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ORIGINAL RESEARCH

The Effect of Parenting Practices on Creativity: Mediating Role of Psychological Resilience

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Aim: This study aimed to investigate the relationship between parenting practices and creativity (both general and malignant creativity) in a representative sample of college students in China, and to explore the potential mediating role of resilience.

Methods: The study was conducted among 1201 Chinese college students who completed questionnaires on parenting practices, creativity, and resilience. The parenting practices were assessed using the short-form Egna Minnen av Barndoms Uppfostran for Chinese, while creativity was measured using the Malevolent Creativity Behavior Scale and the Runco Ideational Behavior Scale. The Connor-Davidson Resilience Scale was used to assess resilience.

Results: The results showed that parental warmth had a positive correlation with general creativity, but a negative correlation with malevolent creativity. In contrast, parental rejection and over-protection had a negative correlation with general creativity, but a positive correlation with malevolent creativity. Furthermore, resilience fully mediated the relationship between emotional warmth, rejection, and general creativity, and partially mediated the relationship between over-protection and general creativity and between all parenting practices and malevolent creativity.

Conclusion: These findings suggest that parenting practices have a significant impact on creativity, and the type of creativity manifested may depend on the specific parenting practices. Additionally, the study highlights the importance of resilience as a potential mediator in the relationship between parenting practices and creativity. The implications of these findings for parenting practices and interventions to foster creativity and resilience are discussed.

Keywords: college students, parenting practices, general creativity, malevolent creativity, resilience

Introduction

Creativity is a multifaceted construct that is not limited to artistic expression but extends to problem-solving, innovative thinking, and originality across various domains. Creativity is the interaction of aptitude, procedure, and environment that results in a detectable output that is original and helpful within a social context.[1] According to the research by Lee and Dow,[2] creativity is linked to a cognitive style characterized by the ability to explore multiple perspectives and generate diverse ideas. These ideas might result from adopting alternative angles or viewpoints,[3] coming up with more ideas,[4,5] or combining many ideas to form a new answer.[6] Creativity has been predominantly assessed based on the criteria of originality and usefulness in generating innovative products or ideas. This evaluation framework often carries an implicit assumption that creativity is inherently positive and associated with a sense of goodness or virtue.[7]

Yet, there is a dark side to creativity. Rogers[8] pointed out that the dark side of creativity can be distinguished as malevolent creativity and negative creativity based on positive or negative purposes. Malevolent creativity was described as creativity that intentionally causes harm to some object or is driven by malice to achieve some purpose of profit.[7] Malevolent creativity is not found only in special groups such as terrorist organizations or criminal gangs but is widespread in all groups, manifesting itself only to different degrees and in other ways; it may be part of everyday life, at least in the form of lying, betrayal, deception, pranks, etc.[9–12] Malevolent creativity encompasses two essential attributes: originality and harmfulness. In other words, any act of malevolent behavior can be deemed as creatively

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malevolent if it exhibits novelty in some aspect. Conversely, behavior that is solely harmful but lacks originality cannot be classified as malevolently creative.[10]

The "4p" model of creativity proposes four different perspectives from which to observe creativity: result, process, person, and press of the environment.[13] The theory emphasizes how the individual characteristics or personality of the creator, the process by which creative outcomes are produced, and the environmental pressures required for creativity to emerge influence the production of innovative products or works. Based on this model, current research on creativity has focused on examining the effects of environmental pressures and personality traits on creativity. Some studies consider personality traits as an important antecedent factor influencing general creativity.[14] In contrast, others have suggested that environmental stress may significantly impact malignant creativity more than personality traits.[15] Hence, it is plausible that environmental stress and individual personality traits may exert distinct influences on individuals. After all, aside from the common attributes of "novelty" and "validity" shared with conventional forms of creativity,[5] other factors may come into play, malevolent creativity has a unique nature: harmfulness.[10]

Scholars have displayed an escalating fascination with comprehending the determinants that impact creativity and investigating prospective mechanisms by which it can be fostered and augmented. Among the prominent focal points within the existing body of literature, the influence of parenting practices on different types of creativity has received significant attention.[16,17] By understanding the interrelationship between parenting practices and creativity, we can gain insights into the factors that contribute to a child's creativity and a fuller understanding of the potential negative consequences and ethical implications of creativity. This study also examined "psychological resilience" as an underlying mechanism. Not all individuals exposed to the same parenting practices will exhibit the same level of creativity.[17,18] Psychological resilience can help account for individual differences in how individuals respond to and interpret their parenting experiences. By considering resilience as a mediator, we can better capture the complex interplay between parenting practices, individual differences, and creative outcomes.

Literature Review and Hypotheses Development

Parenting Practices and Creativity

According to the family system theory, as the primary place where the individual interacts with the outside world in the early stage, the family is the most immediate and profound microenvironment that affects the individual's psychological development.[19] Among them, the parental rearing behaviour has an impact that cannot be ignored on the development of children's personalities and specific characteristics.[20] Parenting practices was consider as directly observable specific behaviors that parents use to socialize their children. The different parental practices can be classified according to the two main orthogonal (independent) dimensions, responsiveness and demandingness.[21,22] Responsiveness refers to parental warmth, involvement and responsiveness to support and reinforce the developing child's individuality, while demandingness refers to parental strictness, imposition and demandingness to make the child conform to societal and family expectations.[23] Specifically, three of the most common parenting practices that have been studied for years are warmth, rejection and over-protection. Parental warmth represents greater parental responsiveness; parental over-protection, greater demandingness, but lower responsiveness; and parental rejection represents greater parental demandingness, but poor parental responsiveness.[24] Numerous have confirmed that parenting practices influence the development of general and malignant creativity.[16,25–27]

Emotional Warmth and Creativity

Emotional warmth, characterized by supportive and caring relationships, highlights the importance of socio-emotional factors in promoting and fostering creative potential.[28] Emotionally warm parents respect their children's independence by allowing them to express their ideas freely, supporting their freedom to explore matters, and encouraging them to participate in decision-making and problem-solving.[29] Parental warmth, including support, praise, love, and a state of tranquility, can shape good self-regulation, lead to more positive parent-child interactions, and promote children's executive functioning skills,[30] which may lead them to be more creative. On the other hand, the presence of warm and supportive relationships fosters the cultivation of proficient emotional regulation skills[31] and impulse control.[32] Individuals who experience warmth in their relationships demonstrate lower propensities for engaging in impulsive and

harmful behaviors, subsequently decreasing the likelihood of exhibiting malevolent creativity. Empathy, fostered by warmth and supportive relationships, promotes understanding and consideration of others' emotions and perspectives.[33] Empathic individuals are less inclined to engage in malevolent behaviors due to their ability to empathize with potential victims.

Rejection and Creativity

Several studies have found a positive correlation between parental rejection and creativity.[17] Other studies have found that parenting practices typified by rejection, neglect, or inadequate emotional support adversely affect children's creative abilities.[16] Rejection within the context of parenting denotes a state wherein parents demonstrate insensitivity towards their children's needs and requests, exhibiting limited emotional responsiveness, an excess of severity, inclination towards blame, and an inclination towards punitive measures.[34] Children who grow up in such an environment may experience decreased levels of self-esteem,[35] Weakened of self-awareness,[36] all of which are fundamental elements for fostering creativity.[37,38] On the other hand, avoidance motives are activated when people strive to avoid negative consequences (eg, the discomfort of being rejected by a parent), which reduces one's ability to think about problems from different perspectives,[39] and thus parental rejection reduces creativity. Rejection, a common social experience, can influence various aspects of human behavior. Rohner et al[40] concluded that parental rejection is one of the major predictors of a range of behavioral problems in children. Children who perceive parental rejection may tend to hold the notion that resources are unpredictable and limited, so they prefer to take risks in the present rather than wait for future gains.[41] Harmful childhood experiences arising from parental neglect may lead to cynical and hateful interaction styles,[42] such as malignant creativity. Children who suffer severe parental rejection and neglect are likely to develop more resentment, skepticism, aggression, and antisocial tendencies.[17] We can reasonably guess that individuals who are highly sensitive to rejection may be more prone to developing malevolent creative responses as a defense mechanism or means of asserting control.

Over-Protection and Creativity

Over-protection parents may over care for their children because of their own biases against threats, increased perception of danger, and heightened sensitivity to their children's distress. Over-protection parents can undermine a child's development of independent coping skills.[43] According to self-determination theory,[44] overprotected children find it difficult to achieve positive adjustment because they are overwhelmed by parental over-involvement, intrusiveness, and basic needs such as autonomy and self-efficacy go unmet. Their sense of worth is severely diminished, they feel weak, they are unable to explore their environment independently, and they are less motivated to achieve.[45] We can venture a guess that excessive parental control and restriction can inhibit an individual's ability to generate ideas and explore non-traditional solutions. Over-protection often involves excessive control and decision-making on behalf of individuals, limiting their autonomy and independence.[43] This lack of agency may contribute to the development of malevolent creative tendencies as a form of rebellion or power assertion.[46] In addition, overprotected children exhibit dysfunctional defense patterns and maladaptive coping strategies,[47] which can lead to more hurting, lying, and playing tricks.

Therefore, we hypothesize that,

Hypothesis 1: Parenting practices has a significantly predictive effect on general creativity, that is, rejection significantly negatively predicted general creativity (1a), emotional warmth significantly positively predicted general creativity (1b), and over-protection significantly negatively predicted general creativity (1c).

Hypothesis 2: Parenting practices has a significant predictive effect on malevolent creativity; that is, rejection significantly positively predicted malevolent creativity (1a), emotional warmth significantly negatively predicted malevolent creativity (1b), and over-protection significantly positively predicted malevolent creativity (1c).

The Mediating Effect of Resilience

Parenting Practices and Resilience

Psychological resilience, as an essential individual variable, is the ability of individuals to demonstrate better physiological states, reactions, and coping abilities when experiencing events that significantly impact them.[48] The Model of Psychological Resilience posits that psychological resilience is shaped by a multitude of internal and external factors. Among the external factors, the family environment, particularly parenting practices, emerges as the foremost predictor of individual development.[49] Parenting practices encompasses the attitudes and behaviors exhibited by parents towards their children during the upbringing process, serving as the primary resource and initial environment that fosters the development of children's psychological resilience.[49] Several empirical investigations have also shown that parenting practices, a typical proximal factor in the family environment, may influence the development of a person's psychological resilience.[50–52] A history of positive parenting can cultivate the psychological resilience of children.[53] Conversely, negative parenting practices such as parental psychological control were negatively associated with emotion regulation abilities that adolescents reported.[54] Authoritarian parents are characterized by their inclination towards strict discipline, coercive tactics, a lack of attunement to their children's needs, and difficulties in providing adequate support. These parenting traits have been associated with lower levels of psychological resilience and higher levels of depression and anxiety in children.[51]

Resilience and General Creativity

Thomson[55] has underscored the intimate interrelation between creativity and resilience, highlighting shared attributes within both constructs. From a personal perspective, flexibility, initiative, resourcefulness, adaptability, spontaneity, and originality are inherent qualities associated with both creativity and resilience.[56,57] Culturally, both contain some contextual factors, from establishing active links with other significant ones to the availability of contextual and familiar supports that allow them flexibility to try new things.[57–59] Moreover, specific aspects of creativity, ie, flexible thinking and originality, seem to be most strongly associated with emotional resilience processes, and high levels of psychological resilience can help individuals hold up well during a traumatic event, thus contributing to the development of creativity.[60] Considering these concepts, it can be hypothesized that psychological resilience facilitates the expression of general creativity.

Resilience and Malevolent Creativity

Some researchers argue that both general and malevolent creativity are creative, reflecting the divergent nature of thinking and cognitive flexibility, but differ in the nature of the problem solution.[7,10] Hence, it is plausible that psychological resilience exerts similar influences on both general creativity and malevolent creativity. Nevertheless, some scholars contend that malevolent creativity represents a cognitive outcome that revolves around causing harm to others, exhibiting close associations with individuals' negative personality traits or characteristics;[27] that is, negative personality traits influence malevolent creativity through the malice of the individual. And hence, as a positive personality trait, resilience may be an inhibitory factor for malevolent creativity. Studies have found that highly resilient individuals tend to be more able to perceive or manage emotions, impulse control, and empathy,[61] and have more robust prosocial behavior,[62] and are less likely to solve problems impulsively or destructively. Previous studies have shown that the poor psychological resilience group creates more malevolent thoughts with greater novelty than the high psychological resilience group.[63] Considering these concepts, it can be hypothesized that that psychological resilience reduces the manifestation of malignant creativity.

Parenting Practices Influence General Creativity Through Resilience

Warmth, characterized by supportive and nurturing relationships, has been associated with positive emotional experiences and socio-emotional development. Warm and supportive relationships have been identified as an important facilitative resource for children and adolescents, providing a secure foundation for personal exploration and creative risk-taking. The emotional support and positive feedback received in warm environments may foster self-confidence and the belief in one's creative abilities.[29,64] According to the Resilience Challenge Model, children who are overprotected by their parents are hindered in the development of psychological resilience due to the lack of initial risk exposure,[52] which

may limit the individual's ability to take creative risks and overcome obstacles. Psychological resilience, which encompasses an individual's ability to adapt and bounce back from adverse circumstances, and to demonstrate positive adjustment and well-being in the face of challenging situations,[52] can act as a mitigating factor to minimize the harmful effects of parental rejection. A heightened level of resilience has the potential to attenuate the detrimental impacts stemming from parental rejection, thereby enabling individuals to preserve their creative capacities and adapt constructively when confronted with challenging situations.

Parenting Practices Influence Malevolent Creativity Through Resilience

Furthermore, literature concluded that Parental rejection is associated with health risk behaviors, and psychological resilience may weaken this relationship.[41] Rejection may undermine psychological resilience, increasing the risk for the development of malevolent creative tendencies as a means of coping or seeking revenge.[26] Through the cultivation of coping strategies, emotional regulation skills, and a sense of self-efficacy, psychological resilience can effectively mitigate the influence of rejection on the emergence of malevolent creativity. Positive parenting influences the development of resilience in a positive way and can significantly offset the risk of future psychological disorders.[65] It can be postulated that warmth fosters the development of psychological resilience, which in turn acts as a protective factor against the emergence of malevolent creative tendencies.[63] Over-protection may derail a child's developmental routines and increase the risk of malignant creative tendencies emerging as a form of rebellion or power assertion.[46] Psychological resilience as a protective factor ameliorates the outcomes that lead to maladaptation.

The ecological systems model of creativity development[66] claims that creativity is impacted by environmental variables and human traits, with environmental factors influencing creativity primarily through personal attributes. Based on the above analysis, parenting practices may affect general and malevolent creativity differently by affecting psychological resilience. Similar mechanisms have been found in previous studies. Guo et al[67] observed that the mediating effect of openness was evident in the association between parental warmth and creativity, and the relationship between parental rejection and creativity was mediated by Machiavellianism. Jia et al[27] discovered that the Dark Triad personality traits served as partial mediators in the relationship between childhood neglect and malevolent creativity. These research findings shed light on the role of these mediating factors in elucidating the complex dynamics between parenting practices, individual characteristics, and the manifestation of creative outcomes. Based on the above arguments, we assume that (see Figure 1).

Hypothesis 3: Psychological resilience plays a mediating role in the effect of parenting practices (rejection (3a), emotional warmth (3b), over-protection (3c)) on general creativity.

Hypothesis 4: Psychological resilience plays a mediating role in the effect of parenting practices (rejection (4a), emotional warmth (4b), over-protection (4c)) on malevolent creativity.

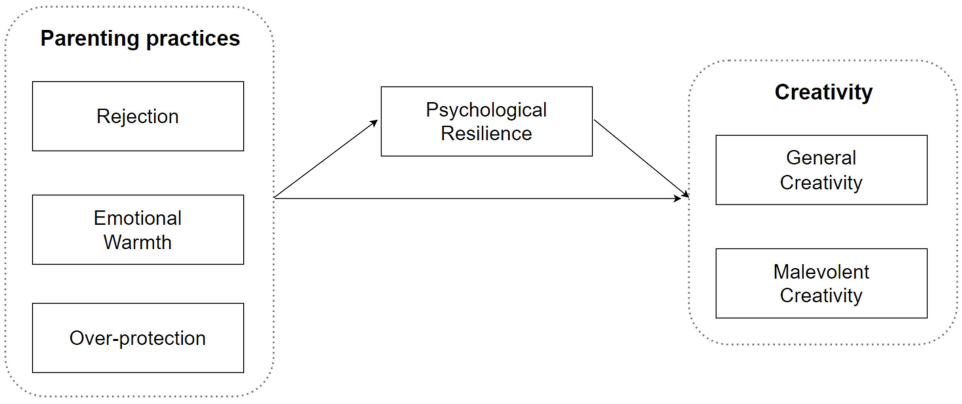

Figure 1 Theoretical Framework.

Materials and Methods

Participants and Procedure

This study was conducted at two universities in Shandong Province, China. A total of 1201 university students volunteered to participate in the study by completing an online questionnaire, and no one was paid for their participation. 563 males and 638 women aged 17 to 24 (M = 20.80 years old, SD = 1.90) were included in the sample. Academically speaking, 286 (23.8%) were first-year students, 316 (26.3%) were Sophomores, 312 (26.0%) were Juniors, and 287 (23.9%) were Senior Students.

Informed consent was verbalized for all students prior to the questionnaire for this study, while for students under 18 years of age, consent was obtained from school administrators, teachers, parents, or legal guardians. A consent form, questionnaires and demographic information were posted on Questionstar (a public online questionnaire distribution platform). It took participants approximately 15 to 20 minutes to complete the questionnaire anonymously on a computer or cell phone. Before participants answered the questionnaire, we explained the purpose of this study and promised that all data would be used only for the analysis of this study. The investigation was carried out in accordance with the Helsinki Declaration as revised 1989 and approved by the Yantai Vocational College of Culture and Tourism.

Measurement

Parenting Practices

The Chinese Egna Minnen Beträffande Uppfostran short form was used to measure perceived parenting practices.[68] The s-EMBU for Chinese (s-EMBU-C) contains three subscales (Rejection, Emotional Warmth, and Over-protection) with 6.7, and 8 items, respectively. Ratings for each participant included separate Likert-type ratings (1="never" to 4="always") for each parent (father and mother). Because this study intended to examine the effects of whole family parenting practices, the fathers' and mothers' scores were combined and averaged for the parents' scores. Higher scores on each subscale indicated more frequent engagement in the appropriate parenting practices. In the present sample, the internal consistency of the three subscales was very favorable, 0.91 for parental rejection, 0.91 for emotional warmth, and 0.90 for over-protection.

Malevolent Creativity

The Malevolent Creativity Behavior Scale (MCBS)[69] was used to assess malevolent creativity. The 13-item scale consists of three subscales assessing hurting people, lying and playing tricks. Scoring for each item involved a separate Likert-type scale (1 = "never" to 5 = "always"). The Cronbach's alpha for the full scale was 0.90.

General Creativity

The Runco Ideational Behavior Scale (RIBS)[70] was used to assess creativity, which contains 19 items and uses a 5-point Likert-type scale (1 = "never" to 5 = "just about every day"). The sum of the scores of all items is the creative idea score, and the more significant the score, the more innovative the idea is. The Cronbach's alpha for the scale was 0.96.

Psychological Resilience

The Connor-Davidson Resilience Scale was first developed to assess psychological resilience,[71] and Yu and Zhang[72] revised the Chinese version of the CD-RISC. This scale measures tenacity, strength, and optimism with 25 items in total. Scoring for each item involved a separate Likert-type scale (1 = "not true at all" to 5 = "true all the time"). The scores of all items are added together to give a total score for psychological resilience. Psychological resilience was positively correlated with CD-RISC scores. The Cronbach's alphas were 0.95 for the full scale.

Data Analysis

In the current study, we used the statistical software SPSS 23.0 to create a database and entered the collected questionnaire data for statistical analysis, and then analyzed the sample data with Harman's one-way test to avoid

possible standard method bias. In the next step, we examined the trends in the concentration and dispersion of the data through a series of descriptive analyses. Subsequently, Pearson product-moment correlation coefficients were computed to examine the extent of linear correlation among the independent, mediating, and dependent variables. To test the mediated model of psychological resilience, we followed direct and indirect path through Structural equation modeling (SEM) was applied.

Results

Common Method Bias

To address potential common method bias in this study, Harman's single-factor test in SPSS was employed as the data collection method relied on self-report measures. Un-rotated exploratory factor analysis was conducted using all the items from s-EMBU-C, MCBS, RIBS, and CD-RISC. The results revealed that ten factors exhibited eigenvalues exceeding 1, with the first component accounting for only 23.47% of the total variance, below the 40% threshold. These findings indicate that common method biases were deemed insignificant in the present study.

Descriptive Statistics and Correlation Analysis

We examined the study variables' means, standard deviations, and correlations. As shown in Table 1, rejection was significantly and negatively correlated with psychological resilience ($r = -0.31$, $p < 0.01$) and general creativity ($r = -0.29$, $p < 0.01$), while it was positively correlated with malevolent creativity ($r = 0.34$, $p < 0.01$). Emotional warmth was significantly and positively correlated with psychological resilience ($r = 0.31$, $p < 0.01$) and general creativity ($r = 0.25$, $p < 0.01$), while it was negatively correlated with malevolent creativity ($r = -0.35$, $p < 0.01$). Over-protection was significantly and negatively correlated with psychological resilience ($r = -0.39$, $p < 0.01$) and general creativity ($r = -0.40$, $p < 0.01$), while it was positively correlated with malevolent creativity ($r = 0.34$, $p < 0.01$). In addition, psychological resilience was significantly and positively correlated with general creativity ($r = 0.39$, $p < 0.01$), while it was negatively correlated with malevolent creativity ($r = -0.38$, $p < 0.01$). Thus, the results of the correlation analysis initially supported the subsequent mediating effect test.

Testing for the Mediation Effect

The results of structural equation model analysis using AMOS 23.0 showed that X2/df = 1.864, RMSEA = 0.027, SRMR = 0.052, GFI = 0.940, NFI = 0.943, RFI = 0.940, IFI = 0.973, TLI = 0.971, CFI = 0.973, which indicates that the structural equation model is well fitted for path analysis. The path coefficients between the variables are shown in Table 2. To further test the mediating role of psychological resilience, Bootstrap self-sampling was used to construct 95% confidence intervals for the mediating effect.

Among general creativity, the total effect of parental emotional warmth on general creativity was significant($\beta = 0.119$, 95% CI = [0.052, 0.184]), the direct effect on general creativity was not significant($\beta = 0.055$, 95% CI = [−0.012, 0.122]), and the indirect effect on general creativity through psychological resilience was significan($\beta = 0.064$, 95% CI = [0.040, 0.095]), which indicates that psychological resilience fully mediated the effect between parental emotional warmth and general creativity. The total effect of parental rejection on general creativity was significant($\beta = -0.083$,

Table 1 Mean, Standard Deviations, and Correlations of Each Variable (N = 1201)

Variables	*M* ± *SD*	1	2	3	4	5	6
1 Rejection	2.17±0.81	1					
2 Emotional Warmth	2.62±0.72	−0.46**	1				
3 Over-protection	2.20±0.49	0.54**	−0.37**	1			
4 Psychological Resilience	3.52±0.76	−0.31**	0.31**	−0.39**	1		
5 General Creativity	3.61±0.92	−0.29**	0.25*	−0.40**	0.39**	1	
6 Malevolent Creativity	3.15±0.66	0.34**	−0.35**	0.34**	−0.38**	0.12**	1

Note: **$p < 0.01$.

Table 2 Results of the Model's Main Path Parameter Tests

Paths	Standardized Parameter Estimates	S.E.	C.R.	P
EW→PR	0.191	0.030	5.425	***
R→PR	−0.128	0.030	−3.218	***
OP→PR	−0.298	0.051	−7.654	0.001
PR→GC	0.337	0.046	8.828	***
EW→GC	0.055	0.032	1.711	0.087
R→GC	−0.040	0.033	−1.114	0.266
OP→GC	−0.172	0.057	−4.740	***
EW→MC	−0.208	0.025	−5.676	***
R→MC	0.172	0.026	4.265	***
OP→MC	0.132	0.044	3.295	***
PR→MC	−0.244	0.034	−6.023	***

Note: ***$p < 0.001$.
Abbreviations: EW, Emotional Warmth; R, Rejection; OP, Over Protection; PR, Psychological resilience; GC, General creativity; MC, Malevolent Creativity.

95% CI = [−0.158, −0.007]), the direct effect on general creativity was not significant(β = −0.040, 95% CI = [−0.115, 0.033]), and the indirect effect on general creativity through psychological resilience was significant(β = −0.043, 95% CI = [−0.076, −0.016]), which indicates that psychological resilience fully mediated the effect between parental rejection and general creativity. The total effect of parental over-protection on general creativity was significant(β = −0.272, 95% CI = [−0.341, −0.203]), the direct effect on general creativity was significant(β = −0.172, 95% CI = [−0.245, −0.099]), and the indirect effect on general creativity through psychological resilience was significant(β = −0.100, 95% CI = [−0.138, −0.07]), which indicates that psychological resilience partially mediated the effect between parental over-protection and general creativity, with the mediating effect accounting for 36.76% of the total effect (see Table 3).

Among malevolent creativity, the total effect of parental emotional warmth on malevolent creativity was significant (β = −0.254, 95% CI = [−0.325, −0.181]), the direct effect on malevolent creativity was significant(β = −0.208, 95%

Table 3 Analysis of the Mediating Effect of Psychological Resilience

Paths	Effect	Standardized Parameter Estimates	S.E.	Bias-Corrected CI(95%)	
				Lower	Upper
EW→PR→GC	Direct effect	0.055	0.034	−0.012	0.122
	Indirect effect	0.064	0.014	0.040	0.095
	Total effect	0.119	0.033	0.052	0.184
R→PR→GC	Direct effect	−0.040	0.038	−0.115	0.033
	Indirect effect	−0.043	0.015	−0.076	−0.016
	Total effect	−0.083	0.038	−0.158	−0.007
OP→PR→GC	Direct effect	−0.172	0.037	−0.245	−0.099
	Indirect effect	−0.100	0.017	−0.138	−0.070
	Total effect	−0.272	0.035	−0.341	−0.203
EW→PR→MC	Direct effect	−0.208	0.037	−0.281	−0.136
	Indirect effect	−0.047	0.013	−0.075	−0.025
	Total effect	−0.254	0.037	−0.325	−0.181
R→PR→MC	Direct effect	0.172	0.041	0.092	0.254
	Indirect effect	0.031	0.011	0.012	0.059
	Total effect	0.203	0.042	0.121	0.287
OP→PR→MC	Direct effect	0.132	0.041	0.050	0.211
	Indirect effect	0.073	0.016	0.044	0.109
	Total effect	0.204	0.039	0.129	0.282

CI = [−0.281, −0.136]), and the indirect effect on malevolent creativity through psychological resilience was significant(β = −0.047, 95% CI = [−0.075, −0.025]), which indicates that psychological resilience partially mediated the effect between parental emotional warmth and malevolent creativity, with the mediating effect accounting for 18.50% of the total effect. The total effect of parental rejection on malevolent creativity was significant(β = 0.203, 95% CI = [0.121, 0.287]), the direct effect on malevolent creativity was significant(β = 0.172, 95% CI = [0.092, 0.254]), and the indirect effect on malevolent creativity through psychological resilience was significant(β = 0.031, 95% CI = [0.012, 0.059]), which indicates that psychological resilience partially mediated the effect between parental rejection and malevolent creativity, with the mediating effect accounting for 15.27% of the total effect. The total effect of parental over-protection on malevolent creativity was significant(β = 0.204, 95% CI = [0.129, 0.282]), the direct effect on malevolent creativity was significant(β = 0.132, 95% CI = [0.05, 0.211]), and the indirect effect on malevolent creativity through psychological resilience was significant(β = 0.073, 95% CI = [0.044, 0.109]), which indicates that psychological resilience partially mediated the effect between parental over-protection and malevolent creativity, with the mediating effect accounting for 35.78% of the total effect (see Table 3).

Discussion

Parenting Practices and Creativity

The consequences of this study regarding general creativity showed that emotional warmth significantly and positively predicted general creativity, which confirms H1b and previous research results[16,73] and further support for the autonomy-supportive parenting theory.[74] Positive and supportive parental behaviors, such as emotional warmth, caring, and understanding, can help children feel safe and experience autonomy,[75] promoting creativity. Research has demonstrated a positive correlation between parental support, characterized by acceptance and involvement, and children's thinking styles characterized by elevated levels of creativity, autonomy, and reduced levels of conformity[76] and creative personality.[77] In addition, this study found that rejection and over-protection significantly and negatively predicted general creativity, which is consistent with H1a and H1c. According to a systematic study, low degrees of warmth, rejection, and detachment in parent-child relationships are linked to children's lower levels of creativity.[78] Because parents' negative behaviors, such as rejection and indifference towards their kids, will bring about a strong sense of non-confidence and insecurity, reduce their self-identity and self-acceptance, and ultimately hinder their creative development. In addition, parenting characterized by denial and restrictive control by the mother is detrimental to the child's original thinking and creative activity.[79]

The results of this study regarding malevolent creativity showed that emotional warmth significantly and negatively predicted malevolent creativity, which supported H2b. Rejection and over-protection significantly and positively predicted malevolent creativity, which supported H2a and H2c. It can be seen that the promotion effect of emotional warmth on general creativity does not carry over to the performance of malevolent creativity; but rather, due to the "malicious purpose" nature of malevolent creativity itself, emotional warmth inhibits the performance of malevolent creativity. At the same time, rejection and over-protection promote the performance of malevolent creativity. The evidence indicates that children who experience more rejection, over-protection, and a lack of emotional warmth in their family are less likely to feel regret for their actions and are more likely to be morally disengaged,[80] individuals with high moral disengagement generate more malevolently creative behavior.[81] Previous research has found that maternal rejection, punishment, or indifference can prevent children from developing the ability or willingness to understand the needs of others, making it difficult for individuals to respond when faced with the pain of others,[82] Whereas parental over-protection, ie, excessive intrusion and control, inhibit children's responses to the social environment and reduces children's pro-social behavior.[83] Conversely, when parents can respond and support their children with positive and warm emotions, children are more inclined to use constructive emotion regulation strategies and are more able to empathize with the emotions and thoughts of others, which contributes to the child's pro-social behavior.[84] While a favorable family environment and upbringing can promote the growth of general creativity, harmful ones can not only hinder it but may also stimulate the growth of malignant creativity.[27]

Importantly, with the incorporation of psychological resilience as a mediating variable, the direct predictive impact of emotional warmth and rejection on general creativity was no longer statistically significant. However, the direct

predictive effect of over-protection on general creativity remained significant. This observation highlights the potential limitation of categorizing parenting practices solely based on positive and negative dimensions, suggesting the utilization of alternative approaches such as latent category analysis to reclassify parenting practices and explore their comprehensive effects on individual creativity and other related attributes. Moreover, the direct predictive effect of parenting practices on malevolent creativity remained significant, indicating that parenting practices may exert a more direct and pronounced influence on the malevolent creativity of college students, while the impact on their general creativity may predominantly occur indirectly. This also suggests that future studies must examine general and malevolent creativity separately. Different mediators or moderators may need to be considered when examining how parenting practices affects creativity performance.

The Mediating Effect of Psychological Resilience

According to person-context interaction theory, creative behavior is a product of individual variables and contextual variables.[85] In the current study, parenting practices as a contextual variable influenced individuals' psychological resilience and, subsequently, their creativity.

Psychological resilience was found to fully mediate between emotional warmth and general creativity and partially mediate between emotional warmth and malevolent creativity, providing support for hypotheses H3b and H4b. Parental warmth and communication help teens cope better with life's challenges.[86] Further, parental acceptance and involvement by engaging in discussions and listening to the opinions of young adult's paves way for the development of resilience.[87] Resilient people can use humor, creative exploration, and optimistic thinking to deal with critical situations.[88] People with high resilience have more mental resources and are more receptive to new experiences, resulting in higher positive adaptability and cognitive flexibility, generating more original ideas and actions.[89,90] In addition, highly resilient people have more positive self-perceptions and a stronger feeling of responsibility;[91] they are more confident, resilient, humorous, and have good emotional regulation;[92] and can even mobilize positive emotions with an almost intuitive sensitivity to guide their coping behaviors, thereby reducing distress and restoring cognition[93] and are therefore less likely to have evil thoughts and behaviors.

Psychological resilience was found to fully mediate between rejection and general creativity and partially mediate between rejection and malevolent creativity, providing support for hypotheses H3a and H4a. Parental Acceptance-Rejection Theory[40] suggests that rejection negatively affects emotional and behavioral development and personality functioning. It can lead to depression, sadness, low self-esteem, low resilience, and other emotional and behavioral problems in individuals. Low-resilient people report more negative emotions.[67] It may be necessary to use additional cognitive resources to activate positive emotions, especially when dealing with negative experiences.[93] At the same time, low-resilient individuals have negative cognitive schemas when under stress or adversity. They tend to use extreme ways to solve problems, such as escape, fantasy, and harming themselves or others, showing more harmful and destructive behaviors.[63]

Psychological resilience was found to partially mediate between over-protection and both general creativity and malevolent creativity, providing support for hypotheses H3c and H4c. While caregiving and protection are common functions of all families, over-protection does appear to be a parenting behavior associated with offspring maladjustment.[94] Over-protection may become risk factors that exacerbate the harmful effects of adverse situations on individuals and hinder the development of their psychological resilience.[64,65] Lower levels of resilience make it difficult for individuals to utilize and benefit from their creative potential.[95] Individuals with low resilience tend to experience negative emotions that lead to harming others in more primitive and harmful ways than individuals with high resilience.[67]

Research Significance, Limitations and Future Directions

This study constructed a theoretical model of family microsystems (parenting practices) affecting college students' creativity (general and malignant creativity) through individual factors (psychological resilience) under the perspective of the 4P model of creativity, and discovered the mechanisms by which different parenting practices differently affect general and malignant creativity. First, findings based on Chinese college students reveal the benefits of parenting practices based on responsiveness, rather than harshness and indulgence. Further, the study revealed the mediating role of psychological resilience between parenting practices and creativity, implying the importance of enhancing adolescents' psychological

resilience. In addition, the study revealed differences in the relationship between general creativity, malignant creativity and certain factors, implying the need to further explore their differences and connections.

There are also limitations to this study. Firstly, the study design employed a cross-sectional approach, which precludes the ability to establish causal relationships between parenting practices and individual creativity. Future longitudinal studies could be used to explore the underlying mechanisms by which parenting practices affect college students' creativity. Second, only one mediating variable was selected to study how parenting practices affects general and malevolent creativity. In truth, parenting practices is associated with many factors, such as personality traits,[27] moral disengagement,[80] emotional intelligence,[64] etc., which are closely related to malignant creativity. So, are there other possible ways parenting practices may act on malevolent creativity? These need to be further discussed in future studies. Third, the children in this study retrospectively assessed their parents' parenting practices. Although this evaluation of parenting practices is acceptable,[76,77] it has some drawbacks since it ignores the parents' actual behavior and instead bases its findings on the children's subjective perceptions. Furthermore, because this study approach is retrospective, we cannot rule out the possibility that the findings may be influenced by how children recall particular parental acts. Follow-up studies could use a combination of parent and child reports to examine parenting practices.

Data Sharing Statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics Statement

This research was approved by the Research Committee of Yantai Vocational College of Culture and Tourism Research Ethics Committee in accordance with the international ethical standards, Helsinki Declaration 1964 and its amendments. Informed consent was obtained from all individual participants included in the study. China's Circular on the Issuance of Measures for Ethical Review of Life Science and Medical Research Involving Human Beings stipulates that if a participant in a study is a minor, the informed consent of his or her guardian should be obtained. The present study included 69 underage university students aged 17 years whose parents or guardians' consent was obtained prior to obtaining their informed consent.

Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

Disclosure

The author declares no conflicts of interest in this work.

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