

# Effects of Facets of Mindfulness on College Adjustment Among First-Year Chinese College Students: The Mediating Role of Resilience

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**Introduction:** College life is a challenging stage for students to transition from adolescence to early adulthood. College students need to adjust to various problems, including those related to learning, campus life, interpersonal relationships, career selection, emotions, and self. The aim of this study was to test the associations between different facets of mindfulness, resilience, and college adjustment, as well as the mediation effect of resilience between mindfulness and college adjustment among first-year college students.

**Methods:** This survey study recruited 765 first-year college students in China. The psychological variables were assessed by the Five Facet Mindfulness Questionnaire, the Connor-Davidson Resilience Scale, and the Chinese College Student Adjustment Scale.

**Results:** It has been showed in the current study that mindfulness and resilience were positively correlated with college adjustment. Resilience significantly mediated the associations between four dimensions of mindfulness (ie, describing, acting with awareness, observing and non-reactivity) and college adjustment.

**Conclusion:** The findings support the potential importance of enhancing mindfulness and resilience to facilitate adjustment among first-year college students. Limitations and implications are discussed.

**Keywords:** mindfulness, resilience, college adjustment, first-year college students, emerging adults

## Introduction

College students need to adjust to various problems, including those related to learning, campus life, interpersonal relationships, career selection, emotions (eg, homesickness, depression, and dissatisfaction), and self.<sup>1,2</sup> College life also represents a challenging stage, as this period is a transition from adolescence to early adulthood, and people in transitional stage are particularly vulnerable to the development and chronification of emotional/mental disorders.<sup>3</sup> Therefore, the best possible care needs to be ensured for these age groups. The effects of adaptation to a new life situation on short-term and long-term well-being, mental health, and quality of life have been well documented.<sup>4,5</sup> Successful adjustment to college life is negatively associated with depressive symptoms, academic stress, and psychological distress.<sup>6-8</sup> It also has lasting consequences on the development of personality and careers in adulthood.<sup>4</sup> Mindfulness is a multi-dimensional concept and has received much attention in contemporary clinical and social psychology given its apparent benefits for stress coping, behavior and emotion regulation, psychological

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Received: 25 May 2021  
Accepted: 6 July 2021  
Published: 22 July 2021



health, and interpersonal relationships.<sup>9</sup> This study aimed to test the roles of different facets of mindfulness in college adjustment and the potential mediators of the relationships among first-year college students.

## Mindfulness and College Adjustment

Mindfulness can be a positive trait that assists new college students in successfully adapting to their college life. Mindfulness entails being aware of the present moment experience in a non-judgmental manner, and is a multi-faceted concept (ie, non-reactivity to inner experience; observing/attending to sensations, thoughts or feelings; acting with awareness; describing feelings with words; non-judging of inner experience).<sup>10,11</sup> People with high levels of mindfulness tend to be aware of their body sensations, thoughts, and emotions with less reactivity and keep a stance of equanimity instead of engaging in suppression or excessive fixation. The non-judgmental view and acceptance-based approach can provide a metacognitive insight into an understanding of, and acceptance of intrapersonal and interpersonal difficulties.<sup>12–15</sup> The clarity and vividness of the experience and orienting to the present moment with curiosity and openness can facilitate one's psychosocial adjustment to life changes and new environments.<sup>16–18</sup>

Although a number of studies have reported positive correlations between mindfulness and psychosocial well-being,<sup>11,19–24</sup> we only found two studies testing the association between mindfulness and college adjustment.<sup>25,26</sup> One study included 92 first-year students and reported positive associations between mindfulness and college adjustment.<sup>25</sup> However, this study had a small sample size, and did not report the role of each mindfulness facet in college adjustment. The other study recruited undergraduate students (N=2496) and found the component of mindfulness is a strong predictor of college adjustment.<sup>26</sup> Scholars have highlighted the importance of examining mindfulness as a multi-faceted construct, as the specific mindfulness facets may correlate differentially with aspects of psychological adjustment.<sup>27,28</sup> For example, one recent study including 353 undergraduates (55.8% were first-year students) reported significant effects of non-reactivity and non-judging on stress and greater emotional well-being.<sup>29</sup> Another study among 310 undergraduates found observing was negatively related to self-reported physical health, acting with awareness and non-judging were positively related to emotional well-being, and non-judging was positively associated with social functioning.<sup>30</sup> If particular mindfulness facets predict adjustment more robustly, those facets

could be emphasized in mindfulness-based interventions to enhance their effectiveness.

## Resilience as a Potential Mediator

Resilience is an important trait that helps individuals to cope with adversity and achieve successful adjustment and personal growth during trying circumstances.<sup>31</sup> Ryff, Singer, Love, and Essex (1998) defined resilience as the capacity to maintain and recover high well-being when facing life changes and adversities.<sup>32</sup> Previous research has demonstrated that resilient individuals could maintain their physical and psychological health via buffering negative consequences from difficult times,<sup>31</sup> and via enhancing psychological well-being.<sup>33</sup> Resilience has been found to enhance adaptive coping, positive emotions, life satisfaction, interpersonal satisfaction, and personal growth,<sup>34–41</sup> which are closely related to one's psychosocial adjustment to new environments. Thus, resilience may be an important source of college adjustment among new college students. One study reported a positive effect of resilience on adjustment to college among 514 first-year undergraduate students in the southern United States.<sup>42</sup>

Moreover, resilience may play as a mediator between mindfulness and college adjustment. A review study of trait mindfulness and resilience to trauma suggested that a mindful and accepting orientation towards negative experience can help prevent ruminative and depressogenic thinking, hence promoting resilience following trauma.<sup>43–45</sup> Mindfulness has demonstrated the potential to foster resilience, as mindful people are better able to respond to difficult situations without reacting in automatic and non-adaptive ways and are open to new perceptual categories, tend to be more creative, and can better cope with difficult thoughts and emotions without becoming overwhelmed or shutting down.<sup>46,47</sup> One study among 141 college students reported positive relationships between mindfulness and resilience.<sup>48</sup> Furthermore, only one study has tested the mediation role of resilience and showed that it was an important mediator between mindfulness and subjective well-being among college students.<sup>34</sup> This study hypothesized that resilience would significantly mediate the association between mindfulness and college adjustment among new college students.

## The Present Study

This study aims to investigate the relationships among mindfulness, resilience, and college adjustment in first-

year college students. It is hypothesized that mindfulness would be positively associated with college adjustment. Based on the above stated rationale and the existing literature showing that mindfulness is an antecedent to resilience,<sup>44,48–51</sup> and resilience is positively correlated with subjective well-being and positive coping with life changes/adversities,<sup>34–41</sup> it is expected that mindfulness would exert a significant indirect effect on college adjustment through the mediation effect of resilience. Furthermore, since mindfulness is a multi-faceted construct, this study tested how different facets would be associated with resilience and college adjustment (Figure 1).

## Methods

### Participants and Procedure

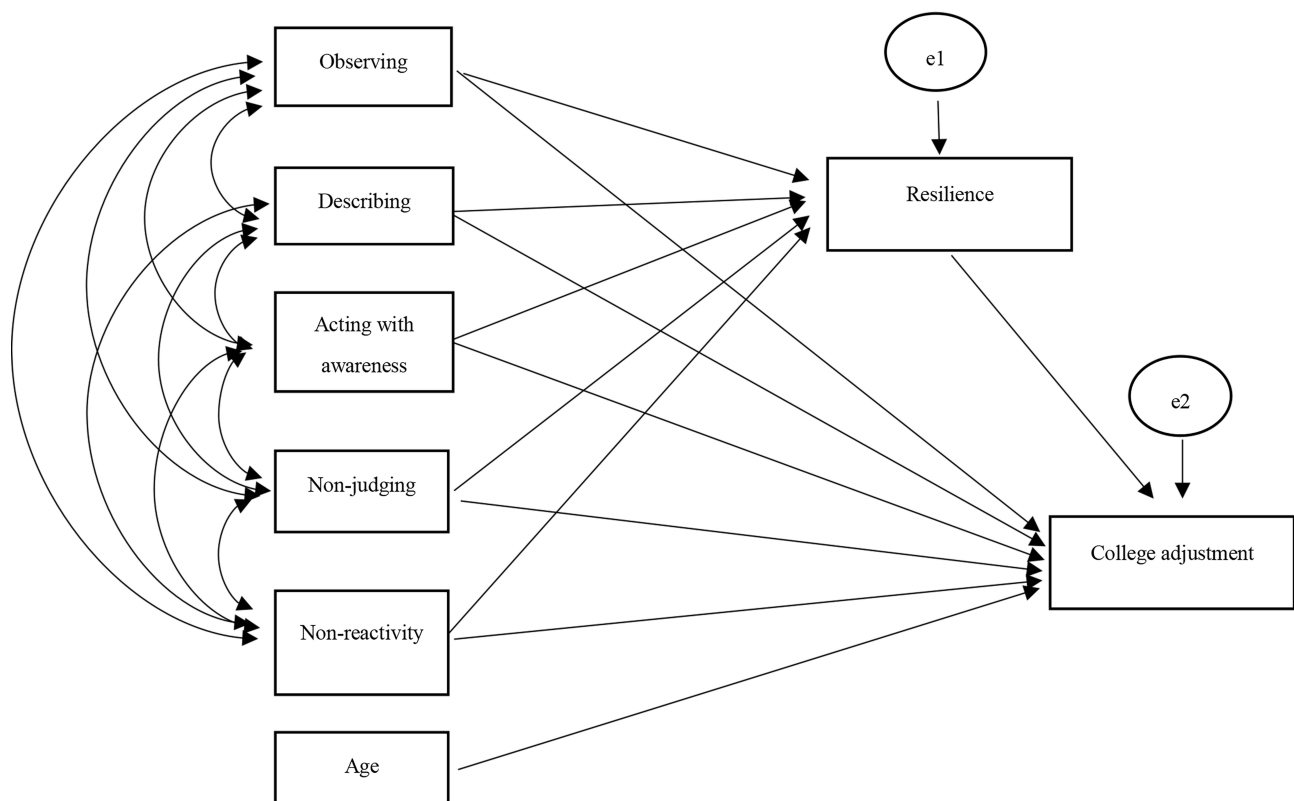
This paper-and-pencil survey was conducted in a convenience sample in Pingdingshan University, Henan province, China, during September and October 2018. The inclusion criteria of this study were as follows: 1) being a first-year college student; and 2) willing to participate in the survey. Students from 15 classes (each class including 45–55 students) were invited and completed the survey during the 20-minute class break. One of the authors explained to the participants that

participation was anonymous, voluntary and refusals would have no negative consequences, and was available throughout the survey process to answer any queries raised by the participants. Data confidentiality was guaranteed and only the researchers could access the data. The participants took 10–15 minutes to complete the questionnaire.

In total, 767 students agreed to participate in the study and 2 did not complete the questionnaire. Among 765 participants, about half of them (54.4%) aged 18–19 years, and 71.6% of them were female. About half of the participants (48.8%) majored in liberal arts/social science. Most of them (78.0%) reported their family monthly income equaling to RMB 5000 or less (Table 1).

### Ethical Statements

This study following the Declaration of Helsinki. Ethical approval was obtained from the The Survey and Behavioral Research Ethics Committee of the Chinese University of Hong Kong (Ref# 055–18). Informed consent has been shown to all the participants to ensure they know that this study is anonymous, no incentive was provided, and they can quit this study at any time without any punishment. Written consent was obtained from each participant. The participants



**Figure 1** The proposed model to illustrate the direct and indirect associations between mindfulness and college adjustment through resilience.

**Table 1** Background Characteristics of the Participants

	Frequency	Percentage (%)
Age (years)		
17	45	5.9
18–19	416	54.4
20 or above	304	39.7
Gender		
Male	217	28.4
Female	548	71.6
Major		
Liberal arts/Social science	373	48.8
Science	244	31.9
Arts	126	16.5
Others	22	2.9
Family income/month (RMB)		
5000 or below	597	78.0
5000–10,000	144	18.8
10,000–20,000	17	2.2
20,000 or above	7	1.0

under 18 years of age were approved by the Research Ethics Committee of the Chinese University of Hong Kong to provide informed consent on their own behalf.

## Measures

The questions and scales were listed in the questionnaire in the following order, ie, background variables, mindfulness, resilience, and college adjustment).

## Mindfulness

Trait mindfulness was measured by the Chinese version of the 39-item Five Facet Mindfulness Questionnaire (FFMQ).<sup>52</sup> The FFMQ measures five unique mindfulness facets: observing (eg, “When I’m walking, I deliberately notice the sensations of my body moving”), describing (eg, “I am good at finding words to describe my feelings”), acting with awareness (eg, “When I do things, my mind wanders off and I’m easily distracted”), non-judging of inner experience (eg, “I criticize myself for having irrational or inappropriate emotions”), and non-reactivity to inner experience (eg, “I perceive my feelings and emotions without having to react to them”). Participants rated each item on a 5-point Likert scale, ranging from 1 (never) to 5 (always). Scores of the negative-worded items were reversed when calculating mean scores and internal reliability of the scale. Higher mean scores indicated higher levels of mindfulness. In the present study, Cronbach’s

alphas of the subscales were 0.78, 0.80, 0.85, 0.71, and 0.56, respectively.

## Resilience

The Chinese version of the 25-item Connor–Davidson Resilience Scale was used to assess participants’ psychological resilience.<sup>31,53</sup> The sample items include “Past success gives confidence for new challenge” and “When things look hopeless, I don’t give up”. Respondents rated items on a Likert scale from 0 (not true at all) to 4 (true nearly all the time). Higher scores suggested greater resilience. The Cronbach’s  $\alpha$  was 0.93 in the current sample.

## College Adjustment

The 66-item Chinese College Student Adjustment Scale (CSAI) was used to test college adjustment in the aspects of learning adaptivity, interpersonal adaptivity, self-adaptivity, career choice adaptivity, livelihood self-management adaptivity, environmental general evaluation, and somatic-mental symptom.<sup>54</sup> Items (eg, “I can handle daily affairs independently”; “I seldom take part in other activities except study”) were rated on 5-point Likert scales, ranging from 1 (disagree) to 5 (agree). Higher scores indicated better overall adjustment to college life. In the present study, the Cronbach’s  $\alpha$  of the overall scale was 0.94, while some of the subscales had relatively low reliabilities (Cronbach’s  $\alpha < 0.50$ ) in our sample. Thus, we used the total score in the analyses.

## Data Analysis

Descriptive statistics were computed for the background and psychological variables. Associations between background variables and psychological variables were calculated by Pearson’s correlation analysis/independent *t*-test/ANOVA. Pearson’s correlation analysis was conducted to examine the associations among mindfulness, resilience, and adjustment. SPSS version 17.0 was used; *p* values of 0.05 or less indicated statistical significance.

AMOS.17.0 was used for model testing. Path analysis was used to test the proposed mediation model. Goodness of fit was tested by using the  $\chi^2$  test, the Comparative Fit Index (CFI), and the root mean square error of approximation (RMSEA). Non-significant *p* values ( $> .05$ ) of the  $\chi^2$  test represent adequate model fits; CFI values  $> 0.95$  and RMSEA values  $< 0.08$  indicate good model fit. Standardized path coefficients ( $\beta$ ) and unstandardized path coefficients (B) were reported. Bootstrapping analyses tested the mediation hypotheses. The 95%

confidence intervals (CI) of the indirect effects were obtained from 5,000 bootstrap samples. A statistically significant mediation effect was observed when the CI did not include zero.

A widely accepted rule of thumb is 10 cases/observations per indicator variable in setting a lower bound of an adequate sample size for path analysis,<sup>55</sup>; the sample size of 80 would be adequate (8 observed variables). Thus, our sample size was sufficient for all the analyses.

## Results

### Preliminary Analyses

The means, standard deviations (SD), and correlation coefficients of the studied psychological variables are displayed in Table 2. Only age was significantly associated with college adjustment ( $r = 0.08, p = 0.03$ ) and thus would be adjusted for further analyses. Although all the participants were first-year college students, those who were older had higher levels of college adjustment. Other background variables were not significantly associated with college adjustment ( $p > 0.05$ ). The FFMQ subscales of observing, describing, acting with awareness, and non-reactivity were positively associated with resilience and college adjustment, respectively ( $p < 0.05$ ). However, the non-judging subscale was negatively associated with resilience ( $r = -0.22, p < 0.01$ ) and non-significantly associated with college adjustment ( $r = 0.05, p > 0.05$ ). Resilience was positively associated with college adjustment ( $r = 0.60, p < 0.01$ ).

### Model Testing

We tested the proposed mediation model and found that  $\chi^2 (6) = 37.45, p < 0.05, CFI = 0.98, \text{ and } RMSEA < 0.08$ . The high CFI value and low RMSEA value suggest that our proposed model showed good fit to the data. As hypothesized, observing ( $B = 0.11, \beta = 0.14, p < 0.01$ ), describing ( $B = 0.28, \beta = 0.33, p < 0.01$ ), acting with awareness ( $B = 0.20, \beta = 0.27, p < 0.01$ ),

and non-reactivity ( $B = 0.27, \beta = 0.26, p < 0.01$ ) were significantly and positively associated with resilience, respectively. However, non-judging was negatively associated with college adjustment ( $B = -0.14, \beta = -0.14, p < 0.01$ ). Resilience was positively associated with college adjustment ( $B = 0.35, \beta = 0.42, p < 0.01$ ).

Furthermore, bootstrapping analyses indicated that the indirect effects of observing ( $B = 0.04, \beta = 0.06, p = 0.001, 95\% \text{ CI} = 0.03 \text{ to } 0.09$ ), describing ( $B = 0.10, \beta = 0.14, p < 0.01, 95\% \text{ CI} = 0.11 \text{ to } 0.17$ ), acting with awareness ( $B = 0.07, \beta = 0.11, p < 0.01, 95\% \text{ CI} = 0.09 \text{ to } 0.15$ ), and non-reactivity ( $B = 0.10, \beta = 0.11, p < 0.01, 95\% \text{ CI} = 0.08 \text{ to } 0.14$ ) on college adjustment through resilience were significant and positive, respectively.

In addition, the direct effects of describing ( $B = 0.07, \beta = 0.11, p < 0.01$ ) and acting with awareness ( $B = 0.24, \beta = 0.39, p < 0.01$ ) on college adjustment were significant and positive, respectively. However, observing, non-judging, and non-reactivity were not significantly associated with college adjustment ( $p < 0.05$ ). It suggested that resilience partially mediated the associations between describing/acting with awareness and college adjustment, while fully mediated the associations between observing/non-reactivity and college adjustment.

## Discussion

The current study represents the first attempt to test the relationships among mindfulness, resilience, and college adjustment and the mediation role of resilience in explaining the association between mindfulness and college adjustment among first-year college students. This is also the first study investigating these relationships in a Chinese population. The hypotheses were generally supported by the data.

We found that four dimensions of mindfulness (ie, observing, describing, acting with awareness, and non-reactivity) were positively associated with resilience, consistent with previous findings in college students and in

**Table 2** Correlations, Mean (M), and Standard Deviation (SD) of the Psychological Variables

	M	SD	Midpoint	1	2	3	4	5	6
1. Observing	3.15	0.77	3.00						
2. Describing	3.03	0.71	3.00	0.13**					
3. Acting with awareness	3.17	0.81	3.00	-0.12**	0.41**				
4. Non-judging	2.60	0.62	3.00	-0.50**	0.03	0.30**			
5. Non-reactivity	3.13	0.56	3.00	0.38**	0.11**	-0.15**	-0.40**		
6. Resilience	3.58	0.61	2.00	0.31**	0.48**	0.31**	-0.22**	0.36**	
7. College adjustment	3.59	0.52	3.00	0.08*	0.48**	0.57**	0.05	0.13**	0.60**

Notes: \* $p < 0.05$ , \*\* $p < 0.01$ .

other populations.<sup>43–45,48</sup> Indeed, a mindful and accepting orientation and reacting without automatic and non-adaptive ways toward negative experience helps prevent rumination and maladaptive coping, thereby promoting resilience following trauma.<sup>43–45</sup> In addition, the study found that mindfulness (the four dimensions of mindfulness) was also positively associated with college adjustment, in line with previous studies in Western cultures.<sup>25,29</sup> Individuals who tend to be aware of their body sensations, thoughts, and emotions with less reactivity and have a metacognitive insight into, understanding of, and acceptance of new challenges are more likely to adjust to college life and new environment.<sup>12–15</sup> Mindfulness may also help to reduce students' maladaptive coping and behavioral reactions to new challenge and stress. For example, a study found that mindfulness could mediate the relationship between antagonism and problem gambling in late adolescents.<sup>56</sup> Both mindfulness and college adjustment are multi-dimensional concepts and their relationships may be explained by different mechanisms. Future work may test how different dimensions of mindfulness may affect the aspects of learning adaptivity, interpersonal adaptivity, self-adaptivity, career choice adaptivity, livelihood self-management adaptivity, environmental general evaluation, and somatic-mental symptom of college adjustment. Mindfulness-based interventions may provide a practical means of enhancing these characteristics of resilience and facilitate college adjustment.<sup>57,58</sup> Future studies should test the efficacy of such interventions in enhancing college adjustment in fresh college students.

Unexpected results regarding the non-judgment dimension of mindfulness were found. First, we did not find significantly positive associations between non-judgment and resilience/college adjustment in our sample. In addition, we found that the mean score of non-judging was relatively low in our sample, lower than the scale midpoint, while the other four subscales of mindfulness had mean scores higher than their scale midpoints. Furthermore, non-judging was negatively correlated with observing and non-reactivity, inconsistent with previous results in college students.<sup>59,60</sup> Similarly, Baer et al (2004) also reported a significant negative correlation between non-judging and observing.<sup>61</sup> The authors explained that for individuals with no meditation experience, non-judgment with respect to thoughts and feelings in daily experience might not necessarily mean attending or non-reacting to the experience, but that people with meditation experience should be expected to show higher

levels of all the five dimensions of mindfulness and positive correlations among them. Non-judgment means letting go of the automatic judgments that arise in one's mind with every experience he/she has, which is a core component of mindfulness.<sup>10,11</sup> People without meditation may automatically avoid negative experiences (instead of accepting it or letting it go), and view such reactions as non-judgmental. Future studies should test the potential moderating effect of presence of meditation experience. Qualitative studies are encouraged to clarify how the local sample understood the items and concept of non-judgment and mindfulness as a whole in the local culture. Some studies pointed out that Chinese individuals tend to be self-critical,<sup>62</sup> and thus may have low levels of self-acceptance and non-judgment. Comparison studies across cultures are warranted.

Resilience was positively associated with college adjustment. It added evidence to the argument that resilience is an important trait that can assist individuals in quickly and adaptively coping with challenges.<sup>34–41</sup> Furthermore, resilience might be a mechanism underlying the mindfulness-adjustment relationship. The mediation effect of resilience highlights the importance of resilience in conveying the beneficial effects of mindfulness on college adjustment. Specifically, resilience could fully explain the associations between observing/non-reactivity and college adjustment; it partially mediated the describing/acting with awareness-adjustment associations. The theoretical underpinning for this result is that the observing, awareness without maladaptive reactivity, and acceptance aspects of mindfulness may facilitate the develop of resilience characteristics, such as self-efficacy, zest, psychological flexibility to challenges, and these characteristics of resilient individuals may enhance adjustment to college life and other well-being outcomes (eg, life satisfaction).<sup>34</sup> The partial mediation suggests that there may exist other mediators that can explain the describing/acting with awareness-adjustment associations. For example, it is possible that individuals with an ability to act with awareness may stay in touch with contextual cues and readily available sources of positive reinforcement within their environment, thus, adapting to college successfully. Future work should include these potential mediators in the mindfulness-adjustment model. Such mediation research may help counselors and intervention developers to understand why particular persons may not be responding to a mindfulness-based intervention and allow them to tailor interventions to individual needs.

For example, in order to enhance college adjustment, mindfulness practice may need to explicitly link its concepts to how to enhance one's resilience when facing challenges. In addition, given the importance of resilience in facilitating college adjustment, other resilience-enhancement interventions, such as problem solving training to enhance stress coping skills and interpersonal-based programs to promote social support, may also benefit these fresh students.

This study has some limitations. First, the cross-sectional study only provided evidence for the associations among mindfulness, resilience, and college adjustment. Longitudinal studies are needed to establish the causal linkages among these variables. Second, the data relied on self-report measures. The non-reactivity subscale of the FFMQ received relatively low reliability. Caution is needed when interpreting the results. Future studies should validate the results with other well-validated scales of non-reactivity. In addition, this study only focused on how mindfulness and resilience may relate to college adjustment. Some potentially important factors of college adjustment, such as self-esteem and social support, were not included in the model, and are worthy of future examination. Finally, the study utilized a convenience sample based on students in attendance during the period of data collection. Convenience sampling limits generalization to broader populations. Future studies need to replicate our findings in a random sample and in different cultural populations.

In conclusion, we found that mindfulness and resilience were positively correlated with college adjustment, and resilience significantly mediated the associations between four dimensions of mindfulness (ie, describing, acting with awareness, observing and non-reactivity) and college adjustment. The findings provide preliminary support for colleges to develop strategies that promote mindfulness and resilience among first-year college students to facilitate their college adaptation and enhance their well-being outcomes in various aspects of college life.

## Funding

The study is funded by Research Fund for Young Scholars of Pingdingshan University (PXY-QNJJ-2018011).

## Disclosure

The authors report no conflicts of interest in this work.

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