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# Family Functioning in the Context of Parenting Styles and Peer Relationships Among Malaysian Adolescents Aged 12-16 Years

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#### **Abstract:-**

## > Objective:

This study aims to examine the role of family functioning as a mediator in the relationship between family parenting styles and peer relationships among adolescents aged 12-16.

## > Methods:

A questionnaire survey was conducted with 1,104 adolescents aged 12-16 from two secondary schools in Kuala Lumpur, Malaysia. Participants completed self-assessment questionnaires, and 996 valid responses were analyzed using SPSS 26.0 and the SPSS macro program PROCESS 4.0 (Hayes, 2013).

# > Results:

The analysis revealed that family functioning partially mediates the influence of five family parenting styles—emotional warmth, trust and encouragement, indulgence, authoritarianism, and neglect—on peer relationships among adolescents.

## > Conclusion:

The five dimensions of family parenting style impact peer relationships through family functioning, highlighting its significant role in enhancing peer interactions among adolescents.

**Keywords:-** Family Parenting Style; Peer Relationships; Family Functioning; Adolescents.

## I. INTRODUCTION

The family is a complex system that encompasses various institutions and functions, continuously evolving throughout the life cycle (Feinberg, M., Hotez, E., Roy, K., Ledford, C. J. W., Lewin, A. B., Perez-Brena, N., Childress, S., & Berge, J. M. 2022). Research has demonstrated that family education significantly influences family functioning, with different parenting styles affecting the family environment and atmosphere, resulting in diverse expressions of family dynamics (Li, X., Shi, K., Zhang, J., et al. 2024). Specifically, parents who adopt an emotionally warm and understanding educational style tend to foster positive family functioning, whereas those who employ punitive, severe, overly

controlling, preferential, rejecting, or neglectful styles often contribute to negative family dynamics (Niu, X., Li, J. Y., King, D. L., Rost, D. H., Wang, H. Z., & Wang, J. L. 2023). There is a causal relationship between family functioning and peer relationships. Children who maintain good communication with their peers typically exhibit higher levels of family functioning and well-developed peer communication skills (Zhou, X., Huang, J., Qin, S., Tao, K., & Ning, Y. 2023). Compared to those with poor family functioning, children from families with stronger family functions generally enjoy better peer relationships, receive more attention in class, are more popular among their peers, and perform better academically (Zhao, L., & Zhao, W. 2022).

The interplay between family parenting style, family functioning, and peer relationships is complex and multifaceted. Understanding these connections is crucial for developing interventions and strategies that support healthy social development in children. However, this relationship is intricate. First, parenting styles vary significantly across families, influenced by cultural, socio-economic, and individual differences (Li, D., Li, W., & Zhu, X. 2023). Additionally, differing approaches between parents or caregivers within the same family can result in inconsistent parenting, potentially confusing children and negatively impacting their social development (Frosch, C. A., Schoppe-Sullivan, S. J., & O'Banion, D. D. 2019). Moreover, dysfunctional family environments—such as those marked by intense conflict, poor communication, or neglect—can impede the development of social skills in children. Children from such environments may exhibit emotional and behavioral issues, such as aggression or withdrawal. Furthermore, parenting styles and family dynamics are deeply embedded in cultural contexts. Strategies that are effective in one cultural setting may not be successful in another, making it challenging to develop universally applicable interventions. Given the diversity in family structures, cultural backgrounds, and individual needs, creating tailored interventions to address the specific challenges faced by different populations remains a significant challenge (Joo, J. Y., & Liu, M. F. 2021).

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## II. METHODS

## ➤ Research Subjects

Adolescents aged 12-16 years were randomly selected from two schools in Kuala Lumpur, Malaysia, for a questionnaire survey conducted between June 2023 and June

2024. A total of 1,104 questionnaires were distributed, of which 108 were deemed invalid and excluded, resulting in 996 valid responses. The effective response rate was 90.2%. The basic demographic information of the participants is provided in Table 1.

Table 1 Basic Information of the Subjects

Demographic Variables	Group	Number of People	Percentage
Gender	Male	462	46.39%
	Female	534	53.61%
Grade	High School	588	59.04%
	Junior High School	408	40.96%
Place of Origin	Town	187	18.78%
	Rural	809	81.22%
Only Child	Yes	514	51.61%
	No	482	48.39%
Mother's Education Level	Other	232	23.29%
	University and Above	764	76.71%
Father's Education Level	Other	237	23.80%
	University and Above	759	76.20%

#### Research Tools

## • Parenting Style Scale

The Parenting Style Scale, developed by Gong Yihua (2005), was used to assess parenting styles (Wang, S., & Zheng, L. 2024). The scale consists of 21 items and uses a Likert five-point scoring system to measure five dimensions of parenting style: authoritarianism, trust and encouragement, emotional warmth, indulgence, and neglect. Original scores were converted into standard scores. The internal consistency coefficients for the original scale were 0.784, 0.716, 0.656, 0.735, and 0.456, respectively. In this study, the internal consistency coefficients for each dimension were 0.720, 0.764, 0.704, 0.778, and 0.710, respectively.

# • Children and Adolescents Peer Relationship Scale

The Peer Relationship Scale for children and adolescents, developed by Guo Boliang (2003), was used to measure peer relationships. The scale includes 22 items and employs a Likert five-point scoring system, where higher scores reflect poorer peer relationships. The original scores were converted into standard scores. The internal consistency coefficient for the original scale was 0.71, while in this study, it was 0.898.

## • Family Functioning Scale

Family functioning was measured using the Family Intimacy and Adaptation Scale (FACES II), developed by Olson et al. (1982) (Pan, Y., Yang, Z., Han, X., & Qi, S. 2021). This self-assessment scale includes two subscales: Actual Family Intimacy and Adaptation, and Ideal Family Intimacy and Adaptation. The scale consists of 30 items—16 items assessing family intimacy and 14 items assessing family adaptation. A Likert five-point scoring system was used, with higher scores indicating better family functioning.

The original scores were converted into standard scores. The internal consistency coefficient for the original scale was 0.85, and in this study, it was 0.756.

## ➤ Data Collection and Processing

Data collection was conducted offline. Class teachers organized the students to complete the questionnaires during self-study breaks. A total of 1,104 questionnaires were collected, with 108 invalid responses excluded, resulting in 996 valid responses and an effective response rate of 90.2%. The data were entered and analyzed using SPSS 26.0. Descriptive statistics, independent sample t-tests, correlation analysis, and regression analysis were conducted. Additionally, the SPSS macro program PROCESS 4.0, developed by Hayes (2013), was used to test the moderating mediation effect structural model.

## III. RESULTS

## A. Demographic Differences Among Variables

Individual differences among the subjects may affect their scores on different family parenting styles, family functions, and peer relationships. Therefore, this section will analyze demographic differences. The main demographic variables are gender, grade, family location, whether they are only children, mother's education level, and father's education level. Independent sample t-tests are used to examine the differences in these variables in this study.

# ➤ Gender Differences

An independent sample t-test was conducted to compare gender differences in five family parenting styles, family functioning, and peer relationships. The results are presented in **Table 2**.

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Table 2 Differences	1n	Variables by Gender

Variable	Male (N=462)	Female (N=534)	t-value	
Autocratic	$2.37 \pm 1.13$	$2.41 \pm 1.12$	0.413	
Trust and Encouragement	$3.73 \pm 1.14$	$3.53 \pm 1.13$	7.995	
Emotional Warmth	$3.74 \pm 1.14$	$3.54 \pm 1.12$	7.633	
Doting	$3.53 \pm 0.98$	$3.36 \pm 0.95$	*7.706	
Ignore	$2.02 \pm 1.56$	$2.12 \pm 1.56$	0.942	
Family Functioning	$3.08 \pm 1.17$	$3.01 \pm 1.15$	1.067	
Companionship	$2.93 \pm 1.28$	$2.97 \pm 1.24$	0.232	

Note: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

The results show significant gender differences in trust and encouragement, emotional warmth, and doting (p < 0.01). Males scored significantly higher than females on these measures, indicating that parents provided more trust, encouragement, emotional warmth, and doting in the upbringing of boys. No significant differences were found for other variables.

# ➤ Household Location Differences

An independent sample t-test was conducted to compare differences in family parenting styles, family functioning, and peer relationships between adolescents from rural and urban households. The results are presented in Table 3.

Table 3 Differences in Variables by Household Location

Variable	Rural (N=187)	Urban (N=809)	t-value
Autocratic	$2.42 \pm 1.15$	$2.27 \pm 1.02$	2.703
Trust and Encouragement	$3.58 \pm 1.16$	$3.80 \pm 1.03$	5.409
Emotional Warmth	$3.59 \pm 1.15$	$3.80 \pm 1.08$	5.278
Doting	$3.41 \pm 0.98$	$3.58 \pm 0.89$	4.369
Ignore	$2.12 \pm 1.59$	$1.86 \pm 1.40$	4.114
Family Functioning	$3.03 \pm 1.18$	$3.09 \pm 1.08$	0.397
Companionship	$2.92 \pm 1.26$	$3.08 \pm 1.22$	2.571

Note: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

Significant differences were found in **trust and encouragement**, **emotional warmth**, **doting**, and **ignore** (p < 0.05). Urban adolescents scored higher on trust and encouragement, emotional warmth, and doting, while rural adolescents scored higher on ignoring. These results suggest that adolescents from different household locations perceive their parents' parenting styles differently.

# ➤ Only-Child vs. Non-Only-Child Differences

An independent sample t-test was conducted to compare differences in family parenting styles, family functioning, and peer relationships between only children and non-only children. The results are presented in **Table 4**.

Table 4 Differences in Variables Based on Whether the Child is an Only Child

Variable	Only Child (N=514)	Non-Only Child (N=482)	t-value
Autocratic	$2.33 \pm 1.06$	$2.46 \pm 1.19$	3.131
Trust and Encouragement	$3.68 \pm 1.13$	$3.56 \pm 1.16$	2.941
<b>Emotional Warmth</b>	$3.69 \pm 1.11$	$3.56 \pm 1.17$	3.590
Doting	$3.52 \pm 0.95$	$3.36 \pm 0.98$	6.379
Ignore	$2.00 \pm 1.54$	$2.15 \pm 1.58$	2.388
Family Functioning	$3.08 \pm 1.19$	$3.00 \pm 1.13$	1.455
Companionship	$2.96 \pm 1.25$	$2.94 \pm 1.26$	0.042

Note: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

A significant difference was found in the **doting** dimension (p < 0.05), with only children scoring higher than non-only children. This suggests that only children may receive more attention and care from their parents. No significant differences were found for other variables.

# ➤ Analysis of Differences in Mothers' Educational Levels

An independent sample t-test was used to compare the differences in family parenting styles, family functioning, and peer relationships based on the mothers' educational levels. The results are presented in **Table 5**.

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Variable	Other (N=232)	University (N=764)	t-value	
Autocratic	$2.48 \pm 1.19$	$2.37 \pm 1.11$	1.677	
Trust and Encouragement	$3.47 \pm 1.13$	$3.67 \pm 1.14$	5.124	
<b>Emotional Warmth</b>	$3.49 \pm 1.13$	$3.67 \pm 1.14$	4.695	
Doting	$3.31 \pm 0.94$	$3.48 \pm 0.97$	5.699	
Ignore	$2.30 \pm 1.66$	$2.00 \pm 1.52$	6.430	
Family Functioning	$2.87 \pm 1.18$	$3.09 \pm 1.15$	6.867	
Companionship	$2.85 \pm 1.34$	$2.98 \pm 1.23$	1.999	

Note: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

Significant differences were found in **trust and encouragement**, **emotional warmth**, **doting**, **ignore**, and **family functioning** (p < 0.05). Adolescents whose mothers had a university education reported higher levels of trust, encouragement, emotional warmth, and doting, and lower levels of ignoring, compared to those whose mothers had lower educational levels. These findings suggest that

maternal education plays a significant role in shaping parenting styles and family dynamics.

# ➤ Analysis of Differences in Fathers' Educational Levels

An independent sample t-test was used to compare the differences in family parenting styles, family functioning, and peer relationships based on the fathers' educational levels. The results are presented in Table 6.

Table 6 Differences in Variables by Father's Education Level

Variable	Other (N=237)	University (N=759)	t-value
Autocratic	$2.46 \pm 1.17$	$2.37 \pm 1.11$	1.166
Trust and Encouragement	$3.49 \pm 1.16$	$3.66 \pm 1.14$	3.970
Emotional Warmth	$3.51 \pm 1.14$	$3.67 \pm 1.33$	3.516
Doting	$3.36 \pm 0.99$	$3.47 \pm 0.96$	2.517
Ignore	$2.31 \pm 1.68$	$2.00 \pm 1.51$	7.512
Family Functioning	$2.91 \pm 1.20$	$3.08 \pm 1.14$	3.833
Companionship	$2.86 \pm 1.34$	$2.98 \pm 1.23$	1.477
Emotional Intelligence	$3.57 \pm 1.16$	$3.49 \pm 1.20$	0.852

Note: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

Significant differences were found in **trust and encouragement**, **emotional warmth**, **doting**, **ignore**, and **family functioning** (p < 0.05). Fathers with a university education reported higher levels of trust, encouragement, emotional warmth, and doting, and lower levels of ignoring, compared to fathers with lower educational levels. This suggests that the father's educational background also influences family dynamics and parenting behaviors.

## B. Correlation Analysis of Variables

The following table shows the pairwise correlations between the demographic variables and the research variables. The results indicate that, with the exception of **spoiling**, there are significant correlations between the research variables. Additionally, gender, grade, family location, whether the child is an only child, mother's education level, and father's education level all show significant correlations with the main research variables to varying degrees. These factors will be used as control variables in the subsequent analysis for statistical control.

Table 7 Correlation Analysis of Variables

Variable	M ± S D	1	2	3	4	5	6	7	8	9	10	11	1 2	1 3	1 4
1. Gender	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
2. Grade	-	0.013	1	-	1	-	1	ı	ı	1	1	ı	-	1	
3. Family Location	-	0.035	-0.296 **	1	ı	-	ı	ı	ı	ı	ı	ı	-	ı	
4. Only Child	-	0.139	0.043	0.198	1	-	ı	ı	ı	ı	ı	1	ı	I	
5. Mother's Education	-	-0.014	-0.139 **	0.226	0.187 **	1	-	-	-	-	ı	ı	-	ı	
6. Father's Education	-	-0.032	-0.154 **	0.228	0.172 **	0.691 **	1	-	-	-	-	ı	-	ı	
7.	2.4	0.020	0.238	-0.05	0.056	-0.034	-0.04	1	-	-	-	-	-	-	

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Autocratic	0		**	2			1								
	±														1
	1.1														1
	3.6														
8. Trust	2														
and	±	-0.089	-0.313	0.074	-0.05	0.063	0.072	-0.773	1	_	_	_	_	_	
Encourage	1.1	**	**	*	4	*	*	**	-						
ment	4														
	3.6														
9.	3	-0.087	-0.319	0.073	-0.06		0.069	-0.765	0.993						1
Emotional	±	**	**	*	0	0.059	*	**	**	1	-	-	-	-	1
Warmth	1.1														1
	3.4														
	4	0.000	0.00	0.011											
10.	±	-0.088 **	-0.306 **	0.066	-0.08 0*	0.050	0.076	-0.747 **	0.937	0.944	1	-	-	-	1
Spoiling	0.6	**	**	*	0*		*	<u> </u>	**	**					1
	7														
	2.0														
11.	7	0.021	0.283	-0.06	0.040	-0.087	-0.08	0.800	-0.826	-0.821	-0.845	1			
Ignoring	± 1.5	0.031	**	4*	0.049	**	0*	**	**	**	**	1	-	-	
	6														
	3.0														
12. Family	4		0.202		0.02		0.002	0.740	0.702	0.705	0.742	0.710			
Functionin	±	-0.033	-0.202 **	0.020	-0.03 8	0.062	0.083	-0.740 **	0.792	0.785	0.743	-0.719 **	1	-	
g	1.1				0										
	6														

# C. The Mediating Role of Family Function

Based on the results of the correlation analysis, significant correlations exist between various family parenting styles, family functions, and peer relationships, suggesting a potential mediating effect among these variables. To verify this hypothesized model, Model 4 from the SPSS Process macro was used, with different family parenting styles as independent variables, family functions as mediating variables, and peer relationships as dependent

variables. Gender, grade, family location, whether the child is an only child, mother's education level, and father's education level were included as control variables. After standardizing all variables, a mediation model was established.

# ➤ Mediation Model Test Results

The following tables display the mediation model test results for each parenting style.

Table 8 Mediation Model Test for Autocratic Parenting

Predictor Variables	Step 2 (Family Function)	Step 3 (Companionship)	Step 1 (Companionship)
	β	t	β
Gender	-0.035	-0.690	0.084
Grade	-0.073	-1.337	-0.044
<b>Home Location</b>	-0.121	-1.754	0.074
Only Child	-0.010	0.193	0.053
Father's Education	0.011	0.134	-0.000
Mother's Education	0.146	1.796*	-0.056
Autocratic	-0.752	-33.340**	-0.238
Family Function			0.583
$\mathbb{R}^2$	0.552		0.511
F	173.854***		128.927***

Note: p < 0.05, p < 0.01, p < 0.00.

Table 9 Mediation Model Test for Trust and Encouragement

Predictor Variables	Step 2 (Family Function)	Step 3 (Companionship)	Step 1 (Companionship)
	β	t	β
Gender	0.097	2.141**	0.158
Grade	0.110	2.179**	0.089
Home Location	-0.107	-1.722**	0.059
Only Child	0.004	-0.089	0.052
Father's Education	-0.013	-0.177	-0.013
Mother's Education	0.123	1.682**	-0.041
Trust and Encouragement	0.820	39.744***	0.502
Family Function			0.374
$\mathbb{R}^2$	0.634		0.563
F	244.06***		158.925***

Note: \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

Table 10 Mediation Model Test for Emotional Warmth

Predictor Variables	Step 2 (Family Function)	Step 3 (Companionship)	Step 1 (Companionship)	
	β	t	β	
Gender	0.091	1.970**	0.155	
Grade	0.117	2.280**	0.097	
Home Location	-0.105	-1.661*	0.612	
Only Child	0.005	0.093	0.058	
Father's Education	-0.007	-0.091	-0.010	
Mother's Education	0.126	1.690*	-0.041	
<b>Emotional Warmth</b>	0.819	38.741***	0.502	
Family Function			0.380	
$\mathbb{R}^2$	0.622		0.564	
F	232.257***		159.662***	

Note: p < 0.05, p < 0.01, p < 0.00.

Table 11 Mediation Model Test for Spoiling

Predictor Variables	Step 2 (Family Function)	Step 3 (Companionship)	Step 1 (Companionship)	
	β	t	β	
Gender	0.077	1.535*	0.143	
Grade	0.052	0.936*	0.063	
Home Location	-0.110	-1.601*	0.067	
Only Child	0.038	0.736*	0.078	
Father's Education	0.042	0.520*	0.018	
Mother's Education	0.070	0.857	-0.083	
Spoiling	0.902	33.597***	0.507	
Family Function				

Table 12 Mediation Model Test (Ignored)

Predictor Variable	Step 2 (M Family Function)	Step 3 (M Companionship)	Step 1 (M Companionship)	
	β	t	β	
Gender	-0.020	-0.377	0.092	
Grade	-0.100	-0.175	0.100	
Home Location	-0.096	-1.351**	0.072	
Whether Only Child	0.003	0.057	0.069	
Father's Culture	-0.081	-0.969	-0.076	
Mother's Culture	0.143	1.694*	-0.030	
Ignored	-0.533	-20.154***	-0.439	
Family Features	-	_	0.343	
$\mathbb{R}^2$	-	0.519	0.628	
F	_	152.527***	208.566***	

Note: \*p < 0.05; \*\*p < 0.01; \*\*p < 0.001

Results indicate the mediating effect of family function on the relationship between the predictors (gender, grade, home location, etc.) and peer relationships, with significant effects found for several predictors.

Table 13 Bootstrap Test of Mediation Effect and Effect Value

Variable	Path	Effect Size	Bootstrap 95% Confidence Interval
Autocratic	Direct Effect	-0.677	[-0.733, -0.620]
	Authoritarianism-Family Intimacy-Peer Relationships		[-0.311, -0.165]
	Total Effect	-0.439	[-0.502, -0.376]
Trust and Encouragement	Direct Effect	0.809	[0.759, 0.859]
	Trust and Encouragement-Family Intimacy-Peer Relationships	0.502	[0.425, 0.580]
	Total Effect	0.307	[0.235, 0.384]
Emotional Warmth	Direct Effect	0.814	[0.763, 0.865]
	Emotional Warmth-Family Closeness-Peer Relationships	0.503	[0.426, 0.579]
	Total Effect	0.311	[0.239, 0.385]
Spoiling	Direct Effect	0.914	[0.852, 0.976]
	Indulgence-Family Intimacy-Peer Relationships	0.507	[0.423, 0.591]
	Total Effect	0.407	[0.330, 0.491]
Ignored	Direct Effect	-0.6220	[-0.656, -0.588]
	Neglect-Family Intimacy-Peer Relationships	-0.4390	[-0.484, -0.394]
	Total Effect	-0.1830	[-0.224, -0.145]

## IV. DISCUSSION

## ➤ The Mediating Role of Family Functioning

Based on the correlation analysis, significant relationships were found between different parenting styles, family functioning, and peer relationships, suggesting a potential mediating effect. To test this hypothesis, Model 4 in SPSS PROCESS was used, with family parenting styles as independent variables, family functioning as the mediating variable, and peer relationships as the dependent variable. Gender, grade, family location, whether or not the child is an only child, and parental education levels were included as control variables.

# • Direct Effects of Parenting Styles on Peer Relationships

The results showed that all five parenting styles significantly impacted adolescent peer relationships. Specifically, authoritarianism ( $\beta$  = -0.677, t = -23.566, p < 0.001) and neglect ( $\beta$  = -0.662, t = -35.877, p < 0.001) had negative effects on peer relationships, while trust and encouragement ( $\beta$  = 0.809, t = 31.617, p < 0.001), emotional warmth ( $\beta$  = 0.814, t = 31.496, p < 0.001), and doting ( $\beta$  = 0.914, t = 28.981, p < 0.001) had positive effects.

# • Parenting Styles and Family Functioning

In the second step, the relationship between parenting styles and family functioning was tested. Authoritarianism ( $\beta$  = -0.752, t = -33.340, p < 0.01) and neglect ( $\beta$  = -0.533, t = -20.154, p < 0.001) negatively predicted family functioning, whereas trust and encouragement ( $\beta$  = 0.820, t = 39.744, p < 0.001), emotional warmth ( $\beta$  = 0.819, t = 38.741, p < 0.001), and doting ( $\beta$  = 0.902, t = 33.597, p < 0.001) positively predicted family functioning.

# • Mediating Role of Family Functioning

In the third step, the effect of family functioning on peer relationships was tested. Family functioning significantly predicted peer relationships across all parenting styles. The results of the bias-corrected percentile Bootstrap method (with 2000 repeated samplings) confirmed the mediation

effect, showing that family functioning significantly mediates the relationship between family parenting style and peer relationships, with confidence intervals not containing zero.

## V. CONCLUSION

The findings of this study highlight the significant role of family functioning as a mediator in the relationship between parenting styles and adolescent peer relationships. The analysis revealed that both positive and negative parenting styles have direct effects on peer relationships, with authoritarianism and neglect negatively affecting adolescents' social interactions, while trust, encouragement, emotional warmth, and doting foster positive peer relationships.

Furthermore, the study confirmed that family functioning plays a crucial role in shaping these outcomes. Specifically, positive parenting styles such as trust, encouragement, emotional warmth, and doting were found to enhance family functioning, which in turn contributed to improved peer relationships. On the other hand, authoritarian and neglectful parenting styles were associated with diminished family functioning, which negatively impacted adolescents' ability to form healthy peer relationships.

The results underscore the importance of promoting positive family environments, as well as the need for targeted interventions to improve family functioning, particularly in families exhibiting less supportive or more controlling parenting styles. Future research should continue to explore the complex interplay between family dynamics and adolescent development, with an emphasis on how interventions aimed at enhancing family functioning can mitigate the negative impacts of maladaptive parenting on peer relationships.

# DECLARATION

I, Bin Wu, hereby declare that I agree to publish this manuscript in its current form. All data and materials used in this manuscript are available upon reasonable request. All

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data and materials used in this manuscript are available upon reasonable request. The data have been properly documented and can be accessed after obtaining necessary approvals.

## ➤ Conflict of Interest

The author declares no interest in this article.

## > Funding

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## > Authors' Contributions

I am the author of this manuscript. I am responsible for the conception, design, execution, analysis, and writing of the manuscript.

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# > Ethical Approval and Consent to Participate

Ethical considerations were taken throughout this study. Informed consent was obtained from all participants before data collection. Participants were informed of the purpose of the study, the data collected, and any potential risks or benefits. In addition, privacy and confidentiality were strictly maintained to ensure that personal information was not disclosed without consent. All data were protected and stored in accordance with ethical standards.

# ➤ Conflict of Interest

The authors declare that there is no conflict of interest.

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