



Mindfulness and internalizing/externalizing problems among adolescents: Ethnicity moderation and psychological capital mediation

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Abstract: This study examines the mediating role of positive psychological capital and the moderating role of ethnicity in the relationship between mindfulness and internalizing/externalizing problems among adolescents. **The study sample comprised Chinese adolescents** (N = 637 ethnic minority; females = 40.97%, mean age = 12.68, SD = 0.49 years; N = 636 Han; females = 49.06%, mean age = 12.71, SD = 0.47 years). The participants completed the Child and Adolescent Mindfulness Measure, the Positive Psycap Questionnaire, and the Youth Self-Report. Results from the moderated mediation analysis showed mindfulness was negatively associated with both internalizing and externalizing problems. Ethnicity moderated the relationship between mindfulness and internalizing problems to be stronger for Han adolescents compared to ethnic minority adolescents. Psychological capital mediated the relationship between mindfulness and internalizing problems in both groups, with a negative direction. Findings support the Conservation of Resources theory and highlight mindfulness as a personal resource fostering adolescent well-being in multicultural contexts.

Keywords: Ethnic minority adolescent; mindfulness; positive psychological capital; internalizing problems; externalizing problems

Introduction

Mindfulness and behavioral problems

Adolescents with mindfulness may be better able to manage the critical developmental period's emotional instability, during which problem behaviors often emerge and intensify (Liu, 2021). Mindfulness, defined as the awareness and attention to present experiences and thoughts with an open, tolerant, non-reactive, and non-judgmental attitude (Kabat-Zinn, 2003), has been shown to offer numerous psychological benefits. For instance, mindfulness can reduce the symptoms of depression, anxiety, and stress (Maddock & Blair, 2023). Higher mindfulness levels are also associated with stronger self-control and lower impulsivity (Ke et al., 2025), suggesting its role in regulating both emotional and behavioral dimensions of adjustment.

Problem behaviors refer to maladaptive actions that hinder social adaptation and deviate from social norms, thereby exerting negative effects on individual well-being and community functioning (Lassi et al., 2011). According to Achenbach (1966), these behaviors comprise two interrelated dimensions: internalizing problems, involving inwardly directed symptoms such as anxiety, depression, and social withdrawal, and externalizing problems, encompassing outwardly directed behaviors such as aggression and rule-breaking. Mindfulness has been found to mitigate both domains by enhancing emotion regulation and reducing impulsive responses, thereby promoting overall psychosocial adjustment during adolescence.

The mediating role of positive psychological capital

Psychological capital (PsyCap) is defined as an individual's positive psychological state throughout the process of

growth and development, encompassing four fundamental dimensions: self-efficacy, optimism, resilience, and hope (Luthans & Youssef, 2004).

Mindfulness is also a positive personal resource (Huang et al., 2021). From the broaden-and-build theory of positive emotions (Fredrickson, 2004), mindfulness cultivates positive affective states that enhance individuals' cognitive flexibility and emotional awareness, thereby strengthening these PsyCap components. Empirical findings show that adolescents with higher mindfulness exhibit greater optimism, resilience, and self-efficacy (Pang & Ruch, 2019; Pepping et al., 2013), and mindfulness training effectively increases PsyCap (Huang et al., 2019; Oh et al., 2022). Thus, mindfulness can be viewed as a psychological antecedent that nurtures the development of positive psychological capital.

Building on the Conservation of Resources (COR) framework (Hobfoll et al., 2018), PsyCap functions as a protective resource that buffers emotional distress through enhanced social support, sense of belonging, and subjective well-being, thereby contributing to a reduction in adolescents' internalizing problems, while promoting stronger self-control that helps prevent externalizing behaviors such as aggression or rule-breaking (Hu et al., 2025; Xiong et al., 2020). As an internal psychological resource, PsyCap enables adolescents to approach challenges with confidence and flexibility, thereby promoting adaptive emotional and behavioral regulation. Consequently, positive psychological capital serves as a key mechanism linking mindfulness to both internalizing and externalizing behavioral outcomes.

Taken together, mindfulness may reduce adolescents' internalizing and externalizing problems by



increasing their positive psychological capital, which fosters resilience and adaptive coping.

The moderating role of ethnicity

Ethnic identity, as a core dimension of adolescents' self-concept, may profoundly influence their psychological processes and behavioral manifestations. For ethnic minority adolescents, identity formation is complicated by the need to navigate interpersonal relationships while also confronting their minority status within the dominant culture, shaping their sense of self and future development (Zamora & Padilla, 2024). The distinctive patterns of cultural socialization may contribute to discrepancies in emotion regulation and the development of psychological resources between minority and mainstream groups.

China, a multi-ethnic country, promotes ethnic equality and regional autonomy to support the development of all groups. In Chinese culture, influenced by Confucianism, Han adolescents are taught from a young age to regulate their emotions for better social adaptation, making them more likely to adopt various emotion regulation strategies. In contrast, Chinese ethnic minority cultures may place less emphasis on learning display rules, leading to difficulties in emotion regulation and cultural adaptation among ethnic minority adolescents (Lü & Wang, 2012). Therefore, ethnic minority adolescents may exhibit weaker effects of mindfulness in alleviating internalizing problems, possibly due to a lack of emotion regulation methods such as mindfulness. Beyond internalizing problems, mindfulness may also help reduce externalizing behaviors. Higher mindfulness is linked to greater self-control and lower impulsivity, thereby decreasing aggression and rule-breaking. Thus, mindfulness is expected to be negatively related to adolescents' externalizing problems. Nevertheless, cultural differences in social norms and behavioral regulation may cause the moderating effect of ethnic identity on this pathway to differ from that for internalizing problems.

Our research focuses on Miao and Dong adolescents in Guizhou, a diverse and underdeveloped inland province in Southwest China, where the incidence of behavioral problems among minority children is significantly higher than the national average (Long et al., 2024). Based on empirical analysis in Yunnan, Guizhou, and Guangxi, results suggest that students in Guizhou exhibit relatively lower mental health (Wei et al., 2022). Previous studies have shown that Miao and Dong adolescents in Guizhou exhibit higher rates of risky behaviors and emotional problems than their peers. For example, Miao adolescents reported more smoking and drinking behaviors, which were closely associated with anxiety and depression (Zhang et al., 2015). Dong students scored higher on neuroticism, which was negatively related to mental health, suggesting greater emotional regulation difficulties under the pressure of bilingual education (Lu, 2010). Furthermore, research on cultural identity among Dong youth revealed that participation in cross-cultural activities enhances both cultural adaptation and ethnic identity, while some adolescents display a "bicultural identity strategy" oscillating between Han and ethnic cultures (Fan et al., 2022). Overall, these findings indicate that the psychological resources and

emotion-regulation patterns of Miao and Dong adolescents differ systematically from those of Han adolescents, underscoring the need to examine the moderating role of ethnic identity in mindfulness effects. Similarly, in the United States, children from racial or ethnic minority groups and/or disadvantaged backgrounds may be more prone to behavioral problems (Kelch-Oliver & Smith, 2015).

Theoretical basis

Based on the Comprehensive Theoretical Model of Problem Behavior (CTMPB) framework, the variables in this study can be systematically categorized (Jessor, 1987). Mindfulness, as an individual disposition, belongs to the personality system; positive psychological capital, as an inner psychological resource, can also be regarded as an important component of this system. In contrast, the ethnic cultural background forms the perceived environmental system that influences adolescent development (Phinney, 2003). Therefore, this study aims to examine how variables within the personality system (i.e., mindfulness and psychological capital) affect the behavioral system (internalizing/externalizing problems), and how the perceived environmental system (i.e., ethnic culture) moderates this process.

Berry's acculturation theory further suggests that adolescents from different ethnic groups may adopt distinct strategies (e.g., integration, assimilation) when interacting with the mainstream culture (Berry, 1980). These strategies represent not only behavioral choices but also reflections of their underlying psychological adaptation and resource allocation patterns. For instance, adolescents who adopt an integrative strategy may possess richer psychological resources, whereas those who experience marginalization may face greater internal conflicts. Thus, the ethnic cultural context may indirectly influence adolescents' levels of psychological capital by shaping their acculturation strategies, thereby moderating the impact of mindfulness on behavioral problems. This forms the theoretical basis for the present study's hypothesis regarding the moderating role of ethnic identity.

Study goals and hypotheses

Based on the theoretical framework and prior empirical findings, the present study aimed to examine the mediating role of positive psychological capital and the moderating role of ethnicity in the relationship between mindfulness and internalizing/externalizing problems among adolescents in Southwest China. The conceptual model of the proposed moderated mediation is presented in Figure 1. Specifically, we sought to understand how ethnic identity may buffer or exacerbate the positive effects of mindfulness on adolescents' internalizing and externalizing behaviors.

Based on the theoretical framework and prior empirical findings, the present study proposed the following hypotheses:

H1: Positive psychological capital mediates the relationship between mindfulness and adolescents' behavioral problems; higher mindfulness predicts greater psychological capital and fewer internalizing and externalizing behaviors.

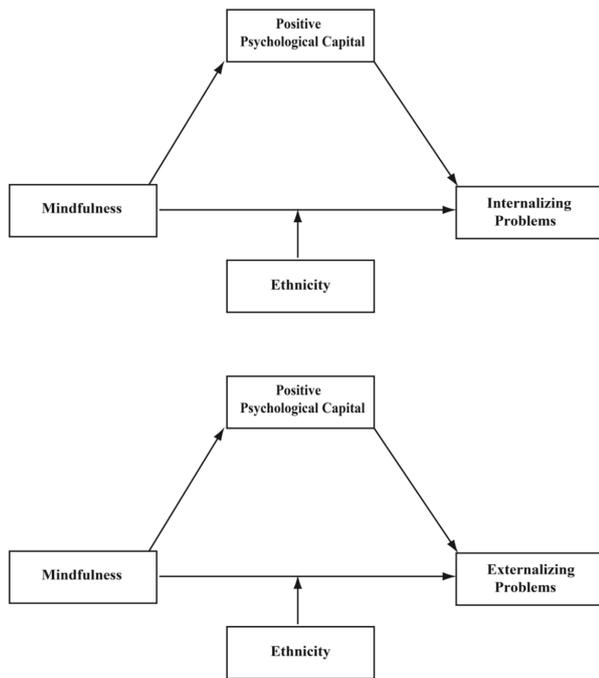


Figure 1. The study conceptual model of the moderated mediation model of ethnicity on the relationship between mindfulness and internalizing problems/externalizing problems

H2a: The negative association between mindfulness and internalizing problems is stronger for Han adolescents than for ethnic minority adolescents.

H2b: The negative association between mindfulness and externalizing problems is stronger for Han adolescents than for ethnic minority adolescents.

Methods

Participants and setting

The study sample comprised 1273 adolescents aged 12 to 15 years ($M = 13.17$, $SD = 0.54$), including 700 boys and 573 girls. Of these were 637 Chinese ethnic minority adolescents (female = 40.97%, mean age = 12.68, $SD = 0.49$ Years) and 636 Han adolescents (female = 49.06%, mean age = 12.71, $SD = 0.47$ Years) from junior middle schools. All the adolescents were first-year middle school students (see Table 1 for demographics). Due to the sample size of individual ethnic subgroups being insufficient for reliable subgroup analysis, the ethnic minority adolescents were analyzed as a combined group in this study.

Measures

Mindfulness. The 10-item Child and Adolescent Mindfulness Measure (CAMM) (Greco et al., 2011) comprises two dimensions: “acceptance” and “awareness and non-judgment”. The “acceptance” dimension includes 4 items (e.g., I tell myself that my feelings are inappropriate); the “awareness and non-judgment” dimension includes 6 items (e.g., I feel bothered by my irrational emotions). Each item is rated on a 5-point scale from 0 = never to 4 = always. All items of the scale were reverse-scored. The higher the score, the higher the level of mindfulness. The Cronbach’s alpha coefficient for CAMM scores was 0.80.

Psychological capital. The Positive Psycap Questionnaire (PPQ) (Zhang et al., 2010) comprises 26 items across four dimensions: self-efficacy (7 Items, e.g., Many people appreciate my abilities.), optimism (7 Items, e.g., I can recover quickly after setbacks.), resiliency (6 Items, e.g., I pursue my goals with confidence), and hope (6 Items, e.g., When things are uncertain, I tend to expect positive outcomes.). Each item is rated on a 7-point Likert scale ranging from 1 = Completely not applicable to 7 = Completely applicable. Higher scores indicate a higher level of positive psychological capital. In the present study, Cronbach’s alpha was 0.92.

Affect regulation. The Youth Self-Report (YSR) (Achenbach, 1991) comprises two parts: 1) Competencies and 2) Problems. This study included only the problems section, which comprises 112 items. Each item is rated on a three-point scale (2 indicates that the symptom is present most of the time or applies well, 1 indicates that the symptom is present some of the time or applies to some extent, and 0 indicates the absence of symptom or problem behavior). All ratings refer to symptoms or problems experienced during the preceding 6 months. The YSR total problem scale can be divided into eight syndrome subscales: “Withdrawn” (7 Items, e.g., I like to be alone.), “Somatic complaints” (10 Items, e.g., I feel dizzy.), “Anxious/Depressed” (16 Items, e.g., I feel lonely.), “Social problems” (8 Items, e.g., I don’t get along with other young people.), “Thought problems” (7 Items, e.g., I always think about certain things and can’t get rid of them.), “Attention problems” (9 Items, e.g., I can’t concentrate and my attention span doesn’t last.), “Delinquent behavior” (11 Items, e.g., I don’t feel guilty if I have misbehaviour.) and “Aggressive behavior” (19 Items, e.g., I argue often.). “Withdrawn”, “Somatic complaints” and “Anxious/Depressed” together comprise a broad “internalizing” dimension, whereas “Delinquent” and “Aggressive” behaviors together constitute an “externalizing” dimension. The total YSR score is the sum of the scores for each entry, but the 16 socially desirable entries and entries 2 and 4 are not included in the total score, for a total of 101 entries. Higher scores indicate a greater likelihood of emotional and behavioral problems. In a previous study, the Cronbach’s alpha coefficient for YSR in a sample of Chinese adolescents was 0.94 (Wang et al., 2013). In the present study, Cronbach’s alpha was 0.93. This study utilized the “internalizing” and “externalizing” dimensions of the YSR scale.

Procedure

This research was approved by the Human Research Ethics Committee of Zunyi Medical University. The parents or legal guardians gave written informed consent and the participants assented to the study. All the participants were informed of the purpose of the study and that participation was voluntary to participate.

Statistical analysis

Data analysis was conducted in SPSS 23.0. Before constructing a moderated mediation model, common method bias was assessed by Harman’s single-factor test in SPSS

Table 1. Demographic data ($N = 1273$)

Variables	Categories	Ethnic minority adolescents ($n = 637$)		Han ethnicity adolescents ($n = 636$)	
		n	%	n	%
Gender	Male	376	59.03	324	50.94
	Female	261	40.97	312	49.06
Ethnicity	Miao	442	69.39	–	–
	Dong	180	28.26	–	–
	Alternative	15	2.35	–	–
Family origin	Urban	89	13.97	79	12.42
	Town	459	72.06	444	69.81
	Rural	89	13.97	113	17.77
Single-child family	Yes	55	8.63	62	9.75
	No	582	91.37	574	90.25
Father's education level	Elementary and below	203	31.87	129	20.28
	Middle School	357	56.04	431	67.77
	High School	58	9.11	62	9.75
	Undergraduate and above	19	2.98	14	2.20
Mother's education level	Elementary and below	322	50.55	214	33.65
	Middle School	252	39.56	358	56.29
	High School	51	8.01	49	7.70
	Undergraduate and above	12	1.88	15	2.36

23.0. Pearson correlation analysis was used to test the correlation between CAMM, PPQ, internalizing dimension, and externalizing dimension. Based on our hypothesis, mindfulness was set as the predictive variable, and the “internalizing” and “externalizing” dimensions of the YSR scale were individually set as the outcome variables. And a moderated mediation model was constructed with “Positive Psychological Capital” as the mediating variable and “ethnicity” as the moderating variable.

To examine the mediation effect of “Positive Psychological Capital” between mindfulness and internalizing problems/externalizing problems (Hypothesis 1), we utilized Model 4 of the PROCESS macro in SPSS 23.0 (Hayes, 2013). We conducted bootstrapping with 5000 resamples to determine the mediation effect. This technique does not assume the normality of the sampling distribution and provides more reliable estimations of mediation effects (Preacher & Hayes, 2008). A significant mediation effect at the $\alpha = 0.05$ level is indicated if the bias-corrected bootstrap 95% confidence interval (CI) does not include zero.

To test our hypothesis that ethnicity moderates the direct relationship between mindfulness and behavioral problems (Hypothesis 2), we specifically selected Model 5 of the PROCESS macro (Hayes, 2013). Model 5 is designed for this specific scenario, testing moderation only on the direct path. The choice of Model 5 was driven by our theoretical framework, which posits that ethnicity moderates the direct effect of mindfulness on outcomes, but not the indirect effect through psychological capital. We performed bootstrapping with 5000 resamples to verify the significance of the moderated mediation effect.

Results

Common method bias

An exploratory factor analysis without rotation was conducted on the questionnaires through Harman's one-factor test, which revealed that the variance explained by the first common factor was 20.13% which was much less than the critical standard of 40% (Podsakoff et al., 2003), indicating that there was no common method bias in the present study.

Descriptive statistics and bivariate correlation analysis

Descriptive statistics and bivariate correlation analysis were conducted on mindfulness, positive psychological capital, internalizing problems, and externalizing problems (see Table 2). The results show that mindfulness is significantly negatively correlated with internalizing problems ($r = -0.56, p < 0.001$), externalizing problems ($r = -0.51, p < 0.001$), and positively correlated with psychological capital ($r = 0.38, p < 0.001$). Positive psychological capital is significantly negatively correlated with internalizing problems ($r = -0.46, p < 0.001$) and externalizing problems ($r = -0.36, p < 0.001$). Internalizing problems are positively correlated with externalizing problems ($r = 0.70, p < 0.001$).

Mindfulness and affect

The PROCESS macro for SPSS (Model 4) was used to examine the mediating effect of positive psychological capital on the relationship between mindfulness and internalizing problems among adolescents. As seen in Figure 2, results showed that higher mindfulness was significantly correlated with higher positive psychological capital ($\beta = 0.38, p < 0.001$). Positive psychological

Table 2. Means (M), standard deviations (SD) and correlations for all variables ($N = 1273$)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1 Mindfulness	23.09	7.07	1			
2 Positive psychological capital	114.71	24.97	0.38***	1		
3 Internalizing problems	13.62	11.73	-0.56***	-0.46***	1	
4 Externalizing problems	9.72	6.84	-0.51***	-0.36***	0.70***	1

Note. *** $p < 0.001$.

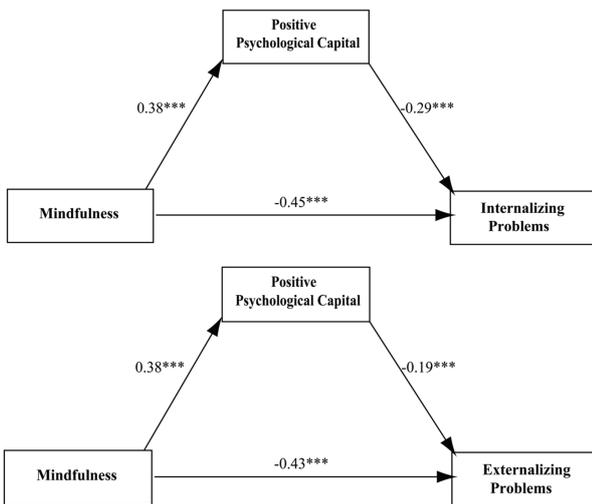


Figure 2. The mediating effects of positive psychological capital on the relationship between mindfulness and internalizing/externalizing problems (Standardized regression coefficients, *** $p < 0.001$)

capital was negatively associated with internalizing problems ($\beta = -0.29, p < 0.001$). As shown in Table 3, the total effect of mindfulness on internalizing problems was significant ($\beta = -0.56, p < 0.001$, Bootstrap 95%CI [-1.01, -0.86]), as was the direct effect ($\beta = -0.45, p < 0.001$, Bootstrap 95%CI [-0.83, -0.67]). The results revealed that the indirect effect path mindfulness \rightarrow positive psychological capital \rightarrow internalizing was also significant (Bootstrap 95%CI [-0.14, -0.08]).

The PROCESS macro for SPSS (Model 4) was used to examine the mediating effect of positive psychological capital on the relationship between mindfulness and externalizing problems among adolescents. As seen in Figure 2, results showed that higher mindfulness was

significantly correlated with higher positive psychological capital ($\beta = 0.38, p < 0.001$). Positive psychological capital was negatively associated with externalizing problems ($\beta = -0.19, p < 0.001$). As shown in Table 3, the total effect of mindfulness on externalizing problems was significant ($\beta = -0.50, p < 0.001$, Bootstrap 95%CI [-0.53, -0.44]), as was the direct effect ($\beta = -0.43, p < 0.001$, Bootstrap 95%CI [-0.47, -0.37]). The results revealed that the indirect effect path mindfulness \rightarrow positive psychological capital \rightarrow externalizing problems was also significant (Bootstrap 95%CI [-0.10, -0.05]).

Ethnicity moderation

To test the hypothesis that ethnicity moderates the direct relations between mindfulness and internalizing problems, we performed a moderated mediation analysis. As shown in the Table 4, the effects of mindfulness on positive psychological capital ($\beta = 1.33, t = 14.49, p < 0.001$) and internalizing problems ($\beta = -0.62, t = -11.70, p < 0.001$) were significant. More importantly, the effect of mindfulness on internalizing problems was moderated by ethnicity ($\beta = -0.22, t = -2.77, p = 0.006$).

Simple slope tests (Figure 3) suggested that the relationship between mindfulness and the internalizing dimension was statistically weaker for ethnic minority adolescents than for Han ethnicity adolescents. As shown in Table 4, the effect of mindfulness on internalizing problems was significantly stronger for Han adolescents ($\beta = -0.84, t = -14.12, p < 0.001$) compared to ethnic minority adolescents ($\beta = -0.62, t = -11.70, p < 0.001$).

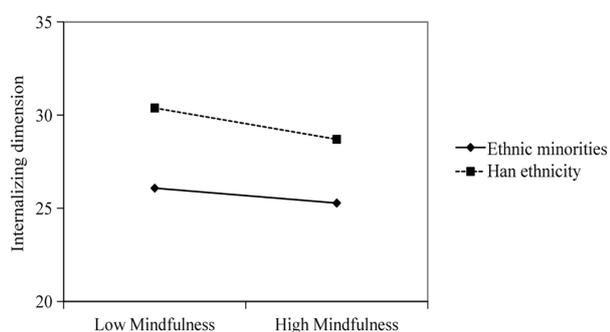
To test the hypothesis that ethnicity moderates the direct relations between mindfulness and externalizing problems, we performed a moderated mediation analysis. As presented in Table 5, the effect of the interaction term (Mindfulness \times Ethnicity) on externalizing problems was nonsignificant ($\beta = 0.02, t = 0.46, p = 0.648$).

Table 3. Model pathways effect of mindfulness on the internalizing problems and externalizing problems

Behavioral problems	Model pathways	Effect	Boot SE	Boot 95% CI
Internalizing problems	Total effect	-0.56	0.04	[-1.01, -0.86]
	Direct effect	-0.45	0.04	[-0.83, -0.67]
	Indirect effect	-0.11	0.01	[-0.14, -0.08]
Externalizing problems	Total effect	-0.50	0.02	[-0.53, -0.44]
	Direct effect	-0.43	0.02	[-0.47, -0.37]
	Indirect effect	-0.07	0.01	[-0.10, -0.05]

Table 4. Moderated mediation analysis of mindfulness on the internalizing problems with ethnicity as a moderator at different ethnicities

Model pathways	Predictor	β	SE	t-value	p-value	Boot 95% CI
Model A: Mediator variable model	Mindfulness → Positive Psychological Capital	1.33	0.09	14.49	<0.001	[1.15, 1.51]
Model B: Dependent variable model	Mindfulness → Internalizing Problems	-0.62	0.05	-11.70	<0.001	[-0.72, -0.52]
	Positive Psychological Capital → Internalizing Problems	-0.13	0.01	-11.67	<0.001	[-0.15, -0.11]
	Ethnicity → Internalize Problems	1.93	0.55	3.52	<0.001	[3.31, 10.54]
Interaction	Mindfulness × Ethnicity	-0.22	0.08	-2.77	0.006	[-0.37, -0.06]
Direct effect	Ethnic minorities	-0.62	0.05	-11.70	<0.001	[-0.72, -0.52]
	Han ethnicity	-0.84	0.06	-14.12	<0.001	[-0.95, -0.72]
Indirect effect		-0.18	0.02	-	-	[-0.22, -0.13]

**Figure 3.** Ethnicity moderates the relationship between mindfulness and internalizing problems

Discussion

Psychological capital mediation

This study found that psychological capital mediates the effect of mindfulness on internalizing and externalizing problems of adolescents. This process can be explained through the Conservation of Resources (COR) theory, which posits that individuals are motivated to protect, acquire, and build valued resources, and that the threat or loss of these resources leads to negative psychological and behavioral outcomes (Hobfoll et al., 2018). As a positive personal resource, mindfulness helps individuals regulate, cultivate, and effectively manage positive psychological resources, thereby enhancing their overall psychological capital. Specifically, mindfulness exerts positive effects

on the four core components of psychological capital, which in turn help alleviate behavioral problems. (1) Self-efficacy: Mindfulness enhances cognitive and emotional awareness (Fredrickson, 2004; Parent et al., 2016), enabling individuals to act thoughtfully rather than react impulsively, thus strengthening confidence in coping with challenges. (2) Hope: It is positively related to motivational constructs such as hope, as mindfulness fosters positive anticipation of the future (Pang & Ruch, 2019). (3) Optimism: By encouraging an open and nonjudgmental attitude toward current experiences, mindfulness complements the optimistic tendency to attribute success to positive causes (Pepping et al., 2013). (4) Resilience: Mindfulness training has been shown to enhance resilience and reduce emotional and behavioral problems (Huang et al., 2019). By enhancing these psychological resources, adolescents are better equipped to manage stress, navigate challenges, and regulate their emotions, ultimately reducing the likelihood of engaging in problematic behaviors (He, 2024; Lorenz et al., 2022). Thus, fostering positive psychological capital in adolescents not only builds resilience but also serves as a protective mechanism against the development of internalizing and externalizing behavioral problems.

In addition to the direct relationships previously discussed, it is crucial to consider the mediating role of positive psychological capital. While previous research has predominantly focused on the direct effects of mindfulness on both positive psychological capital and behavioral problems, there remains a limited understanding of the

Table 5. Moderated mediation analysis of mindfulness on the externalizing problems with ethnicity as a moderator

Model pathways	Predictor	β	SE	t-value	p-value	Boot 95% CI
Model A: Mediator variable model	Mindfulness → Positive Psychological Capital	1.33	0.09	14.49	<0.001	[1.15, 1.51]
Model B: Dependent variable model	Mindfulness → Externalizing Problems	-0.38	0.03	-11.68	<0.001	[-0.45, -0.32]
	Positive Psychological Capital → Externalizing Problems	-0.04	0.01	-6.00	<0.001	[-0.06, -0.03]
	Ethnicity → Externalizing Problems	2.62	0.34	7.68	<0.001	[-0.13, 4.35]
Interaction	Mindfulness × Ethnicity	0.02	0.05	0.46	0.648	[-0.07, 0.12]

mechanisms through which mindfulness influences internalizing and externalizing behavioral problems. Much of the existing literature has emphasized the influence of parents' mindfulness on children's behavioral outcomes (Jones et al., 2014). However, there are fewer studies exploring the impact of adolescents' own mindfulness on their personal psychological traits and behavioral problems. Our findings highlight that positive psychological capital plays a pivotal role in mediating the relationship between mindfulness and behavioral problems. This mediation mechanism enriches our understanding of the psychological processes by which mindfulness can mitigate both internalizing and externalizing problems in adolescents.

Ethnicity moderation

The study found that ethnic identity moderated the relationship between mindfulness and internalizing problems, but not between mindfulness and externalizing problems. Specifically, the effect of mindfulness on internalizing problems was significantly stronger among Han adolescents than among their ethnic minority counterparts. Ethnic identity, as a social dimension of self-identity, is considered crucial for psychological well-being across developmental stages (Adams et al., 2016), offering diverse perspectives on the mechanisms through which mindfulness exerts its effects. This phenomenon can be further interpreted from the perspectives of cultural adaptation and emotional socialization.

First, according to Berry's bidimensional acculturation model (Berry, 1980), Han adolescents living in ethnically diverse regions tend to adopt an assimilation strategy within the dominant cultural context, placing greater emphasis on self-cultivation and emotional restraint in their self-concept development. Such a cultural background allows them to integrate the "nonjudgmental awareness" inherent in mindfulness with existing cultural cognitions—for instance, the Confucian tradition of self-restraint—thereby facilitating more effective acceptance and regulation of negative emotions and buffering the emergence of internalizing behaviors (Chan, 2020; Xie, 2021).

Second, within the broader context of Chinese culture, influenced by Confucian values, Han adolescents are often encouraged from an early age to regulate emotions for better social adaptation (Chan et al., 2024). A study in Southwest China found that ethnic minority adolescents paid less attention to and had less clarity about emotional expression rules than Han adolescents (Huang et al., 2015). The concept of emotion dysregulation may manifest differently and have varying effects across racial and ethnic groups, potentially shaped by cultural norms (Pencea et al., 2020). Consequently, they are more likely to develop and employ diverse emotional regulation strategies. In contrast, many ethnic minority cultures in China place relatively less emphasis on learning emotional expression rules, which may pose greater challenges for adolescents in emotion regulation and cultural adaptation. Therefore, when examining mindfulness—a trait reflecting refined emotional regulation skills—Han adolescents may exhibit

a stronger protective effect owing to their culturally reinforced foundation, whereas ethnic minority adolescents may experience a comparatively weaker effect due to limited exposure to similar emotional socialization practices.

However, the moderating effect of ethnic identity on the relationship between mindfulness and externalizing problems was not significant, suggesting distinct underlying psychological mechanisms between internalizing and externalizing problems. Externalizing problems, such as aggression and rule-breaking behaviors, are more closely associated with impulse control, the internalization of social norms, and external behavioral constraints (Achenbach, 1991). The influence of ethnic identity on such behaviors may lie more in direct differences in behavioral norms than in moderating the protective role of mindfulness. In other words, regardless of ethnic background, mindfulness may exert a generally beneficial effect on reducing impulsive externalizing behaviors by enhancing individuals' awareness of their present actions (Samarghandi et al., 2019). This finding extends the integrative model of problem behavior by examining the interaction between environmental factors (i.e., ethnicity) and individual factors (i.e., mindfulness and psychological capital) in Chinese adolescents. The model emphasizes the interplay among personality, perceived environment, and behavioral systems. Our study deepens this theoretical framework by illustrating how a cultural environmental factor—ethnic culture—modulates the influence of a personality trait (mindfulness) on behavioral systems, thereby enriching the understanding of this model in a cultural context.

This finding is particularly salient in Guizhou, a province characterized by high cultural and ethnic diversity, where the prevalence of behavioral problems among ethnic minority children is significantly higher than the national average. Our sample, consisting of early adolescents aged around 13, represents a critical period for identity formation. For ethnic minority adolescents, this process is especially complex, as they must navigate their minority status within the dominant cultural context. This unique process of cultural socialization may lead to differences in emotion regulation and the development of psychological resources compared with those from the mainstream group.

Implications for research and practice

In summary, the findings of this study hold important theoretical and practical implications. At the theoretical level, our results extend the theory of problem behavior by examining the interaction between environmental factors (i.e., ethnicity) and individual factors (i.e., mindfulness and positive psychological capital) in the context of Chinese adolescents' behavioral problems. While the original theory emphasizes the interplay among personality, perceived environment, and behavior systems, our study specifically illustrates how ethnicity and cultural background moderate the influence of mindfulness—a personality trait—on behavioral outcomes, thereby deepening the theoretical understanding of this model. At the practical level, the findings underscore the necessity of

culturally sensitive mindfulness interventions for adolescents. Programs should be adapted to participants' ethnic and cultural backgrounds to enhance their preventive and therapeutic effectiveness in addressing behavioral problems. Our results strongly suggest that the design and implementation of mindfulness-based interventions must take into account adolescents' ethnic and cultural contexts.

Limitations and future research directions

This study included several limitations that warrant further investigation. Firstly, the cross-sectional nature of the data precludes any interpretation regarding the evolution of these processes over time. Our results from cross-sectional data establish associations but not causation between variables. Future research should implement longitudinal studies to establish causal models and explore the psychological pathways through which individual traits, such as mindfulness and positive psychological capital, contribute to alleviating internalizing and externalizing behavioral problems among adolescents from different ethnic groups. Secondly, since all data were self-reported by the students, there is potential for both intentional and unintentional reporting errors. Future research could benefit from triangulating data sources, including input from teachers, peers, and parents, to enhance data validity. Incorporating methods such as interviews, observations, and experimental approaches within a long-term, multidimensional research design will offer a more comprehensive understanding of the interactions and pathways between these variables, providing deeper insights into reducing internalizing and externalizing behavioral problems among adolescents from diverse ethnic backgrounds. Finally, future studies, combining both mindfulness and positive psychological capital in their interventions, could be employed to better explore the synergistic effect of these two fields' core concepts on adolescent psychological and behavioral health.

Conclusion

(1) Mindfulness negatively affects internalizing problems and externalizing problems. (2) Positive psychological capital mediates the relationship between mindfulness and internalizing/externalizing problems. (3) Ethnicity moderates the relationship between mindfulness and internalizing problems, but it does not moderate the relationship between mindfulness and externalizing problems. Specifically, the effect of mindfulness on internalizing problems was significantly weaker for ethnic minority adolescents compared to Han adolescents.

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