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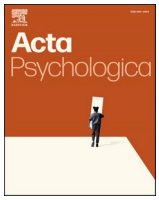



The influence of relationship loss on non-suicidal self-injury in adolescence: The mediating effects of perceived opportunity in adversity and PTSD symptoms

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ABSTRACT

Aim: This study investigated the mediating effects of perceived opportunity in adversity and PTSD symptoms in the relationship between relationship loss and non-suicidal self-injury (NSSI) in adolescence.
Background: Adolescent relationship loss can have lasting negative effects on development and later life, and may particularly increase the risk of NSSI. The consequences of relationship loss vary depending on the individual's perception and psychological responses. However, the mechanisms by which adolescent relationship loss leads to NSSI are not yet clear, and research on the role of perceived opportunity in adversity and PTSD symptoms in this context is limited.
Methods: The convenience sample included 201 college students who had experienced both relationship loss and NSSI during adolescence. Data were collected using four self-report measures (relationship loss, perceived opportunity in adversity, PTSD symptoms, and NSSI) and analyzed using structural equation modeling (SEM).
Results: PTSD symptoms partially mediated the relationship between relationship loss and NSSI. In addition, perceived opportunity in adversity and PTSD symptoms sequentially mediated the relationship between relationship loss and NSSI. On the other hand, perceived opportunity in adversity did not mediate the relationship between relationship loss and NSSI.
Conclusion: Reducing PTSD symptoms may mediate the impact of adolescent relationship loss on NSSI, while the bidirectional nature of perceived opportunity in adversity warrants attention. Counselors and educators should implement strategies to alleviate PTSD symptoms and develop programs that leverage the positive aspects of perceived opportunity in adversity to mitigate negative outcomes.

1. Introduction

Non-suicidal self-injury (NSSI) is a very dangerous self-destructive behavior that involves directly and intentionally injuring one's own body without the intention of dying (Nock, 2009), and repeated attempts can lead to suicide (Muehlenkamp et al., 2013). In particular, NSSI in adolescents is a serious problem worldwide (Xiao et al., 2022). The lifetime prevalence of NSSI in non-clinical adolescents is high at 17.2–19.5 % (Lim et al., 2019; Swannell et al., 2014). Compared to adults, the prevalence rate in adolescents is three times higher (Klonsky, 2011), confirming the seriousness of NSSI in adolescents. Additionally, studies by Lurigio et al. (2024) confirm that the rate of NSSI among adolescents continues to increase. However, it should be noted that self-injury is a phenomenon that cannot be explicitly quantified like suicide. Most adolescent self-injuries are committed covertly and do not receive proper therapeutic intervention (Nock, 2010), so the actual prevalence of self-injury is expected to exceed the results of the survey (Seong et al., 2019). Kim and Yu (2017) and Seong et al. (2019) pointed out that while the severity of NSSI in adolescents is increasing and academic interest in it is rapidly increasing, there is a lack of NSSI research targeting adolescents. This suggests the need for additional research on NSSI in adolescents.

Loss is a universal phenomenon, and most people experience various types of loss during their development (Ang, 2023; Gopez, 2021). The psychological impact of loss can vary across individuals (Linder et al., 2024), and it has a particularly profound impact on emotional and social well-being and development for children and adolescents. In the absence of appropriate interventions, these loss experiences can have long-term

Abbreviations: NSSI, non-suicidal self-injury; SEM, structural equation modeling.

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negative consequences (Graham, 2004). The death of a close loved one or the loss of a relationship during adolescence is one of the most painful traumatic experiences (Jo & Jeong, 2020; Johnsen & Tømmeraas, 2022) and can lead to PTSD symptoms (Miao et al., 2018), which can lead to self-destructive behaviors such as self-injury (Lusk et al., 2017). Nasution (2023) and Zhou et al. (2022) reported that the death of a close person or parental divorce and separation were related to adolescent self-injury. In addition, PTSD symptoms predicted NSSI (Zhao et al., 2023) and mediated the relationship between traumatic experiences and NSSI (Andersson et al., 2022). Based on these studies, it can be known that relationship loss and PTSD symptoms in adolescence are related to NSSI.

An individual's perception of a traumatic event affects its consequences (Lei et al., 2024). Tedeschi and Calhoun (2004) stated that efforts to find positive aspects in traumatic experiences can lead to internal growth and positive psychological changes. In addition, a study by Cho et al. (2016) reported that even if an individual experiences adversity such as a traumatic event, if they perceive it as an opportunity, it can have a positive effect on them. In other words, if an individual perceives a traumatic event as an opportunity after experiencing it, they will experience positive changes accordingly. In this way, 'perceived opportunity in adversity', which recognizes and actively copes with a traumatic event in a way that can have a positive effect on them rather than accepting or denying it as it is, can be expected to mediate the effects on an individual's PTSD symptoms or NSSI.

2. Current study

Experiencing relationship loss during adolescence has serious long-term negative effects (Tullius et al., 2022). Additionally, the prevalence of NSSI is high during this developmental period (Lim et al., 2019; Swannell et al., 2014). This study focuses on these points and examines the mediating effects of PTSD symptoms and perceived opportunity in adversity on the relationship between relationship loss and NSSI during adolescence. The hypotheses of this study are as follows: Relationship loss may increase NSSI (Hypothesis 1). PTSD symptoms will mediate the relationship between relationship loss and NSSI (Hypothesis 2). Perceived opportunity in adversity will mediate the relationship between relationship loss and NSSI (Hypothesis 3). Perceived opportunity in adversity and PTSD symptoms will sequentially mediate the relationship between relationship loss and NSSI (Hypothesis 4). By uncovering the relationships between these variables, this study aims to contribute to the development of appropriate prevention and intervention strategies by specifically exploring the influencing factors and pathways of NSSI in adolescents.

3. Method

3.1. Participants and procedure

This study was conducted on college students who had experienced both relationship loss and NSSI during adolescence. The selection of participants was based on previous research highlighting the long-term negative effects of relationship loss during adolescence and the peak prevalence of NSSI in this developmental period (Graham, 2004; Lim et al., 2019; Swannell et al., 2014). Given the psychological risks associated with studying adolescents who are currently undergoing or have recently experienced these challenges, college students—who are presumed to have a greater capacity to cope with the re-experiencing of negative events—were chosen as the study population (Park, 2024). All procedures and tools of this study were approved by the Institutional Review Board prior to data collection. All participants were informed of the purpose of the study and consent was obtained before participation. The study description stated that the confidentiality of the responses and the possibility of immediate discontinuation and withdrawal if discomfort was felt during the response. Based on the minimum sample size appropriate for SEM analysis being 200 (Kline, 2005), 223 participants were recruited in this study considering a 10 % dropout rate. After excluding 22 insincere responses, 201 responses were used in the final analysis. Study participants reported gender (female 52.2 %, male 47.8 %), age (range 20–29 years), and grade (first grade 23.4 %, second grade 21.9 %, third grade 24.4 %, fourth grade or higher 30.3 %).

3.2. Measures

3.2.1. Relationship loss

The loss of relationship was assessed using the questionnaire on loss experiences used in the study by Kim and Jang (2020) and was based on the Loss History Checklist by Sofka (1997). It contains 13 items on two sub-factors: death loss and relationship loss. Considering that this study explores experiences during adolescence, items related to the death of children, death of spouse, divorce, infertility, and miscarriage were excluded. Responses were evaluated on a 5-point Likert scale (1 = very little, 5 = very much). Cronbach's α of this study was 0.868.

3.2.2. Perceived opportunity in adversity

The perceived of opportunities in adversity was assessed using the Perceived Opportunity in Adversity Scale (POAS) developed and validated by Cho et al. (2016). It consists of five sub-factors: insight (4 items), active coping (3 items), change of thinking (2 items), cognitive support (2 items), and emotional support (2 items). Responses were evaluated on a 5-point Likert scale (1 = not at all, 5 = very much). A higher score indicates a higher degree of recognition of opportunities in adversity. Cronbach's α of this study = 0.920.

3.2.3. PTSD symptoms

PTSD symptoms were assessed using the Impact of Event Scale Revised Korean version (IES-R-K) used in the study by Kim et al. (2018), which was based on the IES-R of Weiss and Marmar (1997). It consists of three sub-factors: hyperarousal (6 items), intrusion (8 items), and avoidance (8 items). Responses were evaluated on a 5-point Likert scale (1 = not at all, 5 = very often). A higher score indicates a higher level of shock from the event. Cronbach's α of this study was 0.965.

3.2.4. NSSI

NSSI was assessed using The Functional Assessment of Self-Mutilation (FASM) used in the study by Yoon and Chang (2021) and was based on the scale of Lloyd et al. (1997). This study used the first part of the FASM, which consists of questions about self-harm methods and frequency. Responses were evaluated on a 7-point Likert scale (0 = not at all, 6 = 6 or more times). This study deleted the questions related to tattoos because they were judged to be acceptable in a sociocultural context, and ultimately used the sum total of the frequency scores of the 11 self-injury methods. Cronbach's α of this study was 0.875.

3.3. Data analysis

In the first stage, SPSS 22.0 was used to calculate descriptive statistics to describe demographic characteristics, relationship loss, perceived opportunity in adversity, PTSD symptoms, and NSSI. Correlation analysis was conducted to examine the relationships between each sub-variable. In the second stage, SEM was performed using AMOS 24.0 with maximum likelihood (ML) estimation. To assess the model fit, the χ^2 value, χ^2/df ratio, CFI, TLI, RMSEA, and SRMR were reported. A χ^2/df ratio of 5 or less is considered acceptable, with a value of 3 or less indicating a relatively good fit (Kline, 2005). A model fit is considered adequate when CFI and TLI are >0.90, RMSEA is <0.05, and SRMR is <0.08 (Browne & Cudeck, 1992). The significance of the indirect effect was assessed through bootstrapping, performed 2000 times. In addition, phantom variables were used to examine the individual multiple mediating effects of perceived opportunity in adversity and PTSD symptoms on the relationship between relationship loss and NSSI.

4. Results

4.1. Descriptive statistics and correlation analysis

Table 1 presents the correlations, means, standard deviations, skewness, and kurtosis of the latent variables. Skewness (absolute value < 3.0) and kurtosis (absolute value < 8.0) indicated no violations of the normality assumption (Kline, 2005). Additionally, all variables in this study were found to be statistically significantly correlated.

4.2. Measurement model analysis

The model fit results, used to assess the validity of the constructed measurement model, are reported in Table 2. The model fit was deemed acceptable, with a $\chi 2$/df value of 1.595, which is below the threshold of 3, along with SRMR = 0.036, TLI = 0.974, CFI = 0.980, and RMSEA = 0.055. The factor loadings, reflecting the explanatory power of each measurement variable, were all statistically significant (see Table 3), with standardized coefficients ranging from 0.69 to 0.94. Additionally, AVE values were 0.5 or higher, and CR values were 0.7 or higher, confirming that both convergent validity and discriminant validity were achieved.

4.3. SEM analysis

The goodness of fit for the research model was acceptable, with a $\chi 2$/df value of 1.595, which is below the threshold of 3, and fit indices of SRMR = 0.036, TLI = 0.974, CFI = 0.980, and RMSEA = 0.055, indicating that the research model was equivalent to the measurement model and demonstrated good fit. The standardized estimates of the direct effects for each path in the research model are presented in Table 4 and Fig. 1. Relationship loss showed a statistically significant positive association with perceived opportunity in adversity ($\beta = 0.283$, $p < .001$), PTSD symptoms ($\beta = 0.299$, $p < .001$), and NSSI ($\beta = 0.361$, $p < .001$). Perceived opportunity in adversity was positively related to PTSD symptoms ($\beta = 0.531$, $p < .001$) but not to NSSI ($\beta = -0.109$, $p < .001$). PTSD symptoms were significantly positively associated with NSSI ($\beta = 0.300$, $p < .01$).

4.4. Mediation effect analysis

The coefficients and significance of the paths involving the phantom variables are shown in Table 5. The paths 'relationship loss → PTSD symptoms → NSSI' (p4) and 'relationship loss → perceived opportunity in adversity → PTSD symptoms → NSSI' (p7) were found to be significant. However, the path 'relationship loss → perceived opportunity in adversity → NSSI' (p2) was not significant.

Table 1
Intercorrelations, means, standard deviations, skewness and kurtosis among variables.

Variables	1	2	3	4
1. Relationship loss	1			
2. PTSD symptoms	0.338**	1		
3. Perceived opportunity in adversity	0.245**	0.567**	1	
4. NSSI	0.400**	0.359**	−0.155*	1
Mean	15.920	68.870	41.620	12.950
SD	12.541	20.006	10.516	12.144
Skewness	1.258	−0.384	−0.551	1.020
Kurtosis	0.786	−0.329	0.139	−0.010

** $p < .01$.
* $p < .05$.

Table 2
Fit index of the measurement model.

χ^2	df	χ^2/df	SRMR	TLI	CFI	RMSEA
94.133**	59	1.595	0.036	0.974	0.980	0.055

** $p < .01$.

5. Discussion

Previous studies have identified traumatic events as risk factors for NSSI (Cheng et al., 2023), with relationship loss being considered a form of traumatic event (Johnsen & Tømmeraas, 2022; Wild et al., 2023). However, the impact of relationship loss as a traumatic event on NSSI, as well as the pathways through which it exerts this influence, have not yet been thoroughly explored. The aim of this study is to examine the relationship between relationship loss and NSSI, along with the associations between variables that influence this relationship.

First, a positive causal relationship was found between adolescent relationship loss and NSSI. This aligns with previous research (Cheng et al., 2023; Jiang et al., 2022), which shows that negative or traumatic experiences, including relationship loss—an event that most people encounter in life—are closely associated with NSSI. The findings of this study highlight the importance of reducing the risk of NSSI through early intervention and support for adolescents who have experienced relational loss.

Adolescents may sometimes use avoidance or emotion suppression strategies to cope with stress or uncomfortable emotions resulting from negative events. While these strategies may temporarily alleviate emotional distress, they are ineffective in managing such emotions over the long term, potentially leading to NSSI (Jiang et al., 2022; Thomassin et al., 2017). Therefore, rather than trying to completely forget the experience of loss of relationships, it is important for adolescents to integrate the experience into their lives in a meaningful way (Wild et al., 2023). To this end, grief counseling can be considered. Grief counseling plays a crucial role in alleviating the pain associated not only with death but also with the severance of relationships, such as breakups (Field, 2020; Varga et al., 2021). Through grief counseling, adolescents can reduce the negative impact of the experience of loss of relationships and adapt harmoniously to the loss and the new reality.

For children and adolescents, who may have more difficulty expressing their emotions verbally compared to adults, tool-based interventions can be a useful approach in grief counseling. These interventions include play therapy, art therapy, and the use of emotion cards. Through tool such as play, drawings, and cards, counselors can gain a deeper understanding of the loss reactions and grief processes of adolescents who have experienced relationship loss and provide appropriate interventions accordingly.

Group counseling can also be beneficial for adolescents who have experienced relationship loss. Group counseling offers significant advantages by providing grieving adolescents with the opportunity to receive empathy and support without feeling isolated from their peers (Abuhegazy & Elkeshishi, 2017). Additionally, group counseling positively contributes to the restoration of daily functioning by allowing grieving youth to share their experiences of loss, express their emotions, and discuss their personal reactions with peers (Lee et al., 2023). Therefore, it is important to combine group interventions with individual grief counseling.

Secondly, PTSD symptoms were found to partially mediate the relationship between relationship loss and NSSI. The findings of this study align with previous research indicating that the loss of a significant relationship can lead to symptoms of PTSD (Scott et al., 2020; Smith & Ehlers, 2021) and contribute to NSSI (Smith et al., 2014). It is also noteworthy that PTSD symptoms were found to mediate all paths where significant indirect effects were observed in this study. This suggests that PTSD symptoms are a critical risk factor for NSSI. PTSD symptoms can manifest immediately after exposure to a traumatic event, and without

Table 3
Factor loading and validity of the measurement model.

Path			*b*	β	*s.e.*	Critical ratio	*AVE*	*CR*
Relationship loss	→	Relationship loss	1.000	0.933	–	–	0.671	0.800
	→	Death loss	1.432	0.687	0.213	6.712**		
Perceived opportunity in adversity	→	Emotional support	1.000	0.771	–	–	0.630	0.894
	→	Cognitive support	0.977	0.747	0.090	10.896**		
	→	Change of thinking	0.895	0.736	0.084	10.712**		
	→	Active coping	1.429	0.866	0.111	12.911**		
	→	Insight	1.694	0.839	0.136	12.478**		
PTSD symptoms	→	Intrusion	1.000	0.936	–	–	0.854	0.946
	→	Avoidance	1.020	0.923	0.044	23.263**		
	→	Hyperarousal	0.794	0.913	0.035	22.565**		
NSSI	→	NSSI3	1.000	0.857	–	–	0.734	0.892
	→	NSSI2	1.455	0.917	0.093	15.618**		
	→	NSSI1	0.993	0.791	0.074	13.329**		

Note. b = unstandardized coefficient, s.e. = standard error, β = standardized coefficient. AVE = Average Variance Extracted, CR = Construct Reliability. All factor loadings were statistically significant ($p < .01$).
** $p < .01$.

Table 4
Structural equation modeling analysis.

Path			β	*s.e.*	Critical ratio	p
Relationship loss	→	Perceived opportunity in adversity	0.283	0.033	3.337	0.000
Relationship loss	→	PTSD symptoms	0.299	0.117	4.076	0.000
Relationship loss	→	NSSI	0.361	0.074	3.779	0.000
Perceived opportunity in adversity	→	PTSD symptoms	0.531	0.296	7.452	0.000
Perceived opportunity in adversity	→	NSSI	−0.109	0.184	−1.189	0.234
PTSD symptoms	→	NSSI	0.300	0.048	2.988	0.003

Note. b = unstandardized coefficient, s.e. = standard error, β = standardized coefficient. All factor loadings except Perceived opportunity in adversity-NSSI were statistically significant ($p < .01$, $p < .001$).

appropriate intervention, there is a high risk that these symptoms may become chronic (Watkins et al., 2018). This highlights the need for prompt and effective intervention for PTSD symptoms that mediate the relationship between relationship loss and NSSI. Interventions for PTSD symptoms may include stabilization therapy, Prolonged Exposure (PE), and trauma-focused cognitive behavioral therapy (TF-CBT).

Stabilization therapy, in particular, is highly effective as an early intervention for PTSD symptoms (Eichfeld et al., 2019). Techniques used in stabilization therapy, such as breathing exercises, relaxation, and mindfulness, can be easily learned and applied by school teachers and novice counselors. As a result, these techniques can help quickly alleviate PTSD symptoms stemming from relationship loss. Additionally, trauma-focused cognitive behavioral therapy (TF-CBT) has been shown to significantly reduce not only PTSD symptoms but also severe externalizing behavior problems (Hoogsteder et al., 2022). Therefore, by applying TF-CBT as an intervention for adolescents who have experienced relationship loss, counselors may be able to reduce both their trauma symptoms and NSSI simultaneously.

The findings of this study contrast with previous research (Cho et al., 2016), which suggested that greater personal growth can be achieved when traumatic events are viewed as opportunity, rather than merely accepted or denied. In this study, when adolescents who experienced relationship loss tried to recognize opportunity in adversity, PTSD symptoms increased and NSSI behaviors tended to increase. This suggests that the process of recognizing adversity as an opportunity may repeatedly recall the loss experience, which may result in increased psychological distress. In particular, it is important to note that recognizing adversity as an opportunity may not always lead to positive results. Therefore, counselors need to be aware that attempts to interpret relationship loss too positively may rather cause dysfunctional reactions and approach it cautiously. Counselors should focus on helping adolescents properly process their experiences rather than unconditionally encouraging them to try to positively transform relationship loss. This approach can be very helpful in helping adolescents with relationship loss find psychological stability and overcome difficulties in a healthy way (Varga et al., 2021).

Furthermore, the results of this study suggest that the effect of perceived opportunity in adversity on NSSI may be bidirectional. While the relationship was not statistically significant, the findings indicated that attempts to recognize opportunity in adversity showed a negative causal relationship with NSSI, suggesting that perceived opportunity in adversity may reduce NSSI. This result highlights that perceived opportunity in adversity can lead to both positive and negative outcomes. Therefore, counselors should be aware that perceived opportunity in adversity has a bidirectional nature, like a 'double-edged sword,' and approach it carefully during the counseling process. It is crucial to ensure that adolescents do not feel an excessive psychological burden when attempting to transform adversity into opportunity, and counselors should carefully monitor their emotions and responses.

5.1. Limitations

The findings of this study should be interpreted with several limitations in mind. First, the study was conducted with 201 college students who had experienced relationship loss and NSSI during adolescence. To generalize the results and strengthen their value as foundational data for NSSI prevention and intervention, follow-up studies with larger and more diverse samples are needed. Second, this was a cross-sectional study, which does not account for the passage of time. Therefore, longitudinal studies are required to examine how the variables in this study influence NSSI over time. Third, the study relied on retrospective self-reports to measure the main variables. Retrospective studies are subject to memory bias (Hardt & Rutter, 2004), which can reduce reliability. Future research should aim to minimize the retrospective period by limiting the age of participants. Fourth, the data were collected through self-report questionnaires, which may be subject to under-reporting or overreporting, thereby affecting data reliability. In future studies, it would be beneficial to use multiple assessment methods, such as evaluations by teachers and parents or incorporating qualitative research, to reduce the risk of biased self-reports.

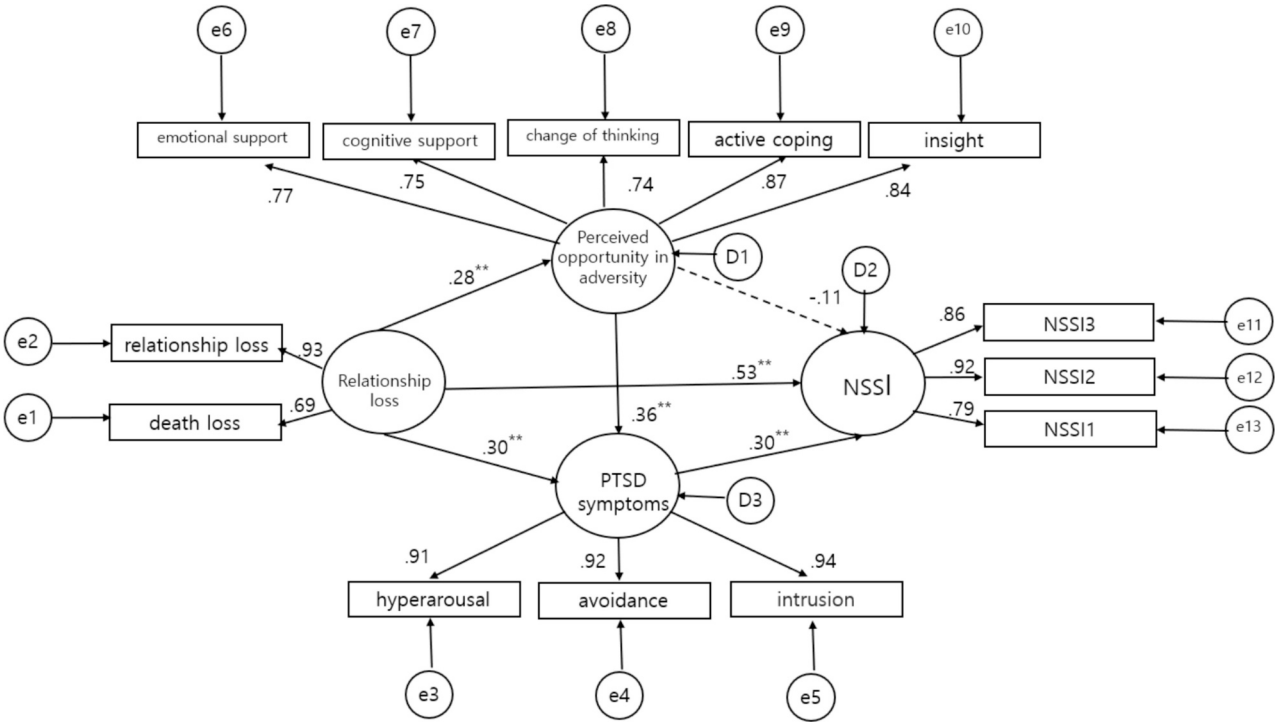

Fig. 1. Structural equation model with standardized path coefficients. All factor loadings except perceived opportunity in adversity-NSSI were statistically significant ($p < .01$).

Table 5
Individual indirect effect analysis of structural model.

Path		*b*	*s.e.*	95 % CI	p
p2	Relationship loss → perceived opportunity in adversity → NSSI	−0.017	0.017	−0.056–0.11	0.260
p4	Relationship loss → PTSD symptoms → NSSI	0.048	0.019	0.019–0.095	0.005
p7	Relationship loss → perceived opportunity in adversity → PTSD symptoms → NSSI	0.024	0.012	0.006–0.055	0.008

Note. b = unstandardized coefficient, s.e. = standard error, CI = confidence interval. The p4 and p7 pathways were statistically significant ($p < .01$).

6. Conclusion

The findings revealed a positive causal relationship between relationship loss and NSSI. Additionally, PTSD symptoms partially mediated the relationship between relationship loss and NSSI, while relationship loss contributed to NSSI through perceived opportunity in adversity and PTSD symptoms. Notably, the results indicated that PTSD symptoms had a mediating effect across all pathways where significant individual indirect effects were observed. Furthermore, perceived opportunity in adversity did not mitigate the impact of relational loss on NSSI. These results highlight the need for counselors and educators to implement strategies to alleviate PTSD symptoms and develop programs to positively leverage perceived opportunities in adversity to reduce negative impact.

CRediT authorship contribution statement

Hyunji Park: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

The data that has been used is confidential.

References

Abuhegazy, H. M., & Elkeshishi, H. I. (2017). The effect of support group therapy on parentally bereaved adolescents: A randomized controlled trial. *MOJ Addiction Medicine & Therapy, 3*(5), 150–156. https://doi.org/10.15406/mojamt.2017.03.00055

Andersson, H., Aspeqvist, E., Dahlström, Ö., Svedin, C. G., Jonsson, L. S., Landberg, Å., & Zetterqvist, M. (2022). Emotional dysregulation and trauma symptoms mediate the relationship between childhood abuse and nonsuicidal self-injury in adolescents. *Frontiers in Psychiatry, 13*, Article 897081. https://doi.org/10.3389/fpsyt.2022.897081

Ang, C. S. (2023). Life will never be the same: Experiences of grief and loss among older adults. *Current Psychology, 42*(15), 12975–12987. https://doi.org/10.1007/s12144-021-02595-6

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230–258. https://doi.org/10.1177/0049124192021002005

Cheng, F., Shi, L., Wang, S., Jin, Q., Xie, H., Wang, B., & Zhang, W. (2023). The relationship between childhood traumatic experience and suicidal tendency in non-suicidal self-injury behavior patients. *BMC Psychiatry, 23*(1), 401. https://doi.org/10.1186/s12888-023-04888-5

Cho, Y., Shin, M., & Hyun, M. (2016). Instrument development and validation of the perceived opportunity in adversity scale. *The Korean Journal of Health Psychology, 21*(3), 571–592. https://doi.org/10.17315/kjhp.2016.21.3.006

Eichfeld, C., Farrell, D., Mattheß, M., Bumke, P., Sodemann, U., Ean, N., … Mattheß, H. (2019). Trauma stabilisation as a sole treatment intervention for post-traumatic stress disorder in Southeast Asia. *Psychiatric Quarterly, 90*, 63–88. https://doi.org/10.1007/s11126-018-9598-z

Field, T. (2020). Romantic breakup distress in university students: A narrative review. *International Journal of Psychological Research and Reviews, 3*(30), 1–20. https://doi.org/10.28933/ijprr-2020-01-2406

Gopez, J. M. W. (2021). Hope as fundamental human response to loss and grief experiences in the time of COVID-19. *Journal of Public Health, 43*(2), e332–e333. https://doi.org/10.1093/pubmed/fdab048

Graham, A. (2004). Life is like the seasons: Responding to change, loss, and grief through a peer-based education program. *Childhood Education, 80*(6), 317–321. https://doi.org/10.1080/00094056.2004.10521278

Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. *Journal of Child Psychology and Psychiatry, 45*(2), 260–273. https://doi.org/10.1017/S0021963004001233

Hoogsteder, L. M., Ten Thije, L., Schippers, E. E., & Stams, G. J. J. (2022). A meta-analysis of the effectiveness of EMDR and TF-CBT in reducing trauma symptoms and externalizing behavior problems in adolescents. *International Journal of Offender Therapy and Comparative Criminology, 66*(6–7), 735–757. https://doi.org/10.1177/0306624X211010290

Jiang, Z., Wang, Z., Diao, Q., Chen, J., Tian, G., Cheng, X., … Liu, J. (2022). The relationship between negative life events and non-suicidal self-injury (NSSI) among Chinese junior high school students: The mediating role of emotions. *Annals of General Psychiatry, 21*(1), 45. https://doi.org/10.1186/s12991-022-00421-2

Jo, J., & Jeong, M. (2020). A narrative inquiry into the posttraumatic growth of middle-aged women who have experienced relationship loss. *The Korean Journal of Counseling and Psychotherapy, 32*(3), 1225–1261. https://doi.org/10.23844/kjcp.2020.08.32.3.1225

Johnsen, I., & Tømmeraas, A. M. (2022). Attachment and grief in young adults after the loss of a close friend: A qualitative study. *BMC Psychology, 10*(1), 10. https://doi.org/10.1186/s40359-022-00717-8

Kim, B. R., Lee, D. H., Lee, D. Y., & Lee, D. H. (2018). The mediating effect of family functioning between trauma experience and PTSD symptoms and post-traumatic growth among high school students: According to DSM criteria. *Korea Journal of Counseling, 19*(6), 225–249. https://doi.org/10.15703/kjc.19.6.201812.225

Kim, L. Y., & Jang, J. Y. (2020). The structural relationships among optimism, distress tolerance, grief avoidance, intrusive rumination, deliberate rumination, and psychological well-being on undergraduates exposed to loss. *stress, 28*(3), 107–117. https://doi.org/10.17547/kjsr.2020.28.3.107

Kim, M., & Yu, J. (2017). Factors contributing to non-suicidal self injury in Korean adolescents. *Journal of Korean Academy of Community Health Nursing, 28*(3), 271–279. https://doi.org/10.12799/jkachn.2017.28.3.271

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed., p. 3). New York: Guilford.

Klonsky, E. D. (2011). Non-suicidal self-injury in United States adults: Prevalence, sociodemographics, topography and functions. *Psychological Medicine, 41*(9), 1981–1986. https://doi.org/10.1017/S0033291710002497

Lee, M. J., Chi, M. H., Kim, H. S., & Shin, J. Y. (2023). Research trends on death loss and mourning for children and adolescents: An analysis of articles published in South Korea. *Korean Journal of Elementary Counseling, 22*(2), 171–195. https://www.earticle.net/Article/A429533.

Lei, H., Yang, Y., Zhu, T., Zhang, X., & Dang, J. (2024). Network analysis of the relationship between non-suicidal self-injury, depression, and childhood trauma in adolescents. *BMC Psychology, 12*(1), 234. https://doi.org/10.1186/s40359-024-01729-2

Lim, K. S., Wong, C. H., McIntyre, R. S., Wang, J., Zhang, Z., Tran, B. X., … Ho, R. C. (2019). Global lifetime and 12-month prevalence of suicidal behavior, deliberate self-injury and non-suicidal self-injury in children and adolescents between 1989 and 2018: A meta-analysis. *International Journal of Environmental Research and Public Health, 16*(22), 45–81. https://doi.org/10.3390/ijerph16224581

Linder, L., Lunardini, M., & Zimmerman, H. (2024). Supporting childhood bereavement through school-based grief group. *OMEGA-Journal of Death and Dying, 89*(2), 741–758. https://doi.org/10.1177/00302228221082756

Lloyd, E. E., Kelley, M. L., & Hope, T. (1997, April). Self-mutilation in a community sample of adolescents: Descriptive characteristics and provisional prevalence rates. In *Poster session presented at the annual meeting of the Society for Behavioral Medicine.* New Orleans, LA.

Lurigio, A. J., Nesi, D., & Meyers, S. M. (2024). Nonsuicidal self injury among young adults and adolescents: Historical, cultural and clinical understandings. *Social Work in Mental Health, 22*(1), 122–148. https://doi.org/10.1080/15332985.2023.2264434

Lusk, J. D., Sadeh, N., Wolf, E. J., & Miller, M. W. (2017). Reckless self-destructive behavior and PTSD in veterans: The mediating role of new adverse events. *Journal of Traumatic Stress, 30*(3), 270–278. https://doi.org/10.1002/jts.22182

Miao, X. R., Chen, Q. B., Wei, K., Tao, K. M., & Lu, Z. J. (2018). Posttraumatic stress disorder: From diagnosis to prevention. *Military Medical Research, 5*(1), 32. https://doi.org/10.1186/s40779-018-0179-0

Muehlenkamp, J., Brausch, A., Quigley, K., & Whitlock, J. (2013). Interpersonal features and functions of nonsuicidal self-injury. *Suicide and Life-threatening Behavior, 43*(1), 67–80. https://doi.org/10.1111/j.1943-278X.2012.00128.x

Nasution, E. S. (2023). Dynamics of self-injury behavior in adolescents from a broken home family. *Nusantara Science and Technology Proceedings, 1-7*. https://doi.org/10.11594/nstp.2023.3501

Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science, 18*(2), 78–83. https://doi.org/10.1111/j.1467-8721.2009.01613.x

Nock, M. K. (2010). Self-injury. *Annual Review of Clinical Psychology, 6*, 339–363. https://doi.org/10.1146/annurev.clinpsy.121208.131258

Park, H. J. (2024). *The influence of bullying victimization on non-suicidal self-injury during adolescence : Focusing on the mediating effect of rumination and PTSD symptoms* (Doctoral dissertation). Ewha Womans University.

Scott, H. R., Pitman, A., Kozhuharova, P., & Lloyd-Evans, B. (2020). A systematic review of studies describing the influence of informal social support on psychological wellbeing in people bereaved by sudden or violent causes of death. *BMC Psychiatry, 20*, 1–20. https://doi.org/10.1186/s12888-020-02639-4

Seong, Y. N., Bae, Y. B., & Kim, S. J. (2019). Non-suicidal self-injury in South Korea: A systematic review of studies from 2000 to 2018. *Cognitive Behavior Therapy in Korea, 19*(2), 251–280. https://doi.org/10.33703/cbtk.2019.19.2.251

Smith, K. V., & Ehlers, A. (2021). Prolonged grief and posttraumatic stress disorder following the loss of a significant other: An investigation of cognitive and behavioural differences. *PLoS One, 16*(4), Article e0248852. https://doi.org/10.1371/journal.pone.0248852

Smith, N. B., Kouros, C. D., & Meuret, A. E. (2014). The role of trauma symptoms in nonsuicidal self-injury. *Trauma, Violence & Abuse, 15*(1), 41–56. https://doi.org/10.1177/1524838013496332

Sofka, C. J. (1997). Loss History Checklist. In J. D. Mannino (Ed.), *Grieving days, healing days* (p. 20). Boston: Allyn & Bacon.

Swannell, S. V., Martin, G. E., Page, A., Hasking, P., & St John, N. J. (2014). Prevalence of nonsuicidal self-injury in nonclinical samples: Systematic review, meta-analysis and meta-regression. *Suicide and Life-threatening Behavior, 44*(3), 273–303. https://doi.org/10.1111/sltb.12070

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15*(1), 1–18. https://doi.org/10.1207/s15327965pli1501_01

Thomassin, K., Guérin Marion, C., Venasse, M., & Shaffer, A. (2017). Specific coping strategies moderate the link between emotion expression deficits and nonsuicidal self-injury in an inpatient sample of adolescents. *Child and Adolescent Psychiatry and Mental Health, 11*, 1–8. https://doi.org/10.1186/s13034-017-0158-3

Tullius, J. M., De Kroon, M. L., Almansa, J., & Reijneveld, S. A. (2022). Adolescents' mental health problems increase after parental divorce, not before, and persist until adulthood: A longitudinal TRAILS study. *European Child & Adolescent Psychiatry, 31*(6), 969–978. https://doi.org/10.1007/s00787-021-01728-3

Varga, M. A., Lanier, B., Biber, D., & Stewart, B. (2021). Holistic grief effects, mental health, and counseling support in bereaved college students. *College Student Affairs Journal, 39*(1), 1–13.

Watkins, L. E., Sprang, K. R., & Rothbaum, B. O. (2018). Treating PTSD: A review of evidence-based psychotherapy interventions. *Frontiers in Behavioral Neuroscience, 12*, 258. https://doi.org/10.3389/fnbeh.2018.00258

Weiss, D. S., & Marmar, C. R. (1997). The Impact of Event Scale-Revised. In J. P. Wilson, & T. M. Keane (Eds.), *Assessing Psychological trauma and PTSD: A handbook for practitioners* (pp. 399–411). New York: Guilford Press.

Wild, J., Duffy, M., & Ehlers, A. (2023). Moving forward with the loss of a loved one: Treating PTSD following traumatic bereavement with cognitive therapy. *The Cognitive Behaviour Therapist, 16*, Article e12. https://doi.org/10.1017/S1754470X23000041

Xiao, Q., Song, X., Huang, L., Hou, D., & Huang, X. (2022). Global prevalence and characteristics of non-suicidal self-injury between 2010 and 2021 among a non-clinical sample of adolescents: A meta-analysis. *Frontiers in Psychiatry, 13*, Article 912441. https://doi.org/10.3389/fpsyt.2022.912441

Yoon, C. B., & Chang, H. A. (2021). The impact of internalized shame of college students on non-suicidal self-injury: Mediating effects of anger suppression. *The Society for Cognitive Enhancement and Intervention, 12*(2), 155–169. https://doi.org/10.21197/JCEI.12.2.8

Zhao, X., Lukito, S., Huang, X., Qiu, C., & Tang, W. (2023). Longitudinal associations between pandemic post-traumatic stress symptoms and subsequent non-suicidal self-injury in adolescents: A multiple mediation model. *Journal of Affective Disorders, 323*, 707–715. https://doi.org/10.1016/j.jad.2022.12.014

Zhou, T. J., Yuan, M. Y., Ren, H. Y., Xie, G. D., Wang, G. F., & Su, P. Y. (2022). Childhood separation from parents and self-harm in adolescence: A cross-sectional study in mainland China. *Frontiers in Psychology, 12*, Article 645552. https://doi.org/10.3389/fpsyg.2021.645552