

RELATIONSHIP BETWEEN INTERPARENTAL CONFLICT AND NON-SUICIDAL SELF-INJURY IN ADOLESCENTS: THE MEDIATING ROLE OF ALEXITHYMIA AND THE MODERATING ROLE OF RESILIENCE

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To investigate the relationship between interparental conflict and non-suicidal self-injury in adolescents and the inner mechanism, 755 high school students were questionnaire. The results show that: (1) interparental conflict positively predicts the non-suicidal self-injury of adolescents ($r = 0.22, p < 0.01$); (2) Alexithymia plays a partial mediating role between interparental conflict and non-suicidal self-injury (effect size = 0.09, 95%BootstrapCI = [0.05, 0.13]); (3) In the moderated mediation model, resilience moderates the direct path ($\beta = -0.08, p < 0.05$) and the second half of the mediating path ($\beta = -0.08, p < 0.05$). The results have certain theoretical meaning and practical value for understanding the influencing mechanism and intervention of family interpersonal relationships on adolescent non-suicidal self-injury.

Keywords: *interparental conflict, non-suicidal self-injury, alexithymia, resilience, adolescents.*

Introduction

Non-suicidal self-injury (NSSI) refers to direct, intentional and repeated damage to self-body tissue without suicidal intent (Nock, 2010) [46]. NSSI not only causes direct harm to the individual body, but also damages the social relations due to the individual unhealthy behavior (Yang et al., 2023) [64]. Moreover, NSSI can even predict the future suicidal behavior (Ando et al., 2018) [1]. Adolescence is a critical period of individual physical and mental development, in which individuals have greater emotional fluctuations and are more prone to extreme behaviors (Green et al., 2021) [29]. The results of a notable study reported that NSSI of young people in China occurred at a higher prevalence and an earlier onset compared to western studies (Chao et al., 2016) [8]. Therefore, it is of great significance to deeply explore the generation and prevention mechanism of NSSI to promote the physical and mental health of Chinese adolescents.

Interparental conflict and NSSI

Interparental conflict refers to verbal or physical aggression between parents perceived by children in the family due to inconsistent opinions or other reasons (Buehler et al., 1997) [4]. According to the ecological system theory, as the direct environment of life and communication, the family is most closely related to the individual (Bronfenbrenner, 1977) [3], which can not only meet the needs of human life and growth, but also the birthplace of people's spiritual support, affecting the physical and psychological development of each person (Kong et al., 2019) [37]. A good parental relationship is a necessary condition for the development of positive psychological qualities in adolescents (Deb et al., 2015) [16]. The parental relationship will directly affect the psychological state of parents, and then indirectly affect the physical and mental development of

children. The marital conflict among parents is a key factor affecting the occurrence of emotional problems in adolescents (Bozyiğit & Mamatoğlu, 2022) [2]. The spill-over hypothesis states that when the marital subsystem is destroyed and «spill-over» into the parent-child subsystem, the normal pattern of parent-child interaction will be broken and cause a series of adaptation problems of children (Katz & Gottman, 1996) [35]. Interparental conflict reduces the intimacy between children and parents (Erel & Burman, 1995) [18] and brings negative emotional experiences to children, which is a prospective predictor of NSSI in adolescents (Kaess et al., 2020) [34]. Children alleviate or eliminate negative emotions through NSSI, and hope to attract parents' attention or seek help (Esposito et al., 2019) [19]. Based on this, hypothesis 1 is proposed: interparental conflict significantly positively predicts NSSI.

The mediating role of alexithymia

The environmental function model indicates that NSSI behavior is the result of inducing situation, emotional experience, individual cognition and NSSI result (Carr, 1977) [5]. Among them, interparental conflict will become the family situation that induces NSSI, resulting in children's negative emotional experience, and alexithymia may act as a negative cognitive variable to promote individuals to NSSI. Alexithymia is a stable personality trait characterized by difficulty recognizing and describing emotions, a bias toward extroverted thinking, and a lack of attention to the inner world (Taylor, 2000) [56]. This personality trait complicates the recognition and regulation of negative emotional characteristics, making them unintegrated and unexplained as well as increasing individual pain at the cognitive level (Prino et al., 2019) [49]. Alexithymia is closely related to negative emotional problems such as anxiety and depression. It is an important risk factor leading to individual maladaptation (Celikel et al., 2010) [7]. High levels of alexithymia can lead to a series of behavioral problems and affect the healthy development of adolescents (Farah et al., 2018) [20], such as aggression and NSSI (Morie et al., 2016 [45]; Janik McErlean & Lim, 2020 [33]; Li et al., 2020 [39]).

In addition, the generation of alexithymia is influenced by family, school, social culture and social relations (Tselebis et al., 2006 [58]; Wang et al, 2021) [60]. The adolescents who have experienced traumatic experience have higher levels of alexithymia (Hebert et al., 2018) [31]. Individuals who have experienced interparental conflict for a long time will internalize the expression of their parents' negative emotions into their own problems, affecting the formation of self-worth sense and emotional adaptation (Schermerhorn, 2019) [52]. Unsafe parent-child relationship and uneasy marital relationship will affect children's verbal expression ability and increase the possibility of alexithymia (Gatta et al., 2017) [25]. Therefore, the present study proposes hypothesis 2: alexithymia plays a mediating role between interparental conflict and NSSI.

The moderating role of resilience

The compensation model points out that when a stressful situation causes individual ability to cope with a crisis situation to be impaired, the individual characteristics and environmental resources can play a certain moderating role, so that the crisis does not have a devastating effect on individuals (Garmezy et al., 1984) [24]. Due to the diversity of individual personality characteristics, when some characteristics (such as alexithymia) are not conducive to the healthy development of people, other characteristics which have a positive effect on the individual physical and mental development will make up for the deficiency. Resilience refers to an ability to cope effectively and adapt well in the face of adversity, trauma or other major life stresses (Yu & Zhang, 2007) [67], which is one of the important moderating variables for the negative effects of external risk factors on individuals (Masten, 2015) [42]. The adolescents who lack parental care have worse parent-child relationship stability, lower level of safety and poor psychological adaptability (Chen et al., 2020 [11]; Mao et al., 2020 [41]). In the process of interacting with risk environments, resilience can make individuals adjust their cognition and emotion more effectively, as well as enhance the ability to adapt to the environment (Chen & Bonanno, 2020) [12]. Individuals with high resilience have less negative thinking and a higher level of negative adaptation (Gianesini & Brighi, 2015) [26]. At the same time, problem behaviors will decrease correspondingly (Gallagher & Miller, 2018) [23].

Meanwhile, individuals with alexithymia are unable to regulate and integrate negative emotions or self-soothe, and are more vulnerable. Individuals with severe alexithymia have a higher degree of psychological disorder and a higher risk of self-injury and suicide (Zhou et al., 2023) [70]. Resilience is a key resource to emerge from the traumatic experience (Zang et al., 2023) [68]. Studies have shown that individuals with low mental resilience are at higher risk of developing mental disorders such as depression and anxiety, as well as performing NSSI (Schiele & Domschke, 2018 [53]; Strain, 2018 [54]; Rossetti et al., 2017 [51]). Therefore, the present study proposes hypotheses 3a and 3b: resilience plays a moderating role between interparental conflict and NSSI, as well as between alexithymia and NSSI.

The current study

In conclusion, based on the environmental function model and the compensation model, the present study constructed a moderating mediation model (Fig. 1), comprehensively considering the mechanism between interparental conflict and NSSI, and explored the mediating role of alexithymia and the moderating role of resilience in the process. To provide theoretical basis and empirical support for the prevention and intervention of adolescent NSSI.

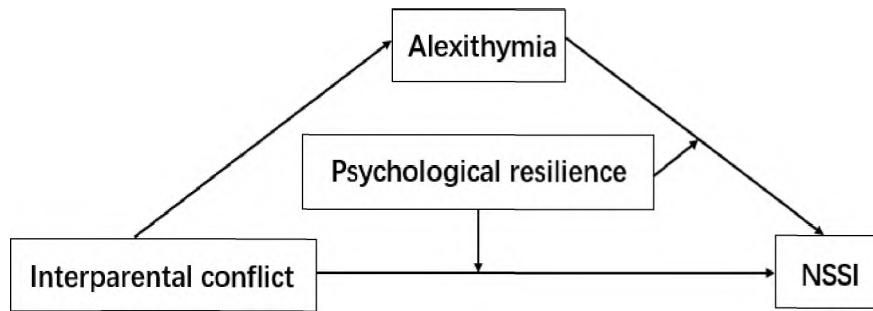


Fig. 1. Theoretical model

Methods

Participants

Using the cluster sampling method, 820 questionnaires were distributed to students in grade 1 and grade 2 of two ordinary junior high schools in Liaoning Province of China. After the questionnaires were collected, which answering regularly or incompletely, as well as filled in by the subjects from single-parent families were deleted. Finally, 755 valid questionnaires were determined, with an effective rate of 92.07%. There were 352 males (46.62%) and 403 females (53.38%), with an average age of 16.82 ± 0.44 . The survey was conducted with the informed consent of the school, parents and students, and approved by the ethics committee of the unit where the researcher worked.

Measures

Interparental conflict

Interparental conflict was measured using the conflict characteristics subscale of the Interparental Conflict Child Perception Scale (Chi & Xin, 2003) [14]. The scale contains two dimensions of conflict degree and conflict resolution, with a total of 18 items. Using five-point Likert Scale (from «1 = strongly disagree» to «5 = totally agree»), the higher the total score, the higher the level of parental conflict. The Cronbach's α of the scale in this study was 0.82, and confirmatory factor analysis showed good structural validity of the questionnaire ($\chi^2 = 558.63$, $df = 113$, CFI = 0.93, TLI = 0.91, RMSEA = 0.07, SRMR = 0.07).

NSSI

NSSI was evaluated using the Adolescent Self-Injury Behavior Questionnaire (Feng, 2008) [21] which consists of 19 items. The occurrence of NSSI was reported by the subjects through self-rating. There is no NSSI if the product of the occurrence times of NSSI and the degree of self-harm is 0. Conversely, NSSI exists. The occurrence times of NSSI was scored at four-point Likert Scale (from «0 = unimportant» to «3 = more than 5 times») and the degree of NSSI to physical harm was scored at five-point Likert Scale (from «0 = unimportant» to «4 = extremely severe»). The Cronbach's α of the questionnaire in this study was 0.98, and confirmatory factor analysis showed good structural validity of the questionnaire ($\chi^2 = 341.91$, $df = 70$, CFI = 0.99, TLI = 0.97, RMSEA = 0.07, SRMR = 0.02).

Alexithymia

Alexithymia was measured using the localized version of TAS-20 (Yi et al., 2003) [65] which includes three dimensions: emotion recognition, emotion description and extroverted thinking, with a total of 20 items. Using five-point Likert Scale (from «1 = strongly disagree» to «5 = totally agree»), the higher the total score, the higher the level of alexithymia. The Cronbach's α of the scale in this study was 0.85 and confirmatory factor analysis indicated the good structural validity of the questionnaire ($\chi^2 = 576.56$, $df = 154$, CFI = 0.92, TLI = 0.90, RMSEA = 0.06, SRMR = 0.06).

Resilience

To assess one's resilience, the Scale of Adolescent Resilience was used (Hu & Gan., 2008) [32] which contains five dimensions: emotional control, goal focus, family support, positive cognition, and interpersonal assistance, with a total of 27 items. Using five-point Likert Scale (from «1 = strongly disagree» to «5 = totally agree»), the higher the total score, the higher the level of resilience. The Cronbach's α of the scale in this study was 0.89 and confirmatory factor analysis demonstrated the good structural validity of the questionnaire ($\chi^2 = 830.91$, $df = 238$, CFI = 0.93, TLI = 0.90, RMSEA = 0.06, SRMR = 0.08).

Results

The 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 greater than 1, and the first factor explained 22.40% of the variation, below the 40% threshold. Subsequently, on the basis of related trait factors (interparental conflict, alexithymia, NSSI and resilience), all items are taken as indicators of global method factors, and a two-factor model is established and compared with the model containing only trait factors. The results showed no significant difference between the two models ($\Delta CFI = 0.071$, $\Delta TLI = 0.056$, $\Delta RMSEA = 0.017$, $\Delta SRMR = 0.017$), as well as there is no obvious common method bias in the present study.

The results showed that there were 587 high school students who had never committed NSSI, accounting for 77.75% of the total. As well as there were 168 high school students who had at least once NSSI, accounting for 22.25% of the total. Meanwhile, the mean value, standard deviation and correlation coefficient of each variable are shown in Table 1. 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 ($r = -0.67$, $p < 0.01$). Since gender and grade were significantly associated with the core variables of the present study, to reduce the spurious effects, they were controlled as covariates in subsequent analysis.

Table 1

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

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
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1 Gender	—	—	1					
2 Grade	—	—	0.01	1				
3 Interparental conflict	2.55	0.55	0.09*	-0.09*	1			
4 Alexithymia	2.60	0.58	-0.03	-0.08*	0.45**	1		
5 NSSI	0.23	0.96	0.04	-0.11**	0.22**	0.25**	1	
6 Resilience	3.50	0.59	0.02	0.05	-0.47**	-0.67**	-0.18**	1

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

The mediation effect of alexithymia between interparental conflict and NSSI was tested by Process Model 4 (Hayes, 2017) [30] while controlling for demographic variables such as gender and grade, and the results are shown in Table 2. Interparental conflict significantly positively predicted NSSI, and the regression coefficient t is significant ($\beta = 0.21$, $t = 5.89$, $p < 0.01$). So far, hypothesis 1 is verified. 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 ($\beta = 0.19$, $t = 4.83$, $p < 0.01$). The present study also found that after adding the mediation variable, 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.

Table 2

Regression analysis of the mediating effects of alexithymia

	NSSI		Alexithymia		NSSI	
	β	t	β	t	β	t
Gender	0.05	0.75	-0.13	-1.99*	0.08	1.11
Grade	-0.17	-2.45*	-0.07	-1.19	-0.16	-2.28*
Interparental conflict	0.21	5.89**	0.46	13.93**	0.12	3.14**
Alexithymia					0.19	4.83**
$F(df)$	11.52(4, 750)**		50.39(4, 750)**		14.16(5, 749)**	
R	0.24		0.46		0.29	
R^2	0.06		0.21		0.09	

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

The Bootstrap was used to test the proportion of direct effects and indirect effects, and the results are shown in Table 3. The total effect value was 0.21 as well as 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]) do not include 0, which indicates that alexithymia partially mediates the prediction of interparental conflict on NSSI. So far, hypothesis 2 is verified.

Table 3

Test of mediating effect of alexithymia

	Effect size	BootSE	BootLLCI	BootULCI	Proportion of effect
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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%

The Process Model 15 was used to test the moderating role of resilience in this moderated mediation model, and the results are shown in Table 4. The interaction between interparental conflict and resilience has a significant predictive effect on NSSI ($\beta = -0.08, p < 0.05$), which indicates that resilience moderates the relationship between interparental conflict and NSSI, 95%CI[-0.147, 0.003] excludes 0, verify the hypothesis 3a; The interaction between alexithymia and resilience has a significant predictive predicted effect on NSSI ($\beta = -0.08, p < 0.05$), which suggests that resilience moderates the relationship between alexithymia and NSSI, 95%CI[-0.151, 0.013] excludes 0, verify the hypothesis 3b.

Table 4

Test of moderated mediating effect

	Alexithymia		NSSI	
	β	<i>t</i>	β	<i>t</i>
Gender	-0.13	-1.99*	0.08	1.19
Grade	-0.07	-1.19	-0.16	-2.25*
Interparental conflict	0.46	13.93**	0.14	3.46**
Alexithymia			0.22	4.49**
Resilience			-0.01	-0.21
Interparental conflict x Resilience			-0.08	-2.06*
Alexithymia x Resilience			-0.08	-2.33*
<i>F(df)</i>	50.39(4, 750)**		11.11(8, 745)**	
<i>R</i>	0.46		0.33	
<i>R</i> ²	0.21		0.11	

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

Simple slope analysis was used to further test the moderating effect of resilience. According to the average score of resilience, the subjects were divided into high resilience group ($M + 1SD$) and low resilience group ($M - 1SD$). The results showed that 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 ($\beta = 0.07, p > 0.05$), that is, only when the level of resilience is low, interparental conflict can positively predict the NSSI of adolescents (Fig. 2). Meanwhile, 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 decreased ($\beta = 0.06, p < 0.05$) (Fig. 3).

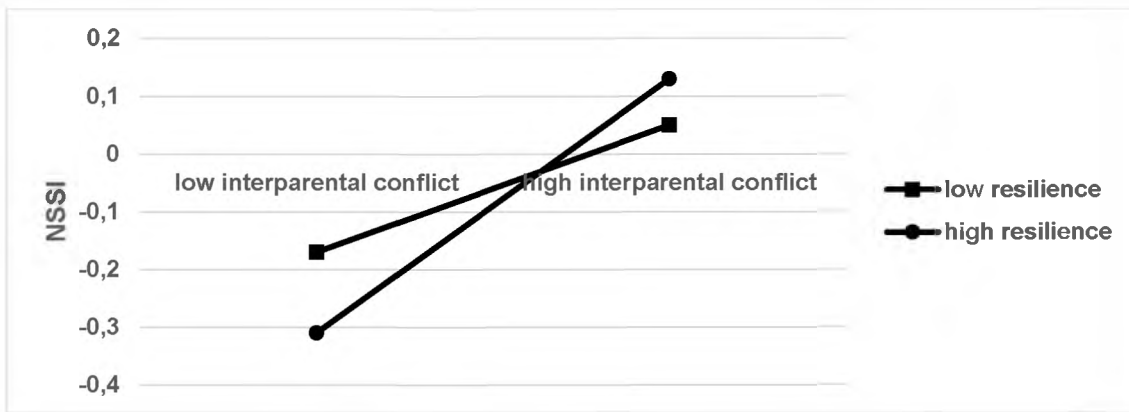


Fig. 2. Moderation of resilience between interparental conflict and NSSI

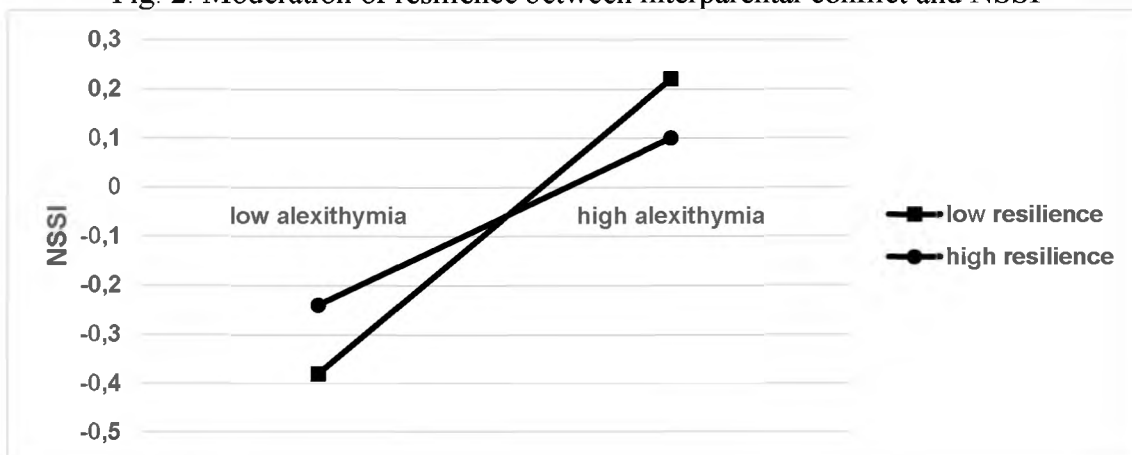


Fig. 3. Moderation of resilience between alexithymia and NSSI

Discussion

The results of the present study showed that the detection rate of NSSI in adolescents was 22.25%, which was little difference from previous studies (Lang & Yao, 2018) [38]. The interparental conflict positively predicted NSSI in adolescents, which was consistent with previous study (Dhir, 2020) [17]. The environmental function model of NSSI states that the environment in which an individual lives is a system. NSSI is a way for self-injurers to maintain system balance or to vent a sense of threat caused by a dysfunctional system (Carr, 1977) [5]. The dysfunctional system often leads negative emotional experiences such as restlessness, depression and anxiety. At the same time, it also causes various psychological problems, which may be alleviated when faced with self-injury (Chen, 2023) [13]. The environmental model focuses not only on the environment that causes NSSI, but also on which factors in the environment contribute to the recurrence of intentional or incidental NSSI. Among the environmental factors, the family environment plays a leading role in causing self-injury behavior (Waals et al., 2018) [59]. Family dysfunction will greatly increase the incidence of NSSI in adolescents (Cassels et al., 2018) [6]. Interparental conflict is an important manifestation of family dysfunction (Davies et al., 2023) [15].

The results suggest that alexithymia is a partial mediator between interparental conflict and NSSI in adolescents. As children grow up, they become more and more concerned about the relationship between their parents, especially

in the adolescent stage. The relationship atmosphere and mode with parents will directly affect the level of physical and mental development of their children (Fosco et al., 2023) [22]. According to the emotion regulating function of self-harm behavior, self-injury is an incorrect strategy for individuals to express and manage strong negative emotions (Gratz, 2003) [27]. Children who live in frequent and intense family conflicts generally lack emotional security and do not have the correct emotional expression ability and coping strategies. Compared with children growing up in normal families, they generally suffer more pain and pressure (Cassels et al., 2018) [6]. At this point, interparental conflict will lead to strong negative emotional experience among teenagers (Wang & Ai, 2022) [61], and they are more likely to have emotional management problems and gradually form alexithymia. Therefore, it is crucial for adolescents to process emotions in the face of interparental conflict. If their perceived level of interparental conflict is beyond the tolerable range, long-term repressed negative emotions can not be released, resulting in increased levels of alexithymia, then the possibility of negative behaviors such as NSSI will be greatly increased.

According to the experiential avoidance model of self-harm behavior, NSSI is a manifestation of avoiding or escaping from an unwanted inner experience (Chapman et al., 2006) [9]. When individuals with alexithymia experience negative emotions, they have difficulty recognizing their emotional states and implementing strategies to alleviate psychological distress or address underlying problems. Therefore, NSSI are often chosen to alleviate short-term aversive arousal and cope with psychological pain (Norman & Borrill, 2015) [47]. Emotional depression and inability to emotion regulation due to alexithymia will increase the risk of NSSI (Tang et al., 2022) [55]. The high correlation between the alexithymia and NSSI (Gratz et al., 2007) [28] makes it possible to distinguish NSSI from non-NSSI individuals effectively.

The present study found that resilience has a moderating effect between interparental conflict and NSSI in adolescents. With the improvement of resilience level, the positive prediction effect of interparental conflict on NSSI of adolescents was gradually weakened. Adolescents are prone to impulsive behavior (McHugh et al., 2019) [43]. When the family system is unbalanced or the relationship between family members is tense, they are likely to adopt self-injury behavior in order to maintain the system balance under self-perception (Chen, 2023) [13]. This is more obvious in individuals with low resilience (Mao et al., 2022) [40]. Therefore, resilience can not only reduce the possibility of individuals taking NSSI, but also become a spiritual help for teenagers to deal with risk environment factors, and may even play a key role in their mental health development (Zhang et al., 2021) [69].

Moreover, resilience moderates the relationship between alexithymia and NSSI. The core process of alexithymia is inability to emotion regulation (Norman et al., 2020) [48]. Adolescents with alexithymia are more inclined to choose

internal inhibitory strategies when coping with negative emotions (Chen et al., 2011) [10]. Based on this, NSSI often accompanies alexithymia (Wolff et al., 2019) [63]. On previous studies, resilience was a significant positive predictor of mental health (Rios-Risquez et al., 2018) [50]. Moreover, it is also a key factor of emotional management ability (Mestre et al., 2017) [44]. When facing negative emotional experiences, individuals with high resilience are more likely to choose the right coping strategies to tide over difficulties, so as to avoid unnecessary harm.

Limitations

The present study has several limitations, and therefore, results should be interpreted with caution. First, the present study confirmed the influence of family environment on adolescents' NSSI, however, recent studies have shown that externalizing behavior is influenced by the interaction of genes, environment and individual development (Trucco et al., 2020) [57]. The combined effect of individual genetic factors or neural mechanisms and external environmental factors on NSSI can be examined in the future. Second, there is evidence that psychological and behavioral problems affect one's perception of environment (Way et al., 2007) [62]. In the future, longitudinal design can be used to further reveal the interaction relationship between family atmosphere and NSSI as well as dynamically investigate the role of parent-child interaction in adolescents. Third, the present study did not control for relevant variables such as family income, parents' educational level and parenting style (Kim & Park, 2022 [36]; Ying & Weiguo, 2021 [66]). Future studies can further control for relevant variables to draw more accurate conclusions.

Conclusion

(1) Interparental conflict significantly positively predicted NSSI in adolescents. (2) Alexithymia plays a mediating role between interparental conflict and NSSI. (3) Resilience moderates the direct path and the second half of the mediating path in the moderated mediation model.

REFERENCES

1. Ando A., Reichl C., Scheu F., Bykova A., Parzer P., Resch F., ... & Kaess M. Regional grey matter volume reduction in adolescents engaging in NSSI // *Psychiatry research: neuroimaging*. 2018. V. 280. P. 48–55. <https://doi.org/10.1016/j.psychres.2018.08.005>
2. Bozyiğit T., & Mamatoğlu N. The mediating role of adolescent emotion regulation in the relationship between parental marital conflict resolution styles and adolescent conflict resolution behaviors // *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi-Hacettepe University Journal of Education*. 2022. <https://doi.org/10.16986/huje.2021073520>
3. Bronfenbrenner U. Toward an experimental ecology of human development // *American psychologist*. 1977. V. 32(7). P. 13. <https://doi.org/10.1037/0003-066X.32.7.513>
4. Buehler C., Anthony C., Krishnakumar A., Stone G., Gerard J., & Pemberton S. (1997). Interparental conflict and youth problem behaviors: A meta-analysis // *Journal of Child and family studies*. V. 6. P. 233–247. <https://doi.org/10.1023/A%3A1025006909538>
5. Carr E.G. The motivation of self-injurious behavior: a review of some hypotheses // *Psychological bulletin*. 1977. V. 84(4). P. 800. <https://doi.org/10.1037/0033-2909.84.4.800>
6. Cassels M., van Harmelen A.L., Neufeld S., Goodyer I., Jones P.B., & Wilkinson P. Poor family functioning mediates the link between childhood adversity and adolescent nonsuicidal

- self-injury // *Journal of child psychology and psychiatry*. 2018. V. 59(8). P. 881–887. <https://doi.org/10.1111/jcpp.12866>
7. Celikel F.C., Kose S., Erkorkmaz U., Sayar K., Cumurcu B.E., & Cloninger C R. Alexithymia and temperament and character model of personality in patients with major depressive disorder // *Comprehensive Psychiatry*. 2010. V. 51(1). P. 64–70. <https://doi.org/10.1016/j.comppsy.2009.02.004>
 8. Chao Q., Yang X., & Luo C. Boy crisis? Sex differences in self-injurious behaviors and the effects of gender role conflicts among college students in china // *American journal of men's health*. 2016. V. 10(6). NP.1–NP.10. <https://doi.org/10.1177/1557988315579096>
 9. Chapman A.L., Gratz K.L., & Brown M.Z. Solving the puzzle of deliberate self-harm: The experiential avoidance model // *Behaviour research and therapy*. 2006. V. 44(3). P. 371–394. <https://doi.org/10.1016/J.BRAT.2005.03.005>
 10. Chen J., Xu T., Jing J., & Chan R.C. Alexithymia and emotional regulation: A cluster analytical approach // *BMC psychiatry*. 2011. 11(1). P. 1–6. <https://doi.org/10.1186/1471-244X-11-33>
 11. Chen M., Sun X., Chen Q., & Chan K.L. Parental migration, children's safety and psychological adjustment in rural China: A meta-analysis // *Trauma, Violence, & Abuse*. 2020. V. 21(1). P. 113–122. <https://doi.org/10.1177/1524838017744768>
 12. Chen S., & Bonanno G. A. Psychological adjustment during the global outbreak of COVID-19: A resilience perspective // *Psychological Trauma: Theory, Research, Practice, and Policy*. 2020. V. 12(S1). P. S51. <https://doi.org/10.1037/tra0000685>
 13. Chen X. Research on the Intervention Methods of Adolescents' Non-suicidal Self-injury Behavior // *Lecture Notes in Education Psychology and Public Media*. 2023. <https://doi.org/10.54254/2753-7048%2F6%2F20220436>
 14. Chi L., & Xin Z. The Revision of Children's Perception of Marital Conflict Scale (in Chinese) // *Chinese mental health journal*. 2003. V. (8). P. 554–556.
 15. Davies P.T., Pearson J.K., Cao V.T., & Sturge-Apple M.L. Family-level antecedents of children's patterns of reactivity to interparental conflict: Testing the reformulation of emotional security theory // *Developmental Psychology*. 2023. V. 59(1). P. 99. <https://doi.org/10.1037/dev0001497.supp>
 16. Deb S., McGirr K., Bhattacharya B., Ji & Sun O. Role of Home Environment, Parental Care, Parents Personality and Their Relationship to Adolescent Mental Health // *Journal of Psychology & Psychotherapy*. 2015. V. 5. P. 1–8. <https://doi.org/10.4172/2161-0487.1000223>
 17. Dhir R. Influence of parental and peer relationships on NSSI in adolescents // *International Journal of Indian Psychology*. 2020. V. 8(3). <https://doi.org/10.25215/0803.030>
 18. Erel O., & Burman B. Interrelatedness of marital relations and parent-child relations: a meta-analytic review // *Psychological bulletin*. 1995. V. 118(1). P. 108. <https://doi.org/10.1037/0033-2909.118.1.108>
 19. Esposito C., Bacchini D., & Affuso G. Adolescent NSSI and its relationships with school bullying and peer rejection // *Psychiatry research*. 2019. V. 274. P. 1–6. <https://doi.org/10.1016/j.psychres.2019.02.018>
 20. Farah T., Ling S., Raine A., Yang Y., & Schug R. Alexithymia and reactive aggression: The role of the amygdala // *Psychiatry Research: Neuroimaging*. 2018. V. 281. P. 85–91. <https://doi.org/10.1016/j.pscychresns.2018.09.003>
 21. Feng Y. The relation of adolescents self-harm behaviors individual emotion characteristics and family environment factors (in Chinese). M.S. thesis // *Central China Normal University*. 2008.
 22. Fosco G.M., Weymouth B B., & Feinberg M.E. Interparental conflict, family climate, and threat appraisals: Early adolescent exposure and young adult psychopathology risk // *Journal of Family Psychology*. 2023. <https://doi.org/10.1037/fam0001096>

23. Gallagher M.L., & Miller A.B. Suicidal thoughts and behavior in children and adolescents: an ecological model of resilience // *Adolescent Research Review*. 2018. V. 3. P. 123–154. <https://doi.org/10.1007/s40894-017-0066-z>
24. Garmezy N., Masten A.S., & Tellegen A. The study of stress and competence in children: A building block for developmental psychopathology // *Child development*. 1984. P. 97–111. <https://doi.org/10.2307/1129837>
25. Gatta M., Balottin L., Mannarini S., Chesani G., Del Col L., Spoto A., & Battistella P.A. Familial factors relating to alexithymic traits in adolescents with psychiatric disorders // *Clinical psychologist*. 2017. V. 21(3). P. 252–262. <https://doi.org/10.1111/cp.12098>
26. Giancesini G., & Brighi A. Cyberbullying in the era of digital relationships: The unique role of resilience and emotion regulation on adolescents' adjustment / In *Technology and youth: Growing up in a digital world*. 2015. P. 1–46. Emerald Group Publishing Limited. <https://doi.org/10.1111/cp.12098>
27. Gratz K.L. Risk factors for and functions of deliberate self-harm: An empirical and conceptual review // *Clinical Psychology: Science and Practice*. 2003. V. 10(2). P. 192. <https://doi.org/10.1093/CLIPSY.BPG022>
28. Gratz K.L., & Chapman A.L. The role of emotional responding and childhood maltreatment in the development and maintenance of deliberate self-harm among male undergraduates // *Psychology of Men & Masculinity*. 2007. V. 8(1), P. 1. <https://doi.org/10.1037/1524-9220.8.1.1>
29. Green K.H., van de Groep S., Sweijen S.W., Becht A.I., Buijzen M., de Leeuw R.N., ... & Crone E.A. Mood and emotional reactivity of adolescents during the COVID-19 pandemic: short-term and long-term effects and the impact of social and socioeconomic stressors // *Scientific Reports*. 2021. V. 11(1). P. 11563. <https://doi.org/10.1038/s41598-021-90851-x>
30. Hayes A.F. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications. 2017. 692 p.
31. Hébert M., Boisjoli C., Blais M., & Oussaid E. Alexithymia as a mediator of the relationship between child sexual abuse and psychological distress in adolescence: A short-term longitudinal study // *Psychiatry research*. 2018. V. 260. P. 468–472. <https://doi.org/10.1016/j.psychres.2017.12.022>
32. Hu Y., & Gan Y. Development and Psychometric Validity of the Resilience Scale for Chinese Adolescents (in Chinese) // *Acta Psychologica Sinica*. 2008. V. 40(08). P. 902–912. <https://doi.org/10.3724/SP.J.1041.2008.00902>
33. Janik McErlean A.B., & Lim L. X.C. Relationship between parenting style, alexithymia and aggression in emerging adults // *Journal of family issues*. 2020. V. 41(6). P. 853–874. <https://doi.org/10.1177/0192513X19886647>
34. Kaess M., Eppelmann L., Brunner R., Parzer P., Resch F., Carli V., ... & Wasserman D. (2020). Life events predicting the first onset of adolescent direct self-injurious behavior—a prospective multicenter study // *Journal of adolescent health*. V. 66(2). P. 195–201. <https://doi.org/10.1016/j.jadohealth.2019.08.018>
35. Katz L.F., & Gottman J.M. Spillover effects of marital conflict: In search of parenting and coparenting mechanisms // *New Directions for Child and Adolescent Development*. 1996. V. (74). P. 57–76. <https://doi.org/10.1002/CD.23219967406>
36. Kim S., & Park J.H. Does Parental Psychological Control Affect NSSI of Adolescents via Depression? // *Human Ecology Research*. 2022. V. 60(4). P. 535–547. <https://doi.org/10.6115/fer.2022.036>
37. Kong J., Moorman S.M., Martire L.M., & Almeida D.M. The role of current family relationships in associations between childhood abuse and adult psychological functioning // *The Journals of Gerontology: Series B*. 2019. V. 74(5). P. 858–868. <https://doi.org/10.1093/geronb%2Fgby076>

38. Lang J., & Yao Y. Prevalence of nonsuicidal self-injury in Chinese middle school and high school students: a meta-analysis // *Medicine*. 2018. V. 97(42). <https://doi.org/10.1097/md.00000000000012916>
39. Li X., Li B., Lu J., Jin L., Xue J., & Che X. The relationship between alexithymia, hostile attribution bias, and aggression // *Personality and Individual Differences*. 2020. V. 159. P. 109869. <https://doi.org/10.1016/j.paid.2020.109869>
40. Mao C., Lin M., Shen S., Li Y., Xie Z., & Li P. Latent profiles of emotion regulation strategies associated with alexithymia, nonsuicidal self-injury and resilience among nursing students // *Stress and Health*. 2022. V. 38(1). P. 69–78. <https://doi.org/10.1002/smi.3075>
41. Mao M., Zang L., & Zhang H. The effects of parental absence on children development: evidence from left-behind children in China // *International journal of environmental research and public health*. 2020. V. 17(18). P. 6770. <https://doi.org/10.3390/ijerph17186770>
42. Masten A.S. *Ordinary magic: Resilience in development*. 2015. Guilford Publications. <https://doi.org/10.5860/choice.187892>
43. McHugh C.M., Lee R.S.C., Hermens D.F., Corderoy A., Large M., & Hickie I.B. Impulsivity in the self-harm and suicidal behavior of young people: a systematic review and meta-analysis // *Journal of psychiatric research*. 2019. V. 116. P. 51–60. <https://doi.org/10.1016/J.JPSYCHIRES.2019.05.012>
44. Mestre J.M., Núñez-Lozano J.M., Gómez-Molinero R., Zayas A., & Guil R. Emotion regulation ability and resilience in a sample of adolescents from a suburban area // *Frontiers in psychology*. 2017. V. 8. P. 1980. <https://doi.org/10.3389/fpsyg.2017.01980>
45. Morie K. P., Yip S. W., Nich C., Hunkele K., Carroll K.M., & Potenza M.N. Alexithymia and addiction: a review and preliminary data suggesting neurobiological links to reward/loss processing // *Current addiction reports*. 2016. V. 3(2). P. 239–248. <https://doi.org/10.1007/s40429-016-0097-8>
46. Nock M.K. Self-injury // *Annual review of clinical psychology*. 2010. V. 6. P. 339–363. <https://doi.org/10.1146/annurev.clinpsy.121208.131258>
47. Norman, H., & Borrill, J. (2015). The relationship between self-harm and alexithymia // *Scandinavian journal of psychology*, 56(4), 405–419. <https://doi.org/10.1111/sjop.12217>
48. Norman H., Oskis A., Marzano L., & Coulson M. The relationship between self-harm and alexithymia: a systematic review and meta-analysis // *Scandinavian journal of psychology*. 2020. V. 61(6). P. 855–876. <https://doi.org/10.1111/sjop.12668>
49. Prino L.E., Longobardi C., Fabris M.A., Parada R.H., & Settanni M. Effects of bullying victimization on internalizing and externalizing symptoms: the mediating role of alexithymia // *Journal of Child and Family Studies*. 2019. V. 28. P. 2586–2593. <https://doi.org/10.1007/s10826-019-01484-8>
50. Ríos-Risquez M.I., García-Izquierdo M., Sabuco-Tebar E.D.L.Á., Carrillo-García C., & Solano-Ruiz C. Connections between academic burnout, resilience, and psychological well-being in nursing students: A longitudinal study // *Journal of advanced nursing*. 2018. V. 74(12). P. 2777–2784. <https://doi.org/10.1111/jan.13794>
51. Rossetti M.C., Tosone A., Stratta P., Collazzoni A., Santarelli V., Guadagni E., ... & Rossi A. Different roles of resilience in depressive patients with history of suicide attempt and no history of suicide attempt // *Brazilian Journal of Psychiatry*. 2017. V. 39. P. 216–219. <https://doi.org/10.1590/1516-4446-2016-2045>
52. Schermerhorn A.C. Associations of child emotion recognition with interparental conflict and shy child temperament traits // *Journal of Social and Personal Relationships*. 2019. V. 36(4). P. 1343–1366. <https://doi.org/10.1177/0265407518762606>
53. Schiele M.A., & Domschke K. Epigenetics at the crossroads between genes, environment and resilience in anxiety disorders // *Genes, Brain and Behavior*. 2018. V. 17(3). P. e12423. <https://doi.org/10.1111/gbb.12423>

54. Strain J.J. The psychobiology of stress, depression, adjustment disorders and resilience // *The World Journal of Biological Psychiatry*. 2018. V. 19 (sup1), P. S14–S20. <https://doi.org/10.1080/15622975.2018.1459049>
55. Tang W.C., Lin M.P., Wu J.Y. W., Lee Y.T., & You J. Mediating role of depression in the association between alexithymia and nonsuicidal self-injury in a representative sample of adolescents in Taiwan // *Child and adolescent psychiatry and mental health*. 2022. V. 16(1). P. 43. <https://doi.org/10.1186/s13034-022-00477-8>
56. Taylor G.J. Recent developments in alexithymia theory and research // *The Canadian Journal of Psychiatry*. 2000. V. 45(2). P. 134–142. <https://doi.org/10.1177/070674370004500203>
57. Trucco E.M., Yang S., Yang J.J., Zucker R.A., Li R., & Buu A. Time-varying effects of GABRG1 and maladaptive peer behavior on externalizing behavior from childhood to adulthood: Testing gene \times environment \times development effects // *Journal of youth and adolescence*. 2020. V. 49. P. 1351–1364. <https://doi.org/10.1007/s10964-019-01171-3>
58. Tselebis A., Moulou A., Ilias I., & Bratis D. Depression, family support and alexithymia in patients with bronchial asthma // *Annals of General Psychiatry*. 2006. V. 5(1). P. 1–1. <https://doi.org/10.1186/1744-859X-5-S1-S128>
59. Waals L., Baetens I., Rober P., Lewis S., Van Parys H., Goethals E.R., & Whitlock J. The NSSI family distress cascade theory // *Child and adolescent psychiatry and mental health*. 2018. V. 12. P. 1–6. <https://doi.org/10.1186/s13034-018-0259-7>
60. Wang X., Li X., Guo C., Hu Y., Xia L., Geng F., ... & Liu H. Prevalence and correlates of alexithymia and its relationship with life events in chinese adolescents with depression during the COVID-19 pandemic // *Frontiers in Psychiatry*. 2021. V. 12. P. 774952. <https://doi.org/10.3389/fpsy.2021.774952>
61. Wang Z., Li C., & Ai K. Family economic strain and adolescent aggression during the COVID-19 pandemic: Roles of interparental conflict and parent-child conflict // *Applied research in quality of life*. 2022. V. 17(4). P. 2369–2385. <https://doi.org/10.1007/s11482-022-10042-2>
62. Way N., Reddy R., & Rhodes J. Students' perceptions of school climate during the middle school years: Associations with trajectories of psychological and behavioral adjustment // *American journal of community psychology*. 2007. V. 40. P. 194–213. <https://doi.org/10.1007/S10464-007-9143-Y>
63. Wolff J.C., Thompson E., Thomas S.A., Nesi J., Bettis A. H., Ransford B., ... & Liu R.T. Emotion dysregulation and NSSI: A systematic review and meta-analysis // *European Psychiatry*. 2019. V. 59. P. 25–36. <https://doi.org/10.1016/j.eurpsy.2019.03.004>
64. Yang Q., Xie R., Li J., Zhang R., Ding W., & Li W. The Mutual Relationship Between Self-Compassion, Perceived Social Support, and Adolescent NSSI: A Three-Wave Longitudinal Study // *Mindfulness*, 2023. P. 1–11. <https://doi.org/10.1007/s12671-023-02169-6>
65. Yi J., Yao S., & Zhu X. The Chinese version of the TAS-20: reliability and validity (in Chinese) // *Chinese mental health journal*. 2003. V. (11). P. 763–767.
66. Ying S.U.N., & Weiguo W. Relationship between sleep and NSSIs of Tajik middle school students in high altitude areas // *Chinese journal of school health*. 2021. V. 42(8). P. 1189–1193. <https://doi.org/10.16835/J.CNKI.1000-9817.2021.08.016>
67. Yu X., & Zhang J. Factor analysis and psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) with Chinese people // *Social Behavior and Personality: an international journal*. 2007. V. 35(1). P. 19–30. <https://doi.org/10.2224/SBP.2007.35.1.19>
68. Zang X., Li T., Li M., An Y., Cheng X., & Jin J.. Resilience mediates the relationship between parental attachment and posttraumatic growth in adolescents: a longitudinal study // *Disaster medicine and public health preparedness*. 2023. V. 17. P. e381. <https://doi.org/10.1017/dmp.2023.43>

69. Zhang L., Meiai C.H.E.N., Benxian Y.A.O., & Zhang Y. Aggression and NSSI among depressed youths: the mediating effect of resilience // Iranian journal of public health. 2021. V. 50(2). P. 288. <https://doi.org/10.18502/ijph.v50i2.5342>
70. Zhou H., Hu Y., Cheng X., & Sun X. Resilience as mediator in relation to parental attachment and posttraumatic stress disorder in adolescents following the Yancheng tornado. // Clinical child psychology and psychiatry, 2023. 13591045231160639. <https://doi.org/10.1177/13591045231160639>

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