effect sizes of individual, social, and school-related factors, and examine whether there is heterogeneity in the moderating effects of cultural background and literature type, thereby providing empirical evidence for developing strategies to improve college students' quality of life and overall happiness.

“Happiness” has become a widely used popular vocabulary, encompassing various dimensions such as individual, family, and social aspects. Consequently, it has

given rise to terms like “individual happiness”, “psychological happiness”, “social happiness”, and “comprehensive happiness”, along with phrases such as “residential happiness” and others.

Research on happiness has primarily focused on two aspects: clarifying its conceptual connotation and identifying its influencing factors. First, in terms of conceptualization, well-being generally refers to individuals' direct experiences of positive emotions, such as joy, pleasure, and satisfaction, as well as their evaluations of life quality, self-perception, and social relationships. In this sense, well-being can be understood as an integrated construct comprising subjective well-being, psychological well-being, and social well-being ([Gallagher et al., 2009](#)). These three dimensions are closely related but conceptually distinct. [Diener \(1984\)](#) argued that subjective well-being consists of both cognitive and affective components. It reflects individuals' overall evaluation of their quality of life according to self-defined criteria and generally includes life satisfaction, positive affect, and negative affect. Psychological well-being stems from the realization theory, which emphasizes objectivity. Personality perfection and self-actualization, which are not shifted by the individual's subjective will, are the perfect embodiment of human psychological potential ([Maslow, 1943](#); [Ryan & Deci, 2000b](#)). From this perspective, psychological well-being is an objective reflection of individual psychological health. Maslow defined mental health from a positive perspective as a self-actualized person. Researchers indicate that within the framework of lifelong personal development theory, happiness in its true sense is more than hedonism and includes personal potential demonstrated through a healthy body and mind, involving six dimensions: autonomy, personal growth, self-acceptance, purpose in life, sense of control, and pos-



itive relationships (Diener, 1984). In contrast, subjective well-being focuses on an individual's inner experience; Psychological well-being focuses on objective experiences in group interaction; Social well-being focuses on an individual's manifestation of social functioning, values, and performance (Diener, 1984). Keyes (1998) first introduced the concept of social well-being and divided it into five dimensions in terms of an individual's healthy social functioning: social integration, social identity, social contribution, social realization, and social harmony. In summary, this study defines college students' sense of well-being as follows: college students' happiness mainly refers to the pleasure emotions that college students directly experience, as well as evaluations related to their overall quality of life concerning satisfaction with life and their social relationships. It especially highlights a comprehensive representation of subjective well-being, psychological well-being, and social well-being (Gallagher et al., 2009).

The second is to explore the influencing factors of happiness. At present, many scholars have studied the influencing factors of college students' happiness, but their findings remain inconsistent. On the one hand, the influencing factors examined in prior studies are broad and scattered. Diener et al. (1999) suggested that the factors influencing happiness can be understood from multiple perspectives, including personality, environmental conditions, and cultural context. Other researchers identified factors related to college students' happiness from three dimensions: individual, family, and society, with the aim of informing strategies to enhance college students' well-being (Jiang et al., 2022). Additionally, some researchers have examined college students' well-being in terms of both internal and external influences. Internal factors include personality traits and cognitive evaluations, whereas external factors include life circumstances, stressful life events, and social relationships (Diener et al., 1999; Hefner & Eisenberg, 2009).

Among individual-level factors, personality has been regarded as one of the important factors affecting well-being. However, the influence of personality on well-being is not limited to the five basic dimensions of the Big Five personality traits, but more other specific personality traits come to the fore. For example, personality traits such as ability, character, motivation, and values demonstrated by individuals all have an impact on college students' well-being. Some studies have shown that an individual's mental toughness, empathy, and emotional regulation all have a positive effect on college students' well-being. Individuals with high levels of psychological resilience are usually able to achieve some positive psychological benefits, and psychological resilience is positively related to life satisfaction and positive affect, while it is negatively related to negative affect (Eldeleklioğlu & Yıldız, 2020). Undergraduate students with higher levels of self-compassion competencies tend to show stronger hope, which in turn is strongly associated with higher levels of psychological well-being and life satisfaction (Arimitsu & Hofmann, 2015). As an important component of social and emotional competence, emotion regulation enhances well-being by enhancing positive emotions (Quoidbach et al.,

2015). In addition, people who exhibit high self-esteem in the face of life or learning typically have a greater sense of well-being and a more favorable mental state (Baumeister et al., 2003). In contrast, low self-esteem is associated with increased anxiety and defensive behavior (Pyszczynski et al., 2004). It is important to note that well-being emphasizes the subjective experience of the individual and that individual perceptions of life and learning can also affect the overall well-being of college students. It has been suggested that some individual feelings and perceptions may also influence college students' well-being to a certain extent. For example, factors such as the sense of meaning in life (Jin et al., 2016), the sense of sincerity (Chizanah & Hadjam, 2011), and perceived stress (Lathabhavan, 2023) may play an important role.

When exploring the multidimensional influences on college students' well-being. Compared with relatively stable internal factors, external factors are generally more context-dependent and may vary across social and institutional environments social resources and school conditions provided by the social environment in which college students live have a significant impact on their subjective well-being. Previous studies have shown that college students' interpersonal interactions, parenting style, social support, and use of social media are all closely related to well-being. There is a significant correlation between subjective well-being and interpersonal interactions, and the quality of interpersonal interactions affects an individual's subjective well-being (Hou et al., 2020). In addition to peer-to-peer interactions, family parenting styles, and home environments also have a significant impact on college students' well-being. Positive family parenting styles can enhance college students' sense of spiritual belonging and thus their well-being, whereas overly strict parenting styles may lead to negative behaviors such as social anxiety and emotional disorder (Wang & Wang, 2018). In addition, social support (Huang & Pu, 2024), social connection (Moeller et al., 2020), and the use of social media (Koç & Turan, 2020) are also important factors affecting college students' experience of well-being. Current research in the field of well-being should not only examine its influencing factors but also explore well-being as an outcome variable. This perspective has theoretical value, broadens the scope of well-being research, and helps further clarify the relationships between well-being and other variables.

### *Theoretical foundations*

According to the Subjective Well-Being (SWB) Theory proposed by Diener (1984), well-being is a multifaceted psychological construct consisting of two core components: the cognitive evaluation of life satisfaction and the affective experience of positive and negative emotions. This theory posits that individual traits and cognitive processes serve as proximal predictors of happiness, as people's subjective judgments of life quality are inherently shaped by their personality, self-esteem, and emotional regulation abilities. Previous empirical studies have provided consistent evidence for the theory, confirming that internal factors such as psychological resilience and self-compassion are strongly correlated with higher levels of

subjective well-being among college students (Arimitsu & Hofmann, 2015; Baumeister et al., 2003).

Complementing the individual-focused perspective of SWB Theory, Ecological Systems Theory emphasizes that individual development and psychological outcomes are shaped by nested environmental systems (Bronfenbrenner, 1979). This framework categorizes environmental influences into microsystems (e.g., family parenting styles, peer relationships), mesosystems (e.g., interactions between school and family), and macrosystems (e.g., cultural contexts). Drawing on this theory, external factors such as social support and school environment are hypothesized to exert critical impacts on college students' happiness by shaping their daily experiences and social interactions. Prior research has validated the link between environmental factors and well-being, showing that positive family and social contexts contribute to enhanced psychological and social well-being among young adults (Hou et al., 2020; Wang & Wang, 2018).

Taken together, the Subjective Well-Being (SWB) Theory and Ecological Systems Theory provide a dual explanatory framework for understanding college students' well-being: the former highlights the role of individual psychological characteristics and cognitive evaluations, whereas the latter emphasizes the influence of family, school, peer, and broader sociocultural environments. However, because meta-analysis requires conceptually comparable and operationally consistent coding categories, it is necessary to further clarify the connotations and boundaries of the core constructs included in this study. Based on classic definitions in general psychology and insights from established theoretical and empirical literature, this study systematically categorizes individual internal factors into distinct dimensions. Specifically, cognition refers to the mental processes through which individuals acquire, process, store, retrieve, and use information (Eysenck & Keane, 2015). In the present study, sensation and perception are treated as two important dimensions of cognition because they represent fundamental components of information processing (Goldstein, 2016; Peng, 2019, p. 83–174). Personality-related internal factors are operationalized into four dimensions: ability (Peng, 2019, p. 407), motivation (Peng, 2019, p. 333; Ryan & Deci, 2000a), character (Peterson & Seligman, 2004; Peng, 2019, p. 452), and values (Schwartz, 2012). To ensure consistency in conceptual operationalization and adherence to research norms, this study explicitly defines the operational definitions for each dimension and the relevant themes included in the meta-analysis, as presented in Table 1.

**Goal of the Study.** The aim is to examine the relative effects of internal (individual traits and cognitive mechanisms) and external (social support, school factors, family environment) factors on college students' happiness, and to explore whether cultural context and literature type moderate these relationships. Figure 1 illustrates the proposed analytical framework for our meta-analysis hypotheses.

Hypothesis 1: Internal factors (e.g., personality traits, psychological resilience) have significantly larger effect

sizes on college students' happiness than external factors (e.g., social connection, school structural factors).

Hypothesis 2: The influencing factors of social well-being show greater cultural heterogeneity, whereas those of subjective well-being are more cross-culturally consistent.

Hypothesis 3: Publication type exerts a weak moderating effect on the relationship between influencing factors and college students' happiness.

## Methods

### Data sources

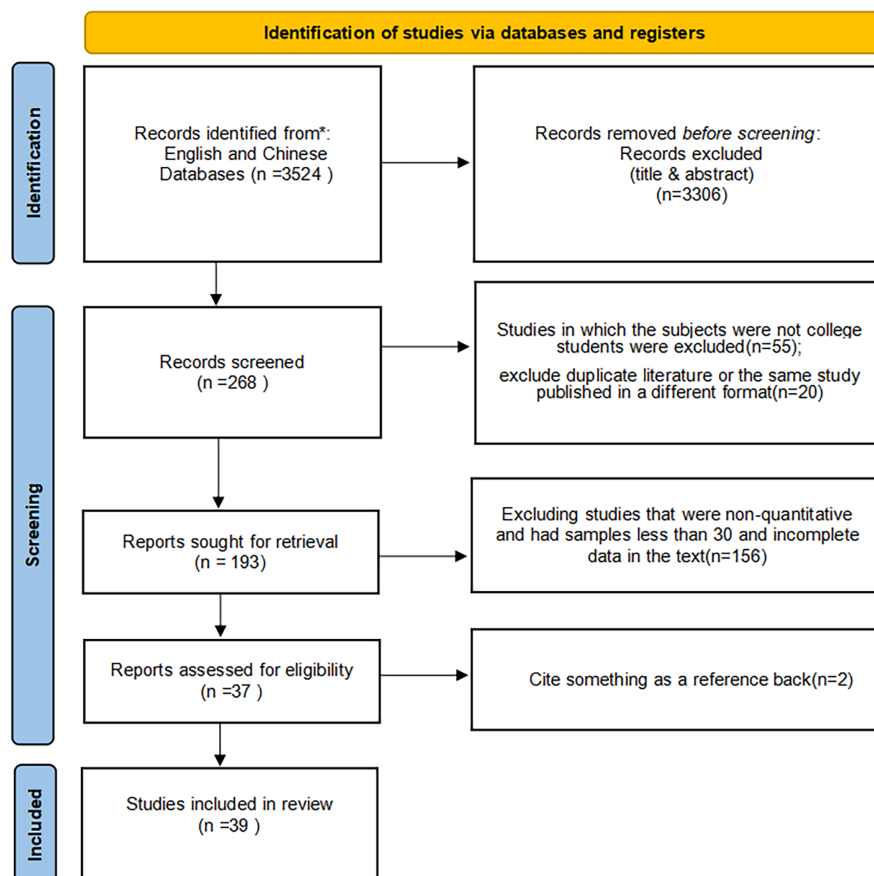
This systematic review and meta-analysis was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) statement (Page et al., 2021). The search for English-language literature of this study covers internationally recognized databases such as Web of Science, ScienceDirect, Springer, and Scopus. The search was conducted using keywords such as “college students' happiness” and “college students' well-being,” with search strategies adjusted according to the characteristics of each database. This study conducted a correlation-based quantitative synthesis meta-analysis to examine the association between influencing factors and college students' happiness. The meta-analysis was performed using a random-effects model strategy determined by heterogeneity test results, with publication bias assessed via multiple complementary methods. We used a diverse search term combination strategy to adapt to the characteristics of different databases. Through the China Knowledge Network Journal Database, Wan Fang Database, and Wei Pu Journal and Dissertation Database, we searched the Chinese literature using the search terms “college students” and “well-being of college students”. The publication period of the studies included in the meta-analysis was limited to January 2020 to April 2024 to ensure that the analyzed literature reflected recent research. In addition, a secondary retrieval was conducted by means of citation backtracking to enhance the comprehensiveness of the literature.

### Inclusion and exclusion criteria

The study screened the literature based on the following inclusion criteria: (1) the research topic focuses on the influencing factors related to the well-being of undergraduate college students; (2) the study population is limited to college students, excluding specialists and graduate students, and excluding the same study published repeatedly; (3) the type of the study is a quantitative study, with a sample size of no less than 30; and the data in the literature are complete; (4) the study contains complete calculations of the effect value required for the data, such as sample size, correlation coefficients, or t-values and F-values that can be transformed into correlation coefficients. These data were converted into correlation coefficients according to the method proposed by Glass et al. (1981). Two researchers independently reviewed the screening and inclusion process of this study. The final screening of controversial literature was carried out by reading the abstracts and full texts. After rigorous screening, a total of 39 papers were included, including 36 academic journal papers and 3 master's and doctoral

**Table 1.** Dimensional classification and operational definitions of individual internal factors

		<b>Operational definition</b>	<b>Related themes included in the meta-analysis</b>
Cognition	Sensation	An individual's direct awareness of internal states and subjective experiences, representing an immediate form of subjective experience before further cognitive appraisal.	Sincerity, meaning in life, sense of coherence, positive emotions, etc.
	Perception	An individual's cognitive judgment and evaluation of the environment, stressors, and events, reflecting rational cognitive appraisal through information processing.	Perceived stress, perceived control, meaning of existence
Personality	Ability	The psychological characteristics required for an individual to successfully perform a given activity, encompassing both the level of achievement reflected in acquired knowledge and skills and the potential for future development.	Emotion regulation ability, psychological resilience, empathy (self-compassion, compassion for others)
	Motivation	The internal driving force and behavioral tendency that directs an individual's actions toward achieving goals.	Hope motivation, happiness motivation, hedonic motivation
	Character	Stable attitudes and consistent behavioral patterns exhibited by an individual during social adaptation.	Grit, self-esteem, gratitude
	Values	An individual's core beliefs and value orientations used to judge right and wrong and to evaluate meaning.	Self-enhancement values, collective responsibility values, materialistic values

**Figure 1.** PRISMA flow diagram of literature search and inclusion process

dissertations, covering the effect values of 97 independent samples. The 39 studies included in the meta-analysis are presented separately in Supplementary Material. The PRISMA flow diagram of searching literature is detailed in [Figure 1](#).

### **Coding of literature**

Two specially trained graduate students independently performed the screening and coding of each document. Any disagreements that arose during the coding process were resolved through discussion and consensus to ensure

consistency and accuracy of coding. The final coding results were reviewed and confirmed by the corresponding author. For studies that met the inclusion criteria, we coded key study characteristics, including author and publication date, sample size, correlation coefficient, publication type, and type of subject sample. This coding information provided an exhaustive database for this study, which helped to analyze and compare the characteristics and results of the studies in depth. The publication type and subject sample of the literature were used as potential moderating variables in this study to explore the possible impact of these factors on the results of the study of college students' well-being. Publication types were categorized into core journals (CJ) and general journals (GJ). Core journals usually refer to journals with high influence and recognition in the academic community, while general journals refer to other academic journals. The types of subject groups were categorized into Chinese university students (CUS) and foreign university students (FUS) based on the country of origin.

### Meta-analysis process

Comprehensive Meta Analysis 3.0 CMA3.0 software was used as an analytical tool, and the sample size (N) and correlation coefficients (r) from the selected literature were entered into CMA3.0 for calculation. The correlation coefficient r was chosen as the effect size to characterize the extent to which the relevant factors affect the well-being of undergraduate college students. In this study, a meta-analysis of Pearson's product-difference correlation coefficient r was used to calculate the effect value (Hofmann et al., 2005), standardized the correlation coefficient r through the transformation of Fisher's Z, and the corresponding weights were calculated according to the sample size. The corresponding weights and 95% confidence intervals were calculated based on the sample size. According to Cohen (1988)'s criteria, effect sizes  $\leq 0.10$  were considered small,  $0.10 < r < 0.40$  medium, and  $r \geq 0.40$  large.

The heterogeneity test is a key step in meta-analysis, and heterogeneity is inevitable due to the differences in the included literature in terms of study samples, publication time, experimental conditions, etc. (Wang et al., 2021). The heterogeneity test is mainly assessed by Q statistic and  $I^2$  statistic. Higgins et al. (2003) suggested that a random effects model should be chosen when  $I^2 > 75\%$  and a fixed effects model when  $0 \leq I^2 \leq 75\%$ . In addition, if the heterogeneity is not significant or the number of studies K is small ( $K < 5$ ), a fixed-effects model should be used for meta-analysis.

To assess publication bias, we utilized the funnel plot distribution of effect sizes for qualitative tests and the Egger regression coefficient for quantitative tests. The significant Egger regression coefficients indicate possible bias (Begg & Mazumdar, 1994; Sterne & Egger, 2001). In addition, a test was conducted using a fail-safe N coefficient to determine how many unpublished studies would be needed to make the overall effect size insignificant or to make the p-value no longer statistically significant.

## Results

### Literature inclusion

In this meta-analysis, we included a total of 39 studies covering 97 effect sizes and involving 56,524 subjects. These studies included master's theses as well as studies in Chinese and English, including 9 studies in Chinese and 30 studies in English. Individual factors included 58 effect sizes (sample size = 33,885), social factors included 28 effect sizes (sample size = 17,315), and school factors included 11 effect sizes (sample size = 5324).

### Heterogeneity analysis

The results of the analysis showed that the overall Q value of 9282.1 and the  $I^2$  value of 98.9%, which is much more than 75%, indicate that there is significant heterogeneity among the findings. Therefore, it is more reasonable to use a random effects model. In addition, we tested for heterogeneity for each dimension under individual factors, social factors, and school factors. The results showed that the level of heterogeneity for all factors exceeded 75%, further confirming the high degree of heterogeneity in the findings. This result suggests the need to further explore possible moderating variables to explain the source of this heterogeneity. The details are shown in Table 2.

### Main effect analysis

#### Differential contributions of individual-level factors to college students' well-being

In the analysis of the impact of the dimensions of individual factors on college students' happiness, we found that the total effect value is 0.294 ( $p < 0.001$ ), which indicates that the individual factors have a moderate positive impact on college students' happiness according to Cohen's classification standard of effect size. Specific to the dimensions of individual factors, the effect value of the sensation dimension of cognitive factors is 0.621 ( $p < 0.001$ ), which shows a significant positive influence and a large degree of influence. This indicates that sensation is an important cognitive factor affecting the well-being of college students. Among the personality factors, the effect values of motivation, ability, and character were 0.399 ( $p < 0.001$ ), 0.368 ( $p < 0.001$ ), and 0.31 ( $p < 0.05$ ), respectively, which showed a moderate positive influence. These results suggest that personality traits such as motivation, ability, and character can positively predict college students' well-being to some extent.

In contrast, the effect values of the perception dimension of cognitive factors and the values dimension of personality factors were  $-0.076$  ( $p > 0.05$ ) and  $0.116$  ( $p > 0.05$ ), respectively, which contained 0 in the 95% confidence interval, and neither of them reached the level of statistical significance. This may imply that the relationship between perceptions and values and college students' well-being is not stable enough or is affected by other contingent factors. In addition, the significant heterogeneity in the overall effect sizes of individual factors suggests that the effects of individual factors on college students' well-being may be influenced by other moderating variables in different studies. Therefore, it is more reasonable to use the random effects model to synthesize the results of these studies. This finding also suggests that future research

**Table 2.** Heterogeneity in the factors influencing college students' well-being

Indicators	K	N	Heterogeneity test		
			Q	p	I <sup>2</sup> %
	97	56,524	9282.1	0.000	98.9
Sensation	7	5269	224.5	0.000	97.3
Consciousness	12	6916	1879.2	0.000	99.4
Ability	20	12,234	982.9	0.000	98.1
Motivation	7	2854	260.49	0.000	97.7
Personality	7	3673	398.05	0.000	98.5
Value	5	2939	70.6	0.000	94.3
Social connection	5	3402	185.2	0.000	97.8
Family influence	5	3274	262.4	0.000	98.4
Interpersonal communication	7	2143	448.23	0.000	98.7
Social media	4	1642	241.6	0.000	98.7
Social support	7	6854	74.3	0.000	91.9
Studies	6	2472	98.5	0.000	94.9
Other factors	5	2852	601.8	0.000	99.3

**Table 3.** Overall effect size between personality factors and the dimensions and the well-being of university students

Indicator	K	R	95%CI		Z	Q
			Lower	Upper		
Sensation	7	0.621***	0.493	0.708	8.138	224.5***
Consciousness	12	-0.076	-0.369	0.231	-0.479	1879.2***
Ability	20	0.368***	0.25	0.475	5.797	982.9***
Locomotive	7	0.399***	0.177	0.583	3.397	260.49***
Personalities	7	0.31*	0.05	0.531	2.324	398.05***
Value	5	0.116	-0.037	0.263	1.487	70.6***
Totally (personality)	58	0.294***	0.19	0.391	5.362	6060.8***

Note. \* indicates  $p < 0.05$ , and \*\*\* indicates  $p < 0.001$ .

needs to further explore possible moderating variables to more accurately understand the relationship between individual factors and college students' well-being.

In summary, the results of our analyses suggest that sensation in individual cognitive factors and motivation, ability, and character in personality factors have significant positive effects on college students' well-being, while the effects of perception and values are not stable enough. The details are shown in Table 3.

*Differential contributions of social and school factors to college students' well-being*

We quantitatively analyzed the influencing factors of college students' happiness, paying special attention to the role of social factors and school factors. The overall effect value of social factors on college students' well-being was 0.278 ( $p < 0.05$ ), which suggests that social factors have a moderately positive effect on college students' well-being according to Cohen's classification of effect sizes. Among the dimensions of social factors, the effect value between social connection and college students' well-being is 0.601 ( $p < 0.001$ ), which indicates that social connection has a significant positive effect on college students' well-being to a large extent. The effect value between social support and well-being is 0.354 ( $p < 0.001$ ), indicating a moderate positive effect of social support on the well-being

of college students. In addition, the effect value between social media use and well-being was 0.082 ( $p < 0.001$ ), which showed a positive association, although the degree of effect was small. Notably, the total effect between social connection, social support, and social media use and college students' well-being all reached statistically significant levels, with social connection having the largest effect value, followed by social support, and social media having a relatively small effect. However, for the school factor, we found that neither the overall effect value nor the effect values of the dimensions between it and college students' well-being showed a significant correlation.

To sum up, social factors play an important role in college students' well-being, especially social connection and social support, while the role of school factors needs more research to clarify. The details are shown in Table 4.

**Sensitivity analysis**

To verify the robustness of the findings, this study implemented a sensitivity analysis. First, we compared the overall effect sizes of the random effects model ( $r = 0.265$ ) with the fixed effects model ( $r = 0.278$ ). In addition, a stability test was conducted for each literature by the one-by-one elimination method, which showed that the value of the effect size  $r$  fluctuated between 0.257 and 0.278. The

**Table 4.** Overall effect size between social and school factors and their dimensions and the well-being of university students

Indicator	K	N	Effect size	95%CI		Z	Q
				Lower	Upper		
Social connection	5	3402	0.601***	0.433	0.728	5.895	185.2***
Family influence	5	3274	0.14	-0.142	0.401	0.975	262.4***
Interpersonal communication	7	2143	0.186	-0.202	0.524	0.94	448.23***
Social media	4	1642	0.082***	0.033	0.13	3.3	241.6***
Social support	7	6854	0.354***	0.277	0.427	8.465	74.3***
Overall (social)	28	17,315	0.278***	0.148	0.397	4.123	2173.3***
Studies	6	2472	0.082	-0.107	0.265	0.848	98.5***
Other factors	5	2852	0.06	-0.377	0.475	0.258	601.8***
Overall (school)	11	5324	0.069	-0.17	0.301	0.565	769.9***

Note. \*\*\* indicates  $p < 0.001$ .

results of the combined sensitivity analyses indicated that the overall effect size of this study was relatively stable.

**Moderating effect**

*Moderating effect of literature publication type*

Considering that different publication types may have an impact on the results of the study, this study takes the publication type of literature as a potential moderating variable to assess its stability on the findings of the research on the influences related to college students' well-being. According to the data in Table 5, in terms of individual factor dimensions, there were significant moderating effects of ability ( $Q = 15.815, p < 0.001$ ), perception ( $Q = 601.8, p < 0.001$ ), motivation ( $Q = 8.392, p < 0.01$ ), and values ( $Q = 58.856, p < 0.001$ ) on the influence of college students' well-being in studies with different publication types, and the no significant moderating effect was found for the other factors.

In terms of social and school factors, the type of publication had a significant moderating effect on social connection affecting college students' well-being ( $Q = 45.001, p < 0.001$ ), while no significant moderating effect was found for other factors. Among school factors, academic factors ( $Q = 4.179, p < 0.05$ ) showed a moderating effect on the influence of college students' well-being. The details are shown in Table 5.

*Moderating effects of subject groups*

In this study, the sample covers groups of college students from different countries, and in view of the subjective experiential nature of happiness. We use different subject groups in the sample as moderating variables. According to the data in Table 6, we found that different subject groups had significant moderating effects on college students' happiness in individual factors of perception ( $Q = 15.364, p < 0.001$ ), motivation ( $Q = 11.702, p < 0.001$ ), and personality ( $Q = 6.678, p < 0.05$ ), and in social factors of interpersonal interactions ( $Q = 173.63, p < 0.001$ ) also showed a significant moderating effect. Among the school factors, other factors ( $Q = 3.946, p < 0.05$ ) likewise had a moderating effect on college students' well-being. However, no significant moderating effect was shown for the rest of the factors.

Overall, different groups of subjects were not the main source of group heterogeneity, and its moderating effect was reflected in a few factors.

*Publication bias test*

Three methods were used in this study to comprehensively detect publication bias: funnel plot, fail-safe N, and Egger's test. By visualizing the funnel plot, we noticed that most of the studies were concentrated at the top of the funnel plot, and the effect sizes were roughly evenly distributed although dispersed on both sides, which initially indicated that the likelihood of publication bias was low. Further, we calculated the insecurity coefficient. The obtained N value of 1772 was much larger than the suggested value of  $5n + 10$  ( $5 \times 39 + 10 = 205$ ), indicating that even the presence of unpublished studies was not enough to change the significance of the current analysis. In addition, the  $t$ -value of Egger's test was 0.459, which is less than 1.96, and the  $p$ -value was 0.64, which is greater than 0.05, which further supports the low likelihood of publication bias.

Generally, through the visual analysis of the funnel plot in Figure 2, the quantitative assessment of the insecurity coefficient, and the statistical inference of Egger's test, we came to the consistent conclusion that the possibility of publication bias in the results of this meta-analysis was small.

**Discussion**

***Relationship between individual factors and college students' happiness***

The present meta-analysis indicates that individual-level factors are significantly associated with college students' well-being, with cognitive and personality-related factors showing particularly important roles. This finding is consistent with previous research suggesting that Personality is one of the most stable and effective predictors of well-being, and it plays a greater role in determining well-being than other influences (Diener et al., 1999). Personality can be understood as a relatively stable configuration of behavioral tendencies and psychological characteristics that shapes how individuals relate to themselves, others, and their surrounding environment during social adaptation. It involves multiple dimensions, including ability,

**Table 5.** Moderating effect of different publication types of literature

Indicator	Category	Effect size		95%CI			
		R	p	Lower	Upper	Q	p
Sensation	Core journal	0.625***	0.000	0.508	0.719	0.131	0.936
	General Journal	0.604***	0.000	0.557	0.647		
	Master's thesis	0.591***	0.012	0.146	0.837		
Consciousness	Core journal	-0.165	0.245	-0.421	0.114	601.8***	0.000
	General Journal	-0.33***	0.000	-0.33	-0.397		
	Master's thesis	0.8***	0.000	0.776	0.829		
Ability	Core journal	0.345***	0.000	0.168	0.5	15.815***	0.000
	General Journal	0.383***	0.000	0.265	0.49		
	Master's thesis	0.582**	0.000	0.524	0.635		
Locomotive	Core journal	0.277*	0.029	0.03	0.493	8.392**	0.004
	General Journal	0.644***	0.000	0.511	0.747		
Personalities	Core journal	0.202	0.315	-0.192	0.539	2.163	0.141
	General Journal	0.539***	0.001	0.247	0.741		
Value	Core journal	-0.201***	0.000	0.15	0.251	58.856***	0.000
	General Journal	-0.24***	0.000	-0.333	-0.142		
Social Connect	Core journal	0.642***	0.000	0.567	0.714	45.001***	0.000
	General Journal	0.292***	0.000	0.23	0.352		
	Master's thesis	0.678***	0.000	0.49	0.806		
Family influence	Core journal	0.091	0.625	-0.269	0.43	1.669	0.169
	General Journal	0.325***	0.000	0.272	0.376		
Social media	Core journal	-0.08	0.828	-0.666	0.567	0.264	0.607
	General Journal	0.11**	0.003	0.037	0.182		
Social support	Core journal	0.31***	0.000	0.236	0.38	0.837	0.658
	General Journal	0.366***	0.000	0.25	0.471		
	Master's thesis	0.341***	0.000	0.3	0.381		
Study	Core journal	0.034	0.772	-0.196	0.261	4.719*	0.03
	General Journal	0.292***	0.000	0.238	0.344		
Other factors	Core journal	-0.069	0.891	-0.786	0.728	3.107	0.078
	General Journal	0.246	0.562	-0.336	0.567		

Note. \* denotes:  $p < 0.05$ , \*\* denotes:  $p < 0.01$ , \*\*\* denotes:  $p < 0.001$ . The study sample for the variable social (interpersonal) had no different types of published literature, so the variable was not analyzed for moderating effects.

temperament, character, needs, motivation, and values, and represents a distinctive psychosomatic organization gradually formed through socialization (Shi, 1988).

Through the above results, it can be seen that among the individual factors, feeling, motivation, ability, and values play a crucial role in college students' well-being. Among them, personal feelings especially significantly and positively affect college students' well-being. This includes the sense of sincerity and the sense of meaning in life; the sense of sincerity refers to an individual's attitude of accepting past, present, and possible future events. If college students are able to face stressful or negative events in their studies, life, or relationships with an open mind, it will help them to adopt more effective coping strategies (Harlianty et al., 2022), which will enhance their well-being experience. People of different ages pursue different meanings in life, and college students are in the important period of pursuing their dreams and realizing

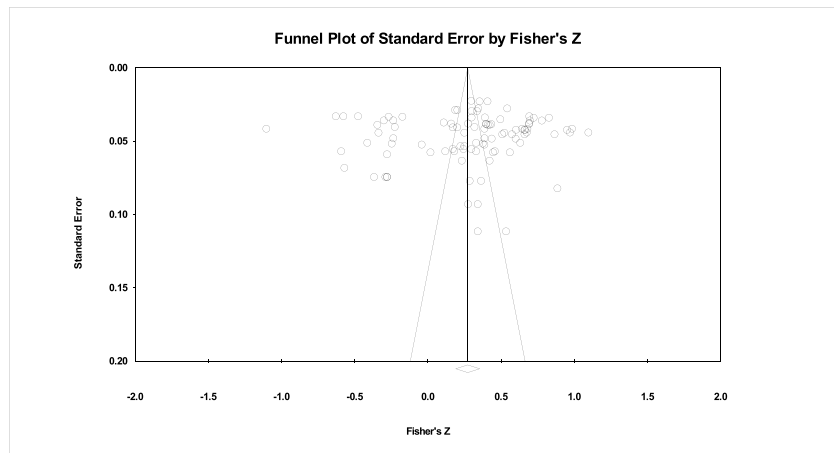
the value of life. If self-actualization is successful, it will correspondingly enhance their happiness experience (Jin et al., 2016). Both the experiences gained in the face of the past, present, or future, as well as holding a relaxed or positive and optimistic attitude in the face of stressful events, can contribute to college students' well-being.

In addition, the motivational elements of personality explored in this study, such as hope motivation and hedonic motivation, showed moderate correlations with college students' well-being. Hope is a positive state based on the interaction of the path to success and motivation (Snyder et al., 2000, 2002). Different psychologists have offered different interpretations of well-being, often distinguishing between hedonic well-being, which emphasizes pleasure and life satisfaction (Diener, 1984), and eudaimonic well-being, which emphasizes meaning, self-realization, and personal growth (Ryan & Deci, 2000a). From this perspective, different motivational orientations may be associated

**Table 6.** Moderating effect of different test samples

Indicator	Category	Effect size		95%CI			
		R	p	Lower	Upper	Q	p
Sensation	CUS	0.591*	0.012	0.146	0.837	0.027	0.868
	FUS	0.621***	0.000	0.535	0.694		
Consciousness	CUS	0.594**	0.003	0.228	0.813	15.364***	0.000
	FUS	-0.318**	0.005	-0.506	-0.1		
Ability	CUS	0.293*	0.024	0.04	0.512	0.882	0.348
	FUS	0.41***	0.000	0.332	0.482		
Locomotive	CUS	0.201	0.103	-0.041	0.421	11.702***	0.001
	FUS	0.611***	0.000	0.504	0.7		
Personalities	CUS	0.6***	0.000	0.55	0.646	6.678**	0.01
	FUS	0.251	0.118	-0.065	0.522		
Social connect	CUS	0.579***	0.000	0.361	0.737	1.296	0.255
	FUS	0.68***	0.000	0.642	0.715		
Family influence	CUS	0.106	0.748	-0.493	0.636	0.024	0.877
	FUS	0.163	0.368	-0.191	0.48		
Interpersonal communication	CUS	-0.556***	0.000	-0.599	-0.509	173.63***	0.000
	FUS	0.305***	0.000	0.189	0.413		
Social media	CUS	-0.223	0.505	-0.712	0.412	0.492	0.483
	FUS	0.161	0.711	-0.603	0.771		
Social support	CUS	0.35***	0.000	0.261	0.434	0.296	0.587
	FUS	0.38***	0.000	0.314	0.443		
Other factors	CUS	-0.034	0.897	-0.501	0.448	3.107	0.078
	FUS	0.412***	0.000	0.33	0.488		

Note. \* denotes  $p < 0.05$ , \*\* denotes  $p < 0.01$ , and \*\*\* denotes  $p < 0.001$ . The personality (values) and school (academics) variables were all Chinese college students in the study sample, and therefore no moderating effects were analyzed for this variable.



**Figure 2.** Funnel plot

with different forms of well-being, thereby leading to complex relationships among motivational factors and college students' happiness. Indeed, individuals' pursuit of goals often depends on their life values, with some believing that material abundance is happiness, while others believe that spiritual pleasure can lead to fulfillment, even in the context of material deprivation. The findings of this study

support the idea that higher levels of hope are associated with higher levels of self-satisfaction (Bailey et al., 2007). When students face negative emotions or stressful events, emotion regulation ability (Chen et al., 2022), psychological resilience, and empathy (Sanchez et al., 2018; Tran et al., 2022) help them maintain well-being.

So, are college students happy or not? In higher education, a student's self-identity has both inhibition and promotion functions (Liao & Xiao, 2022). Self-identity refers to an individual's experience after subjectively evaluating his or her own inner ability, cognitive world, and life development state (Oyserman et al., 2012). When students strive for self-actualization, those with higher self-assessments usually set stricter requirements. If these goals are successfully achieved, their overall well-being will subsequently increase; conversely, this may lead to mental health problems, which may reduce their overall satisfaction.

#### ***The relationship between social factors and college students' sense of well-being***

In addition to internal factors, external conditions may also shape individual well-being. This study examined social and school-level factors, among which social factors emerged as important contributors to students' well-being, including social connection, social support, and social media use. Of these, social connection had the greatest impact on college students, followed by social support and social media use.

From a social-relational perspective, social relationships involve interactions among individuals, groups, and broader social contexts. Social connection, social support, and social media embody just about every aspect of social relationships. Individuals who form strong bonds are more likely to be aware of their proximity to others. They are also more willing to engage in group activities. As a result, their interpersonal trust, self-esteem, psychological health, and fulfillment tend to increase (Baumeister & Leary, 1995). The college years are a time of transition when a range of skills are needed to manage interpersonal relationships, cope with complex environments, and participate in a variety of activities. Social support can alleviate the negative consequences of stress while meeting basic social needs (Huang & Pu, 2024). Furthermore, social support provides a sense of belonging, security, and self-worth (Cobb, 1976), ultimately contributing to the enhancement of well-being. Currently, there are two hypotheses about the relationship between Internet use and college students' well-being. One suggests that online interactions undermine subjective satisfaction because users invest time in virtual space in lieu of real-life communication. The other suggests that online interactions are beneficial in enhancing real communication and compensating for the barriers of real-life face-to-face interactions, which in turn enhances well-being (Valkenburg & Peter, 2007). Compared with social connection and social support, social media use showed a weaker but still significant positive correlation with college students' well-being. The reason for this connection might be that online media provides a platform and opportunity for stressful students to interact. Through social media, students may obtain positive interactional experiences, which can contribute to their well-being.

#### ***Moderating effects of different types of published literature***

In this study, the analysis of the moderating effects on college students' well-being revealed that publication type had significant moderating effects on individual factors (including ability, perception, motivation, and values), social factors (especially social connection), and school factors (e.g., academic performance). Among these, the moderating effects on ability and perception were particularly noteworthy. This phenomenon may stem from the limited number of the master's thesis included in the analyses, resulting in significant differences between publication types. General and core journals both demonstrated significant moderating effects on the personality factors of motivation and values. However, general journals had higher combined effect values than core journals. This difference suggests that there may be some instability in the research conclusions drawn from different journal types. This instability may be related to sample size or the choice of research methodology. The literature included in this study covered the last five years and was affected by the COVID-19 pandemic. As a result, the literature was likely predominantly cross-sectional in nature. These studies may limit the extent to which the findings can be generalized to broader contexts.

#### ***Moderating effects of different subject groups***

The moderating effects of different subject groups on individual factors (including perception, motivation, and personality) and social factors (especially interpersonal interactions) were analyzed in depth. The analysis results show that different subject groups have significant moderating effects on individual factors such as perception, motivation, and personality. Specifically, in terms of perceptual factors, studies involving foreign college students mainly focused on perceived stress, whereas studies involving Chinese college students mainly examined perceived control. As a result, the combined effect values of the two showed significant differences: foreign college students' perceptions were dominated by negative effects, whereas Chinese college students' perceptions were dominated by positive effects. This finding is consistent with previous evidence that higher perceived stress is associated with lower life satisfaction (Matheny et al., 2008; Rezaei & Mousanezhad Jeddi, 2020). Conversely, stronger perceived control is associated with higher levels of well-being (Matheny et al., 2008). Subject group also significantly moderated the association between motivation and well-being. This significance may be related to the limited sample size of foreign university students involved in motivation research, as is the case with personality factors. Social factors, particularly interpersonal interactions, demonstrated significant differences. This significance is largely attributed to the focus on negative interpersonal relationships within the Chinese college student sample, which negatively impacted well-being. Conversely, the foreign college student sample was mainly investigated from the perspective of positive interpersonal relationships, and thus the two showed significant differences among different groups of subjects.

## Conclusion

(1) Individual internal factors have the strongest correlation with college students' well-being, with personality factors being one of the most stable and effective predictors of college students' well-being. (2) The combined effect sizes of individual and social factors and college students' well-being both showed moderate correlations. (3) Due to the limited number of studies on school-related factors included, the combined effect sizes of school factors and college students' well-being failed to show a significant correlation. (4) Publication type and subject group mainly moderated a few factors and were not the main source of heterogeneity.

## Limitations

Although the study showed that the influence of publication bias on the results of the meta-analysis is very unlikely, it is still impossible to avoid the omission of literature that meets the inclusion criteria. The sample sizes of the studies included in the meta-analysis on the school factor are relatively small, which may limit the representativeness of the samples and may introduce errors when comparing them with other factors, such as individual and social factors. The sample sizes of master's theses in different publication types are small, which limits the significance of the individual moderating effect, which may lead to some errors in the results of the study.

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**Availability of Data and Materials:** The data supporting the conclusions of this available from the corresponding author reasonable request.

**Ethics Approval:** As this study is a meta-analysis based solely on data extracted from previously published empirical studies, no new data were collected and no human participants were directly involved. All included studies had already undergone their own ethical review. Therefore, no additional ethical approval was required.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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