Childhood trauma and malevolent creativity in Chinese college students: The chain mediation role of positive parenting and resilience

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Abstract

This study explores the relationship between childhood trauma and malevolent creativity in college students and examines the chain mediation roles of positive parenting and resilience. Data is collected through survey questionnaires in a quantitative research approach. The SPSS macro-process 4.2 and SPSS 27.0 are used for data analysis. The sample consists of 860 participants from eight universities and vocational colleges across four provinces in China. The findings indicate that childhood trauma significantly predicts malevolent creativity in college students. Positive parenting and resilience mediate this relationship forming a chain mediation effect. Positive parenting enhances resilience which in turn reduces malevolent creativity. The results highlight the importance of positive parenting and improved resilience in mitigating the negative impacts of childhood trauma. This study confirms the significant influence of childhood trauma on malevolent creativity and highlights the chain mediation roles of positive parenting and resilience. The findings provide valuable insights for developing interventions to promote mental health and prevent malevolent behaviors among college students.

Keywords: Chain mediation role, Childhood trauma, Chinese, College students, Malevolent creativity, Positive parenting, Resilience.

Contents

Contribution of this paper to the literature
This study contributes to the literature by exploring the mediating effects of positive parenting styles and resilience on the relationship between childhood trauma and malevolent creativity among university students in China. This study emphasizes the positive factors that can mitigate malevolent creativity offering researchers a viable approach for intervention in contrast to previous research.

1. Introduction

Creativity plays a crucial role in promoting societal and individual development. However, when creativity is used to create harmful things, it can also have significant negative impacts on society. We refer to this as malevolent creativity (Hao & Yang, 2016). The products of malevolent creativity are widespread with incidents such as new types of fraud, child trafficking and terrorist attacks occurring frequently (Li, Xu, Yuan, & Yin, 2024). Malevolent creativity is not limited to criminals and terrorists. Everyone may have potential malevolent creativity. Telecommunication fraud is a common example of the malevolent creativity that Chinese citizens are currently facing. Many of the perpetrators are young people who have recently graduated from university. University students may develop malevolent creativity under the influence of environmental factors at the peak of their intellectual and creative abilities.

The environment is one of the important factors influencing creativity. According to social information processing theory (Gutworth, Cushenbery, & Hunter, 2018) individuals who grow up in adverse environments characterized by neglect and abuse during childhood are more likely to recognize neutral information as threatening leading to malevolent creativity. Adverse childhood environments which can originate from family, relatives, peers and other surrounding people have a negative impact on the physical and mental development of an individual (Zhao, Yao, Fu, & Yu, 2005). Parenting style has a significant impact on children's development. Family is the first external environment to which an individual is exposed (Qiu et al., 2023). Positive parenting style helps individuals adapt to the social environment promoting positive development while negative parenting style would be a potential risk of malevolent behaviors like aggression and theft (Guo, 2023).

Resilience is a positive psychological trait that buffers the effects of negative experiences. It is influenced by various factors including individual characteristics, family dynamics and social-cultural contexts (Fletcher & Sarkar, 2013). Negative experiences such as adverse parent-child relationships and childhood trauma negatively predict the development of optimistic and positive qualities thus affecting an individual's resilience (Yu, Huang, & Mao, 2022). Conversely, a positive family atmosphere, a healthy parent-child relationship and supportive peer relationships can help individuals build strong resilience increasing the likelihood of using positive strategies to cope with problems.

Exploring the relationship between childhood trauma and malevolent creativity and examining the chain mediation roles of positive parenting and resilience is of great significance for individual and societal development.

Firstly, researching the factors influencing malevolent creativity in university students helps to theoretically understand the formation and development process of malevolent creativity providing support for the establishment of effective intervention measures.

Secondly, the research findings can guide policymakers in creating supportive environments, enhancing supervision of children's growth environments and establishing safer and more supportive communities. Policymakers can take more targeted measures to prevent and address the emergence of malevolent creativity by identifying and reducing the triggers of malevolent creativity.

Thirdly, the research results can be used to design intervention programs for individuals especially those who have experienced childhood trauma. These intervention programs can help individuals grow healthily, thereby reducing the likelihood of malevolent creativity by promoting resilience and positive parenting styles.

Therefore, the research questions could be summarized as below:

RQ1: What is the relationship between childhood trauma and malevolent creativity?

RQ2: What role does positive parenting style play between childhood trauma and malevolent creativity?

RQ3: What role does resilience play between childhood trauma and malevolent creativity?

RQ4: How do positive parenting styles and resilience interact to decrease the effect of childhood trauma on malevolent creativity?

2. Literature Review

2.1. Childhood Trauma and Malevolent Creativity

Cropley, Kaufman, White, and Chiera (2014) explain malevolent creativity as using creativity to intentionally harm oneself or others. Harris, Reiter-Palmon, and Kaufman (2013) extended this definition emphasizing the interaction between aptitude, the creative process and the creative environment resulting in the creating products to harm oneself and others. Childhood trauma also known as adverse childhood experiences refers to various negative experiences before the age of 18, including emotional and physical neglect, physical and sexual abuse (Pechtel & Pizzagalli, 2011). Recent research has found that individuals with more experiences of childhood trauma display higher potential for malevolent creativity (Jia, Wang, & Lin, 2020). There is a significant positive relationship between childhood trauma and malevolent creativity in college students (Jia et al., 2020). Therefore, we propose the following hypothesis: Childhood trauma significantly predicts malevolent creativity positively.

2.2. Parenting Styles and Malevolent Creativity

Parenting styles refer to a series of consistent parenting behaviors formed by parents in the process of bringing up children (Jin & Cheng, 2015). Adolescents who observe their parents as understanding and caring have lower levels of delinquent behavior. Positive parenting techniques include emotional warmth and understanding, suitable values and clear monitoring. These strategies support healthy adolescent development (Hoeve et al., 2009). In contrast, negative parenting styles (Li, Wang, & Zhang, 2012) such as harsh punishment, overprotection, rejection, denial and neglect are significantly correlated with the malevolent creativity of children (Jia et al., 2020; Xiang,

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Chen, & Zhao, 2020). Some researchers highlight that warm and understanding are associated with reduced trauma experiences among rural left-behind children (Liu, 2018) whereas parental rejection and neglect positively predict malevolent creativity in college students (Li, Zhang, Qin, Chen, & Liu, 2022). Therefore, hypothesis 2 can be proposed as follows: Positive parenting styles mediate the relationship between childhood trauma and malevolent creativity.

2.3. Resilience and Malevolent Creativity

Resilience refers to the ability to withstand adversity, trauma, threats or other negative life events (Kleim & Kalisch, 2018). Individuals who have good resilience can protect themselves from the impact of stressful events (Fenwick-Smith, Dahlberg, & Thompson, 2018). It reflects a personality trait where individuals maintain a healthy mindset and positive attitude even when facing setbacks and stress (Herrman et al., 2011). Individuals with high levels of resilience exhibit strong subjective initiative, self-esteem and self-efficacy (Wang, Wang, & Chen, 2022) which help them withstand pressure in their growth environment (Li, Dong, Jiao, & Zou, 2016), reduce the negative impacts of adverse events (Richardson, 2002) and inhibit the tendency to adopt destructive solutions. Therefore, we proposed hypothesis 3: Resilience mediates the relationship between childhood trauma and malevolent creativity.

2.4. Parenting Styles and Resilience

The organizational framework of resilience (Mandleco, 2010) suggests that the resilience of adolescents is effected by internal factors (biological and psychological) as well as external factors (within and outside the family) such as personality traits, cognitive styles, parenting styles, peers, and school. The framework of resilience in action (Liebenberg & Ungar, 2008) highlights that the psychological needs of children including safety, love, value and respect depend on external factors such as school, family, society and peers. Emotional warmth and understanding from parents with support from peers, society and schools can help individuals develop a positive and optimistic mindset (Liebenberg & Ungar, 2008) thus promoting the development of resilience (Li, Liu, & Huang, 2012). It can be inferred that individuals who have experienced childhood trauma can enhance their resilience under the influence of emotionally warm and understanding parenting styles. These individuals are likely to adopt more positive coping strategies when facing adverse environments (Wang & Gong, 2021) thereby reducing the likelihood of engaging in malevolent creativity. Therefore, hypothesis 4 can be proposed as follows: Positive parenting styles and resilience function a chain-mediating role between childhood trauma and malevolent creativity.

2.5. Research Gap

Firstly, existing studies indicate that childhood trauma, parenting styles and resilience may influence malevolent creativity. However, most research predominantly concerns the impact of negative parenting on malevolent creativity. There has been no research aimed at understanding the effects of positive parenting styles and resilience on the relationship between childhood trauma and malevolent creativity.

Moreover, specialized studies are scarce for university student. University students are highly susceptible to external environmental influences being at the peak of their intellectual and creative capacities. However, research specifically addressing malevolent creativity within the university student demographic remains limited particularly in a geographically vast country like China where studies involving students from different regions are scarce.

Therefore, this study consists of university students from eight universities and vocational schools among four provinces in China to enhance the adaptability of the findings. Investigating the impact of childhood trauma on malevolent creativity and testing the mediating effects of positive parenting styles and resilience between childhood trauma and malevolent creativity not only contribute to a deeper understanding of the relationship between childhood trauma and malevolent creativity but also support the development of effective intervention measures, thereby promoting healthy development at both societal and individual levels.

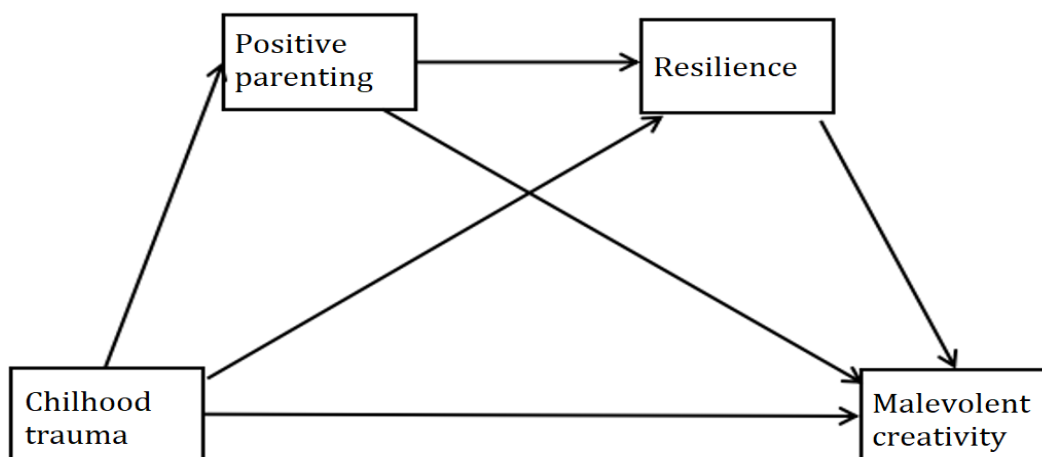The research hypothesis is displayed in Figure 1.

Figure 1. Research hypothesis.

3. Research Methodology

3.1. Research Design

This study employs a quantitative research design. A survey research strategy is selected because the aim of the study is to test the relationship between childhood trauma and malevolent creativity as well as the chain

mediation roles of positive parenting styles and resilience. Therefore, the study recruits a specific population and uses questionnaires for data collection.

3.2. Research Population

The research population in this study includes undergraduate and vocational college students. The students are reminded about the anonymity and confidentiality of the data before filling out the questionnaires. The online survey was created on Wenjuanxing, one of the trusted platforms for creating online questionnaires in China. The questionnaire link is randomly sent to eight universities and vocational colleges in China. During the two-week distribution period, a total of 886 questionnaires are collected. After removing questionnaires where the caregivers are not parents, 860 valid questionnaires were collected resulting in an effective rate of 96.98%.

The demographics of participants are summarized as below:

Gender: 256 male (29.77%) and 604 female (70.23%).

Residence: 171 from urban areas (19.88%) and 689 from rural areas (80.12%).

Sibling status: 141 children (16.4%) and 719 with siblings (83.6%).

Family structure: 733 from two-parent families (85.23%) and 101 from single-parent families (11.74%).

Educational background: 206 undergraduate students (23.95%) and 648 vocational college students (75.35%).

Educational background of family caregivers: 144 with a university education (16.74%), 168 with a high school education (19.53%) and 522 with a middle school education or below (60.70%).

3.3. Instrument

This research uses four well-established questionnaires as data collection tools.

- The Childhood Trauma Questionnaire-Short Form (CTQ-SF) was initially developed by Bernstein et al. (2003) and later revised by Zhao, Zhang, et al. (2005). This 28-item questionnaire is employed to evaluate childhood trauma. It assesses five dimensions of neglect and abuse: physical neglect, emotional neglect, physical abuse, emotional abuse and sexual abuse. Responses are captured on a 5-point scale with options ranging from "never" (1) to "always" (5) comprising 25 clinical items and 3 validity items. The total scores vary between 25 and 125 where higher scores are indicative of more severe trauma. The CTQ-SF has been validated in various studies, including those focusing on college students in China proving its reliability and suitability.

- The Malevolent Creativity Behavior Scale (MCBS) is designed by Hao, Tang, Yang, Wang, and Mark (2016). This scale comprises 13 items divided into three categories: hurting people, lying, and playing tricks. Participants respond on a 5-point Likert scale with answers ranging from "not at all" to "always." A higher total score reflects greater malevolent creativity. The MCBS is recognized for effectively measuring malevolent creativity in daily life.

- The Short-form Parenting Styles Questionnaire (s-EMBU) is originally developed by Arrindell et al. (1999) and revised by Jiang, Lu, Jiang, and Xu (2010). This questionnaire assesses three parenting dimensions: rejection, over-protection and emotional warmth. It has been specifically adapted to measure positive parenting practices within the context of this research. Responses are measured on a 5-point scale and higher scores indicate more positive parenting styles. The reliability and validity of this instrument have been confirmed through its administration to university students.

- The Connor-Davidson Resilience Scale (CD-RISC) is developed by Connor and Davidson (2003) and revised by Yu and Zhang (2007b). This 25-item scale is used to assess resilience. The scale was administered to several groups in mainland China and high reliability and validity were obtained (Yu & Zhang, 2007a). Respondents rate their agreement on a 5-point scale from "not at all" to "completely," with higher scores indicating greater resilience. This tool has been widely used and validated in China demonstrating robust reliability.

3.4. Validity and Reliability Tests

This study used the original questionnaire for data collection without making any changes to its content. The reliability and validity of the original questionnaire are as follows:

- The Cronbach's alpha reliability of the Childhood Trauma Questionnaire-28-item Short Form (CTQ-SF) is 0.801 and the convergent validity is 0.81 indicating good validity of the questionnaire.

- The Cronbach's alpha reliability of the Malevolent Creativity Behavior Scale (MCBS) is 0.940 and the convergent validity is 0.94 indicating good validity of the questionnaire.

- The Cronbach's alpha reliability of the Short-form Parenting Styles Questionnaire (s-EMBU) is 0.740 and the convergent validity is 0.99 indicating good validity of the questionnaire.

- The Cronbach's alpha reliability of the Connor-Davidson Resilience Scale (CD-RISC) is 0.963 and the convergent validity is 0.85 indicating good validity of the questionnaire.

3.5. Data Analysis

SPSS 27.0 is employed to analyze data. Results were considered statistically significant if P<0.05.

4. Results

4.1. Descriptive Statistics and Correlation Analysis

The descriptive statistics and partial correlations for the variables, controlling for gender, educational background, place of origin, and only-child status are presented in Table 1. The means (X) and standard deviations (S) are shown alongside the correlation coefficients.

Table 1. Descriptive statistics and correlation analysis.

Variable	Mean ± SD	1	2	3
1.Childhood trauma	58.67±9.82			
2.Positive parenting	23.97±6.71	0.35		
3.Resilience	83.52±19.24	0.31	0.50	
4.Malevolent creativity	21.44±8.73	0.38	-0.12	-0.11

Note: P < 0.05, P < 0.01, P < 0.001 same as below.

The results indicate that childhood trauma is significantly positively correlated with malevolent creativity. Positive parenting styles are prominently positively correlated with resilience and significantly negatively correlated with malevolent creativity. Resilience is sensibly negatively correlated with malevolent creativity.

4.2. Chain Mediation Role of Positive Parenting and Resilience

This study used the SPSS macro program PROCESS 4.2 compiled by Hayes to perform mediation effect tests based on the Bootstrap method to examine the mediating role of positive parenting style and resilience between childhood trauma and malevolent creativity. Model 6 was selected with a bootstrap sample size of 5000 and a 95% confidence interval. The chain mediation analysis controlled for variables such as gender, educational background, place of origin, and sibling status with childhood trauma as the independent variable, positive parenting style and resilience as the mediating variables and malevolent creativity as the dependent variable.

Table 2. Regression analysis of variables.

Outcome variable	Predictor variables	R	R²	F	B	t
Malevolent creativity		0.43	0.19	38.86		
	Gender				-3.24	-5.33
	Education				0.21	0.35
	Place of origin				-1.22	-1.64
	Only child status				-0.58	-0.71
	Childhood trauma				0.33	11.79
Positive parenting		0.37	0.13	26.41		
	Gender				1.30	2.70
	Education				0.36	0.75
	Place of origin				0.13	0.22
	Only child status				-0.88	-1.37
	Childhood trauma				0.24	10.94
Resilience		0.55	0.31	61.12		
	Gender				-5.03	-4.04
	Education				5.46	4.37
	Place of origin				-2.15	-1.42
	Only child status				0.08	0.04
	Positive parenting				1.25	14.01
	Childhood trauma				0.31	4.98
Malevolent creativity		0.52	0.28	45.88		
	Gender				-3.11	
	Education				0.75	1.29
	Place of origin				-1.33	-1.89
	Only child status				-0.91	-1.18
	Positive parenting				-0.28	-6.18
	Resilience				-0.07	-4.52
	Childhood trauma				0.44	15.46

Note: Continuous variables in the model were not standardized. Gender, place of origin and only-child status was coded as dummy variables: a. 1 = male, 2 = female; b. 1 = vocational college, 2 = undergraduate; c. 1 = urban, 2 = rural; d. 1 = only child, 2 = multiple children.

The regression analysis results as demonstrated in Table 2 reveal that childhood trauma has a notably positive influence on malevolent creativity (B = 0.33, P < 0.001). Positive parenting strongly enhances resilience (B = 1.25, P < 0.001) and considerably reduces malevolent creativity (B = -0.28, P < 0.001). Resilience has a moderate but significant negative effect on malevolent creativity (B = -0.07, P < 0.001). Even when positive parenting style and resilience are included in the regression model, childhood trauma continues to exhibit a substantial positive impact on malevolent creativity (B = 0.44, P < 0.001). These findings suggest that positive parenting style and resilience serve as sequential mediators in the relationship between childhood trauma and malevolent creativity.

Table 3. Chain mediation effect of positive parenting and resilience between childhood trauma and malevolent creativity.

Pathway	Indirect effect value	BOOT SE	BOOT LLCI	BOOT ULCI
Indirect effect 1	-0.070	0.023	-0.121	-0.033
Indirect effect 2	-0.023	0.009	-0.041	-0.007
Indirect effect 3	-0.023	0.008	-0.040	-0.008

Note: BOOT LLCI: Lower bound of confidence interval; BOOT ULCI: Upper limit of confidence interval.

Table 3 presents that the indirect effect 1 of positive parenting between childhood trauma and malevolent creativity is -0.070 on a 95% confidence interval not including 0, the lower bound of the confidence interval is -0.121, upper limit of the confidence interval is -0.033. Indirect effect 2 of resilience between childhood trauma and malevolent creativity is -0.023; on a 95% confidence interval not including 0, the lower bound of the confidence interval is -0.041 and the upper limit of the confidence interval is -0.007. Indirect effect 3 of positive parenting and resilience between childhood trauma and malevolent creativity is -0.023, on a 95% confidence interval not including

0, the lower bound of the confidence interval is -0.040 and the upper limit of the confidence interval is -0.008. All of indirect effect is significant as shown in the figure.
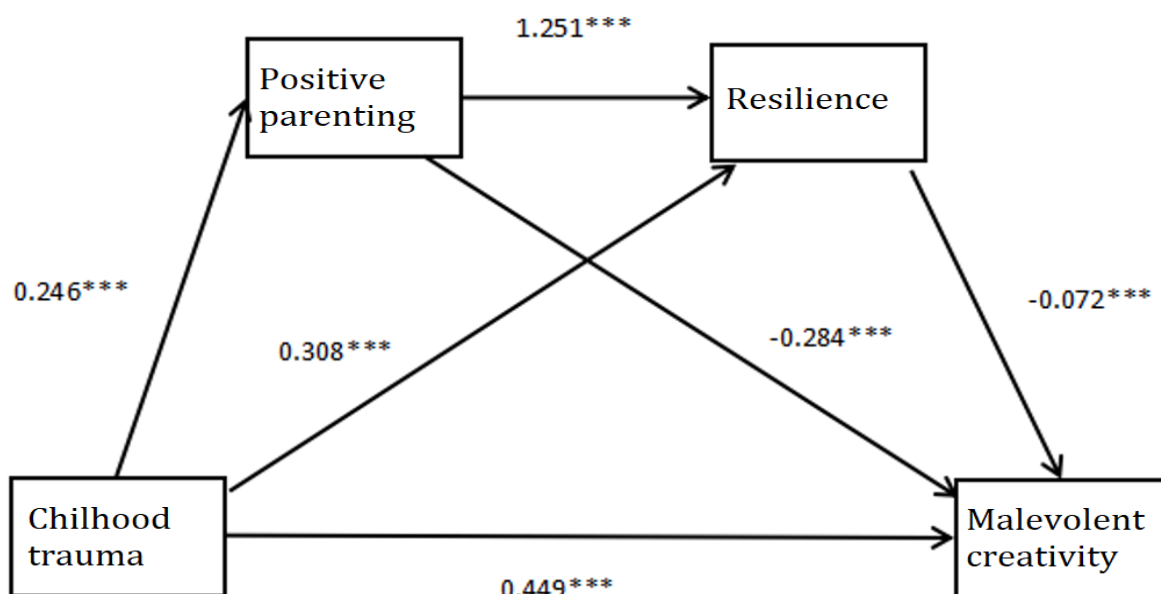

Figure 2. Chain mediation effect of positive parenting and resilience between childhood trauma and malevolent creativity.
Note: ***p＜0.001.

Figure 2 illustrates that the direct influence of childhood trauma on malevolent creativity is notably significant (F=0.449, P<0.001). Furthermore, the mediation effect of positive parenting on the relationship between childhood trauma and malevolent creativity is also substantial (F=0.246, F=0.284, P<0.001). Similarly, the role of resilience as a mediator between childhood trauma and malevolent creativity is significant (F=0.308, F=-0.072, P<0.001). Lastly, the chain mediation effect involving both positive parenting and resilience in linking childhood trauma with malevolent creativity is statistically significant (F=0.246, F=1.251, F=-0.072, P<0.001). These findings affirm the research hypothesis.

5. Discussion

5.1. Significant and Positive Relationship between Childhood Trauma and Malevolent Creativity in College Students

The result displays that childhood trauma is significantly and positively related to malevolent creativity in college students with childhood trauma predicting malevolent creativity. This finding is consistent with previous research (Jia et al., 2020; Qiu et al., 2023). Everyone has the potential for malevolent creativity but the degree to which it is expressed varies due to environmental and personal factors (Lee & Dow, 2011). According to the person, process, press and product model (4P model) of creativity, environmental pressure can play a major role in triggering malevolent creativity (Wang et al., 2022). Threatening environments such as unfair competition, adverse social environments and neglectful or avoidant family environments (Jia et al., 2020; Qiu et al., 2023) can foster malevolent creative ideas. This result also supports the social information processing theory (Divid, Kaufman, & Cropley, 2008; Gawronski & Cesario, 2013; Gutworth et al., 2018). It is suggested that people who experience more childhood trauma are more likely to recognize neutral social information as threatening potentially leading to malevolent creativity (Harris et al., 2013; Li et al., 2024).

The research results also found significant gender differences in malevolent creativity with male students scoring significantly higher than female students. This finding aligns with previous research suggesting that males have an advantage in malevolent creativity (Gong, Peng, Wang, & Liu, 2012; Wang & Gong, 2021) possibly due to certain physiological hormonal factors (Gong et al., 2012).

5.2. Significant and Negative Relationship between Positive Parenting and Malevolent Creativity

In this study, positive parenting mediates the relationship between childhood trauma and malevolent creativity with a significant and negative correlation between positive parenting styles and malevolent creativity. The idea is supported by previous results. Positive parenting can reduce the likelihood of malevolent creative behavior for individuals living with childhood trauma (Liu, 2018). Previous research has shown that positive parenting styles decrease risky behaviors among rural left-behind children (Liu, 2018) while negative parenting styles positively predict malevolent creativity in college students (Jin & Cheng, 2015; Luo, Cai, & Zhang, 2012).

A substantial body of research indicates that parenting styles are effective predictors of children's delinquent behavior (Jin & Cheng, 2015). Adolescents who perceive emotional warmth and understanding from their parents exhibit lower levels of delinquent behavior (Hoeve et al., 2009). Conversely, parental rejection is positively correlated with self-reported delinquent behavior in adolescents (Luo et al., 2012) and overprotection is significantly related to aggressive emotions which may lead to the transition from emotion to aggressive behavior (Li et al., 2024).

Unlike previous studies, this research also discovered significant differences in malevolent creativity based on the educational level of caregivers. Students whose parents had only an elementary education scored significantly higher in malevolent creativity than those whose parents had higher educational levels. The educational level of parents is closely related to their behaviors in raising and educating their children (Luo et al., 2012). Parents with higher education are more likely to provide emotional warmth and understanding while those with lower educational levels tend to use punitive, rejecting or neglectful parenting styles.

5.3. Significant and Negative Relationship between Resilience and Malevolent Creativity

The results in this study displayed that resilience mediates the relationship between childhood trauma and malevolent creativity with a significant and negative relationship between resilience and malevolent creativity. This finding is similar to existing research which indicates that resilience can significantly and negatively predict malevolent creative behavior (Wang et al., 2022). The protective factors of resilience help individuals withstand external pressures and inhibit the adoption of destructive solutions to problems (Richardson, 2002). Conversely, individuals with lower resilience are more likely to break rules and exhibit higher levels of malevolent creativity (Qiao, 2019).

The malevolent creativity scale used in this study primarily measures individuals' subjective self-assessment of their potential for malevolent creativity rather than realistic malevolent creative behavior (Hao et al., 2016). It suggests that the resilience level of human can influence their self-perception of malevolent creativity. People with high resilience exhibit less recognition of malevolence while those with low resilience believe they have a greater potential for malevolent creative ideas (Wang et al., 2022).

5.4 Chain Mediating Role of Positive Parenting and Resilience between Childhood Trauma and Malevolent Creativity

This study highlights that positive parenting and resilience serve as chain mediators between childhood trauma and malevolent creativity. The positive relationship between childhood trauma and malevolent creativity becomes significantly negative under the chain mediation effect of positive parenting and resilience. Previous research has shown that parenting styles characterized by emotional warmth and understanding help enhance adolescents' resilience (Liu, Wang, & Xiang, 2016). Increased resilience reduces the likelihood of malevolent creativity (Tang, Qin, Wu, & Zhuang, 2023; Zhang, 2023). This study tested the chain mediation effect of positive parenting styles and resilience based on these findings. The results indicated that individuals who experienced childhood trauma could develop strong resilience through positive parenting, ultimately inhibiting the occurrence of malevolent creativity.

6. Conclusion

This research tests the relationship between childhood trauma and malevolent creativity revealing the chain mediating effects of positive parenting styles and resilience. The validity of the hypothesized model was confirmed. The findings indicate that childhood trauma significantly predicts a tendency towards malevolent creativity in university students. The resilience of children can be enhanced, ultimately inhibiting the emergence of malevolent creativity with positive parenting.

Childhood trauma can lead to a higher tendency for malevolent creativity in adulthood, a problem observed globally. In the context of the declining resilience levels among Chinese university students, these findings are particularly urgent and relevant. This trend could be impacted by multiple factors such as employment pressures and increased social competition after COVID-19. Therefore, the results of this study are crucial as they identify specific pathways to improve the mental health and behavior of university students.

Communities and local governments should raise awareness among parents of teenagers about the importance of positive parenting. Regular training should be provided to help parents adopt nurturing styles characterized by emotional warmth and understanding. Teachers in primary and secondary schools should focus not only on students' home environments but also on building trust relationships with students, teaching them how to seek help when facing physical, emotional or sexual abuse.

University teachers need to identify and support students with childhood trauma through group counseling and peer education, creating a healthy and positive environment to enhance their resilience and reduce the occurrence of malevolent creative behaviors. From a societal perspective, it is essential to disseminate the importance and content of positive parenting styles through online platforms to create a supportive external environment for children's growth, thereby effectively preventing malevolent creativity.

This study not only reveals the profound impact of childhood trauma on malevolent creativity but also provides practical guidance for teachers and parents. We may develop strong foundations for harmonious social development by fostering emotionally warm family environments and positive educational atmospheres.

7. Suggestions

According to the findings, future research can be developed in the following areas:

Expanding the sample size: This research included a sample from four provinces in southern China encompassing vocational and undergraduate students from eight universities. However, China is a vast country with diverse regions and ethnic groups, each with unique growth environments and cultures. Future research should be conducted in a broader range of regions to account for geographical differences and enhance the generalizability of the findings.

Adopting longitudinal research design: Future research should employ longitudinal designs and experimental methods to further explore the relationship between childhood trauma and malevolent creativity. Researchers can more accurately reveal the long-term impact of childhood trauma on malevolent creativity and the dynamic roles of positive parenting styles and resilience by tracking individuals from childhood to adulthood.

Focusing on adolescents: The data in this study were collected through surveys from university students which may be influenced by social desirability effects and retrospective biases, limiting the accuracy of reported parenting styles during childhood. Future research should consider focusing on primary and secondary school students and incorporating parental evaluations to better understand the impact of family education on malevolent creativity.

Evaluating the effectiveness of interventions: Future studies should prioritize assessing the effectiveness of various intervention measures such as psychological counseling, family education training and school mental health programs. Investigating the practical effects of these interventions on reducing the impact of childhood trauma and enhancing resilience will provide valuable insights into effective prevention and intervention strategies.

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Appendix

The Appendix illustrates the four original, well-established questionnaires used in this research.

Table A1. Connor-Davidson resilience scale.

Item no.	Description
1	Able to adapt to change
2	Close and secure relationship
3	Sometimes fate or god can help
4	Can deal with whatever comes
5	Past success gives confidence for new challenge
6	See the humorous side of things
7	Coping with stress strengthens
8	Tend to bounce back after illness or hardship
9	Things happen for a reason
10	Best effort no matter what
11	You can achieve your goals
12	When things look hopeless, I don't give up
13	Know where to turn for help
14	Under pressure, focus and think clearly
15	Prefer to take the lead in problem solving
16	Not easily discouraged by failure
17	Think of self as strong person
18	Make unpopular or difficult decisions
19	Can handle unpleasant feelings
20	Have to act on a hunch
21	Strong sense of purpose
22	In control of your life
23	I like challenges
24	You work to attain your goals
25	Pride in your achievements

Source: Connor and Davidson (2003).

Table A2. The malevolent creativity behavior scale.

Dimension	Item
Hurting people	(1) How often do you think about ideas to take revenge when being unfairly treated?
	(2) How often do you have ideas about new ways to punish people?
	(3) How often do you have ideas about how to suppress people who are in your way?
	(4) How often do you engage in an original form of sabotage?
	(5) How often do you have ideas to hurt yourself?
	(6) How often do you think about the strategies of hurting others in the rough world?
Lying	(7) How often do you fabricate lies to simplify a problem situation?
	(8) How often do you think about excuses to justify your wrongdoings?
	(9) How often do you tell lies without worrying about being nailed?
	(10) How often do you think of ways to conceal your misdoings from others?
Playing tricks	(11) How often do you have ideas about how to pull pranks on others?
	(12) How often do you play tricks on people as revenge?
	(13) How often do you think of ideas on the margins of rules, when conventional ways do not work?

Source: Hao et al. (2016).

Table A3. The items of the short-form parenting styles questionnaire.

Item no	Description
1	It happened that my parents were sour or angry with me without letting me know the cause.
2	My parents praised me.
3	It happened that I wished my parents would worry less about what I was doing.
4	It happened that my parents gave me more corporal punishment than I deserved.
5	When I came home, I then had to account for what I had been doing, to my parents.
6	I think that my parents tried to make my adolescence stimulating, interesting and instructive (For instance by giving me good books, arranging for me to go on camps, taking me to clubs).
7	My parents criticized me and told me how lazy and useless I was in front of others.
8	It happened that my parents forbade me to do things other children were allowed to do because they were afraid that something might happen to me.
9	My parents tried to spur me to become the best.
10	My parents would look sad or in some other way show that I had behaved badly so that I got real feelings of guilt.

Item no	Description
11	I think that my parents' anxiety that something might happen to me was exaggerated.
12	If things went badly for me, I then felt that my parents tried to comfort and encourage me.
13	I was treated as the 'black sheep' or 'scapegoat' of the family.
14	My parents showed with words and gestures that they liked me.
15	I felt that my parents liked my brother(s) and/Or sister(s) more than they liked me.
16	My parents treated me in such a way that I felt ashamed.
17	I was allowed to go where I liked without my parents caring too much.
18	I felt that my parents interfered with everything I did.
19	I felt that warmth and tenderness existed between me and my parents.
20	My parents put decisive limits for what I was and was not allowed to do, to which they then adhered rigorously.
21	My parents would punish me hard, even for trifles (Small offenses).
22	My parents wanted to decide how I should be dressed or how I should look.
23	I felt that my parents were proud when I succeeded in something I had undertaken.

Source: Arrindell et al. (1999).

Table A4. Child trauma questionnaire short form.

Item no.	Description
1	I didn't have enough to eat.
2	I knew that there was someone to take care of me and protect me.
3	People in my family called me things like "stupid", "lazy", or "ugly".
4	My parents were too drunk or high to take care of the family.
5	There was someone in my family who helped me feel important or special.
6	I had to wear dirty clothes.
7	I felt loved.
8	I thought that my parents wished I had never been born
9	I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.
10	There was nothing I wanted to change about my family.
11	People in my family hit me so hard that it left me with bruises or marks.
12	I was punished with a belt, a board, a cord (Or some other hard object).
13	People in my family looked out for each other.
14	People in my family said hurtful or insulting things to me.
15	I believe that I was physically abused.
16	I had the perfect childhood.
17	I got hit or beaten so badly that it was noticed by someone like a teacher, neighbour, or doctor.
18	Someone in my family hated me.
19	People in my family felt close to each other.
20	Someone tried to touch me in a sexual way or tried to make me touch them.
21	Someone threatened to hurt me or tell lies about me unless I did something sexual with them.
22	I had the best family in the world.
23	Someone tried to make me do sexual things or watch sexual things.
24	Someone molested me (Took advantage of me sexually).
25	I believe that I was emotionally abused.
26	There was someone to take me to the doctor if I needed it
27	I believe that I was sexually abused.
28	My family was a source of strength and support.

Source: Bernstein et al. (2003).