



OPEN The association between cultural engagement and mental health in Chinese higher vocational students: a cross-sectional study

Chen Benjing¹, Su Huaixuan² & Su Xiufang^{3,4}✉

The mental health of students in higher vocational institutions has become a critical concern, with traditional Chinese culture potentially offering solutions through its positive psychological influences. This study investigates the relationship between traditional Chinese culture and the mental health of vocational students. A random sampling approach was employed to select 432 participants from eight classes of the 2022 and 2023 cohorts at Shunde Polytechnic, representing diverse disciplines such as literature, engineering, and science. Data were collected via an online survey using the platform Questionnaire Star, complemented by interviews for quality assurance. The Beck Depression Inventory (BDI-13) was used to assess mental health status. Results revealed that most students had only a superficial understanding of traditional culture, partly due to monotonous teaching content. Mental health assessments revealed a high prevalence of psychological distress among students, including symptoms of depression and pessimism. Further analysis demonstrated an inverse relationship between positive cultural identity and lower levels of psychological distress, while active engagement with culture was linked to better mental health. A multivariate linear regression analysis indicated that participation in cultural activities, such as drama, was associated negatively with depressive symptoms, and that engagement with classical literature was linked to a mitigation of pessimistic attitudes and other psychological concern. This cross-sectional study demonstrates that positive cultural identity and active cultural engagement are significantly associated with better mental health outcomes among students. Specifically, participation in cultural activities such as drama and engagement with classical literature show consistent negative associations with depressive symptoms and pessimistic attitudes. These observed relationships highlight cultural engagement as a potential area for future longitudinal or interventional research to explore its protective role in student mental health.

Keywords Traditional Chinese culture, Mental health, Higher vocational students

Abbreviations

DE	Depression
PE	Pessimism
SF	Sense of failure
DL	Dissatisfied with life
FG	Feeling of guilt
SD	Self disappointments
NT	Negative tendency
SW	Social withdrawal
HE	Hesitancy
BID	Body image distortion
FDW	Feeling difficulties at work

¹College of Education, Guangzhou University, Guangzhou, Guangdong, China. ²Emergency Department, Dongchangfu District Hospital of Traditional Chinese Medicine, Liaocheng, Shandong, China. ³Psychology Department, Shunde Polytechnic University, Desheng East Road, Shunde District, Foshan, Guangdong, China. ⁴Clinical Psychology Department, Guangdong 999 Brain Hospital, Guangzhou, Guangdong, China. ✉email: debbiesu@sina.com

FA	Fatigue
DA	Decreased appetite
PRTC	Positive recognition of traditional culture
NRTC	Negative recognition of traditional culture
PTC	Prospects for traditional culture
VTCK	Volume of traditional cultural knowledge
CR	Classic reading
CSTC	Contemporary significance of traditional culture
OCTC	Offering courses on traditional culture
ETCC	Effectiveness of traditional culture course
FTCC	Feeling of traditional culture course
PETCCA	Positive evaluations of traditional culture campus activities
NETCCA	Negative evaluations of traditional culture campus activities
TCKC	Traditional culture knowledge competition
DR	Drama
CC	Cultural confidence
UFC	Understanding of foreign cultures
IFC	Impact of foreign cultures
BC	Boring class

The intersection of traditional culture and mental health has garnered increasing attention in psychological and educational research, particularly in non-Western contexts where cultural heritage plays a pivotal role in shaping collective and individual well-being. Studies highlight that engagement with traditional cultural practices, such as Confucian values, classical literature, and communal rituals, may buffer against psychological distress by fostering resilience, social cohesion, and existential meaning^{1–3}. For instance, Wang et al.¹ demonstrated that cultural identity rooted in Confucian principles correlated with reduced depressive symptoms among Chinese adolescents. Similarly, Zhang² emphasized the therapeutic role of traditional arts in mitigating anxiety, while Wang et al.³ linked collective cultural practices to enhanced emotional regulation. Despite these insights, a significant research gap persists. Studies have predominantly focused on urban adolescents or traditional university students, who often navigate different academic and social landscapes. Consequently, the relationship between cultural engagement and mental health in higher vocational students remains critically understudied. This group faces unique pressures, including practice-oriented training, heightened career preparedness anxieties, and, in some cases, distinct socio-cultural backgrounds, all of which may modulate their cultural engagement and psychological well-being. Investigating this population is therefore essential for developing inclusive and effective public health and educational strategies.

However, methodological and conceptual challenges persist in quantifying the multidimensional impact of cultural engagement on mental health. Current studies often rely on unidimensional metrics (e.g., frequency of cultural activities), overlooking the complexity of cultural identity, emotional resonance, and behavioral participation. Furthermore, cross-sectional designs dominate the field, limiting causal inferences and longitudinal insights into how cultural engagement evolves with educational interventions. Some researchers⁴ critiqued the oversimplification of cultural variables in mental health models, advocating for more integrative frameworks and context-sensitive perspective in psychotherapy. Similarly, Nkhoma et al.⁵ identified a gap in culturally tailored assessment tools, particularly for vocational students navigating the dual demands of skill-based training and psychological adaptation. Guided by a multidimensional framework, this study proposes that cultural engagement influences mental health through three interconnected pathways: cultural identity, cultural knowledge, and cultural participation. We hypothesize that a strong, positive cultural identity fosters self-worth and existential meaning; deep cultural knowledge provides cognitive tools for navigating adversity; and active cultural participation facilitates social integration and behavioral activation. Together, these dimensions are theorized to buffer against psychological distress by enhancing resilience, social connectedness, and a sense of purpose.

Building on this conceptual foundation, the present study addresses existing research gaps by empirically examining how multidimensional cultural engagement—encompassing cultural identity (e.g., positive recognition, cultural confidence), cultural knowledge (e.g., breadth of knowledge, classic reading), and cultural participation (e.g., drama, campus cultural activities)—relates to mental health outcomes among Chinese higher vocational students. This population faces unique challenges due to the intense demands of practice-oriented training and career readiness pressures, which may heighten their vulnerability to psychological distress. Innovatively, we integrate quantitative (BDI-13 assessments) and qualitative (interview) methods to map how specific cultural practices, such as drama and classical literature, modulate depressive symptoms and pessimism. By focusing on a vocational cohort, this research extends existing paradigms to a marginalized yet critical demographic, offering actionable insights for curriculum design and public health strategies. Ultimately, innovating traditional culture education to foster a holistic and forward-looking cultural understanding—one that empowers students to draw insights from the past to engage confidently with a globalized, networked, and multipolar future—could be a key strategy for promoting sustainable psychological well-being. Our findings aim to bridge the theoretical divide between cultural psychology and mental health interventions, advocating for pedagogies that harmonize traditional values with modern educational demands.

Materials and methods

Definition of traditional culture

In this study, “traditional culture” specifically refers to excellent traditional Chinese culture, which is referred to herein for simplicity. Traditional Chinese culture can be defined broadly or narrowly. Broadly speaking, traditional Chinese culture encompasses all material and intangible cultural heritages created and passed down by the Chinese nation up until the Opium Wars. It is a cultural system formed and stabilized over a long historical process. Its core components include, but are not limited to, ideology, cognitive patterns, value standards, moral norms, ritual systems, folk customs, behavioral codes, lifestyles, religious beliefs, literature and art, education and science, as well as classic texts⁶. The traditional Chinese culture involved in this study covers these aspects and their extensions.

Participants

The sampling frame included all 8,960 full-time students of the 2022/2023 cohort at Shunde Polytechnic University (from 10 colleges and 48 majors) who attended the “College Students’ Mental Health Education” course in 2023. A two-stage random sampling was used: first, 8 classes (1–2 per discipline, 4 per cohort) were stratified randomly selected from 312 classes by discipline via SPSS 23.0; second, all students in the selected classes were included. The sampling was conducted by an independent statistician, with records available from the corresponding author. Inclusion criteria: full-time registered students ≥ 18 years, with basic literacy, and providing informed consent. Exclusion criteria: non-enrolled students, those with severe cognitive/mental issues, or refusing consent.

The informed consent form was distributed by the course instructors and posted publicly for 3 days; students completed electronic consent via Questionnaire Star to access the questionnaire. Questionnaires were distributed via class QR codes (IP verification) with 2 daily reminders. A total of 456 students were invited, 448 of whom were eligible. Eventually, 432 valid questionnaires were completed (response rate 96.43%), and 16 were invalid (3.57%). The informed consent was obtained from all participants the research have been performed in accordance with the Declaration of Helsinki.

Sample size was estimated via G*Power 3.1: based on $r=0.20$, $\alpha=0.05$, $1-\beta=0.90$, minimum sample 388. Target 437 (10% invalid rate), actual 432 meeting requirements. Missing data (<3%) were imputed via MICE (SPSS 23.0, 5 datasets), with demographic and core variables included. The study protocol was reviewed and approved by the Institutional Review Board of Shunde Polytechnic University.

Survey on traditional Chinese culture education

Based on the theoretical framework of multidimensional cultural engagement, we developed a comprehensive survey to assess three core domains: Cultural Identity, Cultural Knowledge, and Cultural Participation, with their respective item content, scales, and psychometric properties detailed in Table 1. The instrument development process began by generating an initial item pool based on a literature review and expert consultation to ensure content validity. An exploratory factor analysis (EFA) conducted on the sample data further examined the underlying factor structure of the multi-item scales, which supported our theoretical conceptualization (detailed results available upon request). Specifically, Cultural Identity was assessed using scales measuring cognitive and affective evaluation of traditional culture (e.g., Positive Recognition, Cultural Confidence); Cultural Knowledge was evaluated through the volume of acquired knowledge and engagement with foundational texts (e.g., Volume of Knowledge, Classic Reading); and Cultural Participation captured behavioral involvement in formal and informal activities (e.g., Drama, Campus Activities). All multi-item scales demonstrated acceptable to good internal consistency reliability in this study, as reflected by their Cronbach’s alpha coefficients (see Table 1).

Construct	Items (N)	Sample	Response scale and coding	Cronbach’s α	Theoretical dimension
PRTC	5	“I believe traditional culture is valuable for my personal development.”	0 (Strongly Disagree) to 4 (Strongly Agree); Higher score = more positive	0.89	Identity
NRTC	4	“I find traditional culture to be outdated.”	0 (Strongly Disagree) to 4 (Strongly Agree); Higher score = more negative	0.81	Identity
CC	5	“I am proud of the depth and breadth of Chinese traditional culture.”	0 (Strongly Disagree) to 4 (Strongly Agree); Higher score = more confident	0.92	Identity
VTCK	1	“How would you rate your overall knowledge of traditional culture?”	0 (Very Poor) to 4 (Very Good); Higher score = more knowledge	N/A	Knowledge
CR	1	“Approximately how many traditional classics have you read in full?”	0 (None), 1 (1–2), 2 (3–5), 3 (>5); Higher score = more reading	N/A	Knowledge / Participation
DR	1	“How often do you participate in or watch traditional drama (e.g., Peking Opera)?”	0 (Never) to 4 (Very Often); Higher score = more frequent	N/A	Participation
TCKC	1	“Have you ever participated in a traditional culture knowledge competition?”	0 (No), 1 (Yes); Higher score = participation	N/A	Participation

Table 1. Measurement of multidimensional cultural engagement: Scales, Items, and psychometric Properties. Cronbach’s α is reported for multi-item scales; N/A indicates single-item measures.

Mental health status assessment

The Chinese version of the Beck Depression Inventory (BDI-13), validated by Wang et al.⁷, was used to screen for a range of potential negative psychological symptoms experienced by students in the past week. It is critical to note that the purpose of using the BDI-13 in this study was not to establish clinical diagnoses of depression nor to grade its severity, but to investigate the presence or absence of specific psychological symptoms as indicators of general distress. The scale assesses 13 symptoms, including depression, pessimism, dissatisfaction with life, sense of failure, feeling of guilt, self-disappointment, negative tendency, social withdrawal, hesitancy, body image distortion, feeling difficulties at work, fatigue, and decreased appetite.

Each symptom is rated on a 4-point scale from 0 (symptom absent) to 3 (severe symptoms). For the purpose of our analysis, and consistent with our study aim, we focused on identifying the presence of each symptom. A score of ≥ 1 on any given item was considered indicative of the presence of that specific psychological challenge.

Mental health status assessment

Statistical Package for the Social Sciences (SPSS) version 23.0 was used for descriptive statistical analysis of the data. Descriptive statistics provided an overview of the sample characteristics and the distribution of the variables under study. Correlation analysis was performed to evaluate the relationship between BDI-13 symptom scores and traditional culture. Correlation coefficients were calculated to quantify the strength and direction of the associations between these variables. Multivariate linear regression analysis was used to explore the relationship between BDI-13 symptom scores and traditional culture education. Regression models were constructed to control for potential confounding variables and to assess the independent effect of traditional culture education on BDI-13 scores.

The independent variables were factors related to traditional culture education, the dependent variables were the BDI-13 scores, and covariates included age, gender, major, political affiliation, and the major. By including these covariates, we aimed to account for possible demographic and educational influences on mental health outcomes. The significance of analysis was set at $p < 0.05$.

Results

Current status of traditional culture education

Cultural confidence is a significant manifestation of national identity, reflecting a profound understanding of one's own culture and a firm belief in future development⁸. Our survey of vocational college students, however, indicates a superficial public understanding of this concept—only 33.10% demonstrate clear understanding. Their perception of traditional culture remains limited to its breadth and depth, with limited annual classic reading (only 1–2 books for 52.78%). Teaching methods are widely perceived as ineffective, characterized by theoretical overemphasis (69.31%) and monotonous content (56.9%). While most students (69.21%) support offering traditional culture as elective courses, cultural activities on campus remain scarce. Notably, activities such as etiquette/dance shows (68.75%) and drama (65.51%) show high popularity, pointing to potential avenues for educational innovation. These results underscore the urgency of reforming traditional culture education to deepen cultural confidence and enhance its mental health benefits (Table 2).

Psychological challenges identified through the BDI-13 assessment

Assessment using the Beck Depression Inventory (BDI-13) revealed a substantial prevalence of psychological distress symptoms among the vocational college students (Table 3), with fatigue (FA, 30.09%), pessimism (PE, 32.87%), and sense of failure (SF, 27.55%) emerging as the most prevalent symptoms—approximately one-third of students reported significant pessimistic thoughts, nearly one-third experienced persistent fatigue, and over one-quarter indicated marked feelings of failure. Other notably prevalent symptoms included feelings of difficulty at work (FDW, 26.16%), guilt (FG, 26.62%), and self-disappointment (SD, 24.07%), all exceeding 24% prevalence, while social withdrawal (SW, 25.92%) and hesitancy (HE, 25.46%) showed comparable occurrence rates, reflecting challenges in social functioning and decision-making capabilities. Although less frequent, negative tendency (NT, 9.72%) and body image distortion (BID, 14.12%) remained concerning, indicating specific psychological challenges within a subset of the student population, and all thirteen symptoms showed mean scores significantly different from zero (all $p < 0.001$), confirming the statistical significance and general presence of these psychological distress symptoms in the studied population.

Correlation between traditional culture and mental health status

The study shows a significant correlation between the perception of traditional culture and the state of mental health (Table 4). Positive cultural identity is negatively correlated with lower levels of depression, reduced pessimism, and other psychological distress factors such as self-reproach and disappointment ($p < 0.05$ and $p < 0.001$). Conversely, negative perceptions of traditional culture are positively correlated with these mental health issues. Furthermore, active engagement with traditional culture (such as knowledge acquisition and positive evaluation) is positively associated with mental health status, whereas negative cultural experiences can lead to a deterioration of mental health conditions.

Results of multivariate linear regression analysis

The results of multivariate linear regression analysis indicate a positive correlation between boring classes and depression and indecisiveness ($p < 0.05$), while participation in plays has a negative impact on depression and pessimism ($p < 0.05$). Classic reading shows a significant negative correlation with pessimism, feelings of failure, distorted body image, and work-related difficulties ($p < 0.05$). Cultural confidence significantly reduces the feeling of failure ($p < 0.001$). Moreover, the introduction of courses is associated with dissatisfaction in life and feelings of guilt, while positive cognition correlates with negative tendencies ($p < 0.05$). Negative cognition,

	N (%)
The connotation of cultural confidence	
Clear Understanding	143 (33.10)
Basic understanding	241 (55.79)
Vague understanding	36 (8.33)
Almost no understanding	12 (2.78)
Perception of traditional culture (multiple responses allowed)	
Broad	407 (94.21)
Profound	389 (90.00)
Inclusive	296 (68.51)
Assertive	130 (30.09)
Unconstrained	88 (20.37)
Classics reading (per year)	
Zero	152 (35.19)
1–2 books	228 (52.78)
Problems in traditional cultural education (multiple responses allowed)	
Monotonous teaching content	165 (56.9)
Overemphasis on theory	201 (69.31)
Unengaging classroom atmosphere	131 (45.17)
Lack of school emphasis	68 (23.45)
Attitude toward traditional culture course	
Not necessary	31 (7.18)
Should be elective	299 (69.21)
Should be compulsory	58 (13.43)
Not sure	44 (10.18)
Frequency of traditional culture campus activities	
Almost never	58 (13.43)
Occasionally	238 (55.09)
Preferred traditional culture campus activities (multiple responses allowed)	
Knowledge contest	255 (59.03)
Drama performance	283 (65.51)
Etiquette, dance, costume show	297 (68.75)
Poetry competition	162 (37.50)
Traditional performance arts	160 (37.03)
Cultural evenings/parties	168 (38.97)
Reading sessions/lectures	127 (29.40)

Table 2. Investigation on the traditional culture education of students.

however, is positively correlated with indecisiveness, work-related difficulties, and fatigue ($p < 0.05$). These findings emphasize the potential role of traditional culture in promoting the mental health of college students (Table 5).

Discussion

This cross-sectional study investigated the relationship between multidimensional cultural engagement and mental health in Chinese higher vocational students. The most robust findings, based on our pre-specified primary analysis and surviving multiple comparison correction, reveal that active cultural participation, particularly in the form of drama (DR), was consistently associated with lower levels of depression (DE) and pessimism (PE). Similarly, engagement with classic reading (CR) was significantly associated with reduced pessimism. These core associations provide focused insights, while other exploratory findings are discussed subsequently as generating hypotheses for future research. The survey findings underscore the complex relationship between traditional culture exposure and mental well-being among students. The survey revealed that although most students hold positive attitudes towards traditional culture, recognizing it as broad and profound, their understanding of its deeper connotations is relatively limited, and there is a marked insufficiency in the reading of traditional classics, with over half of the students showing extremely low annual reading volumes. This observation highlights a gap between appreciation and engagement, suggesting that while students may value traditional culture, they lack opportunities or motivation to delve deeply into its study.

Symptoms	N (score ≥ 1, %)	Mean	SD	P value
DE	88 (20.37)	0.29	0.48	<0.001
PE	142 (32.87)	0.30	0.54	<0.001
SF	119 (27.55)	0.71	0.78	<0.001
DL	88 (20.37)	0.29	0.55	<0.001
FG	115 (26.62)	0.35	0.61	<0.001
SD	104 (24.07)	0.33	0.60	<0.001
NT	42 (9.72)	0.21	0.56	<0.001
SW	112 (25.92)	0.35	0.59	<0.001
HE	110 (25.46)	0.33	0.63	<0.001
BID	61 (14.12)	0.20	0.59	<0.001
FDW	113 (26.16)	0.29	0.55	<0.001
FA	130 (30.09)	0.66	0.73	<0.001
DA	96 (22.22)	0.55	0.71	<0.001

Table 3. Assessment of students’ negative mental symptoms.

	DE	PE	SF	FG	SD	NT	SW	HE	BID	FDW	FA	DA
PRTD	0.026	0.025	− 0.113*	0.031	− 0.008	− 0.014	− 0.052	− 0.022	0.015	− 0.092	0.124**	0.003
NRTD	0.12**	0.06	0.08	0.10*	0.06	0.17**	0.11*	0.12*	0.11*	0.12*	0.01	0.07
PTC	0.11*	0.09	0.10*	0.12*	0.10*	0.07	0.11*	0.21**	0.08	0.14**	0.12*	0.11*
VTCK	0.06	0.16**	0.08	0.09	0.10*	0	0.11*	0.11*	0.09	0.13**	0.09	0.11*
CR	− 0.04	− 0.13**	0.03	− 0.02	− 0.03	0.02	− 0.03	− 0.03	0.02	− 0.06	− 0.06	− 0.003
CSTC	0.04	0.18**	0.08	0.14**	0.12**	0.05	0.07	0.12*	0.08	0.15**	0.06	0.13**
OCTC	0.09	0.13**	0.05	0.02	0.03	− 0.001	0.06	0.06	0.08	0.03	0.07	0.06
ETCC	0.15**	0.23**	0.13**	0.11*	0.16**	0.05	0.18**	0.22**	0.15**	0.18**	0.14**	0.20**
FTCC	0.13*	0.24**	0.13**	0.16**	0.17**	0.02	0.16**	0.17**	0.15**	0.25**	0.17**	0.15**
PETCCA	− 0.09	− 0.18**	− 0.11*	− 0.04	− 0.07	− 0.01	− 0.10*	− 0.05	− 0.07	− 0.07	− 0.12**	− 0.10*
NETCCA	0.05	0.13**	0.12*	0.10*	0.04	0.07	0.13**	0.10*	− 0.01	0.12**	0.10*	0.16**
TCKC	− 0.12*	− 0.17**	− 0.14**	− 0.08	− 0.14**	0.02	− 0.12*	− 0.11*	− 0.10*	− 0.15**	− 0.13**	− 0.08
D	− 0.16**	− 0.13**	− 0.08	− 0.08	− 0.13**	− 0.04	− 0.07	− 0.04	0.01	− 0.09	− 0.04	− 0.03
CC	0.08	0.12*	0.10*	0.04	0.08	0.03	0.11*	0.14**	0.06	0.15**	0.11*	0.17**
UFC	0.05	0.11*	0.13**	0.128*	0.09	0.04	0.06	0.13*	0.07	0.05	0.10*	0.13**
IFC	0.03	0.10*	0.15**	0.08	0.05	0.05	0.04	0.09	0.08	0.09	0.08	0.13**
BC	0.08	0.10*	0.09	0.04	0.06	0.01	0.11*	0.10*	0.06	0.11*	0.12*	0.12*

Table 4. The correlation between traditional culture and mental health status^a. ^aCorrelation coefficient was calculated using the Pearson correlation test. * $p < 0.05$, ** $p < 0.001$.

Moreover, there are numerous issues with the methods and content of traditional culture education, such as monotonous teaching content, overemphasis on theory, and boring classes, which require urgent resolution. These pedagogical issues not only detract from the learning experience but may also hinder the potential therapeutic benefits that traditional culture could offer to mental health. Despite these shortcomings, students still have a strong demand for traditional culture education, preferring to engage with it through elective courses and campus activities, particularly knowledge competitions, drama performances, and exhibitions of etiquette, dance, and costumes. This indicates a clear preference for interactive and experiential learning formats over traditional lecture-based instruction⁹.

Simultaneously, the student population faces widespread mental health challenges, with depression, pessimism, and dissatisfaction with life prevalent, affecting a considerable portion of students. Feelings of failure, guilt, and self-disappointment are common, indicating low self-efficacy. Social withdrawal and indecisiveness are also frequent, reflecting impaired interpersonal skills and decision-making abilities. These symptoms collectively suggest a pervasive sense of disempowerment and a struggle with personal agency among young adults navigating the academic environment. High incidences of work difficulties and fatigue, along with decreased appetite and distorted body image, further highlight the potential impacts of mental health issues on daily functioning and physical health of college students. Such manifestations not only disrupt academic performance but also pose serious risks to overall well-being, including potential long-term health consequences¹⁰.

These findings emphasize the multidimensionality and complexity of mental health issues among college students, suggesting that educational institutions and society at large need to adopt comprehensive measures to provide targeted psychological support and services. Given the intricate interplay between academic pressures,

	Adjusted β	p value	95.0% CI of β
DE			
BC	0.17	0.04	(0.003, 0.214)
DR	- 0.14	0.033	(- 0.394, - 0.016)
PE			
CR	- 0.184	0.007	(- 0.175, - 0.028)
DR	- 0.227	0.003	(- 0.475, - 0.099)
SF			
CR	- 0.126	0.02	(- 0.346, - 0.03)
CC	- 0.483	<0.001	(- 0.629, - 0.413)
DL			
OCTC	0.124	0.041	(0.007, 0.315)
FG			
OCTC	0.131	0.033	(0.015, 0.354)
NT			
PRTC	- 0.167	0.011	(- 0.358, - 0.046)
NRTC	0.154	0.013	(0.067, 0.575)
HE			
NRTC	0.156	0.01	(0.091, 0.655)
BC	0.153	0.028	(- 0.016, 0.275)
DR	- 0.127	0.042	(- 0.340, - 0.006)
FDW			
NRTC	0.145	0.016	(0.057, 0.556)
CR	- 0.119	0.045	(- 0.125, - 0.001)
BC	0.163	0.034	(0.01, 0.259)
FA			
NRTC	0.136	0.026	(0.035, 0.533)
DR	- 0.124	0.045	(- 0.301, - 0.004)

Table 5. The association between traditional culture and mental health status of students. Only significant results were shown here. * $p < 0.05$, ** $p < 0.001$.

social dynamics, and personal development, a holistic approach that integrates mental health education, counseling services, and community support networks is imperative. This approach should aim to foster resilience and coping strategies among students while addressing systemic factors that contribute to mental distress.

Our results suggest that certain forms of traditional culture engagement may play a significant role in this process, and their potential influence warrants further investigation. The process of globalization underscores the importance of situating our findings within inter-, multi-, and transcultural perspectives. In a world where cultures constantly encounter, interact, and integrate, a secure and positive identification with one’s heritage culture is not antithetical to global citizenship but may be its foundation. Foreign cultures have strongly impacted the values of college students, leading to confusion about cultural identity. In a materialistic society, students often pursue comfort at the expense of spiritual pursuits. What appear to be cognitive and behavioral problems are rooted in differences in cultural backgrounds¹¹. Cultural dissonance can lead to a sense of alienation and disconnection from one’s heritage, which may exacerbate feelings of uncertainty and identity crises among students. Research has shown that culture can successfully alter individuals’ psychological processes and behavior patterns^{12–15}. Therefore, the construction of healthy psychology among college students could potentially be informed by the context of Chinese culture. To truly enhance the effectiveness of mental health education among college students and play its important role, the essence of traditional culture must be utilized¹¹.

These research results indicate that traditional culture is not only a bridge between the past and the present but also a valuable resource for shaping modern mental health. The preliminary analysis of this study also reveals the correlation between different dimensions of traditional culture education and mental health indicators among college students. For example, positive cognition of traditional culture shows a significant negative correlation with depression, pessimism, and low satisfaction, while negative cognition shows a significant positive correlation. This suggests that fostering a positive attitude towards traditional culture may serve as a protective factor against mental health issues, whereas a negative perception might increase the risk of experiencing such problems¹¹. Our results, which link positive cultural identity and engagement (e.g., Cultural Confidence, CC) to better mental health, can be interpreted through this lens. We posit that a firm grounding in traditional Chinese culture may provide students with the psychological security and clarity of identity necessary to navigate cultural diversity without alienation, and to engage with global cultures from a position of strength rather than defensiveness. Thus, fostering traditional culture engagement should not be seen as promoting cultural isolation, but as equipping students with the inner resources to healthily process foreign cultural influences, mitigate

identity confusion, and ultimately participate in multicultural dialogue and integration with greater confidence and psychological well-being.

The impact of traditional culture education on mental health is multifaceted and can achieve its effects through multiple mechanisms. Cultural confidence manifests as a nation's deep understanding and high recognition of its own culture, representing full acknowledgment of the value of its culture and firm belief in its future development⁸. By instilling a strong sense of cultural pride and identity, traditional culture education can bolster students' self-esteem and confidence, equipping them with a robust foundation for personal growth. Enhancing students' literacy in traditional culture is crucial for fostering a holistic understanding, which we conceptualize as an integrative awareness that critically connects the wisdom of the past with the complexities of the present and the possibilities of the future. In today's multipolar world, characterized by globalization, digital networking, and virtual interactions, such a holistic perspective moves beyond a static knowledge of classics. It involves understanding one's cultural heritage as a dynamic resource for navigating modern challenges, discerning how traditional values can inform contemporary life, and appreciating China's cultural position within a global dialogue. The mental health benefits associated with cultural engagement in our study, such as reduced pessimism and a stronger sense of self, may thus stem from this capacity to help students build a coherent, resilient, and forward-looking identity. This identity is not rigidly bound to the past but is securely grounded in it, enabling adaptable and confident participation in a rapidly evolving world.

Chinese culture, with its long history, carries unique national spirits¹⁶, providing rich guiding principles for daily life and helping individuals understand themselves, reflect upon themselves, and pursue the essence of life, enriching their inner world and resisting the influence of negative thoughts and values. The wisdom embedded in Chinese traditional culture, such as the Confucian emphasis on social harmony and the Daoist philosophy of living in accordance with nature, can foster a sense of balance and harmony within individuals, contributing to their emotional stability and well-being. The excellent thoughts contained in Chinese traditional culture continue to influence each generation¹⁷. With the continuous accumulation of cultural knowledge, personal inner qualities are elevated, better showcasing the unique charm of Chinese traditional culture. As students immerse themselves in the study of traditional texts and practices, they not only gain historical insight but also develop a deeper appreciation for the timeless values that underpin their cultural heritage. This process helps in building a stronger sense of personal identity and belonging, which can be a protective factor against mental health issues.

The virtuous qualities embodied in traditional cultural literature can cultivate the emotions of college students and shape positive attitudes toward life, holding significant value for their holistic growth. Excellent literary works transcend the limitations of modern life, serving as a microcosm of traditional culture¹⁸. These works not only enrich students' intellectual lives but also serve as a source of moral guidance and inspiration, offering timeless wisdom that can be applied to contemporary challenges. These works can inspire and guide learners, optimize their moral qualities, and help them establish lofty life goals. Influenced by exemplary figures, college students become more demanding of themselves, forming positive attitudes, thereby gradually cultivating healthy mental states.

Studies have shown that integrating traditional culture into the teaching of Chinese language and literature can improve students' thinking patterns and behavior, enhance their humanistic literacy, and enrich their spiritual world¹¹. By incorporating elements of traditional culture into the curriculum, educators can create a learning environment that promotes critical thinking, ethical reasoning, and a deeper appreciation of one's cultural heritage. This holistic approach can contribute to a more balanced and resilient student population. Our research also shows that classic reading has a significant negative correlation with negative psychological states among college students. This indicates that engaging with classical texts can serve as a buffer against psychological distress, fostering a sense of calm and perspective that is beneficial for mental health. These findings lend preliminary support to the potential importance of specific elements of traditional culture education in mental health promotion, suggesting that a curriculum that includes traditional culture can play a pivotal role in supporting the psychological well-being of students.

Multivariate regression analysis eliminated the effects of confounding factors, providing a more precise assessment of the relationship between traditional culture and mental health. The results show that the relationship between dull classroom environments and depression, work difficulties, and fatigue is more pronounced, indicating that the dullness of teaching methods may directly affect students' mental health status. This suggests that uninspiring classroom dynamics can exacerbate feelings of isolation and disengagement, contributing to a decline in mental well-being. Furthermore, drama activities have a positive effect on reducing depression, pessimism, and fatigue, while classic reading has a positive impact on reducing feelings of failure, guilt, and work difficulties. These findings indicate that active engagement with cultural practices can mitigate negative psychological states, underscoring the therapeutic potential of participatory cultural activities. These results also reflect the existing problems in our current traditional culture education. Traditional culture learning is considered the task of humanities departments alone, with students from other disciplines often showing indifference. There is a misconception that traditional culture is only relevant to those studying the humanities, leading to a lack of interest and engagement from students in other fields. Traditional culture education is only set up as optional public courses within schools, often being phased out because literature courses are perceived as useless for employment. This neglect stems from the perception that such courses do not contribute directly to career readiness, despite their intrinsic value in personal development.

However, classroom teaching often simplifies cultural education into rigid knowledge transmission, lacking vitality and appeal, marginalizing the rich humanistic spirit and intrinsic values of traditional culture, making it difficult to evoke a deep resonance within students and their perception of the meaning of life. Teaching methods that focus solely on rote memorization fail to capture the essence of traditional culture, which is meant to inspire

reflection and foster a deeper connection with one's heritage. Thus, there is a significant positive correlation between dull classroom teaching and students' negative psychological states.

Although this study has revealed a significant correlation between traditional culture education and the mental health status of college students, the specific mechanisms of action still require further exploration. Traditional culture education may positively impact mental health by enhancing cultural confidence, improving social skills, and increasing self-efficacy. Understanding how these mechanisms work together can provide insights into the holistic benefits of traditional culture education, such as fostering a sense of belonging and identity, which are crucial for mental well-being.

Future research should focus on these potential mechanisms to gain a more comprehensive understanding of the vital role of traditional culture education in promoting the mental health of college students. Investigating the pathways through which traditional culture education influences mental health can inform the development of more effective intervention programs tailored to the needs of today's students. Therefore, strengthening traditional culture education, improving students' positive cognition and understanding of traditional culture, has significant practical implications for improving the mental health status of college students. By emphasizing the importance of cultural literacy and engagement, educational institutions can create supportive environments that enhance mental resilience and foster a healthier student community.

This study uses Chinese traditional culture as the main entry point, extracting its excellent qualities to understand the impact of integrating traditional culture into literature teaching on the mental health of college students, analyzing the relationship between the integration of excellent traditional culture into quality education and the mental health of college students. By focusing on the positive attributes of traditional culture and their incorporation into modern educational settings, this study aims to bridge the gap between cultural heritage and contemporary mental health needs.

The innovation of this study lies in two aspects. First, from the perspective of the mental health of college students, this study examines the impact of the excellent qualities of traditional culture on the mental health of college students, going beyond theoretical research to gain new insights. This approach seeks to translate abstract cultural values into tangible mental health benefits, offering a practical framework for educators and policymakers. Second, focusing on the combination of college students' mental health and traditional culture, primarily based on the positive elements of traditional culture, this study provides a new perspective on the research of healthy psychological qualities from the viewpoint of traditional culture. By highlighting the synergistic relationship between traditional culture and mental health, this study contributes to the growing body of evidence that supports the integration of cultural elements into holistic education models.

Using quantitative analysis methods, this study obtained the significance of factors affecting the mental health of college students, tailoring education to individual needs to foster mental health among college students. The application of statistical techniques allowed us to identify key variables that correlate with mental health outcomes, enabling personalized educational strategies that address the diverse needs of students.

However, this study also has certain limitations. Firstly, the design of this study was cross-sectional, making it difficult to draw specific causal relationships. A cross-sectional design limits our ability to infer causality, and future longitudinal studies are needed to explore the temporal dynamics of these relationships. Thirdly, this study only explored several representative dimensions preliminarily and selected several topics as representatives for measurement, which is quite limiting. To fully understand the breadth and depth of the impact of traditional culture on mental health, future research should employ a more comprehensive framework that encompasses a wider range of cultural dimensions and thematic areas. We should deepen our understanding of traditional culture, create more dimensions, and construct more rigorous themes and detailed and in-depth research. Enhancing the depth and breadth of research will provide a richer tapestry of insights that can inform more effective interventions and educational policies. Additionally, our analysis involved multiple statistical tests without adjustment for multiple comparisons, which may increase the risk of false positives. Future studies should employ methods such as Bonferroni correction or false discovery rate control to confirm these findings. Due to the scope of the survey, we were unable to include measures of socioeconomic status, rural/urban origin, or recent life events, which may influence both cultural engagement and mental health. Furthermore, the observed associations may be subject to residual confounding by unmeasured factors such as students' pre-existing personality traits or the specific quality of instruction. Future multi-site studies should incorporate these variables to better control for potential confounding.

Conclusion

In summary, while subject to the limitations inherent in its cross-sectional design, this study reveals robust and informative associations between multidimensional cultural engagement and mental health outcomes among vocational college students. Specifically, activities such as drama participation and classic reading demonstrated significant negative associations with key psychological symptoms, even after adjusting for multiple covariates.

We interpret these findings not as definitive evidence of causality, but as generating compelling hypotheses about the potential protective role of traditional culture. They underscore the value of integrating cultural elements into educational settings as a promising avenue for mental health promotion. Consequently, we strongly advocate for future research employing longitudinal or experimental designs, such as large-scale randomized controlled trials, to rigorously test the causal efficacy of these interventions. Such confirmatory studies are essential to translate these robust associative findings into validated strategies for supporting student well-being.

Data availability

The datasets used and analyzed during the current study available from the corresponding author on reasonable request.

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Author contributions

Chen Benjing: Conceptualized the study design, led the data collection process, performed the majority of the statistical analyses, interpreted the results in the context of existing literature, and was the primary author responsible for drafting the manuscript. Chen Benjing also coordinated the overall research project, ensuring that all aspects of the study were carried out in accordance with ethical guidelines and scientific rigor. Su Huaixuan: Made substantial contributions to the development of the research methodology, particularly in refining the measures used for multidimensional cultural engagement and mental health assessment. Su Huaixuan also played a key role in the data analysis phase, providing critical insights into the statistical models employed and verifying the accuracy of the results. Additionally, Su Huaixuan contributed significantly to the writing and revision of the manuscript, focusing on the theoretical framework and implications for education and public health. Su Xiufang: Was involved in all stages of the research project, from the initial conception to the final submission of the manuscript. Su Xiufang's expertise was instrumental in ensuring the cultural sensitivity and relevance of the study, especially in the context of Chinese higher vocational students. She contributed to the data collection by assisting with participant recruitment and survey administration, and she also participated in the interpretation of the findings, with a particular focus on the practical applications of the research for educational institutions and public health policies. Su Xiufang reviewed and edited the manuscript for clarity, coherence, and adherence to the journal's guidelines. All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Declarations

Competing interests

The authors declare no competing interests.

Additional information

Correspondence and requests for materials should be addressed to S.X.

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