

The longitudinal relationship between mindfulness and adolescent internalizing problems: emotion regulation as a mediator

Ruimei Sun ^a, Yue Wang ^b, Hui Zhou ^b

^a Department of Psychology, University of Macau; ^b Department of Psychology, Sun Yat-sen University

Introduction

Mindfulness could be considered as a moment-to-moment process, which encourages individuals to focus on the present-moment experiences intentionally and non-judgmentally.

According to the Mindfulness Reperceiving Model, mindfulness may drive the mechanism called *emotional and cognitive flexibility*, which in turn contributes to positive outcomes such as decreased internalizing problems.

Although preliminary cross-sectional study have revealed a negative correlation between mindfulness and internalizing problems, little is known about its potential mechanisms, especially based on the longitudinal evidence.

The present study aims to further conduct a cross-lagged study to examine whether mindfulness could mitigate the degree of adolescents' depression and anxiety via a stronger ability of emotion regulation.

Method

- 1362 students from two elementary schools and two secondary schools in Jiangxi Province, China (M_{age} at Time 1 = 11.18 ± 1.78 years old) completed the survey at three-time points (half-year intervals). Finally, 1,324 students (56.7% males) were retained at Time 3.
- The measurements for key variables comprised Mindful Attention Awareness Scale-Children (MAAS-C), Emotional Intelligence Scale-Adolescent (EIS-A), CES-D Depression Scale (CESD-10), and Spence Children's Anxiety Scale (SCAS).
- Descriptive analyses, correlation analyses, and reliability analyses were conducted in SPSS 21.0.
- Mplus 8.3 was used to test the validation of scales, to examine the longitudinal measurement invariance, and to examine the structural equation modeling (SEM).
- In the SEM, emotion regulation at T1, gender, and age were included as covariates for emotion regulation at T2. The dependent variables (i.e., depression and anxiety) at T1, gender, and age were also included as covariates for the dependent variables at T3.

Results

- The model fit indices suggest a good fit to the data ($\chi^2(2236) = 4419.17$, CFI = .91, TLI = .90, SRMR = .04, RMSEA = .03, 90% CI = [.03, .03]).
- Adolescents with higher levels of mindfulness at T1 would report stronger ability of emotion regulation at T2, which in turn predicts lower levels of anxiety and depression at T3.

Table 1
Bivariate Correlations

Variable	$M \pm SD$	1	2	3	4	5	6	7	8	9
1. Gender	1.43 ± 0.50	1								
2. Age	11.92 ± 1.80	-0.06*	1							
3. Mindfulness T1	4.01 ± 0.90	-0.06	-0.22***	1						
4. Emotion Regulation T1	3.12 ± 0.81	-0.14***	0.05	0.37***	1					
5. Emotion Regulation T2	3.19 ± 0.84	-0.14***	0.04	0.33***	0.52***	1				
6. Depression T1	2.46 ± 0.80	0.13***	0.07**	-0.55***	-0.49***	-0.39***	1			
7. Depression T3	2.53 ± 0.85	0.17***	-0.03	-0.31***	-0.31***	-0.47***	0.53***	1		
8. Anxiety T1	1.08 ± 0.64	0.09**	0.09**	-0.51***	-0.46***	-0.36***	0.54***	0.37***	1	
9. Anxiety T3	1.11 ± 0.67	0.12***	-0.03	-0.30***	-0.25***	-0.40***	0.34***	0.59***	0.46***	1

Note. $N = 1,324$. Gender was dummy coded such that 1 = male and 2 = female. * $p < .05$; ** $p < .01$; *** $p < .001$.

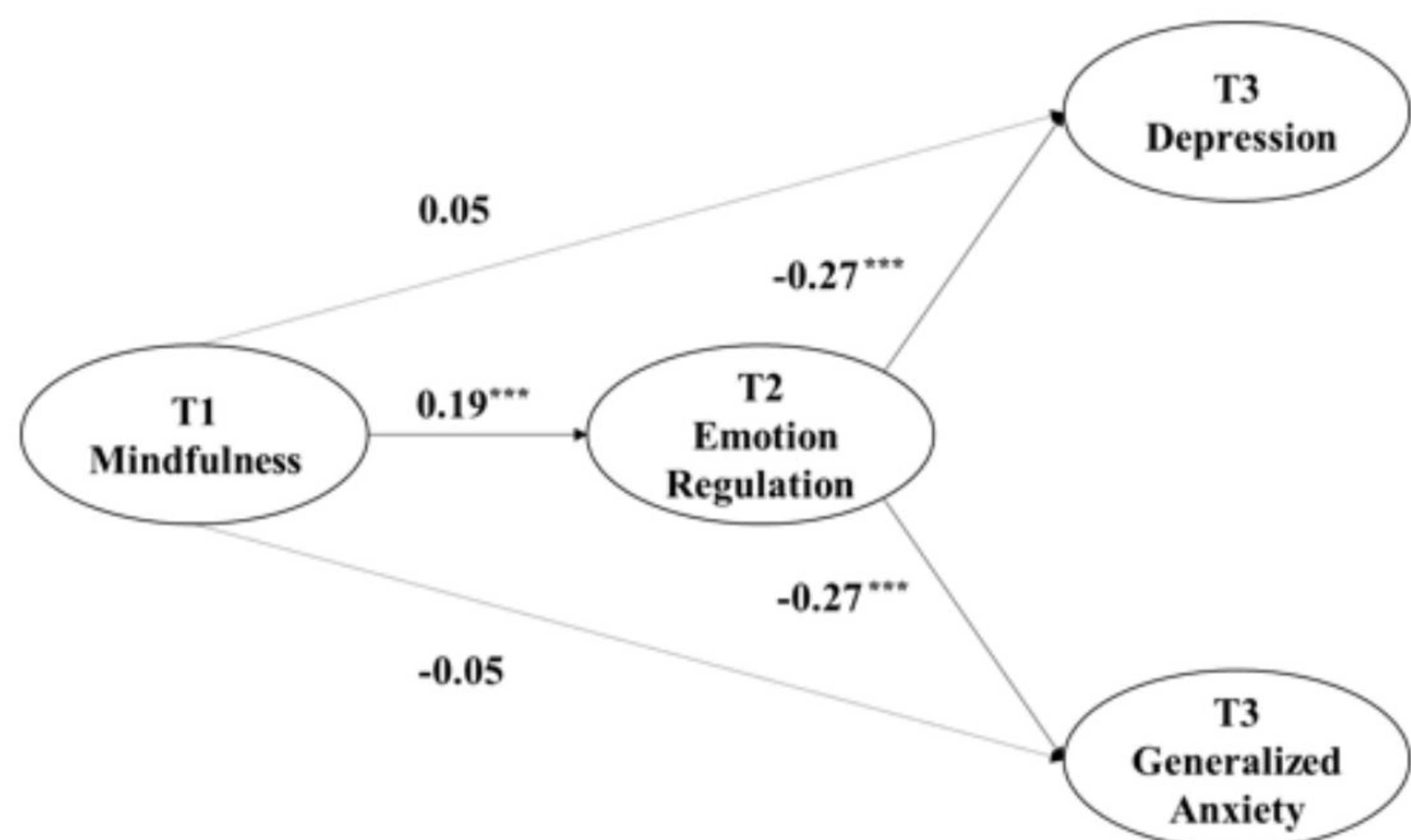


Fig. 1 The Structural Equation Model with significant standardized estimates.
Note. *** $p < .001$. T1 = time 1, T2 = time 2, T3 = time 3.

Discussion

The results supported the longitudinal mediating role of emotion regulation in the link between mindfulness and internalizing problems among Chinese adolescents, which is consistent with findings among adults.

This study improved prior research in terms of methods by using a longitudinal design (three waves), strong analytic techniques (structural equation analysis with latent variables), and a large sample.

Psychological intervention programs geared toward enhancing adolescents' mindfulness and emotion regulation abilities merit further research investigations.

The limitation of the present study were discussed in terms of statistical analyses and measures.

References

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, 62(3), 373-386.

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