



BASIC RESEARCH ARTICLE



# Childhood maltreatment and non-suicidal self-injury: the mediating role of mentalization and depression

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## ABSTRACT

**Background:** Childhood maltreatment (CM) is recognized as one of the primary factors increasing the risk of non-suicidal self-injury (NSSI).

**Objectives:** This study aims to further understand the impact of different types of CM on the mechanisms underlying NSSI risk by examining the potential mediating roles of mentalization and depression.

**Method:** A self-report survey was conducted with 1645 Chinese youths (933 males, 712 females; mean age = 18.25, SD = 0.64) to evaluate their experiences of CM, depression, mentalization, and NSSI frequency over the past year. Structural equation modelling was utilized to examine the direct and indirect pathways linking CM to NSSI risk via mentalization and depression.

**Results:** The study found that emotional abuse, physical abuse, mentalization, and depression had significant direct effects on NSSI risk. Moreover, mentalization and depression mediated the relationship between emotional abuse and NSSI risk, while emotional neglect and physical neglect indirectly influenced NSSI risk only through depression. Physical abuse had a significant direct effect on NSSI risk, whereas sexual abuse did not show any direct or indirect effects.

**Conclusions:** The findings suggest that childhood emotional abuse has a markedly different impact compared to other forms of CM. Interventions focused on improving mentalization may be particularly effective in addressing the effects of emotional abuse, mitigating depression, and reducing the risk of NSSI.

## Maltrato infantil y autolesiones no suicidas: el papel mediador de la mentalización y la depresión

**Antecedentes:** El maltrato infantil (MI) es reconocido como uno de los principales factores que aumentan el riesgo de autolesiones no suicidas (RANS).

**Objetivos:** Este estudio tiene como objetivo comprender mejor el impacto de los diferentes tipos de MI en los mecanismos subyacentes al riesgo de RANS mediante el examen de los posibles roles mediadores de la mentalización y la depresión.

**Métodos:** Se llevó a cabo una encuesta de autoinforme con 1.645 jóvenes chinos (933 hombres, 712 mujeres; edad media = 18.25, SD = 0.64) para evaluar sus experiencias de MI, depresión, mentalización y frecuencia de RANS durante el último año. Se utilizaron modelos de ecuaciones estructurales para examinar las vías directas e indirectas que vinculan el MI con el riesgo de RANS a través de la mentalización y la depresión.

**Resultados:** El estudio encontró que el abuso emocional, el abuso físico, la mentalización y la depresión tuvieron efectos directos significativos sobre el riesgo de RANS. Además, la mentalización y la depresión mediaron la relación entre el abuso emocional y el riesgo de RANS, mientras que la negligencia emocional y la negligencia física influyeron indirectamente en el riesgo de RANS solo a través de la depresión. El abuso físico tuvo un efecto directo significativo sobre el riesgo de RANS, mientras que el abuso sexual no mostró ningún efecto directo o indirecto.

**Conclusiones:** Los hallazgos sugieren que el abuso emocional infantil tiene un impacto marcadamente diferente en comparación con otras formas de MI. Las intervenciones centradas en mejorar la mentalización pueden ser particularmente efectivas para abordar los efectos del abuso emocional, mitigar la depresión y reducir el riesgo de RANS.

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## PALABRAS CLAVE

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## HIGHLIGHTS

- Emotional abuse is the strongest predictor of NSSI, with mentalization and depression mediating its effects.
- Physical and emotional neglect increase NSSI risk indirectly by contributing to depression rather than directly affecting NSSI.
- Physical abuse has a direct impact on NSSI, bypassing the mediation of mentalization or depression.

## 1. Introduction

Non-suicidal self-injury (NSSI), defined as intentional self-harm without suicidal intent, is a growing public health concern (Nock, 2010). A meta-analysis by

Swannell et al. (2014) found a 13.4% prevalence among young adults. NSSI may better predict future suicide attempts than previous suicidal behaviour (Ribeiro et al., 2016). Understanding NSSI's underlying

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factors is a key for developing prevention and intervention strategies.

Childhood maltreatment (CM), including abuse and neglect experienced by those under 16, is categorized into five types: physical abuse, emotional abuse, sexual abuse, physical neglect, and emotional neglect (Bernstein et al., 2003). Yates et al. (2008) suggest that self-injury serves as a coping mechanism when CM disrupts development. Studies link CM with increased NSSI (Lang & Sharma-Patel, 2011; Liu et al., 2018), emphasizing the need to explore how early adversity leads to NSSI for refining models and interventions.

### **1.1. Types of childhood maltreatment and non-suicidal self-injury**

Previous research shows a consistent link between childhood maltreatment (CM) and NSSI, with variations depending on CM type. Klonsky and Moyer (2008) found a minor association between sexual abuse and NSSI, while Liu et al. (2018) reported a moderate link ( $OR = 2.65$ , 95%  $CI = 2.74-4.26$ ). Thomassin et al. (2016) and Gratz et al. (2002) noted that sexual abuse did not significantly predict NSSI when controlling for factors like dissociation and family environment.

Physical abuse is positively associated with NSSI, but the relationship is moderated by factors like measurement methods, abuse specifics (e.g. timing, perpetrator), and sample characteristics (e.g. age, gender) (Liu et al., 2018; Serafini et al., 2017). Findings remain mixed, as Swannell et al. (2012) identified physical abuse as a risk factor, but Thomassin et al. (2016) did not.

Emotional abuse has the strongest link to NSSI (Liu et al., 2018). It undermines emotional regulation by fostering criticism and control, increasing reliance on NSSI as a coping strategy. Longitudinal studies in Chinese adolescents confirm this association (Kang et al., 2018; Zhang et al., 2024).

Research on neglect and NSSI is limited. Emotional neglect is often a stronger predictor than physical neglect (Dubo et al., 1997; Gratz et al., 2002), with studies linking emotional neglect directly to NSSI (Brown et al., 2018). However, Liu et al.'s (2018) meta-analysis found positive correlations with other abuse types, excluding emotional neglect.

These mixed findings highlight the complexity of neglect's role in NSSI. Inconsistent definitions, measurement challenges, and research heterogeneity complicate this relationship (Zuravin & Fontanella, 1999). Additional factors like neglect's prevalence in impoverished families (Drake & Pandey, 1996) and the interaction between different abuse types add complexity. More research is needed to clarify how neglect influences NSSI.

### **1.2. Childhood maltreatment, depression, and non-suicidal self-injury**

Experiences of CM significantly increase the risk of developing depression (Nanni et al., 2012). While all CM types raise depression risk, the impact varies. Norman et al. (2012) found emotional abuse nearly triples the risk, while physical abuse increases it by 1.5 times. Additionally, depression correlates positively with NSSI. A meta-analysis showed individuals with depression are more prone to NSSI (Bentley et al., 2015). A study of Chinese adults (ages 18-34) confirmed this link (Chen et al., 2024). The experiential avoidance model suggests NSSI may be used to cope with negative emotions, which NSSI can quickly alleviate (Chapman et al., 2006; Klonsky, 2007).

Depression has been identified as a significant mediator in the relationship between CM and NSSI (Auerbach et al., 2014; Wu et al., 2023). However, the effects of different maltreatment types on NSSI are not fully understood. For example, Brown et al. (2018) found depression mediated the link between emotional abuse and NSSI frequency but had no significant effect on emotional neglect. Similarly, Zhang et al. (2024) found depression mediated emotional abuse but not emotional neglect in relation to NSSI.

While valuable, these studies have limitations. Zhang et al. (2024) focused on two maltreatment types without controlling for others, and Brown et al. (2018) used potentially biased NSSI reporting methods. Thus, further research is needed to explore the complex relationships between different CM types, depression, and NSSI. We hypothesize that depression will significantly mediate the relationship between the five CM types – emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect – and NSSI.

### **1.3. Childhood maltreatment, mentalization, depression and non-suicidal self-injury**

Mentalization, or reflective functioning (used as synonymous terms in the present article), refers to the ability to interpret internal mental states, such as feelings, desires, and goals, in oneself and others (Luyten et al., 2020). It is practically assessed through the Reflective Functioning Questionnaire (RFQ), which identifies two impairments: hypomentalization (e.g. ignoring a child's fear while shouting) and hypermentalization (e.g. assuming betrayal when a partner replies late). These extremes reflect varying certainty in interpreting mental states, while genuine mentalization balances confidence with an awareness of uncertainty (Fonagy et al., 2016).

Individuals with CM histories often show impaired mentalization, likely due to cognitive impacts (Yang &

Huang, 2024). While studies link CM to impaired mentalization, they often treat maltreatment types as latent variables, rather than assessing their direct impact (Chiesa & Fonagy, 2014; Taubner, Zimmermann, Ramberg, & Schröder, 2016). Emotional abuse has the strongest association with impaired mentalization (Quek et al., 2017; Li, Carracher, & Bird, 2020). Limited evidence suggests neglect may also reduce mentalization (Berardelli et al., 2022; Huang & Hou, 2023).

CM disrupts mentalization development, increasing the risk of psychological disorders, including NSSI. While theoretical links exist (Rossouw & Fonagy, 2012), empirical evidence remains scarce. Sundar and Bhola (2022) found a significant link between impaired mentalization and NSSI, and interventions targeting mentalization reduced self-harm in adolescents (Griffiths et al., 2019; Rossouw & Fonagy, 2012). Stagaki et al. (2022) found that CM impacts NSSI both directly and indirectly, with mentalization deficits and insecure attachment as partial mediators in a sample of 907 participants. However, treating diverse maltreatment types as a single construct may obscure unique pathways, and the mixed sample composition limits the generalizability of these findings.

Impaired mentalization is also linked to depression. Studies show depressed individuals have weaker mentalization abilities than healthy adults (Durmaz & Baykan, 2020), with a meta-analysis confirming significant impairments in this group (Fischer-Kern & Tmej, 2019). These impairments persist even after adjusting for BPD symptoms (Rifkin-Zybutz et al., 2021). Evidence suggests mentalization deficits from CM may underlie both depression and NSSI (Li et al., 2020; Stagaki et al., 2022).

This study addresses gaps by focusing on the mediating roles of mentalization and depression in the CM-NSSI relationship. Most research has focused on related cognitive abilities like theory of mind, without directly examining reflective function. Additionally, studies exploring CM types often report relative effects without controlling for other maltreatment forms, which may confound results. Future research should assess all CM types simultaneously. Moreover, the dual mediating roles of mentalization and depression in the CM-NSSI pathway remain underexplored.

This study uses structural equation modelling (SEM) to analyse a large sample of college students. We hypothesize that both depression and mentalization will mediate the relationship between various CM forms and NSSI, with CM also having a direct, positive effect on NSSI. This research aims to clarify how early adverse experiences lead to maladaptive behaviours, guiding more effective interventions for CM survivors.

## 2. Method

### 2.1. Participants

A total of 1722 university students, aged 17–20, were recruited from a university in Wuhan, China. Participants completed several questionnaires, including the Childhood Trauma Questionnaire-Short Form (CTQ-SF, Bernstein et al., 2003), the Self-Rating Depression Scale (SDS, Zung, 1965), the Ottawa Self-Injury Inventory (OSI, Nixon et al., 2015), and the Reflective Functioning Questionnaire-8 (RFQ-8; Fonagy et al., 2016). After excluding incomplete surveys, 1645 valid questionnaires were collected (Mean age = 18.25 years, SD = 0.64 years), yielding a response rate of 95.5%. The sample included 933 male students (56.7%) and 712 female students (43.3%).

### 2.2. Measurements

#### 2.2.1. Childhood maltreatment

The Childhood Trauma Questionnaire Short Form, developed by Bernstein et al. (2003), assesses five dimensions of childhood trauma: physical, emotional, and sexual abuse, as well as physical and emotional neglect. Each dimension is measured by five items on a five-point Likert scale from 'never' to 'always,' with some items reverse-scored. Higher scores indicate more severe trauma. The CTQ-SF was revised in 2005 to include a Chinese version, which is widely used in China with good reliability and validity. In this study, the CTQ-SF showed good internal consistency (Cronbach's  $\alpha = 0.75$ ).

#### 2.2.2. Mentalization

The Reflective Functioning Questionnaire, developed by Fonagy et al. (2016), includes two subscales: hypermentalization and hypomentalization, each with six items rated on a seven-point Likert scale from 'strongly disagree' to 'strongly agree.' In this study, the RFQ showed good internal consistency, with Cronbach's  $\alpha$  values of 0.80 for hypermentalization and 0.70 for hypomentalization. These findings align with Xu et al. (2017), who reported Cronbach's  $\alpha$  values of 0.67 and 0.51, respectively, in a similar sample of Chinese university students.

#### 2.2.3. Depression

The Self-Rating Depression Scale, developed by Zung in 1965, has been extensively utilized in both clinical and research settings (Zung, 1965). The scale comprises 20 items, each evaluated on a four-point Likert scale ranging from 'occasionally or none of the time' to 'most of the time.' Higher overall scores indicate a more severe depression symptom. The SDS is widely used in China and has shown a high level of internal

consistency, as indicated by a Cronbach's  $\alpha$  coefficient of 0.85 in this study.

#### 2.2.4. Non-suicidal self-injury

The Ottawa Self-Injury Inventory by Nixon et al. (2015) is a self-report tool for assessing NSSI behaviours. This study used selected items such as 'biting oneself,' 'swallowing non-edible substances,' 'head banging,' and 'picking or scratching oneself,' rated on a four-point Likert scale from 'never' (0) to '5 times or more' (3). A score above 0 indicates NSSI engagement, with total scores ranging from 0 to 30, where higher scores reflect greater NSSI prevalence. The OSI was validated in China (Zhang et al., 2015) and showed good internal consistency in this study (Cronbach's  $\alpha = 0.74$ ).

### 2.3. Data analysis

Participants' demographics were analysed in SPSS 27.0. Correlations and multicollinearity were examined, with CM types as predictors, mentalization and depression as mediators, and NSSI as the outcome. Gender, place of origin, and parental education were included as covariates. Data analysis was conducted in Mplus 8.3, with model fit assessed using  $\chi^2/df$ , RMSEA, CFI, and TLI (Hu & Bentler, 1999). Indirect effects were tested with a 95% bootstrap confidence interval (2000 resamples; MacKinnon & Fairchild, 2009) and considered significant if zero was excluded.

## 3. Results

### 3.1. Sample characteristics

Among the 665 participants, 40.4% reported experiencing at least one form of CM. Emotional neglect was the most common, reported by 25.2% of participants, followed by physical neglect at 16.7%. Emotional abuse affected 15.4% of participants, while physical abuse and sexual abuse were reported by 7.3% and 6.3%, respectively. Additionally, 24.1% disclosed engaging in at least one form of non-suicidal self-injury (NSSI) in the past year. Detailed demographic information is presented in Table 1.

### 3.2. Correlations among major variables

Bivariate Pearson correlations were computed using SPSS 27.0, and the results are detailed in Table 2. Significant correlations were observed among all study variables ( $p \leq .01$ ), indicating meaningful relationships between them. To assess multicollinearity, we examined the variance inflation factor (VIF) and tolerance values, as presented in Table 3. The VIF values

**Table 1.** Characteristics of participants included in the study.

Variables		N	Percentage (%)
Sex	Male	933	54.18
	Female	712	41.35
Residence	Capital	577	33.51
	Rural	642	37.28
	County	424	24.62
	Unknown	2	0.12
Economic Status	Unknown	2	0.12
	Superior	11	0.64
	Good	272	15.80
	Average	1093	63.47
	Poor	235	13.65
	Very Poor	32	1.86
Highest Education Level of Either Parent	Unknown	2	0.12
	Primary School or Below	153	8.89
	Junior High School; Technical Secondary School	601	34.90
	High School	315	18.29
	College; Junior College	513	29.79
	Postgraduate or Above	61	3.54
	Unknown	2	0.12
NSSI	Yes	397	23.06
	No	1248	72.47
Childhood Maltreatment	At least one Childhood Maltreatment	665	38.62
	SA	103	5.98
	PA	121	7.03
	EA	254	14.75
	PN	274	15.91
	EN	414	24.04

Note: N = number. NSSI = Non-suicidal self-injury. SA = Sexual abuse. PA = Physical abuse. EA = Emotional abuse. PN = Physical neglect. EN = Emotional neglect \*\* $p \leq 0.01$ .

for each variable were below 10, and tolerance values were above 0.1, which suggests that multicollinearity among the variables is not a concern.

Further analyses involved *t*-tests and one-way ANOVA conducted in SPSS 27.0 to determine the impact of participants' place of origin, parental education level, and gender on the study variables. Significant differences were found based on these demographic factors. Consequently, these variables were included as covariates in the proposed model to control for their potential confounding effects.

### 3.3. Path model analysis

The model fit was significant ( $\chi^2/df = 4.72$ , RMSEA = 0.04, CFI = 0.98, TLI = 0.92) based on Mplus analysis (Figure 1). Figure 2 presents result with gender, parental education, and place of origin as covariates, showing only significant findings ( $p < .05$ ). Table 4 provides standardized direct and indirect effects. Emotional abuse ( $\beta = 0.19$ ,  $p < .001$ ) and physical abuse ( $\beta = 0.12$ ,  $p = .001$ ) had direct effects on NSSI. Emotional abuse negatively impacted mentalization ( $\beta = -0.34$ ,  $p < .001$ ) and indirectly affected NSSI via depression and mentalization ( $\beta = 0.02$ , 95% CI = 0.013–0.035). Sexual abuse showed no significant direct or indirect associations with NSSI, as discussed further in the discussion.



**Table 2.** Pearson correlations among study variables.

Variables	1	2	3	4	5	6	7	8	9	10
1. SA	1									
2. PA	0.16**	1								
3. EA	0.21**	0.49**	1							
4. PN	0.13**	0.25**	0.34**	1						
5. EN	0.12**	0.32**	0.49**	0.66**	1					
6. RFQ-C	-0.08**	-0.10**	-0.20**	-0.07**	-0.10**	1				
7. RFQ-U	0.07**	0.16**	0.28**	0.07**	0.12**	-0.51**	1			
8. NSSI	0.08**	0.26**	0.35**	0.19**	0.21**	-0.15**	0.26**	1		
9. Depression	0.08**	0.16**	0.32**	0.32**	0.37**	-0.33**	0.34**	0.31**	1	
10. CM	0.28**	0.58**	0.75**	0.75**	0.89**	-0.15**	0.20**	0.32**	0.40**	1

Note: RFQ-C = Hypermentalization. RFQ-U = Hypomentalization. SA = Sexual abuse. PA = Physical abuse. EA = Emotional abuse. PN = Physical neglect. EN = Emotional neglect. \*\* $p \leq 0.01$ .

#### 4. Discussion

Participants with a history of NSSI exhibited higher levels of CM severity across all abuse forms. In the path model, mentalization and depression showed distinct influences. Emotional abuse was the strongest predictor of NSSI, consistent with findings that emotional abuse triples NSSI risk (Liu et al., 2018, OR = 3.42, 95% CI = 2.74–4.26), highlighting emotional abuse as a key risk factor.

The path model supports prior findings (Li et al., 2020; Stagaki et al., 2022) that mentalization impairment is a key mechanism linking emotional abuse to depression and NSSI. Emotional abuse is a common risk factor for impaired mentalization, depression, and NSSI (Li et al., 2020; Stagaki et al., 2022; Zhang et al., 2024). The chain mediation model highlights mentalization impairment as the strongest mediator, followed by depression, showing that emotional abuse is associated with mentalization difficulties, which, in turn, are linked to higher levels of depression and an elevated risk of NSSI. This aligns with mentalization theory, emphasizing its role in shaping emotional and behavioural outcomes (Fonagy & Bateman, 2016).

Children subjected to prolonged emotional abuse often internalize negative evaluations and verbal assaults, such as rejection and belittlement, forming self-denigrating beliefs. These beliefs, once integrated into their identity, may lead to self-harm under extreme stress (Ross et al., 2019). Additionally, inconsistent caregiving fosters unpredictability and mistrust, contributing to hypomentalization – a tendency to avoid attributing mental states to oneself or others, rooted in the belief that such states are incomprehensible (Allen et al., 2008; Berthelot et al., 2019). This detachment acts as a survival strategy to

manage overwhelming emotional distress (McCrory & Viding, 2015).

In the long term, however, impaired mentalization hinders the development of cognitive trust in others, reducing opportunities to learn from positive role models and build healthy relationships. This exacerbates cognitive deficits and impairs emotional regulation (Schwarzer et al., 2021). As a result, emotional abuse weakens mentalization, impairing emotional regulation and leading to NSSI as a short-term strategy to manage depression and other negative emotions.

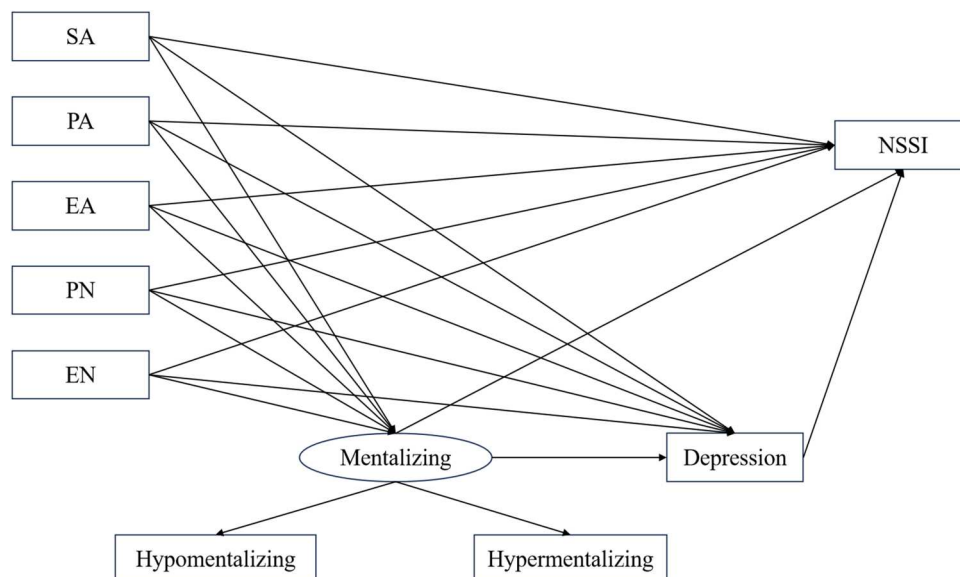
Although childhood emotional and physical neglect were the most frequently reported forms of abuse, the path model showed no direct effects on NSSI. Instead, significant indirect effects were mediated by depression, linking childhood neglect to depression. Egeland et al. (1983) observed in a 42-month longitudinal study that neglected children experienced more negative emotional states than those suffering other forms of abuse, a finding echoed by Infurna et al. (2016), who reported a large effect size ( $d = 0.813$ ) for neglect and depression.

Emotional neglect impairs the ability to recognize and understand emotions (Berzenski, 2019), contributing to depression and NSSI. Jessar et al. (2017) found emotional neglect specifically associated with deficits in emotional clarity, unlike emotional abuse. Lacking emotional awareness leads to misjudged stress, poor mental health, and interpersonal frustration. Those neglected often suppress emotions due to invalidation in childhood, harming self-worth and trust. High interpersonal frustration and loneliness further correlate with depression and NSSI (Costa et al., 2021).

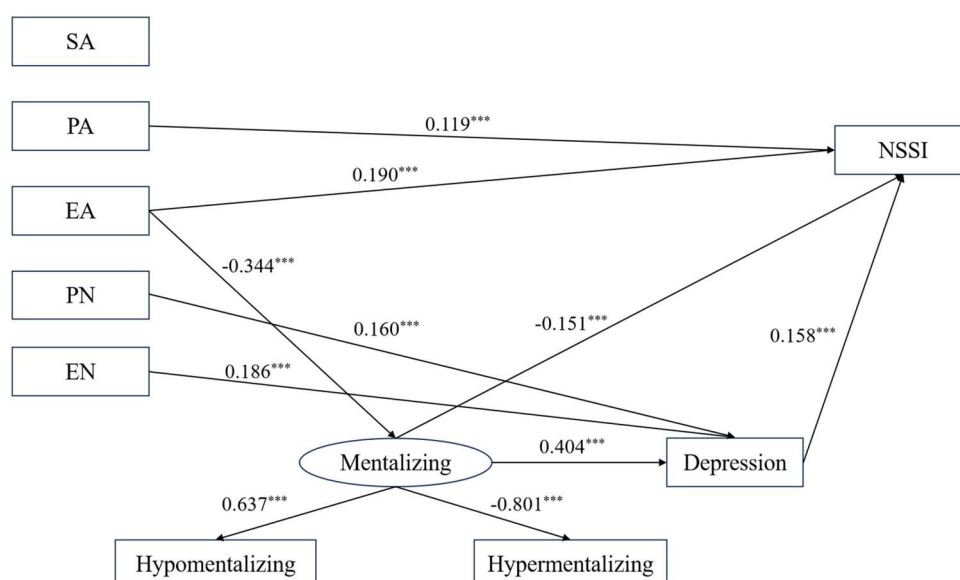
This study found a correlation between neglect (physical and emotional) and mentalization, though no direct effect was detected in the path model. Limitations in the mentalization tool, assessing only two dimensions, may explain this. More comprehensive tools like the Mentalization Questionnaire (MZQ; Hausberg et al., 2012) could provide better insights. Additionally, the sample of 1,645 Chinese university students likely had higher socioeconomic status and resilience, mitigating neglect's impact on

**Table 3.** Multicollinearity test.

Variables	VIF	Tolerance
SA	1.06	0.95
EA	1.71	0.59
PA	1.35	0.74
EN	2.13	0.47
PN	1.82	0.55
Depression	1.37	0.73
RFQ-C	1.41	0.71
RFQ-U	1.47	0.68



**Figure 1.** Hypothesized mode of mediating effects of mentalization and depression on the relationship between types of childhood, trauma and suicide risk.



**Figure 2.** Standardized coefficients for tested paths of final model. \*\*\* $p < .001$ .

**Table 4.** Standardized direct and indirect effects of pathways on mentalization, depression, and NSSI.

	$\beta$	SE	$p$	95%CI
Direct effect				
EA→Mentalization	-0.34	0.04	.000	
EA→NSSI	0.19	0.04	.000	
PA→NSSI	0.12	0.04	.004	
Depression→NSSI	0.16	0.03	.000	
Mentalization→NSSI	-0.15	0.04	.000	
EN→Depression	0.19	0.03	.000	
PN→Depression	0.16	0.03	.000	
Mentalization→Depression	-0.41	0.03	.000	
Indirect effect				
EA→Mentalization→NSSI	0.05	0.02		(0.025, 0.085)
EA→Mentalization→Depression→NSSI	0.02	0.01		(0.013, 0.035)
PN→Depression→NSSI	0.03	0.01		(0.014, 0.043)
EN→Depression→NSSI	0.03	0.02		(0.016, 0.049)

Note: SE = Standard Error (For the sake of readability, only significant results are presented here). 95%CI = 95% Confidence Interval.

mentalization. Lower socioeconomic status, associated with higher neglect risk, further highlights this limitation (Spratt et al., 2012).

Physical abuse directly predicts NSSI, independent of mentalization or depression, indicating its severe and immediate traumatic impact (Swannell et al., 2012; Wan et al., 2015). In China, Confucian values emphasizing authority and obedience normalize physical discipline, reducing awareness of its harm and neglecting emotional well-being (Ji & Finkelhor, 2015; Qiao & Chan, 2005). This cultural norm suppresses emotional expression, as children are taught conformity over emotional processing. Emotional regulation has been shown to mediate the link between physical abuse and NSSI (Thomassin et al., 2016). In this context, prioritizing control over emotional awareness deepens emotional disconnect, complicating recovery and increasing NSSI risk. Addressing cultural values and emotional expression deficits is crucial to mitigating physical abuse's impact on NSSI.

The findings align with prior research showing higher NSSI rates among students with a history of childhood sexual abuse (CSA), though our path model found no direct or indirect effects mediated by mentalization and depression. The CSA prevalence among Chinese college students was 5.98%, lower than international averages (Pereda et al., 2009), likely due to cultural stigmatization and underreporting, as survivors often conceal experiences due to shame or family reputation concerns (Ji et al., 2013). Culturally insensitive measurement tools may further underestimate CSA's impact.

This supports Klonsky and Moyer's (2008) meta-analysis, which found a small direct link between CSA and NSSI, and Maniglio's (2011) argument that CSA influences NSSI indirectly through trauma-related consequences like dissociation (Calati et al., 2017), alexithymia, and experiential avoidance (Liu et al., 2021). Students from prestigious universities may exhibit greater psychological resilience and adaptive strategies, mitigating trauma effects (Chu et al., 2022). These findings underscore the complexity of the CSA-NSSI relationship and call for research addressing cultural factors, improving tools, and exploring mediators.

This study has several limitations. First, as a cross-sectional study, causality cannot be inferred, and longitudinal research is needed to confirm the relationships identified. Second, self-reported data may involve recall or reporting biases due to stigma, social desirability, or memory inaccuracies. Third, the sample, drawn from a prestigious Chinese university, may limit generalizability to populations with different socioeconomic or cultural backgrounds. Fourth, the mentalization measure assessed only two dimensions, missing its full complexity. Lastly, potential mediators or moderators, such as

emotion regulation, dissociation, or resilience, were not included, limiting the understanding of CM-NSSI pathways.

## 5. Conclusion

In conclusion, this study highlights the distinct pathways of different CM types to NSSI. Emotional abuse was the strongest predictor, mediated by impaired mentalization and depression. Physical abuse had a direct effect, while neglect and sexual abuse showed indirect or insignificant effects. These findings emphasize the need for targeted interventions addressing specific maltreatment types and mechanisms. Enhancing mentalization, emotion regulation, and treating depression are key strategies for preventing and managing NSSI. Future research should further examine the interplay between abuse types, mentalization, and psychological factors to guide clinical practice.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Ethical approval

This study was conducted in accordance with the ethical guidelines outlined by the ICMJE guidelines, The Belmont Report, and the Declaration of Helsinki. Ethical approval was obtained from the Ethics Committee of the Mental Health Center at China University of Geosciences. The ethics approval number is (CUG no.20210710171).

## Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article.

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