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Mediating Effect of Mindfulness, Self-Esteem and Psychological Resilience in the Relation between Childhood Maltreatment and Life Satisfaction

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ABSTRACT

Childhood maltreatment, as a typical early adverse environment, is known to have a negative impact on one's life satisfaction. Mindfulness, on the other hand, may serve as a protective factor. This study explored the mediating role of mindfulness and its related variables–positive thoughts, psychological resilience and self-esteem. In order to testify the mechanism, we administered Childhood Trauma Questionnaire (CTQ), Satisfaction with Life Scale (SWLS), Mindful Attention Awareness Scale (MAAS), Connor–Davidson Resilience Scale (CD-RISC) and Rosenberg Self-Esteem Scale (RSES) to a non-clinical sample of Chinese university students (N = 1021). The results indicated that positive thoughts did not mediate the relationship between childhood maltreatment and life satisfaction, but self-esteem (β = −0.194, 95% CI = [−0.090, −0.040]) and psychological resilience (β = −0.063, 95% CI = [−0.059, −0.020]) mediated the relationship, as well as the "mindfulness-self-esteem" (β = −0.061, 95% CI = [−0.287, −0.126]) and "mindfulness-psychological resilience" (β = −0.035, 95% CI = [−0.115, −0.034]). The results of this study were helpful to understand the relationship between childhood maltreatment and life satisfaction and provided a theoretical basis for the development of mindfulness intervention programs from the perspective of positive psychology.

KEYWORDS

Mindfulness; childhood maltreatment; life satisfaction; self-esteem; resilience

Introduction

Childhood maltreatment imposes psychological and physical harm on children through mental abuse or physical violence [1], which could profoundly impact the overall well-being of children in the long-term. Among its many negative consequences, childhood maltreatment significantly diminishes one's life satisfaction [2,3], which includes an overall perception of life quality [4]. Despite the irreversible nature of childhood maltreatment, its adverse effects can be addressed by understanding the intervening mechanisms. Previous research suggests mindfulness was a key predictor of life satisfaction [5], while study also indicates childhood maltreatment can diminish individual mindfulness level [6]. Moreover, existing research lacks applications and practicality. Therefore, using the pain paradox and life-course frameworks, this study explores mindfulness as the critical intervention mechanism to understand the relationship between life satisfaction and childhood maltreatment. Additionally, it investigates the buffering

effects of psychological resilience and self-esteem, which are two vital psychological resources related to life satisfaction. By shedding light on these dynamics, this research aims to inform the development of mindfulness-based intervention programs tailored to improve individual life satisfaction of the childhood maltreatment survivors, thereby fostering better psychological and physical health outcomes.

The relationship between childhood maltreatment and life satisfaction

Mindfulness, as a hot topic in positive psychology research, has received widespread attention from researchers recently [7,8]. The father of positive psychology, Seligman, also mentioned that mindfulness is one of the three major factors contributing to human happiness [9]. Defined as a positive and malleable psychological characteristic, mindfulness is understood as an awareness and acceptance internally and externally [10,11]. Moreover, when individuals are in a state of mindfulness, they adopt a non-judgmental attitude, focusing on whatever is happening in the present moment, whether it is psychological or physiological [12], they will less worry about future or past. Numerous studies have found that mindfulness, as a positive trait, contributes to factors beneficial for both mental and physical health, such as self-efficacy [13,14] and perceived social support [15]. Additionally, many studies have shown that mindfulness inhibits factors that can damage mental or physical health, such as depression [16], substance abuse [17], and anxiety [18]. Furthermore, although mindfulness is considered a psychological trait, many studies suggest that it is not static, such as mindfulness training can enhance levels of mindfulness, thereby increasing individual happiness [19,20], for example, Mindfulness-Based Stress Reduction (MBSR) derived from meditation practices [12]. Importantly, as mindfulness-based therapeutic approaches become more prevalent, they are increasingly being incorporated into traditional medicine and psychology [21]. Thus, from the scope of positive psychology and the protective role of mindfulness, this study aims to explore whether mindfulness can serve as an intervention mechanism in affecting the relation between early childhood maltreatment and life satisfaction.

Under the framework of the pain paradox, mindfulness may serve as a mediator between childhood mistreat and individual life satisfaction [22]. According to this theory, individuals who have undergone childhood maltreatment tend to adopt dissociative behaviors that can reduce tension to avoid pain, which is precisely the opposite of mindfulness. Moreover, these may become persistent and maintained through processes of conditioning (including negative reinforcement) in one's coping strategies [23]. These avoidant responses to stress and adversity may impede the psychological processing of trauma-related effects, thus imparing the life satisfaction of the survivors [24]. This is because childhood maltreatment, as one of the factors negatively affecting individual mental and physical health, often leads victims to dwell on past painful experiences [25,26], rather than focusing on the present. Additionally, parental abusive behaviors can lead to the formation of various biases [27]. All of these factors may contribute to a decrease in positive thinking. Individuals lacking positive thinking tend to engage in habitual negative thoughts and cognitions [28], thereby perceiving lower levels of life satisfaction [29]. These factors may all contribute to a decrease in mindfulness levels. Therefore, we postulate childhood maltreatment may impact life satisfaction through its influence on mindfulness.

The mediating role of psychological resilience and self-esteem

According to the life course framework, Pearlin et al. elucidated how the influence of stress factors unfolds over time [30]. Stress and abuse experiences during childhood may lead to depletion of self-related resources, which persists and spreads throughout a person's life. Based on this model, research found that childhood maltreatment can damage self-related resources such as self-esteem and psychological resilience, indirectly influencing various outcomes in adulthood [31,32]. Self-esteem refers to one's perception of self-worth [33]. Psychological resilience defines as one's capability to cope with life stress or trauma [34]. These two self-related concepts may be directly influenced by childhood maltreatment. Individuals who have experienced childhood maltreatment often internalize the way caregivers treated them and hold negative views about themselves, thus affirming the negative messages received from caregivers, leading to decreased levels of psychological resilience and self-esteem [35]. Impaired self-related resources become secondary stressors, with their adverse effects extending from childhood into adulthood and continuously affecting life satisfaction [36,37]. Moreover, the core factor of this study—mindfulness—is closely associated with these two variables [38–40]. Studies found that mindfulness can influence life satisfaction through its impact on self-esteem [41] or through its effect on psychological resilience [42]. Therefore, the "mindfulness-self-esteem" and "mindfulness-psychological resilience" pathways may serve as two mediating mechanisms between the two variables.

Differences in gender

Previous research suggested a higher prevalence of childhood maltreatment exists among females than males. Females are more likely to experience maltreatment during childhood compared to males [43,44]. Moreover, the influence of an early adverse environment on one is significantly different between females and males. For instance, Godinet et al. found that the impact of childhood maltreatment on problem behaviors is more severe in males [45]. Gallo et al. demonstrated that childhood maltreatment has a greater impact on females related to depression and anxiety [46]. Additionally, Doom et al. suggested that the physiological effects of childhood maltreatment on different genders are different [47]. Therefore, based on this evidence, we posit that there may be gender differences in various pathways of early maltreatment in individuals.

The present study
The purpose of this study is to explore the mediating role of mindfulness and the chain mediating role of mindfulness, psychological resilience and self-esteem between childhood maltreatment and life satisfaction from the scope of positive psychology. Based on these, the following three hypotheses are proposed: (1) Mindfulness serves as a significant mediator in this relationship; (2) Psychological resilience plays a significant mediating role in this relationship; (3) Self-esteem plays a significant mediating role in this relationship; (4) "Mindfulness-self-esteem" is chain mediating paths; (5) "Mindfulness-psychological resilience" is chain mediating paths; (6) Gender differences may exist in various pathways in this relationship.

Methods

Participants and procedures
The participants in this study were recruited from two universities in Hunan Province and two universities in Guangdong Province, China. After processing all the collected data (invalid or unfinished questionnaires were eliminated), 1021 complete data of participants were used in this research (315 from males, 706 from females). The mean age was 19.04 years (*SD* = 1.52), ranging from 17 to 26. Participants completed all questionnaires as required in a classroom or in a quiet environment. Each participant signed the informed consent form before the examination and received the participant fee as compensation at the end. The study was approved by the Medical Ethics Committee of Hunan Normal University (IRB number: 051).

Measures

Childhood trauma questionnaire (CTQ)
Childhood Trauma Questionnaire was compiled by Bernstein et al. [48]. This questionnaire consists of 28 items (including 3 validity items). The 25 clinical items respectively describe five dimensions (abuse & emotional neglect, abuse and sexual abuse& physical neglect). Items such as, "I have to wear unsanitary clothes", are rated on a 5-point Likert-type scale (5 = Always, 1 = Never). A higher final score shows the greater harm the individual received. In the present study, we adopted the Chinese local version [49]. Considering the cultural sensitivity of China, we deleted the dimensions of sexual abuse and kept the other 23 questions (including 3 validity items). The Cronbach's alpha coefficient for this scale was 0.827 in this study. The adjusted version of this questionnaire has both high reliability and validity [50].

The satisfaction with life scale (SWLS)
The Satisfaction with Life Scale was compiled by Diener et al. [51]. It consists of five items. Items such as, "In most days my life is consistent to my ideal", are rated on a 7-point Likert-type scale (7 = Strongly agree, 1 = Strongly disagree). A higher final score indicated a higher life satisfaction. The Cronbach's alpha coefficient for this scale was 0.841 in this study. This scale has both high reliability and validity [52].

Mindful attention awareness scale (MAAS)
Mindful Attention Awareness Scale was compiled by Brown et al. [10]. It consists of 15 items. Items such as, "I might be experiencing some emotions and not be conscious of my emotion until later", are rated on a 6-point Likert-type scale (1 = Almost never, 6 = Almost always). A higher scale score shows a higher level of mindfulness. The Cronbach's alpha coefficient for this scale was 0.749 in this study. The scale has both high reliability and validity [53].

Connor–Davidson resilience scale (CD-RISC)
Connor–Davidson Resilience Scale was compiled by Campbell-Sills et al. [54]. It consists of 10 items. Items such as, "I am able to adapt to change", are rated on a 6-point Likert-type scale (1 = Strongly disagree, 6 = Strongly agree). A higher scale score shows a higher psychological resilience. The Cronbach's alpha coefficient for this scale was 0.879 in this study. The scale has both high reliability and validity [55].

Rosenberg self-esteem scale (RSES)
Rosenberg Self-Esteem Scale was compiled by Rosenberg [56]. It consists of 10 items. Items such as, "I feel that I have many good qualities" and "Overall I am content with myself", are rated on a 4-point Likert-type scale (1 = Strongly disagree, 4 = Strongly agree). The final score of the scale is based on the reverse coding of related items. A higher coded score represents a higher level of self-esteem. The Cronbach's alpha coefficient for this scale was 0.882. The scale has both high reliability and validity [57].

Data Analysis

To examine the mediating effects, structural equation model was used by Amos 26.0 program. We started with descriptive statistics to examine the correlation between variables. Later, we studied the measurement model to determine whether each latent variable under this model could be representative enough. If the measurement model fits well, we will build the structural model by using the chi-square statistic, standardized root-mean-square residual (SRMR ≤ 0.080), root-mean-square error of approximation (RMSEA ≤ 0.080), and comparative fit index (CFI ≥ 0.900). Because those indicators can test the fitting degree of model [58], which means the better the fitting degree of the model is, the better fitness of this model by its indicators. Additionally, we will use bootstrap to examine whether the mediating effects were significant. Finally, a multi-group confirmatory factor analysis was conducted to testify the stability of the model.

Results

Common method bias test
Data were all self-reported in this study, introducing the possibility of Common Method Bias (CMB). Necessary precautions were taken during the data collection process, such as explaining to our participants that the collected data would solely be used for scientific purposes and ensuring the anonymity and confidentiality of the respondents. To

enhance the rigor of the study, we examined the method bias in the administered questionnaires, we carried out Harman's single factor test after the completion of data collection [59]. Data results indicated that the number of factors with eigenvalues greater than 1 was 4, and the cumulative variance explained by these factors was 33.31%, which is below the critical threshold of 40%. This suggests no significant common method bias in the research data; therefore, our data is representative.

Descriptive statistics and measurement model
Five latent variables (e.g., childhood maltreatment, life satisfaction, mindfulness, psychological resilience, and self-esteem) and 14 observed variables were included and investigated in the measurement model. The results indicated both a good representativeness and fitness of this tool: χ^2/df = 3.442, $p < 0.001$; RMSEA = 0.049; SRMR = 0.040; CFI = 0.975. All the factors that account for the indicators regarding the latent variables were significant, showing that all the latent variables were well-represented in their indicators. Table 1 shows the descriptive statistics for each latent variable. The variables below were significantly correlated ($p < 0.001$).

Structural model
With the absence of mediating variables, childhood maltreatment significantly affects life satisfaction in a negative way ($\beta = -0.172$, $p < 0.001$). A structural model (Model 1) containing three mediators (mindfulness, self-esteem, psychological resilience) and two chain mediating paths (mindfulness-self-esteem, mindfulness-psychological resilience) was build. The results showed that Model 1 fitted: [χ^2/df = 5.816, $p < 0.001$; RMSEA = 0.069; SRMR = 0.078; CFI = 0.949]. Therefore, Model 1 was selected as the structural model (Table 2, Fig. 1).

In order to test the significance of each mediation effect in the model, we used 2000 Bootstrap samples that were randomly extracted from the original data set (N = 1021). As predicted, the data results indicated that in the relation between childhood maltreatment and life satisfaction, the chain mediating paths of "mindfulness-self-esteem" (95% CI = [−0.090, −0.040]) and "mindfulness-psychological resilience" (95% CI = [−0.059, −0.020]) were significant. In addition, self-esteem (95% CI = [−0.287, −0.126]) and psychological resilience (95% CI = [−0.115, −0.034]) both played significant but independent mediating roles in this relationship (See Table 3).

Model stability analysis
In order to make our research results more stable, a multi-group confirmatory factor analysis was conducted on Model 1. Firstly, we examined whether gender differences existed among the five latent variables. The results suggested no significant differences exist in mindfulness ($t_{(1021)}$ = 0.002, p = 0.998), self-esteem ($t_{(1021)}$ = 0.623, p = 0.973) and life satisfaction ($t_{(1021)}$ = −0.034, p = 0.534). However, the result found significant differences in psychological resilience ($t_{(1021)}$ = 2.896, $p < 0.01$) and childhood maltreatment ($t_{(1021)}$ = 2.271, $p < 0.05$). The scores of both men were higher than the scores of women.

Regarding gender differences, we established two models according to the research of Byrne [60]. One is the Unconstrained model, and the other is the constrained model. The results suggested no significant difference between these two models ($\chi^2(9,1021)$ = 16.317, p = 0.061). Meanwhile, both models' fitting indexes have reached the fitness standard (See Table 4). In addition, regarding χ^2 was easily affected by the sample size, Critical Ratios of Differences (CRD) was used to make the results more accurate to further examine the cross-gender stability of the model. The decision rule indicates that there is a significant difference between the two parameters because the absolute value of CRD exceeds 1.96 [61]. Therefore, the results suggested a huge gap across different genders in

TABLE 1

Descriptive statistics and correlational analysis result

	M	SD	1	2	3	4	5
Childhood maltreatment	31.42	8.07	1				
Life satisfaction	19.60	5.84	−0.24***	1			
Mindfulness	60.93	9.09	−0.23***	0.16***	1		
Self-esteem	29.26	4.64	−0.28***	0.45***	0.30***	1	
Psychological resilience	34.72	5.51	−0.23***	0.36***	0.33***	0.48***	1

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

TABLE 2

Model 1 fit indices

	χ^2	df	χ^2/df	CFI	RMSEA	SRMR	AIC	ECVI
Model 1	401.277	69	5.816	0.949	0.069	0.078	473.28	0.464

Note: CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual; AIC = akaike information criterion; ECVI = expected cross validation index.
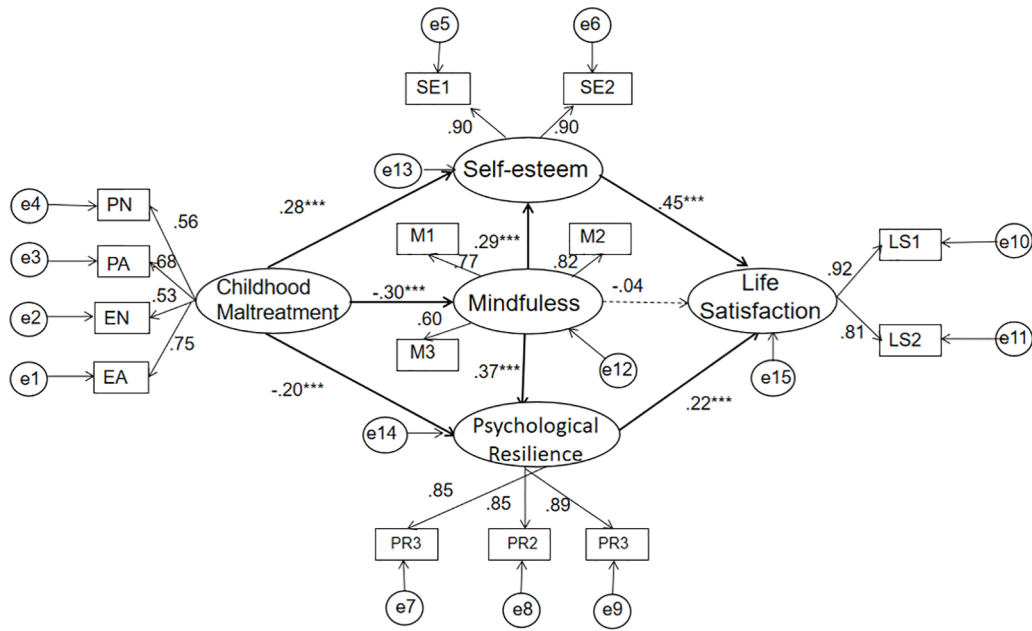
FIGURE 1. The chain mediation model.
Note: PN, PA, EN and EA are the four items of childhood maltreatment. M1, M2 and M3 are mindfulness parcels. LS1 and LS2 are Life satisfaction parcels. PR1, PR2 and PR3 are psychological resilience parcels. SE1 and SE2 are Self-esteem parcels. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

($CRD_{PR \to LS}$ = 3.775). Additionally, the direct impact of psychological resilience on life satisfaction was very weak in the male sample.

Discussion

This study marks the first exploration from a positive psychology perspective on the mediating role of mindfulness in the relationship between early maltreatment and life satisfaction. It also examined the mediating roles of self-esteem and psychological resilience among the two variables. It overall suggests that childhood maltreatment directly affects life satisfaction through self-esteem or psychological resilience but does not directly impact life satisfaction through mindfulness. Remarkably, the results also indicate that the "mindfulness-self-esteem" and "mindfulness-psychological resilience" pathways play sequential mediating roles in the relationship between childhood maltreatment and life satisfaction.

As indicated by hypotheses (2) and (3), the results suggest that childhood maltreatment may influence life

satisfaction through its impact on psychological resilience, a finding indirectly supported by previous research [62,63]. However, our multi-group confirmatory factor analysis revealed significant gender gaps in the relations. Additionally, females tend to exhibit higher levels of psychological resilience, implying that psychological resilience may have a greater impact on life satisfaction for females. This could be attributed to females potentially experiencing more emotional distress [64], making them more susceptible to decreased life satisfaction if their psychological resilience is low. Furthermore, it also suggests that males may derive more positive benefits from self-esteem rather than psychological resilience. However, concrete conclusions require further investigation. Additionally, childhood maltreatment may also affect life satisfaction through its influence on self-esteem, which is also supported by previous research [38].

Interestingly, the results indicate that mindfulness cannot directly alleviate the adverse impact of childhood maltreatment on life satisfaction, suggesting the invalidity of

TABLE 3

Standardized indirect effects (under 95% confidence intervals)

Pathways	Estimate	Lower	Upper
CM→SE→LS	−0.194	−0.287	−0.126
CM→PR→LS	−0.063	−0.115	−0.034
CM→M→SE→LS	−0.061	−0.090	−0.040
CM→M→PR→LS	−0.035	−0.059	−0.020

Note: CM = childhood maltreatment; SE = self-esteem; M = mindfulness; PR = psychological resilience; LS = life satisfaction.

TABLE 4

The comparison between unconstrained model and constrained model

	χ^2/df	CFI	RMSEA	SRMR	AIC	ECVI
Unconstrained model	3.426	0.948	0.049	0.082	619.594	0.613
Constrained model	3.275	0.945	0.047	0.079	618.826	0.611

Note: CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual; AIC = akaike information criterion; ECVI = expected cross validation index.

our hypothesis (1). Structural equation modeling results demonstrate a significant direct effect of childhood maltreatment on mindfulness, yet mindfulness does not significantly influence life satisfaction. We speculate that this could be because while mindfulness promotes present moment awareness, it may not directly enhance life satisfaction. Since life satisfaction involves an overall assessment of life, it is influenced by various factors. Thus, individuals not only need to overcome past influences but also require the ability and confidence to cope with current or future adversities, which mindfulness itself may not directly provide. Furthermore, mindfulness is not just a skill to cope with negative emotions but also a lifestyle and attitude. Its impact on life satisfaction may require time and long-term practice. Given that this study is cross-sectional, it may not capture the long-term effects of mindfulness. Therefore, in this study, mindfulness cannot directly influence individual life satisfaction. Additionally, these results contradict some previous studies. For instance, Bajaj et al. investigated the mediating role of psychological resilience between mindfulness and life satisfaction using the same tools as this study and found a significant direct impact of mindfulness on life satisfaction [39]. Similarly, Pepping et al. also found similar results [41]. Based on the findings of previous studies and our study, further research can be done to explore whether mindfulness can directly influence life satisfaction.

Furthermore, despite mindfulness not directly alleviating the harmful impact of childhood maltreatment, the results from Model 1 indicate that mindfulness still has a significant indirect protective effect. The findings suggest that the "mindfulness-self-esteem" and "mindfulness-psychological resilience" pathways serve as two consecutive mediating mechanisms between childhood maltreatment and life satisfaction. This may be because high levels of mindfulness can prevent individuals from dwelling on past adverse experiences [65,66], such as childhood maltreatment, indirectly promoting the development of survivors' psychological resilience. Individuals with higher psychological resilience demonstrate better adaptability when facing current life setbacks [67,68], thereby enhancing their life satisfaction. Similarly, individuals who are more mindful about present are less likely to ruminate on past failures or negative experiences, making them more likely to indirectly maintain healthy levels of self-esteem. People with strong self-esteem demonstrate greater resilience when dealing with negative events in life [69], thereby also increasing their life satisfaction.

In conclusion, this study examined the impact of childhood maltreatment on life satisfaction and further investigated the mediating mechanisms of mindfulness, self-esteem, and psychological resilience. The research not only expands upon previous studies in related fields but also provides theoretical support for the use of mindfulness interventions to mitigate the negative impact of childhood maltreatment. Additionally, it suggests potential directions for future empirical research on mindfulness. The findings indicate that while mindfulness may not directly alleviate the negative impact of childhood maltreatment on life satisfaction, it can indirectly mitigate this impact through psychological resilience and self-esteem. Therefore, we believe that mindfulness will play a crucial role in clinical interventions for childhood maltreatment in the future. Future work and practice can investigate the practical effectiveness of mindfulness training in reducing the detrimental impact of childhood adverse experience.

Limitations and Contributions

This study the mediating role of mindfulness and explores the relations between childhood maltreatment and life satisfaction. However, there are still some limitations. Firstly, the data in this study were self-reported, which can be affected by social desirability bias or expectancy effect. It can affect the data accuracy. Future research could employ more objective methods or methods triangulation for holistic data collection. Secondly, the study utilized a cross-sectional design, allowing for preliminary inferences about the relationships between variables. However, to draw more definitive conclusions, longitudinal or experimental designs are needed. Thirdly, the participants in this study were all college students from China. Therefore, future research should expand to include participants from diverse cultural backgrounds and nationalities. Fourthly, there was a higher proportion of female participants in this study. Male and other gender minorities need to be investigated in order to increase population validity. Efforts will be made in future research to improve gender ratio and seek a more balanced sample distribution.

This study reveals the harmful effect of childhood maltreatment on individuals' life satisfaction and its underlying mechanisms, deepen our understanding of the relationship between early adverse environments and child development. From an academic perspective, this study also extends the life course framework theory by demonstrating how childhood maltreatment affects life satisfaction through psychological resilience or self-esteem. Furthermore, this study further enhances our understanding of how early adverse environments affect individual life satisfaction through self-related resources. This research contributes to deepening our comprehension regarding the relations between early adverse environments and mental health, thereby facilitating further exploration in the field of child abuse and providing valuable insights into how early adverse environments could impact individual mental health.

Practically, this study provides valuable perspectives for exploring and intervening in the negative effects of early adversity. Mindfulness training can be utilized to enhance individuals' psychological resilience and self-esteem, thereby mitigating to some extent the adverse impact of childhood mistreats and positively influencing individual mental health. This study offers practical recommendations for improving individual mental health in the development field.

Conclusion

Childhood maltreatment can influence individuals' levels of mindfulness but cannot directly impact their life satisfaction through mindfulness. Meanwhile, childhood maltreatment

can further influence individuals' life satisfaction through psychological resilience and self-esteem. Further analysis suggests that childhood maltreatment can also affect individuals' life satisfaction through the chain mediation of "mindfulness-self-esteem" and "mindfulness-psychological resilience."

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Ethics Approval: The study was approved by the Medical Ethics Committee of Hunan Normal University (IRB number: 051). All participants signed the informed consent in this study.

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