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Relation between Interparental Conflict and Non-Suicidal Self-Injury in Adolescents: Mediating Role of Alexithymia and Moderating Role of Resilience

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ABSTRACT

Background: Adolescents frequently engage in Non-Suicidal Self-Injury (NSSI), with recent trends indicating an increase in this behavior. At the same time, Chinese adolescents have a higher incidence of NSSI than Western adolescents. Therefore, it is necessary to explore the relationship between interparental conflict and NSSI among adolescents within the context of Chinese families. **Methods:** The research sample comprised 755 senior high school students (46.62% male; age $M = 16.82$, $SD = 0.94$ years) who completed the Interparental Conflict Child Perception Scale (CPIC), Adolescent Self-Injury Behavior Questionnaire (ASHS), Toronto Alexithymia Scale-20 (TAS-20), and Scale of Adolescent Resilience (RSCA). **Results:** Findings suggest that interparental conflict is a significant positive predictor of NSSI ($r = 0.22$, $p < 0.01$). Alexithymia mediates the relation between interparental conflict and NSSI (effect size = 0.09, 95% CI [0.05, 0.13]). Additionally, resilience moderates both the direct relation ($\beta = -0.08$, $p < 0.05$) and the latter half of the mediating pathway ($\beta = -0.08$, $p < 0.05$) in the moderated mediation model. **Conclusion:** This study indicates that interparental conflict have an impact on adolescents' NSSI in Chinese families, and alexithymia and resilience play important roles in the relationship. These findings offer valuable guidance for the prevention and intervention efforts targeting NSSI among adolescents in China and in similar family contexts.

KEYWORDS

Interparental conflict; non-suicidal self-injury; alexithymia; resilience; adolescent; moderated mediation model

Introduction

Non-suicidal self-injury (NSSI) involves the intentional and repeated damage to one's own body without the purpose of ending one's life [1]. This behavior not only inflicts immediate physical harm but also negatively affects social relationships because of its unhealthy nature [2]. Additionally, NSSI can be a precursor to future suicidal behaviors [3]. Adolescence, a period of profound physical and psychological transformation, is marked by heightened emotional volatility and a great tendency toward extreme actions [4]. A study indicates that in Western countries, the prevalence of NSSI in adolescents is usually between 17%

and 31%, whereas in China, it is 27.4%, which is higher than the general level in Western countries [5]. Cultural variations, particularly the emphasis on collectivism in Chinese society vs. the individualism prevalent in Western cultures, lead to different familial structures and values. In China, the nuclear family maintains strong ties with the extended family, whereas Western societies tend to focus more on the autonomous nuclear family. Within Chinese families, the parent-child relationship is often the focal point, with children being regarded as the essence of the family's continuity. Conversely, Western families typically prioritize the spousal relationship. As a result, the mental and physical health of Chinese adolescents is inextricably



linked to their family environment. In recent years, the literature on NSSI among Chinese adolescents has increased dramatically, with most publications in local journals, highlighting a need for more articles with international influence in the future [5]. Therefore, exploring the generation and prevention mechanism of NSSI among Chinese adolescents is of great importance in promoting their physical and mental health. This study explores whether children's perceived interparental conflict affects their NSSI, thereby providing feasible ideas for the prevention and radical treatment of NSSI starting from the Chinese family environment.

Main Text

Interparental conflict and NSSI

Interparental conflict involves verbal or physical aggression between parents perceived by children within the family, often stemming from disagreements or other issues [6]. According to ecological system theory, the family, as the immediate environment for living and communication, is most closely connected to an individual [7]. It serves as not only a provider for the basic needs of human life and growth but also a foundation for emotional support, profoundly affecting the physical and psychological development of each family member [8]. A harmonious parental relationship is essential for cultivating positive psychological traits in adolescents [9]. The quality of the parental relationship directly influences the parents' psychological state, which indirectly affects the development of their children. Parental marital conflict is a crucial factor contributing to emotional issues in adolescents [10]. The spill-over hypothesis suggests that when the conflict in the marital subsystem "spills over" into the parent-child subsystem, it disrupts the normal parent-child interaction patterns and leads to adaptive challenges for the children [11]. Interparental conflict diminishes the intimacy between children and parents [12] and introduces negative emotional experiences for children, which are predictive of NSSI in adolescence [13]. Children may resort to NSSI to alleviate or extinguish negative emotions and as an attempt to garner parental attention or seek assistance [14].

Mediating role of alexithymia

The environmental function model suggests that NSSI is a response to a complex interplay of situational triggers, emotional states, personal cognition, and the outcomes associated with NSSI [15]. Interparental conflict can create a family environment leading to negative emotional experiences for children, which are conducive to NSSI. Alexithymia is a personality construct marked by an inability to recognize and articulate emotions, a propensity for external processing, and a neglect of one's inner world [16]. It may act as a negative cognitive influence driving individual toward NSSI. This trait complicates integrating and expressing negative emotions, leaving them disjointed and unexplained, thereby heightening cognitive distress [17]. Alexithymia is strongly linked to negative emotional issues such as anxiety and depression and is a critical risk factor for maladaptive behaviors [18]. High levels of alexithymia

can lead to a spectrum of behavioral problems and hinder healthy adolescent development [19], including instances of aggression and NSSI [20–22]. Moreover, the emergence of alexithymia is shaped by multiple factors, including family dynamics, educational settings, cultural norms, and social interactions [23,24]. Adolescents who have endured traumatic experiences often exhibit high levels of alexithymia [25]. Prolonged exposure to interparental conflict can cause adolescents to internalize their parents' negative emotional expressions, which can then influence the development of their self-esteem and emotional resilience [26]. Insecure parent-child relationships and strained marital bonds can compromise children's ability to express themselves verbally and increase the likelihood of alexithymia [27].

Moderating role of resilience

The compensation model suggests that during stressful situations that impair an individual's crisis coping ability, personal characteristics and environmental resources can act as moderating factors, thereby preventing the crisis from having a catastrophic impact on the individual [28]. Given the variability of personality traits, when certain characteristics are detrimental to healthy development, other traits that positively influence an individual's mental and physical health can offset these deficiencies. Resilience is a psychological ability that enables individuals to adjust their psychological states in time to cope with and overcome difficulties in the face of adverse internal and external factors [29]. It is a crucial moderating variable that can reduce the negative effects of risk factors on individuals [30]. Adolescents who lack parental care often experience instability in parent-child relationships, a low sense of security, and poor psychological adaptability [31,32]. In risky environments, resilience enables individuals to adjust their cognition and emotions efficiently, enhancing their ability to adapt [33]. Those with higher resilience exhibit less negative thinking [34] and a greater capacity for negative adaptation [35], correspondingly reducing problem behaviors [36]. Individuals with alexithymia struggle to regulate and integrate negative emotions or self-soothe, making them more susceptible to vulnerability. Those with severe alexithymia are at a higher risk of psychological disorders and engage in self-injury and suicide at a greater rate [37]. Resilience is a critical resource that enables individuals to emerge from traumatic experiences [38]. Individuals with low resilience are likely to develop mental disorders such as depression and anxiety and engage in NSSI [39–41].

Contribution and hypotheses

Although the extensive literature on adolescent NSSI has consistently demonstrated that its occurrence is multifactorial, current research perspectives remain less comprehensive and can benefit from further elaboration. Firstly, empirical evidence generally supports the notion that interparental conflict positively predicts NSSI among adolescents. Adolescents are often portrayed as passive participants in this dynamic who are powerless to change. Adolescents possess relatively sophisticated cognitive

abilities akin to adults, making them acutely sensitive to interparental discord. Before the NSSI occurred, they made corresponding psychological efforts to avoid hurting themselves. Secondly, researches have predominantly focused on the familial environment, neglecting the broader societal context. Within the collectivist culture of Chinese families, the familial unit is only one part of a larger social fabric. The societal responsibilities and norms that distinguish Chinese and Western family dynamics suggest that the implications of varying social contexts on adolescent NSSI have not been adequately explored.

This study offers two primary contributions to the field. First, this study emphasizes the subjective efforts that individuals make to become resilient. Confronted with life's inevitable challenges and setbacks, an individual's psychological makeup and their ability to cope with adversity are pivotal. For those with alexithymia, the adverse effects of inescapable interparental conflict can be profound. However, robust resilience can internalize transient negative emotions, considerably diminishing the likelihood of progressing to NSSI.

Second, this study broadens the scope beyond the confines of the family environment. It explores the influence of the familial atmosphere on adolescent NSSI within the societal context of Chinese culture, as viewed through the lens of cultural psychology. China is a quint quintessential exponent of collectivist culture, where the bonds between individuals, families, and the broader society are tight knit. Consequently, the parent-child relationship exerts a substantial influence on children's engagement in NSSI. Hence, we start our investigation by examining traditional family dynamics in China, with the objective of offering a cross-cultural perspective on the interplay between families and parenting concerns across a spectrum of collectivist societies. This study constructs a moderated mediation model (Fig. 1), grounded in the environmental function model and compensation model. It takes a holistic approach to understanding the mechanisms linking interparental conflict with NSSI. It also examines the mediating effects of alexithymia and the moderating influence of resilience within this process. The objective is to provide a theoretical foundation and empirical evidence to underpin the prevention and intervention strategies for NSSI among Chinese adolescents.

Based on the arguments outlined above, we propose the following hypotheses:

Hypothesis 1 (H1): Interparental conflict significantly positively predicts NSSI.

Hypothesis 2 (H2): Alexithymia mediates the relation between interparental conflict and NSSI.

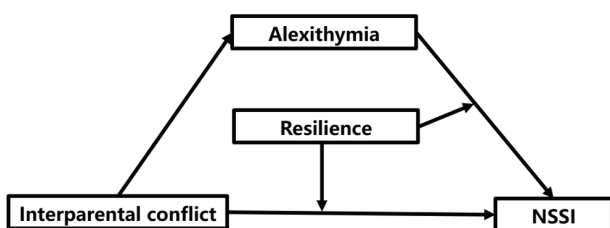


FIGURE 1. Theoretical model.

Hypothesis 3a (H3a): Resilience moderates the relation between interparental conflict and NSSI. The positive predictive effect of interparental conflict on NSSI is more significant in individuals with lower levels of resilience than in those with higher levels.

Hypothesis 3b (H3b): Resilience moderates the relation between alexithymia and NSSI. The positive predictive effect of alexithymia on NSSI is more significant in individuals with lower levels of resilience than in those with higher levels.

Materials and Methods

Participants

Students from the first and second grades of two senior high schools in Liaoning Province in China were selected using cluster sampling between 30 September 2023 and 15 October 2023, with an effort to recruit an equal number of male (46.62%) and female (53.38%) participants. Their ages ranged from 14 to 18 years, with a mean age of 16.82 years ($SD = 0.94$). Detailed socio-demographic characteristics of the respondents are presented in Table 1.

Procedure

Prior to their completion, all participants received detailed instructions. A classroom teacher oversaw the questionnaire administration, and they ensured that the participants finished within a 20-min time frame. Upon collection, questionnaires from students in single-parent families, as well as those that were incomplete or filled out in a patterned manner, were excluded. A total of 820 questionnaires were distributed, and 755 students completed the survey qualifiedly, resulting in a response rate of 92.07%. This present study complied with the Helsinki Declaration and its relevant all other amendments to collect data from human participants. The Ethical Committee of the College of Educational Science, Shenyang Normal University,

TABLE 1

Socio-demographic characteristics of survey participants ($N = 755$)

Predictors	Total percentage (%)	
Gender		
Male	46.62	
Female	53.38	
Grade		
Grade 1	49.67	
Grade 2	50.33	
Child (in the household)		
One	57.09	
More than one	42.91	
Family structure		
Two-parent family	97.00	
Reconstituted family	3.00	
	Mean	Std. dev
Age	16.82	0.94

Shenyang, China has approved the study (No. 2023015). All participants signed the informed consent in this study.

Measures

All experimental data were gathered using a comprehensive questionnaire that included demographic inquiries and four sub-questionnaires. These sub-questionnaires were randomly ordered to assess children's perceptions of interparental conflict, their history of engaging in self-injury and the severity thereof, and their levels of alexithymia and resilience. Following localization, all sub-questionnaires demonstrated robust reliability and validity. The specifics are outlined below.

CPIC

Interparental conflict was measured using the conflict characteristics subscale of the Interparental Conflict Child Perception Scale (CPIC) [42]. The scale contains two dimensions of conflict degree and conflict resolution, with a total of 18 items. Using a 5-point Likert Scale (from "1 = strongly disagree" to "5 = totally agree"), a higher total score indicates a higher level of interparental conflict. In the present study, the CPIC had good model fits (Cronbach's $\alpha = 0.82$, $\chi^2 = 558.63$, $df = 113$, CFI = 0.93, TLI = 0.91, RMSEA = 0.07, SRMR = 0.07).

ASHS

NSSI was evaluated using the Adolescent Self-Injury Behavior Questionnaire (ASHS) [43], which comprises 19 items. The questionnaire was divided into two parts to measure the frequency and degree of NSSI. The existence of NSSI was defined by the product of these two parts. NSSI does not exist if the product is 0, otherwise NSSI exists. The frequency of NSSI was scored on a 4-point Likert Scale (from "0 = does not occur" to "3 = more than five times"), and the degree of NSSI was scored on a 5-point Likert Scale (from "0 = does not occur" to "4 = extremely severe"). In the present study, the ASHS had good model fits (Cronbach's $\alpha = 0.98$, $\chi^2 = 341.91$, $df = 70$, CFI = 0.99, TLI = 0.97, RMSEA = 0.07, SRMR = 0.02).

TAS-20

Alexithymia was measured using the localized version of the Toronto Alexithymia Scale-20 (TAS-20) [44], which includes three dimensions—emotion recognition, emotion description, and extroverted thinking—with a total of 20 items. Using a 5-point Likert Scale (from "1 = strongly disagree" to "5 = totally agree"), a higher total score means a higher level of alexithymia. In the present study, the TAS-20 had good model fits (Cronbach's $\alpha = 0.85$, $\chi^2 = 576.56$, $df = 154$, CFI = 0.92, TLI = 0.90, RMSEA = 0.06, SRMR = 0.06).

RSCA

To assess one's resilience, the Scale of Adolescent Resilience (RSCA) [45] was used, which has 27 questions divided into two factors: individual power and support. These two factors were measured from different sources of resilience. Individual power includes three factors: goal focus, emotional control, and positive cognition. Support includes two factors: family support and interpersonal assistance.

Using a 5-point Likert Scale (from "1 = strongly disagree" to "5 = totally agree"), a higher total score means a higher level of resilience. In the present study, the RSCA had good model fits (Cronbach's $\alpha = 0.89$, $\chi^2 = 830.91$, $df = 238$, CFI = 0.93, TLI = 0.90, RMSEA = 0.06, SRMR = 0.08).

Variables

In this study, the independent variable was interparental conflict and the dependent variable was NSSI. The socio-demographic controls included gender, grade, age, number of children in the household, and family structure. Age was used as a continuous variable. Gender, grade, number of children, and family structure were coded into dummy variables with the following categories: female (reference: male); Grade 1 (reference: Grade 2); one child in the household (reference: more children), and two-parent family (reference: reconstituted family).

Data analysis

Initially, the reliability and validity of the four sub-questionnaires were assessed individually. "Harman's single factor test" and the "control for the effects of an unmeasured latent factor (ULMC)" were then employed to examine the presence of common method bias. The collected data were analyzed comprehensively using SPSS 25.0, which included controlling for demographic variables as covariates. Required statistical analyses were performed on interparental conflict, alexithymia, resilience, and NSSI (H1). Finally, the theoretical model constructed in this study was validated by Process (a plug-in installed in SPSS 25.0). In the first phase, Process Model 4 combined with the bootstrap method was used to test the mediating role of alexithymia (H2). In the second phase, Process Model 15 was utilized to assess the moderating role of resilience (H3a and H3b). The moderating mediating effect was further examined through simple slope analysis. The $p < 0.05$ was considered statistically significant.

Results

Test of common method bias

Harman single factor test and the controlling for the effects of an Unmeasured Latent Methods factor (ULMC) were used to examine common method bias in the data. First, the results of the Harman single-factor test extracted 14 factors whose characteristic roots were greater than 1. The first factor explained 22.40% of the variation, below the 40% threshold. Subsequently, based on related trait factors (interparental conflict, alexithymia, NSSI, and resilience), all items were taken as indicators of global method factors, and a two-factor model was established and compared with the model containing only trait factors. The results showed no significant difference between the two models ($\Delta CFI = 0.071$, $\Delta TLI = 0.056$, $\Delta RMSEA = 0.017$, $\Delta SRMR = 0.017$). No obvious common method bias is noted in the study.

Statistical analysis

The results showed that 587 high school students had never committed NSSI, accounting for 77.75% of the total. A total of 168 high school students had attempted NSSI at least

once, accounting for 22.25% of the total. The mean value, standard deviation, and correlation coefficient of each variable are shown in Table 2. Interparental conflict was significantly positively associated with alexithymia ($r = 0.45$, $p < 0.01$) and NSSI ($r = 0.22$, $p < 0.01$). Resilience was significantly negatively associated with interparental conflict ($r = -0.47$, $p < 0.01$), NSSI ($r = -0.18$, $p < 0.01$), and alexithymia ($r = -0.67$, $p < 0.01$).

The mediation effect of alexithymia between interparental conflict and NSSI was tested by Process Model 4 while controlling for demographic variables such as gender and grade. The results are shown in Table 3. Interparental conflict significantly positively predicted NSSI ($\beta = 0.21$, $t = 5.89$, $p < 0.01$), verifying H1. Interparental conflict significantly positively predicted alexithymia ($\beta = 0.46$, $t = 13.93$, $p < 0.01$). After controlling the interparental conflict, alexithymia positively predicted NSSI significantly ($\beta = 0.19$, $t = 4.83$, $p < 0.01$). After adding the mediation variable, we found that interparental conflict could still

significantly positively predict NSSI ($\beta = 0.12$, $t = 3.14$, $p < 0.01$). The standard regression coefficient decreased from 0.21 to 0.12, that is, the influence of interparental conflict on NSSI became smaller.

Bootstrap was used to test the proportion of direct and indirect effects, and the results are shown in Table 4. The total effect value was 0.21. The direct effect of interparental conflict on NSSI was 0.12, accounting for 57.14% of the total effect. The indirect effect was 0.09, accounting for 42.86% of the total effect. The upper and lower limits of the 95% confidence interval of the direct effect of NSSI (CI = [0.04, 0.20]) and the mediating effect of alexithymia (CI = [0.05, 0.13]) excluded 0. This outcome indicates that alexithymia partially mediated the prediction of interparental conflict on NSSI, thereby verifying H2.

Process Model 15 was used to test the moderating role of resilience in this moderated mediation model, and the results are shown in Table 5. The interaction between interparental conflict and resilience had a significant predictive effect on

TABLE 2

Mean value, standard deviation, and correlation coefficient of each variable ($N = 755$)

	<i>M</i>	<i>SD</i>	1	2	3	4
1 Interparental conflict	2.55	0.55	1			
2 Alexithymia	2.60	0.58	0.45**	1		
3 NSSI	0.23	0.96	0.22**	0.25**	1	
4 Resilience	3.50	0.59	-0.47**	-0.67**	-0.18**	1

Note: ** $p < 0.01$; Each continuous variable in the model is brought into the regression equation after standardization.

TABLE 3

Regression analysis of the mediating effects of alexithymia

	NSSI (Direct effect)			Alexithymia			NSSI (Indirect effect)		
	β	<i>t</i>	<i>p-value</i>	β	<i>t</i>	<i>p-value</i>	β	<i>t</i>	<i>p-value</i>
Gender	0.05	0.75	0.492	-0.13	-1.99*	0.041	0.08	1.11	0.291
Grade	-0.17	-2.45*	0.013	-0.07	-1.19	0.224	-0.16	-2.28*	0.021
Interparental conflict	0.21	5.89**	<0.000	0.46	13.93**	<0.000	0.12	3.14**	0.002
Alexithymia							0.19	4.83**	<0.000
<i>F(df)</i>	11.52 (4, 750)**		<0.000	50.39 (4, 750)**		<0.000	14.16 (5, 749)**		<0.000
<i>R</i>	0.24			0.46			0.29		

Note: * $p < 0.05$; ** $p < 0.01$; Each continuous variable in the model is brought into the regression equation after standardization.

TABLE 4

Test of mediating effect of alexithymia

	Effect size	BootSE	BootLLCI	BootULCI	Proportion of effect
Total effect	0.21	0.04	0.14	0.28	
Direct effect	0.12	0.04	0.04	0.20	57.14%
Indirect effect	0.09	0.02	0.05	0.13	42.86%

TABLE 5

Test of moderated mediating effect

	Alexithymia			NSSI		
	β	t	p -value	β	t	p -value
Gender	-0.13	-1.99	0.041	0.08	1.19	0.262
Grade	-0.07	-1.19	0.224	-0.16	-2.25	0.022
Interparental conflict	0.46	13.93	<0.000	0.14	3.46	0.001
Alexithymia				0.22	4.49	<0.000
Resilience				-0.01	-0.21	0.837
Interparental conflict \times resilience				-0.08	-2.06	0.041
Alexithymia \times resilience				-0.08	-2.33	0.020
$F(df)$	50.39 (4, 750)		<0.000	11.11 (8, 745)		<0.000
R	0.46			0.33		

Note: Each continuous variable in the model is brought into the regression equation after standardization.

NSSI ($\beta = -0.08$, $p < 0.05$). This result indicates that resilience moderated the relation between interparental conflict and NSSI, 95% CI [-0.147, -0.003] excluded 0, verifying H3a. The interaction between alexithymia and resilience had a significant predictive predicted effect on NSSI ($\beta = -0.08$, $p < 0.05$). Therefore, resilience moderated the relationship between alexithymia and NSSI, 95% CI [-0.151, -0.013] excluded 0, verifying H3b.

Simple slope analysis was used to further test the moderating effect of resilience. According to the average resilience score, the subjects were divided into high resilience group ($M + 1SD$) and low resilience group ($M - 1SD$). In the low resilience group, interparental conflict predicted NSSI more significantly ($\beta = 0.22$, $p < 0.01$). With

the improvement of resilience level, interparental conflict cannot significantly predict NSSI ($\beta = 0.07$, $p > 0.05$). Only when the level of resilience is low, interparental conflict can positively predict the NSSI of adolescents (Fig. 2). In the low resilience group, the predictive effect of alexithymia on NSSI is more significant. ($\beta = 0.14$, $p < 0.05$). With the improvement of resilience level, the predictive effect of alexithymia on NSSI gradually decreases ($\beta = 0.06$, $p < 0.05$) (Fig. 3).

Discussion

This cross-sectional study aims to investigate the influence of interparental conflict on adolescents' NSSI within the context of Chinese families. The internal operational mechanism is examined by considering the mediating role of alexithymia and the moderating role of resilience. To our knowledge, there have been no prior studies that have modeled or explored the relationship among these factors. Lastly, this study provides an explanation for why Chinese adolescents may be more susceptible to NSSI compared to their Western counterparts and suggests effective interventions.

The results of this study show that interparental conflict positively predicts NSSI of seniohigh school students, which is consistent with previous research results [46]. According to NSSI's environmental function model, an individual's living environment is conceptualized as a system. NSSI is a means for self-injurers to restore balance within the system or to express the distress caused by a malfunctioning system [15]. A dysfunctional system often results in negative emotional states such as restlessness, depression, and anxiety, while giving rise to various psychological issues that self-injury may temporarily alleviate [47]. Among the environmental factors, the family environment is a predominant influence on self-injury behavior [48]. Dysfunctional family dynamics considerably elevate the incidence of NSSI in adolescents [49], with interparental conflict being a key indicator of family dysfunction [50].

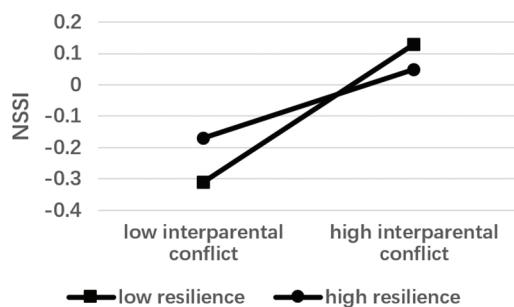


FIGURE 2. Moderation of resilience between interparental conflict and NSSI.

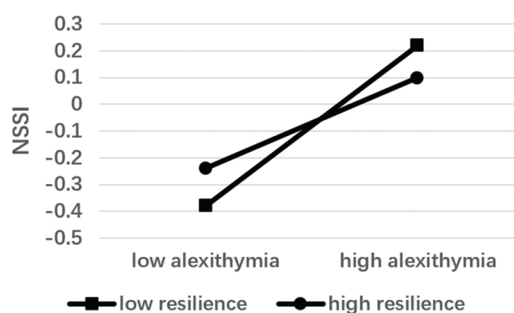


FIGURE 3. Moderation of resilience between alexithymia and NSSI.

Moreover, the findings indicate that alexithymia partially mediates the relation between interparental conflict and NSSI in adolescents. In other words, interparental conflict not only has a direct predictive effect on NSSI, but also can indirectly predict NSSI through alexithymia. As children mature, they become increasingly attuned to the dynamics of their parents' relationship, particularly during adolescence. The quality of the parent-child relationship greatly influences the physical and psychological development of adolescents [51]. According to the emotion-regulating function of self-injury behavior, self-injury is considered an inappropriate strategy for individuals to express and manage intense negative emotions [52]. Adolescents exposed to frequent and severe family conflicts often lack emotional security and lack the skills to express and cope with emotions effectively. They typically experience greater distress and pressure compared to children from stable families [49]. In such contexts, interparental conflict can lead teenagers to experience intense negative emotions [53], and they are more prone to emotional management issues, which can lead to the development of alexithymia. If the perceived level of conflict exceeds their threshold for tolerance, prolonged suppression of negative emotions without appropriate outlets can result in elevated levels of alexithymia. As a result, their likelihood of engaging in negative behaviors such as NSSI increases. The high correlation observed between alexithymia and NSSI [54] enables effective differentiation between individuals who engage in NSSI and those who do not. This finding validates the mediating path of the model and is consistent with the existing literature.

Another important aim of this study is to elucidate the moderating role of resilience in the model. Firstly, the results uncovered that resilience moderates the relationship between interparental conflict and NSSI among adolescents. With an increase in resilience levels, the strength of the positive association between interparental conflict and NSSI in this demographic tends to diminish. Given their propensity toward impulsive actions [55] adolescents are particularly vulnerable to engaging in self-injury as a maladaptive strategy to restore equilibrium within the family system when it is disturbed or when familial relationships are strained [56]. This phenomenon is particularly pronounced in individuals with low resilience [57]. Therefore, high levels of resilience not only reduce the likelihood that adolescents will resort to self-harm but also provide the necessary psychological support as they cope with environmental risks. During their development, high levels of resilience may be a key factor in promoting positive mental health [58]. Secondly, resilience moderates the relationship between alexithymia and NSSI. Central to alexithymia is a difficulty in regulating emotions [59]. Adolescents experiencing alexithymia opt for internal inhibitory strategies when confronting negative emotions [60]. Consequently, alexithymia is often associated with NSSI [61]. Research has agreed that a high resilience level is an important positive predictor of mental health [62]. Additionally, it is a pivotal factor in the ability to manage emotions [63]. Individuals with higher levels of resilience are more prone to select appropriate coping strategies when

faced with by negative emotional experiences, enabling them to navigate challenges effectively and avoid unnecessary harm.

Combining the results of this study with existing literature, it is revealed why Chinese adolescents tend to have higher rates of self-harm than adolescents in Western cultures. According to the concept of "the basic triangle of the Chinese family", the family is the primary unit comprising conjugal and parent-child relationships. The father, mother, and children form this foundational triangular structure, which shapes the fundamental framework and subsequent development of family dynamics. In this marital arrangement, two interrelated social relationships are simultaneously established: the couple relationship and the parent-child relationship. These relationships are interdependent: the couple's relationship is based on the parent-child relationship as the premise, and the parent-child relationship is based on the couple's relationship as a necessary condition. Consequently, children in Chinese families not only assume their roles but also serve as a crucial link between the couple, indicating that they often carry a heavier burden. The presence of alexithymia within individuals and interparental conflict within the family environment amplifies the pressure on children within the context of a closely-knit cultural framework.

NSSI serves as a critical risk factor for heightened suicide risk among Chinese adolescents. However, there is a paucity of clinical intervention methods specifically tailored to NSSI [64]. Currently, the evidence supporting the efficacy of traditional psychotropic medications in treating adolescent is insufficient. Psychotherapy and psychological interventions are the predominant approaches in clinical practice [65]. Studies of adult Dialectical Behavior Therapy (DBT) have shown a low dropout rate and effective reduction of suicide attempts and self-injury behaviors, which has prompted its adaptation for adolescent NSSI patients [66]. Cognitive behavioral interventions based on DBT have been identified as an effective strategy for addressing NSSI among adolescents in China. Combined with the positive predictive effect of interparental conflict on adolescents' NSSI, this study encourages the use of DBT in multi-family groups. This approach leverages the strong family bonds prevalent in Chinese culture to reduce interparental conflict and build a more harmonious family environment. It enables parents to act as coaches, summarizing and reinforcing the DBT skills they have learned for their children. This optimization will make it easier for adolescents to understand and participate in treatment, reducing the likelihood of alexithymia occurring and developing. Moreover, according to the results of this study, improving the level of resilience in NSSI patients should be included as part of the training.

The study is not without limitations, so the findings should be approached with a degree of caution. Firstly, this study only discussed environmental factors among the various influencing factors that affect adolescents' NSSI. However, recent research has emphasized that externalizing behaviors are influenced by a combination of genetic predispositions, environmental factors, and individual development. Future research could explore the interaction

of the three on NSSI. Secondly, cross-sectional design is limited in examining dynamic individual development. To gain a deeper understanding, future studies can utilize longitudinal designs to explore the relationship between family factors and NSSI in adolescents. Thirdly, this study only examined the parent-child relationship in the family system. In fact, relevant variables such as family income, parents' educational level, and parenting style are equally important. Controlling for these factors in future research can lead to more precise conclusions.

Conclusion

This present study aims to contribute to the literature on interparental conflict and NSSI by establishing a moderated mediation model. The study reveals a positive correlation between interparental conflict and adolescents' NSSI in Chinese family contexts. Additionally, it demonstrates the mediating role of Alexithymia and the moderating role of resilience. Based on the results, it is suggested that Chinese adolescents are more susceptible to developing NSSI compared to their Western counterparts due to the influence of family dynamics, and recommendations for intervention and treatment of NSSI are provided. The results of this study can help mental health and behavioral professionals design rational intervention programs and provide a reference for adolescent educators in similar cultural contexts.

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Availability of Data and Materials: The data is available on request from the corresponding author.

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