

Effect of Teacher Support on Mental Health of College Students in China: A Study Demands-Resources Model Approach

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Abstract

This study aimed to investigate the effect of teacher support on college students' mental health using the study demands-resources model. Additionally, it explored the mediating roles of study engagement and opportunities. Chinese college students participated in the study through a questionnaire survey. We employed convenience sampling to collect 592 valid samples from the participants. The results revealed a significant positive correlation between college students' perceived teacher support and their mental health. Moreover, the study highlighted that study engagement and opportunities act as mediators between college students' perceived teacher support and their mental health. These findings have important theoretical and practical implications for managing college students' mental health. To enhance students' overall mental health, teachers should focus on increasing the provision of study opportunities, thereby fostering study engagement.

Keywords: demands-resources model, teacher support, study opportunities, study engagement, mental health

1. Introduction

Greater attention should be paid to students' health and learning status consistent with the SDG4 agenda (Hanemann, 2019; Wei et al., 2022). Research has indicated a concerning rise in mental health problems among college students (Viner et al., 2022; Wilson et al., 2021; Yang et al., 2021). The situation became even more challenging after the COVID-19 epidemic in 2020, which increased the mental health risks among college students due to study interruptions, low study engagement, and emotional difficulties related to academics. Some students experienced depression, anxiety, and suicidal thoughts during their academic journey (Xu et al., 2021). However, contemporary research on college students' mental health reveals problems such as insufficient attention, practical work confusion, and a lack of stable faculty. Therefore, this study seeks to explore the mental health problems experienced by college students in China during their academic pursuits.

According to the study demands-resources (SD-R) framework, study resources enhance student engagement, leading to positive outcomes such as improved mental health and academic performance (Lesener et al., 2020). Researchers have explored the relation between college students' study engagement and their mental well-being within the SD-R model. They have discovered that environmental resources, including social support, can impact students' individual resources and their mental health (Wei et al., 2022). In the educational learning environment, teachers have a crucial role as classroom practitioners and designers and organizers of extracurricular activities (Kallio et al., 2021). Positive interactions between teachers and students have been found to mitigate the negative association between students' mental health issues and their academic progress. Students with mental health issues in particular appear to receive less support from teachers (Shelemy et al., 2019). Thus, teachers' behavior plays a vital role in influencing college students' mental health (Conner et al., 2014).

Study opportunities are crucial for college students, are closely related to individual differences in student engagement (Nong et al., 2022), and influence the level of support provided by schools for students' academic and personal development. Schools play a vital role in offering various study resources and opportunities to students (Johnson et al., 2019). These opportunities actively promote the relationship between students' study opportunities and their individual engagement and facilitate their overall behavior and development (Bowyer & Kahne, 2020; Lesener et al., 2020). Relevant studies have highlighted the significant impact of teacher support on college students' mental health. Additionally, other study-related factors such as peer support, academic self-efficacy, and study

opportunities are closely associated with students' mental well-being (Hitches et al., 2022; Ma et al., 2023; Zhao et al., 2021). Based on the SD-R model theory, the level of teacher support directly or indirectly affects students' mental health. Notably, study opportunities, a vital component of study resources, directly or indirectly affect students' mental health. However, despite scholars' focusing on the positive effects of teacher support on college students' academic pursuits, the underlying mechanisms have not been thoroughly explored.

In the context of higher education in China, this study aimed to analyze the positive effect of teacher support on college students' mental health through the lens of the SD-R model theory. In addition, the study sought to explore the underlying mechanisms and conditions by introducing variables such as study investment and study opportunities. The ultimate objective was to offer valuable insights for formulating effective educational policies to enhance college students' level of study engagement and mental well-being, thereby improving higher education quality.

2. Methods

2.1 Research Model

Previous researchers have explored the relation between college students' study engagement and their mental health using the SD-R model. They have claimed that environmental resources such as social support can impact students' individual resources, thereby affecting their mental well-being (Wei et al., 2022). Study resources, including teacher support and study opportunities, are immensely significant for students' academic experiences (Lesener et al., 2020). In this context, study engagement can be considered personal resources whereas mental health can be viewed as study outcomes and behaviors. Considering the current landscape of higher education, increased teacher support and study opportunities foster higher levels of study engagement among college students, thereby influencing their mental health. Building upon the SD-R model theory, this study constructed a model diagram illustrating the effect of teacher support received by Chinese college students on their mental health, as illustrated in Figure 1.

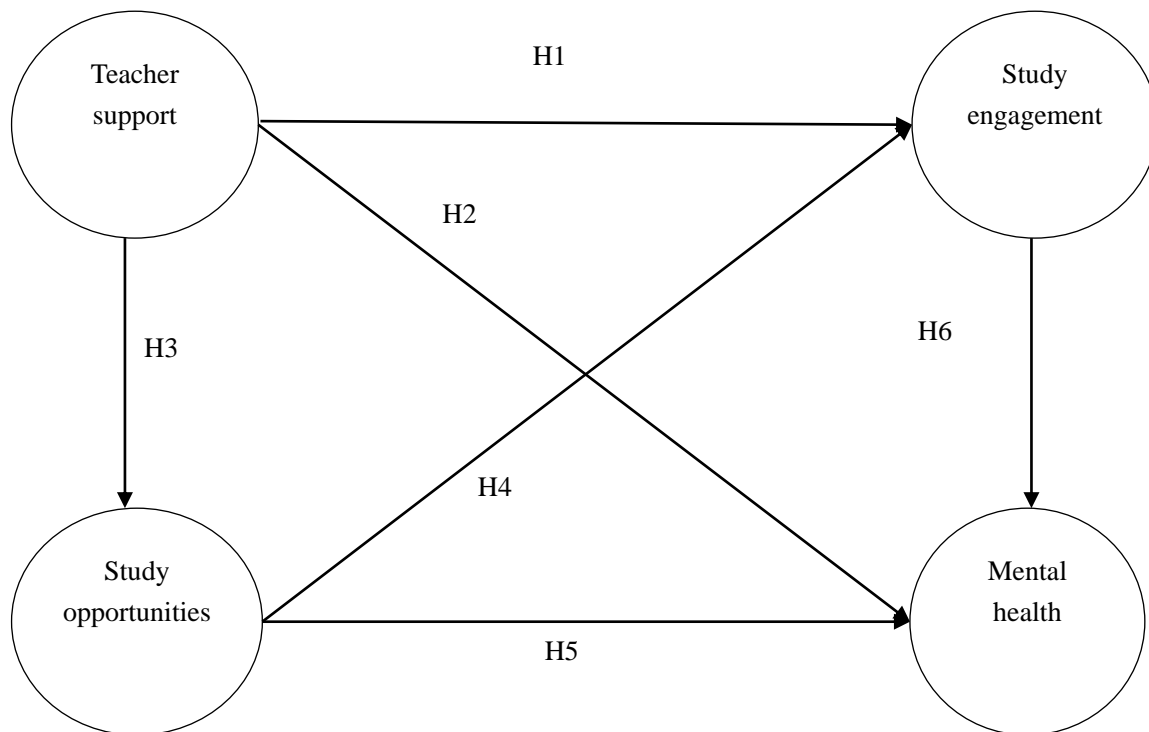


Figure 1. Research Model

2.2 Research Hypothesis

2.2.1 Relation between Teacher Support and Study Engagement and Study Opportunities and Mental Health

Teachers play a critical role as the primary source of support within school support networks, significantly influencing students' study experiences (Tao et al., 2022). A teacher's positive attitude, academic expectations, and incentivizing behaviors toward students can effectively enhance their study engagement (Sawka, 2002). In response to the pandemic, teachers adapted by providing various opportunities to promote students' learning, such as offering

distance learning support, employing flexible teaching methods, introducing opportunities for innovation, and incorporating nonacademic courses, all of which contribute to further supporting students' academic pursuits (Reddy & Bubonia, 2020). Relevant studies have highlighted the significance of providing additional course resources as a means of offering additional study opportunities (Beese, 2014). During the pandemic, teachers leveraged educational technology to create diverse study opportunities and develop learning themes tailored to students' varying learning styles. By providing choices based on time and convenience, students can access more study opportunities, thereby facilitating the achievement of educational objectives (Gurajena et al., 2021). Additionally, incorporating tools such as the iPad has been found to increase students' study opportunities and foster their interest in and enthusiasm for learning (Cumming et al., 2021).

In the context of these findings, relevant studies have highlighted the crucial role of teachers in recognizing students' mental health and well-being and fulfilling their psychological needs (Mazzer & Rickwood, 2015). Dimitropoulos et al. (2022) emphasized the significant impact of external support on students' mental health. Baik et al. (2019) observed that teachers' support for students' basic mental needs can positively predict their overall mental well-being, leading to increased life satisfaction and improved mental health. Elmer et al. (2020) emphasized that teacher support significantly and directly affects students' mental health, serving as a direct predictor of their learning and personal development. Therefore, it is essential to provide enhanced teacher support to identify and assist students at higher risk of social isolation and negative outcomes. Accordingly, this study proposes the following hypotheses based on the aforementioned findings:

H1: Teacher support significantly and positively affects college students' level of study engagement.

H2: Teacher support positively affects college students' mental health.

H3: Teacher support positively affects college students' study opportunities.

2.2.2 Relation among Study Opportunities, Study Engagement, and Mental Health

Fredricks et al. (2004, 2011) proposed that student engagement is a comprehensive state of study involvement, encompassing behavior, emotion, and cognition. Furthermore, relevant studies have demonstrated that increased study opportunities lead to greater opportunities for personal development and a sense of self-efficacy (Wolden et al., 2019). These opportunities can manifest as training, learning experiences, and support for growth. When students perceive greater study opportunities, they expand their learning horizons and actively engage in acquiring valuable knowledge and skills provided by teachers, thereby promoting their study engagement (Guskey, 2002; Ma et al., 2023). Students with limited study opportunities may experience reduced confidence in their academic abilities due to a lack of sufficient support or access to a variety of study opportunities, which can influence their level of study engagement to some extent (Kelly et al., 2021). In other words, more study opportunities are associated with higher levels of study engagement (Brozina et al., 2019).

Mental health is described as a continuous, satisfactory, and optimistic state of mind (Lei, 2022). Throughout their academic journey, students may encounter practical challenges, including interpersonal difficulties, academic stress, and the adverse impacts of the COVID-19 epidemic. These factors can make them more susceptible to academic burnout and mental health issues (Lyons et al., 2020; March-Amengual et al., 2022). Guskey (2002) highlighted that teachers are more likely to engage in providing study opportunities when they believe that these opportunities equip students with useful knowledge and skills and support their learning process. This, in turn, partially fulfills students' study demands and subsequently influences their level of mental health. During the COVID-19 pandemic, students' mental health issues became particularly pronounced, and providing more study opportunities may partly address their mental needs (Bolotov et al., 2021). In other words, more study opportunities can lead to higher levels of mental health among students and serve as a resourceful support for improving their mental well-being (Elmarasi et al., 2022). In light of these observations, this study proposes the following hypotheses:

H4: Study opportunities for college students in China positively affect their study engagement.

H5: Study opportunities for college students in China positively affect their mental health.

2.2.3 Relation between Study Engagement and Mental Health

Numerous studies have highlighted a strong correlation between students' level of study engagement and their mental health. Specifically, students with higher levels of study engagement generally exhibit a more positive mental health status (Ngussa et al., 2021). Conversely, students who are not actively engaged in their studies and exhibit a passive approach to classroom learning are more susceptible to experiencing negative emotions such as depression and anxiety due to excessive stress. In other words, higher levels of study engagement are associated with a more

positive mental health status (Dolzan et al., 2015). This finding is consistent with that of another study reporting a positive relation between study engagement and mental health (Wei et al., 2022). Given the significance of this correlation, the present study aims to further examine the relation between study engagement and mental health. Accordingly, the following hypothesis is proposed:

H6: Study engagement of college students in China positively affects their mental health.

3. Results

3.1 Research Procedure and Participants

Because of the impact of the COVID-19 pandemic, this study adopted a quantitative research approach. College students from Guizhou Province, China, were selected using convenience sampling and invited to participate by filling out online questionnaires on popular social software apps such as QQ and WeChat. In total, we collected 610 questionnaires for this study. After excluding questionnaires with incomplete answers or unusually short response times, 592 questionnaires were deemed valid, resulting in an effective response rate of 97%. Among the valid questionnaires, 159 (26.8%) were completed by male respondents, and 433 (73.2%) were completed by female respondents.

3.2 Measure

In this study, the research team employed four scales: the Teacher Support Scale, the Study Engagement Scale, the Study Opportunity Scale, and the Mental Health Scale. These scales were carefully tested and revised by three PhDs in education management to ensure their validity and reliability. To further validate the clarity and comprehensibility of the questionnaire, ten college students from China were invited to complete the questionnaire. For scaling the responses, we employed the Likert 5-point scale, where 1 represented “strongly disagree” and 5 represented “strongly agree.”

3.2.1 Teacher Support

In this study, we utilized the Teachers Support Scale (TSS), comprising 13 questions, proposed by Stornes (2008), to evaluate college students’ perceptions of teacher support. Examples of the statements included are “During classroom instruction, teachers take into account the suggestions for teaching proposed by students” and “Teachers demonstrate great concern for their students.” A Cronbach’s alpha value of 0.93 indicated high reliability.

3.2.2 Study Opportunities

The study included the Study Opportunity Scale developed by Sun et al. (2021) to assess the study opportunities available to college students. The scale was designed as a one-dimensional measure and comprises eight items. An example item from the scale is “I will attend seminars or conferences to improve my knowledge in professional fields.” The scale demonstrated high reliability, as evidenced by a Cronbach’s alpha coefficient of 0.91.

3.2.3 Study Engagement

In this study, the researchers utilized the Study Engagement Scale (SE) revised by Lam et al. (2014). The scale comprises nine items. The overall Cronbach’s α coefficient was 0.90. Sample items from the scale include “I am attentive in class” and “I actively participate in class discussions.”

3.2.4 Mental Health

We utilized the Mental Health Scale developed by Nong et al. (2022) to assess the mental health status of students. The questionnaire was designed as a single-dimensional structure and comprises ten items. Sample items from the scale include “I feel happy in my studies” and “I am satisfied with my academic life.” The scale demonstrated high reliability, as indicated by a Cronbach’s alpha value of 0.92.

3.3 Data Analysis

The validity of the measurement model can be assessed by studying its construction and relation among variables (Deng et al., 2018). To examine the interplay among teacher support, study engagement, study opportunities, and the mental health of college students, we employed a structural equation model (SEM) test. SEM is a statistical method that measures the structural relations among various research variables and explains assumed associations between indicators while minimizing measurement errors (Lee Helm et al., in press).

4. Results and Discussion

4.1 Item Analysis

In this study, we conducted first-order confirmatory factor analysis (CFA) to analyze the items on the research scales (Kline, 2015). Notably, a good fit of the model is indicated when χ^2/df is less than 5, the root mean square error of approximation (RMSEA) is less than 0.1, and the goodness-of-fit index (GFI) is greater than 0.80 (Hair et al., 2019). Items with factor loading (FL) below 0.500 were eliminated from the analysis. After conducting the first-order CFA, we retained 13 items on the TSS, nine items on the SE, eight items on the Study Opportunity Scale, and ten items on the Mental Health Scale.

Table 1. First-order CFA

Construct	χ^2	<i>df</i>	χ^2/df	RMSEA	GFI	AGFI	FL
Threshold	-	-	<5	< 0.10	> 0.80	> 0.80	> 0.5
Teacher support	79.84	65	1.23	0.02	0.98	0.97	0.67–0.76
Study opportunities	37.67	20	1.89	0.04	0.98	0.97	0.68–0.74
Study engagement	32.06	27	1.187	0.02	0.99	0.98	0.69–0.77
Mental health	21.65	35	1.28	0.01	0.99	0.98	0.72–0.80

4.2 Reliability and Validity Analysis

In the SEM, the study assessed the reliability and comprehensive reliability (CR) of the research data using the internal consistency coefficient (Cronbach's α). According to the criteria of Hair et al. (2011), internal consistency is acceptable only when Cronbach's α and CR values are at least 0.70. Our analysis revealed that the Cronbach's α values ranged from 0.90 to 0.93, and the CR values ranged from 0.90 to 0.93 (Table 2). Both values exceeded 0.90, indicating good reliability (Hair et al., 2010). In addition, the discrimination validity analysis presented in Table 3 suggests that the correlation coefficients among the studied constructs were lower than the square root of the average variance extracted (AVE). This observation confirms that the discrimination validity criteria are met (Awang, 2015).

Table 2. Reliability and Validity Analysis

Construct	M	SD	α	FL	CR	AVE	<i>t</i>
Teacher support	3.64	0.76	0.93	0.72	0.93	0.52	15.73–17.79
Study opportunities	3.66	0.78	0.91	0.73	0.91	0.53	10.63–15.66
Study engagement	3.74	0.78	0.90	0.73	0.91	0.53	16.82–19.25
Mental health	3.73	0.80	0.92	0.74	0.92	0.54	16.88–18.10

Table 3. Discrimination Validity Analysis

Construct	1	2	3	4
Teacher support	0.72			
Study opportunities	0.42	0.73		
Study engagement	0.41	0.39	0.72	
Mental health	0.44	0.48	0.41	0.74

4.3 Reliability and Validity Analysis

SEM analysis enables us to assess the overall fit and acceptance of variations in research patterns (Stanley & Edwards, 2016). Notably, the study model has a good fit when the χ^2/df value is less than 5 (Hair et al., 2010); RMSEA is less than 0.1; and GFI, AGFI, NFI, NNFI, CFI, and IFI are higher than 0.800 (Abedi et al., 2015). Furthermore, PNFI and PGFI should be greater than 0.500 (Hair et al., 2010). In this study, the fitted values of the model were as follows: $\chi^2/df = 1.53$, RMSEA = 0.03, GFI = 0.91, AGFI = 0.90, NFI = 0.91, NNFI = 0.96, CFI = 0.97, IFI = 0.96, PNFI = 0.86, and PGFI = 0.82. Accordingly, these values indicated a good model fit.

4.4 Path Analysis

Based on the SD-R model, this study formulated six research hypotheses and validated them. The results revealed the following: Teacher support positively affected college students' study engagement ($\beta = 0.29^{***}$; $t = 7.23$), study opportunities ($\beta = 0.42^{***}$; $t = 11.36$), and mental health ($\beta = 0.23^{***}$; $t = 5.94$). Study opportunities positively

affected study engagement ($\beta = 0.27^{***}$; $t = 6.87$) and mental health ($\beta = 0.31^{***}$; $t = 8.01$). Study engagement positively affected college students' mental health ($\beta = 0.20^{***}$; $t = 5.15$) (Figure 2).

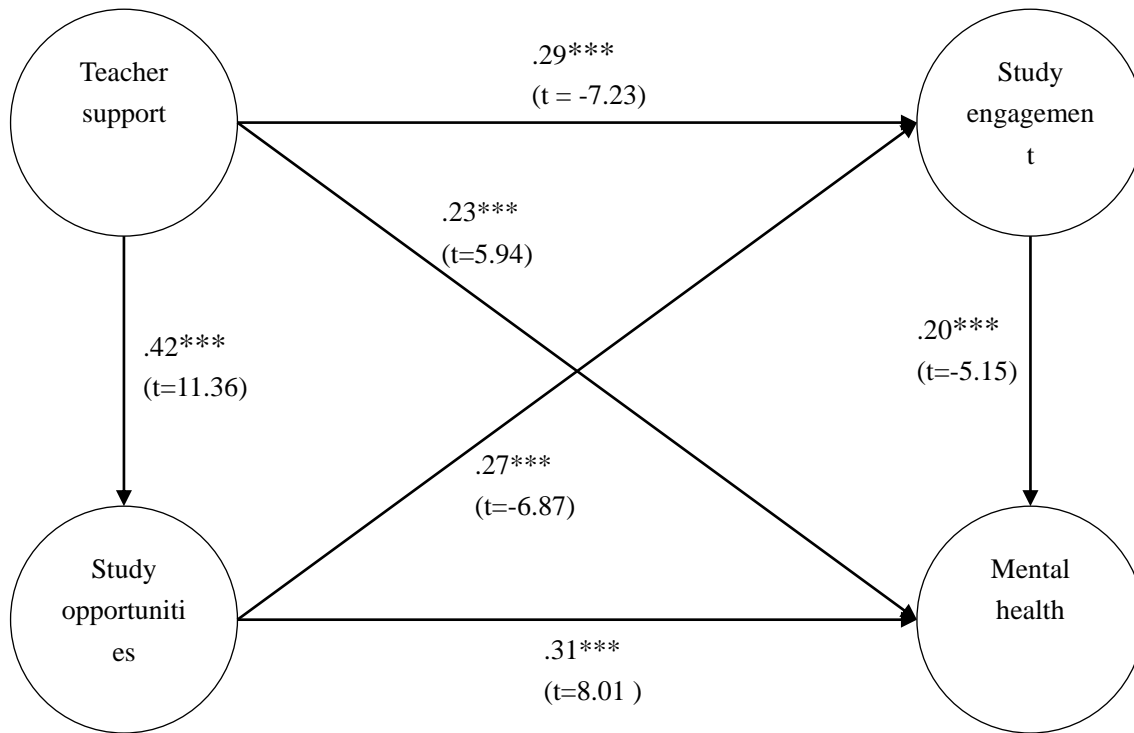


Figure 2. Validation of the Research Model

4.5 Indirect Effect Analysis

The indirect effect analysis indicated that teacher support significantly and positively affected college students' mental health ($\beta = 0.23^{***}$). Study engagement significantly and positively affected college students' mental health ($\beta = 0.20^{***}$). Study opportunities significantly and positively affected college students' mental health ($\beta = 0.31^{***}$). The significance of these indirect effects is supported by the 95% confidence intervals, which do not include 0. The significance levels are denoted by (** $P < 0.01$; *** $P < 0.001$), as indicated in Table 4.

Table 4. Mediating Effect Analysis

Construct	Teacher support		Study engagement		Study opportunities	
	β	95% CI	β	95% CI	β	95% CI
Mental health	0.23***	[0.15, .32]	0.20***	[0.11, 0.29]	0.31***	[0.25, 0.42]

Note . ** $P < 0.01$, *** $P < 0.001$.

5. Discussion

5.1 Direct Effect

This study offers valuable insights into the existing research by demonstrating the significant positive effect of teacher support, study engagement, and study opportunities on the mental health of college students in China. The findings specifically highlight the positive effect of study opportunities on study engagement and mental health and of study engagement on mental health. The study emphasizes the vital role that teachers play within school support networks and their influence on students' study status (Tao et al., 2022). It underscores the importance of various forms of support provided by teachers to encourage independence, emotional stability, and capability, which contribute to students' mental well-being (Lai et al., 2020). Students who perceive more study opportunities are likely to broaden their learning horizons and actively engage in valuable learning experiences and skills (Guskey, 2002). Increased study opportunities offer students valuable resources to enhance their mental well-being (Elmarasi et al., 2022). This results in increased student engagement and higher levels of mental health (Wei et al., 2022). The

study findings are consistent with those of previous research and extend the existing body of knowledge.

5.2 Mediating Effect

Lesener et al. (2020) emphasized that study resources available to students promote study engagement and influence their mental health and academic performance. Chong et al. (2018) indicated that study engagement plays a mediating role in the relations among teacher support, self-efficacy, and students' abilities. Different indirect relationships exist between teacher support and self-efficacy and students' abilities through various study engagement channels. Bolatov et al. (2021) determined that offering more study opportunities fulfills students' mental needs and further enhances their positive mental-health levels. Based on the SD-R model, Wei et al. (2022) showed that environmental resources, such as social support, can influence students' individual resources and subsequently impact their mental health. This study shows that study engagement and study opportunities mediate the relation between teacher support and college students' mental health, thereby expanding the existing research findings.

6. Conclusions and Recommendations

6.1 Conclusions

The study findings indicate that teacher support significantly and positively affects college students' study engagement, study opportunities, and mental health. Study opportunities significantly and positively affect college students' study engagement and mental health. College students' study engagement positively affects their mental health. Furthermore, study engagement mediates the relation among college students' perceived teacher support, study opportunities, and mental health.

6.2 Contributions

Previous studies on college students' mental health have predominantly focused on individual internal factors such as positive mental traits and their protective effects on cognitive characteristics (Li et al., 2021). The study's unique contribution lies in its exploration of the relations among teacher support, study opportunities, study engagement, and college students' mental health based on the SD-R model theory. By investigating the interplay of study resources such as teacher support and study opportunities in influencing college students' study engagement and mental health, this study expands the scope and application of the SD-R model.

In the current university education environment, exploring how teacher support and study opportunities enhance study engagement and promote students' overall mental health has become crucial. Based on the theoretical framework of the SD-R model, this study investigates the relations among teacher support, study opportunities, study engagement, and college students' mental health during their academic journey. The findings indicate that offering more study resources can enhance students' study engagement, reduce negative emotions, and thereby improve their mental well-being. Additionally, the findings suggest ways to enhance college students' study and manage their mental health.

6.3 Recommendations

Higher education institutions and teachers should prioritize creating a positive and supportive learning environment. This includes fostering a culture of teacher support and offering ample study opportunities. This approach can help identify and support students with negative emotions and mental health issues (Elmer et al., 2020), thereby improving their study engagement and mental well-being. Students should actively seek help to continuously enhance their self-resilience, actively perceive study resources and opportunities, and improve their level of study engagement and mental well-being.

6.4 Limitations and Future Study

This study confirms the effect of teacher support and perceived study opportunities on college students' study engagement and mental health in addition to uncovering the underlying mechanisms. However, there are some limitations to this study.

First, the research's focus on college students from universities in Guizhou Province, China, may restrict the generalizability of the research findings to a broader population. Future studies should consider expanding the geographical scope of sampling to enhance sample representativeness. Second, by interviewing some college students, we can learn more about their views on teacher support and their mental health. Third, as a cross-sectional study, it is constrained by the research participants and cannot provide an in-depth analysis. Therefore, future longitudinal research should examine the effect of teacher support, study engagement, and study opportunities on college students' mental health.

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