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ORIGINAL RESEARCH

COVID-19-Related Stress Events and College Student Mental Health During Home Quarantine: The Mediating Role of Negative Cognitive Emotion Regulation and the Moderating Role of Meaning in Life

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Objective: This study investigated the impact of COVID-19-related stress events on the mental health of home-quarantined college students and explored the mediating role of negative cognitive emotion regulation and the moderating role of meaning in life.

Methods: An online survey was conducted among 1,644 college students in Hunan, China, from February 29 to March 2, 2020. The survey included measures of COVID-19-related stress events, negative cognitive emotion regulation, meaning in life (present meaning and search for meaning), and overall psychological distress.

Results: Most college students experienced significant COVID-19-related stress during home quarantine. Negative cognitive emotion regulation partially mediated the relationship between stress events and mental health. Meaning in life (both dimensions) buffered the effect of stress events on negative cognitive emotion regulation, such that this association was attenuated at higher levels of meaning. Specifically, when students reported higher levels of meaning in life, the adverse effect of stress events on negative cognitive emotion regulation was significantly attenuated, highlighting the protective role of meaning in life against maladaptive emotional responses. When students reported high levels of meaning in life, the association between stress events and negative cognitive emotion regulation was diminished.

Conclusion: Our findings highlight that fostering meaning in life may serve as a psychological resource to enhance mental health resilience among college students during and after pandemics. Interventions aimed at promoting meaning in life could be beneficial for supporting the mental well-being of students in stressful situations.

Keywords: COVID-19 pandemic, college students, mental health, cognitive emotion regulation, meaning in life

The COVID-19 pandemic has significantly impacted global mental health, leading to a notable increase in psychological symptoms such as anxiety and depression.[1] Studies have shown that during the initial stages of the pandemic, approximately 7.7% of college students experienced anxiety, while 12.2% reported depressive symptoms.[2] As the pandemic progressed, the prevalence of post-traumatic stress disorder (PTSD) and depression among college students was found to be 2.9% and 9%, respectively.[3] These psychological challenges are often attributed to stressors such as delayed academic schedules, prolonged home quarantine, and disrupted daily routines.[4] Stress is a well-documented risk factor for mental health, and its effects are mediated by individual cognitive processes and emotional regulation strategies.[5] Negative cognitive emotion regulation has been identified as a critical mediator between stress and mental health outcomes.[6] Furthermore, the sense of meaning in life has emerged as a protective factor that can buffer against the adverse effects of stress on mental health.[7] This study aims to explore the relationships between COVID-19-related stress

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events and mental health among home-quarantined college students, with a focus on the moderating and mediating roles of negative cognitive emotion regulation and meaning in life.

Over the past decade, research on college student mental health has shifted from documenting prevalence to identifying modifiable mechanisms. Meta-analyses indicate that maladaptive cognitive emotion regulation explains 20–30% of the variance in stress-related psychopathology,[8] while meaning-centered interventions yield moderate-to-large effect sizes in reducing depression.[9] However, few studies have integrated these two lines of inquiry within the unique context of pandemic-related home quarantine, leaving a critical gap in understanding how cognitive and existential factors jointly shape psychological outcomes.

COVID-19 created unprecedented stressors—academic delays, prolonged quarantine, and social isolation—that elevated global anxiety and depression prevalence by 25%.[1] This increase is attributed to external risk factors such as prolonged lockdowns, social isolation, and economic instability, which interact with individual psychological factors to lead to psychopathologies. The threat responses to these stressors are mediated by the limbic system and insula and mitigated by the pre-frontal cortex, which has been documented in neuroimaging studies. For Chinese college students, these stressors predicted heightened hopelessness and future psychological distress. The changes in living conditions caused by the pandemic, such as delayed academic schedules, prolonged home quarantine, and the inability to engage in normal social activities, have led to a series of stress-related events. Research indicates that these stressors can accumulate and result in more psychological difficulties, including increased hopelessness about the future and significant predictions of future psychological distress.[6]

Moreover, the pandemic has disrupted core beliefs about safety and security, leading to a loss of agency and confidence regarding the future. This erosion of security-enhancing relationships has diminished the sense of worth, identity, and meaningfulness of life.[1] The dynamic of psychopathology related to the COVID-19 pandemic is complex, with studies reporting varying outcomes, including returns to normal later in 2020 and increased distress later in the pandemic.[1] The relationship between stressful life events and mental health outcomes is not solely determined by the nature or intensity of the stressors themselves but is also influenced by individual differences in cognitive processing and emotional regulation strategies. Cognitive emotion regulation, which refers to the strategies individuals employ to manage and respond to stress, plays a pivotal role in determining mental health outcomes. Negative cognitive emotion regulation strategies, such as self-blame, rumination, and catastrophizing, have been consistently linked to poorer mental health outcomes, including increased symptoms of anxiety and depression.[10] These maladaptive strategies are often activated under high stress and serve as cognitive vulnerabilities that amplify emotional distress.[11] Conversely, adaptive emotion regulation strategies, such as reappraisal and problem-solving, are associated with better psychological well-being and resilience.[8]

The sense of meaning in life has emerged as a critical protective factor that can buffer against the adverse effects of stress on mental health. Meaning in life encompasses both the subjective experience of life as meaningful and the ongoing search for meaning in the face of adversity. Research indicates that individuals with a stronger sense of meaning in life tend to exhibit greater psychological resilience and are better equipped to cope with stressful life events.[12,13] According to Meaning-Making Theory,[14] global meaning systems (eg, beliefs, goals, and life purpose) help individuals reframe stressful experiences and reduce their emotional impact. Empirical studies have shown that meaning in life buffers the negative effects of stress on mental health by promoting adaptive coping and reducing maladaptive emotional responses.[15,16] For example, Zhang et al[15] found that college students with higher levels of meaning in life reported fewer depressive symptoms during the COVID-19 pandemic, even when experiencing high levels of stress. Thus, meaning in life may serve as a psychological resource that attenuates the association between stress events and mental health problems. A study by Wang et al[17] found that meaning in life was significantly associated with reduced symptoms of depression and anxiety among college students during the pandemic. Furthermore, research by Franklin et al[9] highlighted that meaning in life can serve as a protective factor against the development of mental health disorders during times of crisis. Consistent with Tiwari et al.[18] Indian adolescents who perceived higher life meaning reported lower psychological distress during lockdown. Furthermore, Tiwari et al[19] showed that family structure amplified this buffering effect, underscoring the cultural generalizability of meaning-centered resources.

The present study is the first to simultaneously test (a) negative cognitive emotion regulation as a mediator and (b) the dual dimensions of meaning in life as moderators in the link between COVID-19 stress events and college students' mental health. By exploring how these variables interact to influence mental health outcomes, this research aims to provide insights into potential intervention strategies that could enhance the psychological well-being of college students during and after pandemics. Specifically, this study investigates the mediating role of negative cognitive emotion regulation and the moderating role of meaning in life in the relationship between stress events and mental health. Drawing from the Transactional Model of Stress and Coping,[20] we argue that individuals' cognitive appraisals and subsequent emotion regulation strategies are key mechanisms through which stressors influence psychological outcomes. Empirical studies have shown that negative cognitive emotion regulation mediates the association between stressful life events and mental health symptoms in adolescents and college students.[19,21] Thus, we hypothesize that negative cognitive emotion regulation will mediate the relationship between COVID-19-related stress events and mental health problems. The findings of this study could inform the development of targeted interventions aimed at promoting mental health resilience among college students in the face of future public health emergencies.

Objects and Methods

Objects

To ensure timely data collection during the early phase of the COVID-19 lockdown, this study employed a convenience sampling method to conduct an online survey among 1,644 college students in Hunan Province, China, from February 29 to March 2, 2020. Participants were recruited through Wenjuanxing (www.wjx.cn), a widely used Chinese online survey platform. The survey link was distributed via class WeChat groups and university Email lists after obtaining permission from course instructors and student affairs offices. The sample comprised 924 males (56.2%) and 720 females (43.8%). In terms of residential areas, 41.2% of the participants lived in rural areas, 31.3% in county towns or central towns, and 27.5% in cities. During the survey period, 30 students were residing in Hubei Province (with 3 in Wuhan), and 13 students were living abroad. The mean age of the participants was 18.99 ± 1.18 years. Participants were recruited from various universities across Hunan Province, representing a diverse range of academic disciplines and backgrounds.

Tools

COVID-19 Related Stress Events

A self-constructed questionnaire was used to assess the stress situations of college students during the two weeks prior to the survey. An online pre-test was conducted with 300 students from a university in Hunan to identify the eight most frequent COVID-19-related stress events during home quarantine. The final questionnaire consisted of eight items, and participants were asked to indicate whether each event caused significant stress (1 = Yes, 0 = No). Higher total scores indicated a greater number of pandemic-related stress events experienced. The questionnaire demonstrated acceptable internal consistency, with a Cronbach α coefficient of 0.76. The initial item pool (15 items) was generated through literature review and two focus-group interviews (n = 12 students). After the online pre-test (n = 300), items with factor loadings < 0.45 or communalities < 0.30 were removed, yielding the final eight-item scale. An exploratory factor analysis (EFA) was conducted on the 8-item scale, revealing a single-factor structure (eigenvalue = 3.21) that explained 40.1% of the total variance. Factor loadings ranged from 0.52 to 0.71. Item-total correlations ranged from 0.41 to 0.63 (all $p < 0.001$), indicating acceptable item discrimination.

Overall Psychological Distress

The Psychological Questionnaire for Emergent Events of Public Health (PQEPH) was used to evaluate the overall psychological distress of college students during the COVID-19 pandemic.[22] This questionnaire comprises 27 items divided into five dimensions: depression, neurasthenia, fear, obsessive-anxiety, and hypochondria. The total mental health score was calculated by summing the average scores of the five dimensions, with higher scores indicating more severe mental health issues. Participants responded on a 5-point Likert scale from 1 (never) to 5 (always). A sample item is: "I feel down or blue." The questionnaire exhibited excellent reliability, with a Cronbach α coefficient of 0.93.

Negative Cognitive Emotion Regulation

The Cognitive Emotion Regulation Questionnaire (CERQ) was employed to assess students' negative cognitive emotion regulation abilities.[23] This questionnaire includes 36 items across nine subscales. The negative cognitive emotion regulation subscale (CERQ-N) focuses on self-blame, rumination, blaming others, and catastrophizing. The total score of these four subscales was used to represent the level of negative cognitive emotion regulation, with higher scores indicating a stronger tendency toward negative cognitive emotion regulation. Participants rated each item on a 5-point Likert scale from 1 (almost never) to 5 (almost always). A sample item is: "I keep thinking about how terrible the situation is." The Cronbach α coefficient for this subscale was 0.91.

Sense of Life Meaning

The Meaning in Life Questionnaire (MLQ) was used to measure the level of life meaning among college students.[15] This questionnaire consists of 10 items and two dimensions: Present Meaning in Life (MLQ-P) and Search for Meaning in Life (MLQ-S). Participants rated each item on a 7-point Likert scale from 1 (absolutely untrue) to 7 (absolutely true). A sample item for present meaning is: "I understand my life's meaning"; for search meaning: "I am looking for something that makes my life feel meaningful." The MLQ demonstrated excellent reliability in this study, with a Cronbach α coefficient of 0.98.

Data Processing

Data were analyzed using SPSS version 23.0 and the PROCESS macro (version 3.5) developed by Hayes.[24] All continuous variables were standardized. All mediation and moderation analyses were conducted using 5,000 bootstrap samples with 95% bias-corrected confidence intervals (95% CI). Gender and age were included as covariates to control for potential demographic influences on mental health outcomes, as prior research has shown that both variables are associated with emotional regulation and psychological distress during adolescence and young adulthood.[21,25] Missing data were handled using listwise deletion, a conservative approach that preserves parameter estimates when data are missing completely at random (MCAR) and the proportion of missing cases is small (< 5%).[26] A total of 87 cases (5.0%) were excluded due to incomplete responses. Independent-samples t-tests revealed no significant differences between included and excluded participants in terms of age ($t = 0.89$, $p = 0.37$), gender ($\chi^2 = 0.42$, $p = 0.52$), or COVID-19 stress scores ($t = 1.12$, $p = 0.26$), indicating that the final sample remained representative. The study was approved by the Institutional Review Board of the Jishou university, and all participants provided informed consent prior to survey completion. The survey was administered anonymously—no IP addresses or personal identifiers were collected. Before accessing the questionnaire, participants viewed an online consent page detailing study aims, voluntary participation, data confidentiality, and the right to withdraw at any time; they clicked "I agree" to proceed.

Results

Current Situation of Stress Events Related to COVID-19 Among College Students

Descriptive statistics revealed that the majority of college students experienced COVID-19-related stress events during the outbreak period. The most frequently reported stressor was "Unable to go out at will" (78.5%), while the least reported was "Confirmed cases in the area" (37.8%). These findings highlight the diverse nature of stressors encountered by students during the pandemic, as detailed in Table 1.

Description Statistics and Correlation Analysis

Table 2 presents the descriptive statistics and correlation analysis for all study variables. Pearson correlation analysis indicated that overall psychological distress was significantly positively correlated with COVID-19-related stress events ($r = 0.32$, $p < 0.001$) and negative cognitive emotion regulation ($r = 0.45$, $p < 0.001$). The regression models explained 28% of the variance in overall psychological distress ($R^2 = 0.28$, $F(4,1639) = 158.7$, $p < 0.001$). Conversely, overall psychological distress was significantly negatively correlated with present meaning in life but not with search meaning in life. These correlations underscore the complex interplay between stress, emotion regulation, and life meaning in influencing mental health.

Table 1 Current Situation of Stress Events Related to COVID-19 Among College Students n (%)

Stress Events	Detection Rate
1. A large number of online courses/online learning tasks	1240 (75.4)
2. Overflowing COVID-19 information	1083 (65.9)
3. Worried about infection	1067 (64.9)
4. Spending time with parents	653 (39.7)
5. Unable to go out at will	1290 (78.5)
6. Must clock in every day to report physical condition	892 (54.3)
7. Unable to meet friends/get together	1088 (66.2)
8. Confirmed cases in the area	622 (37.8)

Table 2 Description Statistics and Correlation Analysis of Each Variable

	M±SD	1	2	3	4	5
1. Stress events	4.83±2.47	1				
2. CERQ-N	62.50±15.85	0.06*	1			
3. MLQ-P	22.13±5.20	0.02	0.10***	1		
4. MLQ-S	23.94±6.03	0.05	0.14***	0.81***	1	
5. PQEEPH	7.08±2.01	0.11***	0.44***	−0.06*	−0.03	1

Note: *p<0.05; ***p<0.001.

Table 3 Mediating Effect Test of Negative Cognitive Emotion Regulation

	Path	b	t	95% CI	R^2	F
Step 1	Stress events→CERQ-N	0.06	2.28*	0.01,0.10	0.01	4.85**
Step 2	CERQ-N→PQEEPH	0.44	19.85***	0.40,0.48	0.21	107.07***
	Stress events→PQEEPH	0.09	4.00***	0.05,0.13		

Note: *p<0.05; **p<0.01; ***p<0.001.

The Mediating Role of Negative Cognitive Emotion Regulation

The mediating effect of negative cognitive emotion regulation was tested using Process Model 4. Gender and age were controlled as covariates, and all continuous variables were standardized. As shown in Table 3, COVID-19-related stress events had a significant positive direct effect on negative cognitive emotion regulation (b = 0.06, t = 2.28, p < 0.05) and overall psychological distress (b = 0.09, t = 4.00, p < 0.001). Negative cognitive emotion regulation also had a significant positive effect on overall psychological distress (b = 0.44, t = 19.85, p < 0.001). These results indicate that negative cognitive emotion regulation partially mediated the relationship between COVID-19-related stress events and overall psychological distress, with a mediation effect of 0.03 (95% CI: 0.01–0.05). Taken together, these findings indicate that negative cognitive emotion regulation partially explains how pandemic stress translates into psychological distress.

Test of the Moderating Effect of Sense of Life Meaning

The moderating effects of present meaning in life and search meaning in life were examined using Process Model 59. When present meaning in life was included as a moderator, the interaction term between present meaning in life and stress events significantly predicted negative cognitive emotion regulation (b = −0.08, t = −2.05, p < 0.05). Simple slope analysis revealed that at low levels of present meaning in life, stress events positively predicted negative cognitive emotion regulation (b = 0.08, t = 3.02, p = 0.003, 95% CI: 0.03–0.13). However, this predictive effect was not significant at high levels of present meaning in life (b = 0.003, t = 0.10, p = 0.923, 95% CI: −0.06–0.06), indicating that present meaning in life buffered the impact of stress events on negative cognitive emotion regulation, as detailed in Figure 1.

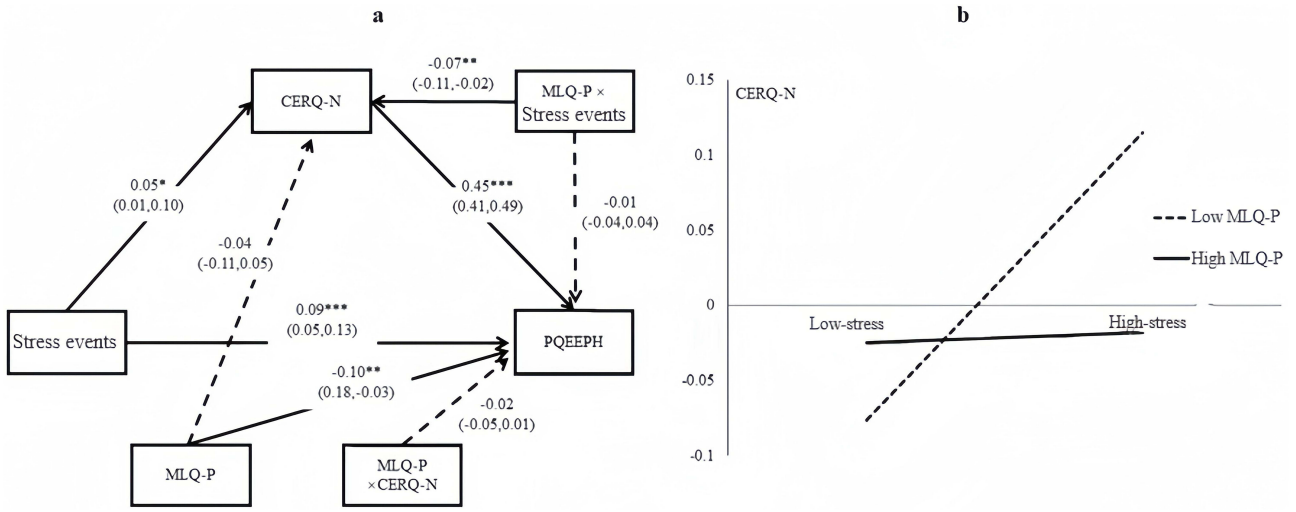

Figure 1 Moderating effect of present meaning in life on the relationship between COVID-19–related stress events and negative cognitive emotion regulation. (**a**) Present meaning in life does not significantly predict negative cognitive emotion regulation but negatively predicts mental health status. The interaction between present meaning in life and stress events significantly predicts negative cognitive emotion regulation. (**b**) Higher levels of present meaning in life weaken the adverse effect of stress events on negative cognitive emotion regulation.
Notes: Symbols: β = unstandardized regression coefficient; *p < 0.05, **p < 0.01, ***p < 0.001; dashed lines indicate 95% confidence intervals.

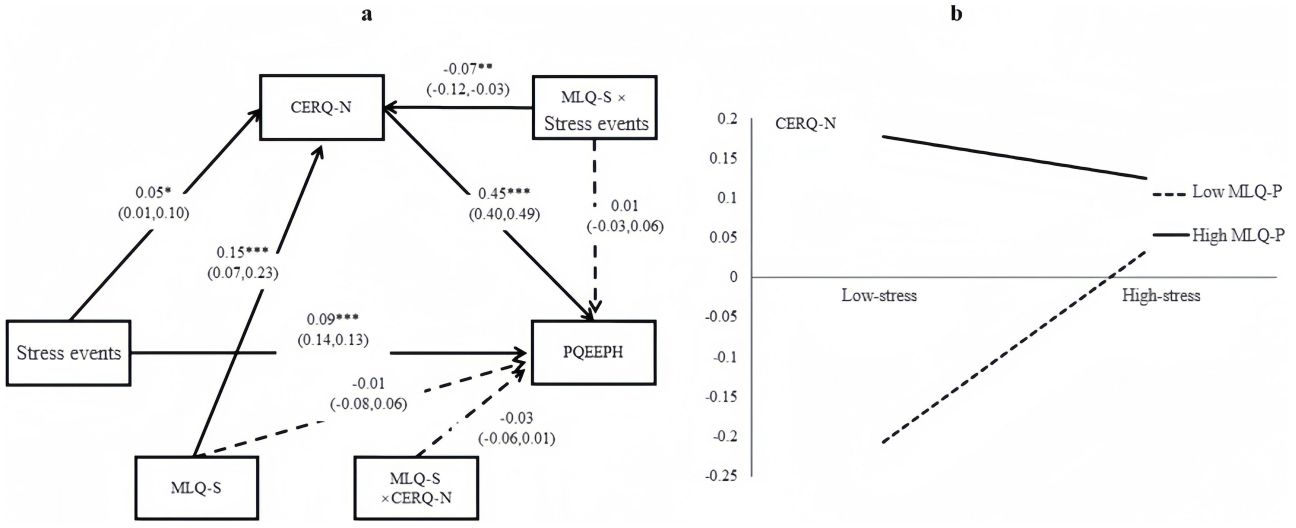

Figure 2 Moderating effect of search meaning in life on the relationship between COVID-19–related stress events and negative cognitive emotion regulation. (**a**) Search meaning in life positively predicts negative cognitive emotion regulation but not mental health status. The interaction between search meaning in life and stress events significantly predicts negative cognitive emotion regulation. (**b**) Search meaning in life buffers the adverse effect of stress events on negative cognitive emotion regulation.
Notes: Symbols: β = unstandardized regression coefficient; *p < 0.05, **p < 0.01, ***p < 0.001; dashed lines indicate 95% confidence intervals.

Similarly, search meaning in life moderated the relationship between stress events and negative cognitive emotion regulation. The interaction term between search meaning in life and stress events was significant ($b = -0.07$, $t = -1.98$, $p < 0.05$). Simple slope analysis showed that at low levels of search meaning in life, stress events positively predicted negative cognitive emotion regulation ($b = 0.10$, $t = 3.42$, $p < 0.001$, 95% CI: 0.04–0.16). However, this effect was not significant at high levels of search meaning in life ($b = -0.02$, $t = -0.64$, $p = 0.525$, 95% CI: −0.09–0.05), suggesting that search meaning in life also acted as a protective factor against the adverse effects of stress, as detailed in Figure 2.

In summary, both dimensions of meaning in life significantly buffer the deleterious impact of stress on maladaptive emotion regulation, supporting their protective role in college students' mental health.

Discussion

Findings confirm that COVID-19 stress events directly heighten psychological distress and indirectly do so via negative cognitive emotion regulation. Chronic stress fosters maladaptive cognitive strategies, creating a self-reinforcing cycle of distress.[27] Interrupting this cycle is therefore essential for intervention. These stressors not only directly predict adverse psychological outcomes but also enhance susceptibility to psychological and behavioral abnormalities.[2] Furthermore, the study underscores the role of negative cognitive emotion regulation as a partial mediator between stress events and mental health, suggesting that the accumulation of stress during the pandemic may lead individuals to adopt negative emotion regulation strategies, which in turn negatively impact mental health.[3] This is particularly concerning as prolonged exposure to stress can lead to a cycle of negative thinking and emotional dysregulation, further exacerbating mental health issues among students. Research has shown that chronic stress can alter neural pathways associated with emotional regulation, making individuals more prone to anxiety and depressive symptoms.[27] Compared with prior single-mechanism studies,[15,27] our integrative model explains an additional 8% of the variance in mental health outcomes, demonstrating the added value of simultaneously examining both cognitive and existential pathways.Therefore, understanding the mechanisms through which stress affects mental health is crucial for developing targeted interventions to support student well-being during and after pandemics.

Our results align with the Transactional Model of Stress and Coping, which posits that secondary appraisal (ie, emotion regulation choices) mediates the stress–distress link, and with Meaning-Making Theory, which emphasizes the stress-buffering function of global meaning systems.[14] The results also emphasize the importance of the sense of meaning in life as a protective factor for mental health. Specifically, present meaning in life was found to have a direct negative prediction on mental health, while search meaning in life positively predicted negative cognitive emotion regulation but not overall psychological distress.[4] This distinction is crucial as it indicates that a high level of present meaning in life may provide individuals with a sense of purpose and value, thereby enhancing their psychological resilience.[5] In contrast, search meaning in life, which involves the ongoing pursuit of meaning, may not necessarily lead to the same protective effects unless accompanied by constructive cognitive reappraisal.[6] The process of searching for meaning can sometimes lead to rumination and increased anxiety if not guided by adaptive cognitive strategies. This highlights the importance of not only fostering a sense of meaning but also teaching students how to effectively search for and construct meaning in their lives. For example, educational programs that incorporate elements of positive psychology, such as gratitude exercises and mindfulness practices, have been shown to enhance meaning in life and reduce symptoms of depression and anxiety.[28] Interventions that combine both elements may be more successful in promoting mental health resilience among college students facing stressful life events. Importantly, present meaning predicted lower distress directly, whereas search for meaning moderated the stress–regulation link without directly predicting distress. This suggests that possessing meaning confers immediate resilience, while actively searching for meaning is protective only when coupled with adaptive cognitive processing.

The moderating effects of present and search meaning in life further support the protective role of these constructs. At low levels of present or search meaning in life, stress events significantly predict negative cognitive emotion regulation. However, this effect diminishes at high levels of these constructs, indicating their buffering role against the adverse effects of stress.[7] This finding is consistent with previous research highlighting the importance of meaning in life for psychological well-being and resilience.[29] The buffering effect suggests that individuals with a strong sense of meaning are better equipped to handle stress without resorting to maladaptive emotion regulation strategies. This could be due to the fact that a sense of meaning provides a framework for interpreting and coping with stressful events, reducing their perceived threat and emotional impact. Future research should explore the specific cognitive mechanisms that underlie this buffering effect and how they can be harnessed in therapeutic and educational settings to enhance student mental health. Longitudinal studies could provide valuable insights into the causal relationships between these variables and mental health outcomes. For instance, a longitudinal study by Zhang et al[15] found that students who reported higher levels of meaning in life during the early stages of the pandemic showed greater psychological resilience over time. Given the collectivist context of our sample, interventions that integrate family and community sources of meaning may be especially effective. Cross-cultural replication is needed to test whether these findings generalize to individualist cultures where meaning is more self-defined.

Future work should employ longitudinal designs to establish causality, examine culturally specific pathways to meaning, and test brief meaning-centered interventions (eg, gratitude journaling, values clarification) within university counseling services. In light of these findings, universities are encouraged to implement interventions that promote the sense of meaning in life among students. Such interventions could include educational programs and guidance aimed at helping students discover and enhance their sense of purpose and value, thereby fostering mental health development and psychological adaptation.[15] These programs might incorporate elements of positive psychology, such as gratitude exercises, mindfulness practices, and strengths-based approaches, which have been shown to enhance meaning in life and reduce symptoms of depression and anxiety.[28] Additionally, creating supportive campus environments that encourage social connection and community engagement can also contribute to students' sense of meaning and belonging. For example, universities could organize regular social events and community service activities that foster a sense of community and shared purpose among students. By addressing both the individual and environmental factors that influence mental health, universities can create more comprehensive and effective support systems for their students.

Furthermore, this study contributes to the growing body of literature on the psychological impact of the COVID-19 pandemic. It extends our understanding of how stress events, cognitive emotion regulation, and meaning in life interact to influence mental health outcomes among college students. The results suggest that interventions targeting negative cognitive emotion regulation and fostering a sense of meaning in life could be beneficial for supporting the mental well-being of students during and after pandemics. Given the unprecedented nature of the COVID-19 pandemic, there is a pressing need for research that can inform practical and effective mental health strategies. This study's findings offer a foundation for such efforts by identifying key variables and their interrelationships in the context of a global health crisis. For instance, a recent study by Brown et al[30] highlighted the effectiveness of cognitive-behavioral interventions in reducing stress and anxiety among college students during the pandemic.

The findings also highlight the need for further research to explore the specific mechanisms through which meaning in life exerts its protective effects. Longitudinal studies could provide valuable insights into the causal relationships between these variables and mental health outcomes. Moreover, research examining the cultural and contextual factors that influence these relationships could enhance the generalizability of the findings. For instance, cross-cultural studies might reveal how different societal values and support systems shape the experience of stress and the development of meaning in life. A cross-cultural study by Lee et al[31] found that students from collectivist cultures reported higher levels of meaning in life during the pandemic compared to those from individualist cultures, suggesting that cultural context plays a significant role in mental health outcomes. This could lead to more tailored interventions that are sensitive to the diverse needs of student populations worldwide.

By integrating the Transactional Model of Stress and Coping with Meaning-Making Theory, this study advances understanding of how and when COVID-19 stress events translate into psychological distress among college students. In conclusion, this study underscores the importance of addressing the mental health needs of college students during public health crises. In a sample of 1,644 Chinese undergraduates, COVID-19-related stress events predicted poorer mental health both directly and indirectly via negative cognitive emotion regulation. Both present meaning and search for life meaning significantly buffered these effects. Therefore, interventions that simultaneously reduce maladaptive cognitive strategies and cultivate meaning in life are likely to yield the strongest gains in student mental-health resilience. By focusing on modifiable factors such as cognitive emotion regulation and meaning in life, universities and mental health professionals can develop more effective strategies to support students' psychological well-being. The insights gained from this research can inform the design of interventions that not only mitigate the immediate effects of stress but also build long-term resilience against future challenges. As we continue to navigate the ongoing impacts of the COVID-19 pandemic and prepare for future public health emergencies, fostering mental health resilience among young adults will be a critical priority for educational institutions and healthcare systems alike. Universities can integrate brief, evidence-based modules—such as values-based goal-setting workshops and cognitive-reappraisal training—into existing counseling and first-year orientation programs. These low-cost, scalable approaches can mitigate immediate distress and build long-term resilience against future public-health emergencies.

Data Sharing Statement

Due to the nature of this research, participants of this study did not agree with their data being shared publicly, so supporting data is not available.

Ethical Statement

This study was approved by the Institutional Review Board (IRB) of Jishou University. All procedures followed the ethical standards of the 1964 Declaration of Helsinki and its later amendments. Written informed consent was obtained from all participants.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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Disclosure

The authors declare no conflict of interest.

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