Adverse childhood experiences, mindfulness and happiness in Chinese college students during the COVID-19 pandemic

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Abstract
The rise of literature on adverse childhood experiences (ACEs) has indicated a strong relationship between ACEs and negative life outcomes, leading to important implications for services to the population. However, less is known about the effects of ACEs on happiness and the role of mindfulness in this relation. This study examined the relationships between ACEs and happiness and whether mindfulness mediated the effects of ACEs on happiness in a sample of Chinese college students. The data were collected from 1871 college students from 12 colleges across China in September 2020. The findings of this study show that ACEs had significant negative effects on students' happiness and that mindfulness helped to substantially reduce the negative effects of ACEs on happiness. Students who experienced emotional neglect and abuse in childhood were affected the most. By contrast, this group is not the primary focus of mindfulness-based interventions in existing literature; thus, this study calls for specific mindfulness-based interventions for this vulnerable population.

KEYWORDS
adverse childhood experience, China, college, happiness, mindfulness, students

1 | INTRODUCTION

Money cannot give us everything we want and certainly cannot buy happiness or well-being (Cheung et al., 2020; Musikanski et al., 2017). In contrast, happiness is increasingly being viewed as a vital indicator of personal well-being (Bajaj et al., 2019). Happiness is defined as subjective well-being and internal states of satisfaction, a combination of frequent instances of positive affect, infrequent occurrences of negative affect, and a high level of life satisfaction (Diener et al., 1999; Uchida & Oishi, 2016).

Happiness has been found to be an important predictor of personal success across multiple life domains (Lyubomirsky et al., 2005; Walsh et al., 2018), and studies have attempted to understand the determinants of happiness (Tan et al., 2017; Yengprugsawan et al., 2012). Research on happiness has found that mindfulness increased self-esteem, emotional stability and social support, which then improved happiness (Bajaj et al., 2019). Studies also found that situational stress, such as financial insecurity and academic stress, negatively affected happiness in college students and young adults (Flynn & Macleod, 2015; Yengprugsawan et al., 2012). Likewise, childhood experiences have effects on well-being and happiness, particularly adverse childhood experiences (ACEs) (Edwards et al., 2003; Merrick et al., 2017).

ACEs include child abuse (psychological, physical or sexual), neglect and household challenges such as violence perpetrated against mother (Centers for Disease Control and Prevention, n.d.), during the first 18 years of life. Such experiences have been linked to a plethora of social and health issues in later childhood (Elmore et al., 2020), adolescence (Crandall et al., 2020; Isohookana et al., 2013) and adulthood (Edwards et al., 2003; Felitti et al., 1998). Research has found that the co-occurrence of ACEs is a major risk factor for health conditions ranging from substance use disorders and
suicidality to chronic lung disease and cardiovascular disease (see Hughes et al., 2017, for a review).

Meanwhile, the outbreak of COVID-19 has greatly threatened individuals’ well-being since December 2019 (Paules et al., 2020). Extensive evidence has shown that the COVID-19 pandemic jeopardizes the psychological health of individuals, along with their physical health (Cooke et al., 2020). However, few studies have examined the relation between ACEs and psychological well-being, particularly happiness, during the COVID-19 pandemic. This study aims to investigate the roles of ACEs and mindfulness on individual happiness among a group of Chinese college students during the COVID-19 pandemic.

2 | THEORETICAL BACKGROUND AND LITERATURE

The rise of literature on the strong relation between ACEs and an alarming variety of negative life outcomes has important implications for practice with and services for high-risk populations. However, less is known about the effects of ACEs on happiness and the role of mindfulness on the relationship between ACEs and happiness, particularly in challenging times—for instance, the COVID-19 pandemic. Mindfulness is a state of consciousness in which individuals purposefully pay attention to the present moment and react in a non-judgmental manner (Kabat-Zinn, 2003). Consciousness contains awareness and attention. Awareness monitors both inner and outer environment, whereas attention provides increased sensitivity to the experiences (Westen, 1999). Overall, mindfulness is strengthened attention to and awareness of the present moment (Brown & Ryan, 2003). Evidence has shown that mindfulness can promote students’ academic performance (Caballero et al., 2019; Lu et al., 2017), advance social and emotional competence (Klingbeil et al., 2017; Schonert-Reichl & Lawlor, 2010) and alleviate emotional and behaviour problems (Huang et al., 2019; Lu et al., 2018; Van de Weijer-Bergsma et al., 2011).

Trauma theory (Herman, 1992) posits that traumatic experiences can impede individuals’ psychological well-being, as traumatized individuals often dissociate from provoking moments and situations to cope with hyperarousal, a state in which individuals are highly sensitive to possible threats of danger. ACEs are traumatic events that can have profound consequences throughout one’s lifetime (Herrenkohl et al., 2013; Weder et al., 2014). Individuals with ACEs may dissociate from triggering circumstances to cope with reactions based in hyperarousal. Consistent dissociation can prohibit individuals’ mindfulness by restricting their awareness and attention to the current moment (Bishop et al., 2004). Additionally, researchers have identified mindfulness as a potential factor of happiness (Huta & Ryan, 2010; Kashdan et al., 2008). People with higher levels of mindfulness are prone to have greater happiness because they are more capable of recognizing, managing and resolving life problems as well as making decisions that are beneficial to their psychological well-being (Hollis-Walker & Colosimo, 2011). According to self-determination theory, mindfulness contributes to eudaimonic happiness by promoting individuals’ awareness of what is important and accomplishing it (Deci & Ryan, 1980; Ryan et al., 2008; Schultz & Ryan, 2015). Conversely, individuals with weakened mindfulness will be less likely to make favourable decisions, resolve problems and have important life accomplishments, which jointly dissolve happiness. Therefore, ACEs are expected to reduce individual happiness through undermined mindfulness. Traumatic experiences can also directly threaten individuals’ happiness by reducing internal states of satisfaction (Diener et al., 1999; Uchida & Oishi, 2016).

In addition, empirical evidence has found negative effects of the pandemic on psychological and mental well-being in the general population (Solomou & Constantinidou, 2020; Wang et al., 2020). For example, Wang et al. (2020) conducted an online general population survey between 31 January and 2 February 2020 to investigate psychological well-being during the initial stages of the COVID-19 outbreak in China. The sample included 1210 respondents from 194 cities in China. About 54% of respondents rated the psychological effect of the outbreak as moderate or severe. Seventeen per cent of the respondents reported moderate to severe depressive symptoms, and 29% reported moderate to severe anxiety symptoms. Females, students and individuals with poor health had significantly higher levels of anxiety and depression (Wang et al., 2020). The pandemic’s negative effects on mental health, especially during the early stages, are evident, but less is clear on the effect of COVID-19 on happiness.

Taken together, the literature has provided overwhelming evidence of the associations among ACEs, the pandemic and well-being, along with evidence of the potential of mindfulness to positively affect life outcomes. However, limited studies have investigated the effects of ACEs on Chinese college students’ psychological well-being, and even fewer have focused on the mediation effect of mindfulness. To our best knowledge, the current study is the first study that assesses the effects of ACEs on college students’ happiness. As emerging adults, students may experience heightened psychological stress concerning the demands while in college (Arnett, 2012; Peer et al., 2015). Meanwhile, as junior and senior students who are about to graduate, they may experience more pressure to search for internships and secure employment, as the COVID-19 pandemic has caused dramatic economic fallout (Aucejo et al., 2020). Given this, we sought to examine the relationships between ACEs, COVID-19, happiness and mindfulness in a sample of Chinese college students during the COVID-19 pandemic. We hypothesize that ACEs and the COVID-19 pandemic are negatively associated with happiness and that mindfulness mediates the effects of ACEs and the COVID-19 pandemic on happiness in Chinese college students.

3 | METHODS

3.1 | Data and sample

The data used for the present study came from an anonymous online survey from 12 universities in China. To ensure a diverse sample, we
selected universities that were geographically spread across China. Universities were selected from the north, south, east, west and middle regions. In September 2020, we invited 2229 junior and senior students from each university’s department of social science to participate in the online survey. The recruitment process was facilitated by each college’s programme administrator, who had students’ registration records. Only junior and senior students received the survey link. Students were told to not share the link with others. Given that online survey response rates are typically low, an incentive (10 RMB, about 2 USD) for participation was provided. After the initial invitation, students received two reminders about survey participation on the fourth and eighth following days. By early October 2020, 1881 students had participated and submitted the survey. After omitting 10 cases due to incomplete answers, we had a final analytic sample of 1871 college students. The response rate was 80%. This research protocol, including an informed consent process, was approved and overseen by the research review committee at one of the co-authors’ university in China. Participation was voluntary-based, and every subject was informed that they had the right to terminate the survey at any time.

3.2 | Measures

3.2.1 | Happiness

Happiness was measured by the 4-item Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). The first item asked the respondents about their overall happiness level, whereas the second item asked the respondents to compare their happiness with that of their peers. The last two items presented happy and unhappy circumstances, respectively, and asked respondents to indicate how the items related to themselves. Respondents were asked to rate whether they agreed or disagreed—and to what extent—with the statements using a 7-point Likert scale (1 = Not at all; 7 = A great deal). We reverse-coded the negatively worded items so that higher scores indicated greater happiness. We then calculated the happiness scores by averaging the values of the four items. The final score ranged from 1 to 7, with a higher number indicating greater happiness. The Cronbach’s α of the scale was .79 in this study.

3.2.2 | Adverse childhood experiences

The key independent variable, adverse childhood experiences (ACEs), was measured using the Adverse Childhood Experience (ACE) scale (Centers for Disease Control and Prevention, n.d.). The ACE scale assessed ACEs during the respondents’ first 18 years of life. Ten items were used to measure ACEs across three dimensions: child abuse (three items), child neglect (two items) and household challenges (five items). Example question included ‘Did a parent or other adult in the household often: swear at you, insult you, put you down, or humiliate you?’ Each affirmative answer was assigned one point. The ACE score was constructed as the sum of the affirmative answers, with a higher score representing a greater frequency of ACEs. We also calculated the scores by dimensions of the ACE scale (i.e. child abuse, child neglect and household challenges), as well as the percentages of each and the total number of ACE events.

3.2.3 | Mindfulness

Mindfulness was assessed by the 15-item Mindful Attention Awareness Scale (MAAS) (Brown et al., 2010). Past studies have shown that the Chinese version of MAAS is both valid and reliable for use with Chinese populations (Deng et al., 2012; Huang et al., 2019). The 15 items asked participants to identify the frequency at which they experience feelings, behaviours or mindful thoughts over the past 4 weeks. Example of items include: ‘I find myself doing things without paying attention’. The score for each item ranges from 1 to 6 (almost never to almost always). We reversed the scores so that higher scores indicated higher levels of mindfulness. The total of all scores provided ranged from 14 to 90, and the Cronbach’s α was .90 in this study.

3.2.4 | COVID-19 pandemic

The COVID-19 pandemic was measured by the cumulative number of confirmed COVID-19 cases, as of 15 September 2020, in each province. We assigned the confirmed case number to all students in the same college based on their province location, as community- and city-level indicators were unavailable in China. Confirmed COVID-19 cases at the province-level captured the extent of the COVID-19 disease-related stress and risk faced by the students. The by-province COVID-19 confirmed cases were retrieved from Caixin (2020).

3.2.5 | Socio-economic characteristics

This study controlled for basic socio-economic characteristics of the respondents. We collected information about respondents’ age, sex (0 = male; 1 = female), ethnicity (0 = other, 1 = Han), and household registration (HR) (rural; city with prior rural registration; city). We also collected information about their family backgrounds, including parents’ marital status (married, separated, divorced and widowed), parents’ highest educational attainment (elementary school or below, middle school, high school and some college or above), number of family members, annual family income in the last year and welfare status (0 = no; 1 = yes) in the last year. Finally, this study also controlled for specific college characteristics, or college-fixed effect, in consideration of the possibility that college characteristics, such as college culture, may influence individuals’ mindfulness and happiness (Fletcher, 2010).
3.3 Analyses

We first conducted descriptive analyses to assess the distribution of the main variables and the characteristics of the sample. Then ordinary least squares (OLS) regression analyses were conducted to estimate the net effects of key independent variables on the dependent variable while controlling for socio-economic characteristics of the students. The framework underlying this study posits that the extent of happiness in college students is determined by mindfulness, ACEs, COVID-19 cases by province, socio-economic characteristics and college-level characteristics. The specification of the analytic model is represented by the following equation:

\[ Y_i = \alpha_i + \beta_1 \cdot \chi_i + C_i + \epsilon_i, \]

where \( Y_i \) is happiness of the subject \( i \); \( \alpha_i \) is the individual constant; \( \chi \) is a vector of ACEs, the COVID-19 cases in the province, mindfulness and socio-economic characteristics of subject \( i \); \( C_i \) is the college for subject \( i \), or college-fixed effect (which is taken to be constant across individual colleges); \( \beta \) is a vector of regression coefficients; and \( \epsilon_i \) is the cross-section error component. Note that with the college-fixed effect, the model controls for differences across colleges. The scores of the ACE scale, mindfulness and happiness, along with control variables, were standardized in regression analyses. All analyses were conducted using STATA software 16.0.

4 RESULTS

4.1 Descriptive statistics

Table 1 presents the descriptive statistics of happiness, mindfulness, ACEs and COVID-19 infections. The sample had an average happiness score of 4.71 (SD = 1.12), ranging from 1 to 7. The score was comparable with American and Russian college students. Lyubomirsky and Lepper (1999) applied the happiness scale to eight samples of American college students, and the means ranged from 4.63 to 5.07. They also tested the scale on Russian college students and found a mean score of 4.84 (Lyubomirsky & Lepper, 1999). The sampled students had an average mindfulness score of 59.61 (SD = 10.84). The average scores were 0.28 (SD = 0.61) for household challenges, 0.12 (SD = 0.33) for emotional neglect, 0.03 (SD = 0.16) for physical neglect, 0.26 (SD = 0.61) for parental separation or divorce, 0.14 (SD = 0.34) for mother treated violently, 0.02 (SD = 0.15) for substance abuse in the household, 0.02 (SD = 0.14) for mental illness in the household, 0.05 (SD = 0.21) for incarcerated household member, 0.03 (SD = 0.16) for number of COVID-19 cases in province.

The average number of COVID-19 confirmed cases in students’ provinces was 14,264 (SD = 26,894), ranging from 157 to 68,139. The wide range and large standard deviation of the variable suggested that students resided in provinces with quite different levels of COVID-19 infection. The variance of the number of COVID-19 cases at the provincial level allowed us to examine whether the local COVID-19 infection rates affected happiness of students during the pandemic.

The socio-economic characteristics of the sample are presented in Table 2. Female students comprised about two-thirds of the sample, which is comparable with the social science student population in China. The sample had an average age of 20.62 and close to 90% self-identified as Han ethnicity. More than half of the sample (52.37%) had a city household registration (HR), followed by rural HR (38.70%) and city but prior rural HR (8.93%). According to the

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**Table 1 Levels of happiness, mindfulness, adverse childhood experience and COVID-19 cases**

|                          | Mean (SD) |
|--------------------------|-----------|
| Happiness, 1–7           | 4.71 (1.12) |
| Mindfulness, 15–90       | 59.61 (10.84) |
| Adverse childhood experience, % |          |
| Occurrence, no = 0, yes = 1 | 35.16 |
| Three types or more      | 8.44 |
| Adverse childhood experience, 0–10 | 0.69 (1.28) |
| Abuse, 0–3               | 0.28 (0.63) |
| Emotional abuse, 0–1     | 0.11 (0.31) |
| Physical abuse, 0–1      | 0.06 (0.24) |
| Sexual abuse, 0–1        | 0.11 (0.31) |
| Neglect, 0–2             | 0.15 (0.41) |
| Emotional neglect, 0–1   | 0.12 (0.33) |
| Physical neglect, 0–1    | 0.03 (0.16) |
| Household challenge, 0–5 | 0.26 (0.61) |
| Parental separation or divorce, 0–1 | 0.14 (0.34) |
| Mother treated violently | 0.02 (0.15) |
| Substance abuse in the household, 0–1 | 0.02 (0.14) |
| Mental illness in the household, 0–1 | 0.05 (0.21) |
| Incarcerated household member, 0–1 | 0.03 (0.16) |
| Number of COVID-19 cases in province | 14,264 (26,894) |

Note: N = 1871.

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d at least three. ACE scores in the sample had a range of 0–10, with a mean of 0.69 (SD = 1.28). The average scores were 0.28 (SD = 0.63) for the child abuse subscale, 0.15 (SD = 0.41) for child neglect and 0.26 (SD = 0.61) for household challenges. Regarding individual ACE items, 14% of the sample reported parental separation or divorce, followed by emotional neglect (12%), emotional and sexual abuse (both at 11%), physical abuse (6%) and mental illness in the household (5%). The percentages of the remaining ACE items (i.e. physical neglect, incarcerated household member, substance abuse in the household and mother treated violently) were all at 3% or below.

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students’ reports, 89.04% of their parents were married, whereas 6.89% were divorced. Parents’ marital status was collapsed into two categories (married vs. unmarried) in regression analyses. Most parents (39.82%) had college degrees or above, followed by junior high school (28.11%), high school (25.17%) and elementary school (6.9%). The sample reported an average family income of 90,990 RMB (about 13,580 USD) in the past year. About one-fourth of the sample received at least one form of social welfare in the past year. Students had 3.87 family members on average. With regard to college composition, each college comprised from 2.5% to 11.5% of the analytic sample, with no college occupying more than 12%. This distribution reflected the size of students in each social science department.

### 4.2 Multivariate analyses

Table 3 displays the standardized coefficients of happiness, estimated by OLS regression. Two models are presented. The first model includes two key independent variables, ACEs and the number of COVID-19 cases in the province, along with the socio-economic characteristics of the students, whereas the second model includes mindfulness to test its mediation effect. Given the wide range of COVID-19 cases by province, the variable was transformed into a natural log number, then used for regression analyses.

The ACE score had a significant and negative effect on happiness in Model 1. An increase of one standard deviation in ACE score was associated with a 0.21 standard deviation lower happiness score. The number of COVID-19 cases in the province did not have a significant effect on students’ happiness. In addition, gender had significant effects on happiness. Female students had 0.07 standard deviation greater happiness scores than male students. The result is consistent with previous study that males become less happy, compared with females, as they enter late adolescence (Chui & Wong, 2016). The adjusted $R^2$ of Model 1 was .05.

The adjusted $R^2$ increased to .15 after including mindfulness in Model 2, which showed that mindfulness had a strong effect on happiness. A one standard deviation increase in the mindfulness score was associated with a 0.34 standard deviation increase in happiness. In addition, the estimates of ACEs reduced to –0.13 in Model 2. The results suggest that mindfulness reduced the effect of ACEs on happiness by 38% ($[−0.21 – (−0.13)]/−0.21$) and provide evidence that mindfulness partially mediated the effect of ACEs on happiness. The rest of the results in Model 2 were similar to those reported in Model 1.

We conducted robustness tests on the effect of ACEs on happiness. Specifically, the same regression analyses in Table 3 were performed, but the ACE variable was replaced by different specifications of the ACE scale (occurrence of at least one ACE; three ACEs or more; and ACE score), by dimensions and by individual ACE items. For simplicity, we only present the results on ACE specifications in Table 4.
Each entry represents a different regression analysis. The results for other variables were similar to those reported in Table 3.

The results in Model 1 of Table 4 indicate that both occurrence and number of ACEs matter, but each type of ACE may not affect happiness in the same way. For students who reported having at least one ACE, their happiness scores reduced by 0.20 standard deviation. The estimate was 0.19 for students who had at least three types of ACEs. The estimate of the ACE score was 0.21. Together, the results indicate that occurrence of ACEs had a modest effect on reducing happiness. As the number of types of ACEs increased, its negative effects on happiness increased as well. However, not every type of ACEs had the same effects. As further analyses on the three dimensions and individual ACE items show, neglect had the largest effect on happiness (β = 0.23), followed by abuse (β = −0.18) and household challenges (β = −0.08). Specifically, students who experienced emotional neglect had 0.24 standard deviation lower happiness scores, followed by emotional abuse (−0.21), physical abuse (−0.11), physical neglect (−0.09), sexual abuse (−0.07), parental separation and divorce (−0.08), and substance abuse or mental illness in the household (both at −0.05).

The results in Model 2 of Table 4 show that mindfulness mediated the effects of ACEs on happiness substantially, particularly for household challenges. The estimate of household challenges reduced to −0.02 and was no longer significant after adding mindfulness to the model, suggesting that mindfulness fully mediated the effect of household challenges on happiness. Mindfulness appeared to reduce the effects of abuse and neglect dimensions of ACEs by about 33% ([−0.18 − (−0.12)]/[−0.18]) and 26% ([−0.23 − (−0.17)]/[−0.23]), respectively, but both still had significant and negative effects on happiness in Model 2. The results of individual items show that mindfulness fully mediated the negative effects of sexual abuse and substance abuse or mental illness in the household on happiness, whereas it partially mediated the effects of emotional abuse, physical abuse, neglect, and parental separation or divorce. Even after taking mindfulness into account, students who reported experiences of emotional neglect in childhood had 0.18 standard deviation lower happiness scores than students without experiences of emotional neglect. The estimated effect for emotional abuse was 0.15 standard deviation less.

5 | DISCUSSION

The results indicate that the occurrence, number and types of ACEs all had significant and negative effects on students' happiness during the COVID-19 pandemic. In particular, students who had experienced emotional neglect and abuse in childhood reported the largest...
reduction on happiness. Other high-risk students were those that reported experiences of physical abuse, physical neglect and sexual abuse. Household challenges mattered but to a relatively small degree. Household challenges, particularly parental separation or divorce and substance abuse and mental illness in the household, also showed significant effects on students' happiness, though the magnitude of these effects was relatively smaller compared with child abuse and neglect. Charlson et al. (2016) found that the burden of substance abuse and mental illness greatly increased in China from 1990 to 2013, including but not limited to alcohol use disorders, illicit drug use disorders, schizophrenia and clinical depression. As a result, the younger generations are at higher risk of having household challenges in their lifetime, which threaten their later happiness and psychological well-being.

More macro-level actions are needed to reduce the national burden of mental illnesses and substance use disorders, decrease younger generations' risk of ACEs and promote their happiness and well-being.

The findings of this study have several implications for social work. First, the facts that mindfulness showed a strong and positive effect on happiness and that the negative effects of ACEs on happiness were largely reduced after controlling for mindfulness together suggest that mindfulness is a key point of intervention for individuals who have a history of ACEs. This underscores the importance of mindfulness interventions in potentially buffering the effects of ACEs on happiness. School social workers and practitioners can adopt the ACE questionnaire to identify students with ACEs and utilize mindfulness-based interventions to promote the extent of mindfulness of the students. Empirical studies have shown that several mindfulness-based interventions, including mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT) and mindfulness-based interventions (MBI), can effectively reduce psychological distress and promote mental health and well-being (Kabat-Zinn, 2003; Klainin-Yobas et al., 2011; Zoogman et al., 2015). School social workers and practitioners can design a variety of mindfulness-based interventions depending on students' clinical presentation and programme resources.

Second, the majority of the mindfulness-based interventions have focused on individuals who had more severe psychopathology as a result of trauma (e.g. Hofmann et al., 2010; Katz & Toner, 2013; Kimbrough et al., 2010; Teasdale et al., 2000). Indicated by the findings in our study, individuals who experienced emotional abuse and neglect face similar harms to their psychological well-being as those who experience physical and sexual abuse. In fact, those who have been emotionally victimized even showed worse outcomes. School social workers and practitioners need to pay attention to students with histories of emotional abuse and neglect as they do to students who have been physically or sexually victimized.

Third, practitioners and agencies should implement preventive programmes for ACEs in the Chinese context. Even though the

| Table 4 | Robust tests of ACEs on happiness |
|--------|----------------------------------|
|        | Model 1                          | Model 2 |
|        | \( \beta \) | SE | \( p \) | \( \beta \) | SE | \( p \) |
| Mindfulness | — | — | Controlled | | | |
| ACE scale | | | | | | |
| Occurrence, no = 0, yes = 1 | \(-.20\) | .05 | *** | \(-.14\) | .05 | *** |
| Three types or more, no = 0, yes = 1 | \(-.19\) | .09 | *** | \(-.14\) | .09 | *** |
| ACE score, 0–10 | \(-.21\) | .02 | *** | \(-.13\) | .02 | *** |
| Three dimensions | | | | | | |
| Abuse | \(-.18\) | .04 | *** | \(-.12\) | .04 | *** |
| Neglect | \(-.23\) | .06 | *** | \(-.17\) | .06 | *** |
| Household challenge | \(-.08\) | .05 | ** | \(-.02\) | .04 | |
| Individual items | | | | | | |
| Emotional abuse | \(-.21\) | .08 | *** | \(-.15\) | .08 | *** |
| Physical abuse | \(-.11\) | .11 | *** | \(-.07\) | .10 | ** |
| Sexual abuse | \(-.07\) | .08 | ** | \(-.03\) | .08 | |
| Emotional neglect | \(-.24\) | .08 | *** | \(-.18\) | .07 | *** |
| Physical neglect | \(-.09\) | .16 | *** | \(-.06\) | .15 | * |
| Parental separation or divorce | \(-.08\) | .09 | ** | \(-.05\) | .09 | * |
| Mother treated violently | \(-.02\) | .18 | | .01 | .17 | |
| Substance abuse in the household | \(-.05\) | .19 | * | \(-.01\) | .18 | |
| Mental illness in the household | \(-.05\) | .12 | * | \(-.02\) | .12 | |
| Incarcerated household member | .01 | .16 | | .03 | .15 | |

Note: \( N = 1871 \).  
*p < .05.  **p < .01.  ***p < .001.
prevalence of ACEs in China varies among studies (Fu et al., 2018; Zhang, Mersky, & Topitzes, 2020), we can recognize at a glance that ACEs threaten a considerable portion of children and families. To ensure children’s positive development, it is necessary to initiate preventive programmes. For instance, practitioners could promote positive parenting behaviours through home-based interventions as a way to prevent child maltreatment that may result from inappropriate parenting behaviours (DuMont et al., 2008; Eckenrode et al., 2000). Meanwhile, given the strong effects of ACEs during the respondents’ first 18 years of life on later mindfulness and happiness, school social workers may deliver more comprehensive services to school-aged children, such as thorough screening of ACE history and delivering mindfulness-based interventions, which have been shown to be effective in improving the well-being of children and adolescents (Huang et al., 2019; Schonert-Reichl & Lawlor, 2010).

Unlike previous studies (Cao et al., 2020; Li et al., 2020; Wang et al., 2020), the COVID-19 pandemic, measured by the COVID-19 cases by province, did not have a significant effect on the level of happiness in this study. Possible explanations may be China’s slower rate of new confirmed cases leading to the removal of strict lockdown measures by the time of data collection. As the COVID-19 outbreak stabilized in China, the government withdrew lockdown measures for most cities by 8 April 2020. Since then, the number of confirmed COVID-19 cases in China has remained stable at around 90,000 (Johns Hopkins University & Medicine CRC, 2020; Taylor, 2020). The majority of Chinese colleges resumed in-person classes in September 2020 (Nierenberg & Pasick, 2020), and life in China has appeared to return to normal (Hernández, 2020). Future studies could consider measuring the COVID-19 infection of students themselves, their family members and friends, as evidence has shown that the diagnosis of COVID-19 among family members and colleagues was associated with increased depression and anxiety (Zhang, Yang, et al., 2020).

Our findings must be interpreted in the context of several limitations. First, the cross-sectional nature of the data only establishes associative relationships and precludes approximating causal ones among the variables of interest. Future studies can incorporate a longitudinal design to investigate the causal relationships among the variables of interest. Second, all information was collected via students’ self-reports, which leaves the data subject to intended and unintended reporting errors. Future research can utilize triangulation to validate data from different sources, including teachers, family members and peers. Third, some unobserved variables, such as academic stress and mental illness, could influence students’ happiness but were omitted in this study. The unobserved variables may produce inaccurate or even biased estimates in this study. Fourth, the degree to which the findings can represent the entire Chinese college student population is still unclear and calls for further research. Finally, the nonsignificant effects of the province-level COVID-19 cases may also be a result of measurement errors because the unit of measurement is province. Future research using city or community indicators of the COVID-19 pandemic is warranted.

6 | CONCLUSION

This study shows that ACEs had significant negative effects on the happiness of Chinese college students during the COVID-19 pandemic. It also shows that mindfulness could help to reduce the negative effects of ACEs on happiness substantially. In particular, this study found that students who experienced emotional neglect and abuse in childhood were affected the most. Interestingly, this group has not been the focus of most literature on mindfulness-based interventions; thus, we call attention to this vulnerable population and the need to provide services, such as mindfulness-based interventions, to them. Although there are several research limitations existing in this study, the findings contribute to knowledge of the factors that may be important to the happiness of Chinese students during the COVID-19 pandemic.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

ETHICS STATEMENT

The authors affirm that the research protocol, including an informed consent process, was approved and overseen by the IRB at one of co-authors’ university in the United States and the research review committee at one of the co-authors’ university in China.

DATA AVAILABILITY STATEMENT

Data available on request due to privacy/ethical restrictions.

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REFERENCES

Arnett, J. J. (2012). Adolescence and emerging adulthood: A cultural approach (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Aucejo, E. M., French, J., Araya, M. P. U., & Zafar, B. (2020). The impact of COVID-19 on student experiences and expectations: Evidence from a survey. Journal of Public Economics, 191, 104271. https://doi.org/10.1016/j.jpueco.2020.104271

Bajaj, B., Gupta, R., & Sengupta, S. (2019). Emotional stability and self-esteem as mediators between mindfulness and happiness. Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 20, 2211–2226. https://doi.org/10.1007/s10902-018-0046-4

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed operational definition. Clinical Psychology: Science and Practice, 11(3), 230–241. https://doi.org/10.1093/clipsy.bph077

Brown, D. W., Anda, R. F., Felitti, V. J., Edwards, V. J., Malarcher, A. M., Croft, J. B., & Giles, W. H. (2010). Adverse childhood experiences are associated with the risk of lung cancer: A prospective cohort study. BMC Public Health, 10(20), 1–12. https://doi.org/10.1186/1471-2458-10-20

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. Journal of Personality and Social Psychology, 84(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822
disorders. *Mindfulness, 4*(4), 318–331. https://doi.org/10.1007/s12671-012-0132-3

Kimbrough, E., Magyari, T., Langenberg, P., Chesney, M., & Berman, B. (2010). Mindfulness intervention for child abuse survivors. *Journal of Clinical Psychology, 66*(1), 17–33. https://doi.org/10.1002/jclp.20624

Klainin-Yobas, P., Cho, M. A., & Creedy, D. (2011). Efficacy of mindfulness-based interventions on depressive symptoms among people with mental disorders: A meta-analysis. *International Journal of Nursing Studies, 49*, 109–121. https://doi.org/10.1016/j.ijnurstu.2011.08.014

Klingbeil, D. A., Renshaw, T. L., Willenbrink, J. B., Copek, R. A., Chan, K. T., Haddock, A., Yassine, J., & Clifton, J. (2017). Mindfulness-based interventions with youth: A comprehensive meta-analysis of group-design studies. *Journal of School Psychology, 63*, 77–103. https://doi.org/10.1016/j.jsp.2017.03.006

Li, H. Y., Cao, H., Leung, D. Y. P., & Mak, Y. W. (2020). The psychological experiences on adult mental health. *Child Abuse & Neglect, 101*, 677–787. https://doi.org/10.1016/j.chiabu.2020.01.008

Merrick, M. T., Ports, K. A., Ford, D. C., Afifi, T. O., Gershoff, E. T., & Lyubomirsky, S., King, L. A., & Diener, E. (2005). The benefits of frequent acts of kindness. *Current Psychology, 36*(3), 556–564. https://doi.org/10.1007/s12144-016-9444-0

Taylor, D. B. (2020). A timeline of the coronavirus pandemic. *The New York Times*. https://www.nytimes.com/article/coronavirus-timeline.html

Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology, 68*(4), 615–623. https://doi.org/10.1037/0022-006x.68.4.615

Walsh, L. C., Boehm, J. K., & Lyubomirsky, S. (2018). Does happiness promote career success? Revisiting the Evidence. *Journal of Career Assessment, 26*, 1–21. https://doi.org/10.1177/1069727117751441

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health, 17*(5), 1729. https://doi.org/10.3390/ijerph17051729

Walsh, L. C., Boehm, J. K., & Lyubomirsky, S. (2018). Does happiness promote career success? Revisiting the Evidence. *Journal of Career Assessment, 26*, 1–21. https://doi.org/10.1177/1069727117751441

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health, 17*(5), 1729. https://doi.org/10.3390/ijerph17051729

Weder, N., Zhang, H., Jensen, K., Yang, B. Z., Simen, A., Jackowski, A., ... O’Loughlin, K. (2014). Child abuse, depression, and methylation in genes involved with stress, neural plasticity, and brain circuitry. *Journal of the American Academy of Child & Adolescent Psychiatry, 53*(4), 417–424. https://doi.org/10.1016/j.jaac.2013.12.025

Westen, D. (1999). *Psychology: Mind, brain, and culture* (2nd ed.). New York: Wiley.

Yiengprugsawat, V., Somboonsook, B., Seubsmsan, S. A., & Sleigh, A. C. (2012). Happiness, mental health, and socio-demographic associations among a national cohort of Thai adults. *Journal of Happiness Studies, 13*(6), 1019–1029. https://doi.org/10.1007/s10902-011-9304-4

Zhang, J., Yang, Z., Wang, X., Li, J., Dong, L., Wang, F., Li, Y., Wei, R., & Zhang, J. (2020). The relationship between resilience, anxiety and depression among patients with mild symptoms of COVID-19 in China: A cross-sectional study. *Journal of Clinical Nursing, 29*(22), 4020–4029. https://doi.org/10.1111/jocn.15425

Zhang, L., Mersky, J. P., & Topitzes, J. (2020). Adverse childhood experiences and psychological well-being in a rural sample of Chinese young adults. *Child Abuse & Neglect, 108*, 104658. https://doi.org/10.1016/j.chiabu.2020.104658

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. *Mindfulness, 6*(2), 290–302. https://doi.org/10.1007/s12671-013-0260-4

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