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Original Article

The Relationship between Adverse Childhood Experiences and Conduct Disorder among Primary School Students

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Abstract

Background: The complex correlation between Adverse Childhood Experiences (ACEs) and the emergence of Conduct Disorder (CD) requires in-depth examination to inform targeted interventions and support strategies fitted to the unique context of Chinese children. This study explored the correlation between Adverse Childhood Experiences and Conduct Disorder among children in China.

Methods: We employed a cross-sectional design to examine the population within Fujian Province, China. A total of 168 participants were recruited by cluster random sampling method on February 9, 2023. The Strengths and Difficulties Questionnaire (SDQ) and Adverse Childhood Experience International Questionnaire (ACE-IQ) were applied for data collection. IBM SPSS version 25 was applied for data analysis to conduct a multiple regression analysis. Pearson correlations and multiple linear regression were also used to analyze the data.

Results: Adverse childhood experience (Mean±SD=2.208±2.08) and conduct disorder (Mean±SD=1.77±1.35) were investigated. Based on the results, there was a positive correlation between physical neglect (r=0.302, P<0.001), parental separation (r=0.443, P<0.001), domestic violence (r=0.567, P<0.001), emotional abuse (r=0.397, P<0.001), physical abuse (r=0.463, P<0.001), and bullying (r=0.344, P<0.001) with conduct disorder. However, no correlation was found between emotional neglect (r=-0.22, P=0.776), families addicted (r=0.001, P=0.996), families' mental disorders (r=0.016, P=0.840), families imprisoned (r=0.083, P=0.285), sexual abuse (r=0.132, P=0.089), and community violence (r=0.139, P=0.072) with conduct disorder.

Conclusions: Adverse childhood experiences have the potential to serve as predictors of conduct disorder, with factors such as domestic violence, emotional and physical abuse, parental separation, and bullying playing significant roles in its development. The prevention of conduct disorder is influenced by a variety of factors including the child's living environment, parental correlations, and the physical and mental health status of family members. Additional study might be performed to investigate protective variables that may reduce the influence of bad childhood experiences on behaviour problems.

Keywords: Adverse Childhood Experiences (ACEs), Conduct Disorder, Childhood maltreatment

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1. Introduction

Conduct Disorder (CD) is a profound psychiatric concern affecting children and adolescents. It encompasses a persistent pattern of disruptive behaviors, such as aggression, deceitfulness, property destruction, and rule violations (1). CD frequently impairs social, intellectual, and familial functioning (2). Chinese children experience a unique set of challenges and opportunities. Urbanization, changes in family structures, and evolving educational systems influence their lives. On the one hand, they have access to increased educational and extracurricular opportunities. On the other hand, the competitive academic environment and socio-cultural pressures can burden their psychological well-being. Academic stress, peer pressure, and socio-cultural expectations can contribute to mental health challenges in children, including conditions like Conduct Disorder (CD). Conduct disorder encompasses a range of disruptive and aggressive behaviors, which can vary in severity from mild to severe. The global prevalence of CD ranges from 2% to 5% among children aged between five and twelve years, and from 5% to 9% among adolescents aged between thirteen and eighteen years. CD is more frequent in boys than in girls, with a ratio of four-to-one to twelve-to-one (3). The prevalence of conduct disorder among children and adolescents in China was 0.62%; according to the World Health Organization Comprehensive International Diagnostic Interview, the prevalence of adolescent conduct disorder was 5.44%, and the prevalence

of conduct disorders in seven European countries was 8.4% (4). Childhood is a critical stage of human development, characterized by rapid physical, cognitive, and emotional growth. It is a time when children learn to navigate their emotions, build correlations, and develop the foundation for their future well-being. However, for some children in China, as in many other parts of the world, the journey through childhood is marred by the enduring impact of Adverse Childhood Experiences (ACEs), which can significantly influence their emotional and behavioral development (5).

Adverse Childhood Experiences (ACEs) relate to various unpleasant experiences and pressures children may face throughout their formative years (6). These experiences can include physical or emotional abuse, ignore, household dysfunction, parental substance abuse, domestic violence, or living in environments characterized by chronic stress. According to most Chinese research, the proportion of adults having one or more ACEs is between 45% and 77% (7). The presence of higher cumulative ACE scores is positively correlated with the prevalence of chronic diseases, including diabetes, hypertension, and coronary heart disease (8). The prevalence of mental health disorders, including depression, psychosis, dissociation, alcoholism, and post-traumatic stress disorder (PTSD), was found to be significantly higher among Chinese adults who had experienced adverse childhood experiences (ACE) (9). There are copious adverse outcomes linked to ACEs, like insomnia symptoms (10), depression (11), emotional problems and self-harming behaviors (12), substance abuse (13), excessive alcohol use (14), and criminal behavior (15). Over the past few decades, research has shown that ACEs can have profound and lasting effects on an individual's physical and mental health throughout their life course (10, 16, 17).

By shedding light on the specific challenges and opportunities faced by Chinese children, it aims to contribute to developing a framework of contributed factors on conduct disorder. Conduct Disorder (CD), a serious psychiatric disorder characterized by a continuous pattern of behaviour that violates others' rights and societal standards, is an issue of fundamental relevance in the area of child and adolescent mental health (18). The complex nature of CD poses substantial challenges for affected individuals, their families, and the broader society. CD is a global concern, and its presence in China reflects its worldwide significance. Research has shown that the incidence of conduct disorder in China has increased in the past 30 years (19). In every time period and birth cohort, there is a higher likelihood that a child aged 5 to 14 may be diagnosed with CD. About two times as many male patients as female ones get CD when they are children or adolescents (20). Data also shows that CD suggests prevalence rates ranging from 2% to 10% (21). The global prevalence rate for conduct disorder was 8% among children and adolescents, with 7% of girls and 11% of boys (4). Regardless of the variations, these percentages underscore the magnitude of the problem. The impact of CD is profound and pervasive, extending to academic underachievement, familial discord, legal entanglements (20), and an elevated risk of criminal behaviors and mental health disorders in children and adolescents (18, 21).

The current study on conduct disorder in Chinese children involves investigating and analyzing the prevalence of conduct disorder, gender differences, age differences, and geographical variations (22). This study contributes to understanding the prevalence and distribution of conduct disorder in China. The study looked at potential risk factors for conduct disorder in children, such as family environment, domestic violence, psychological trauma, and family stability (23). Understanding these risk factors is essential for intervention and prevention; these risk factors are also part of ACE. Adverse Childhood Experiences (ACEs) represent a critical public health concern worldwide, affecting the psychological and emotional well-being of children (24). Among the various potential outcomes of ACEs, the emergence of behavioral problems in children has gained significant attention due to its far-reaching consequences on individual and societal levels (8). In the People's Republic of China, childhood experiences rapidly transform amid socio-economic shifts, cultural changes, and family dynamics. While many children thrive in this dynamic environment, a significant portion faces an unfortunate reality characterized by Adverse Childhood Experiences (ACEs) that can profoundly impact their mental and emotional well-being (5). A study estimated the prevalence of ACE in China, and although there are fluctuations, the ACE rate in China

ranges from 35.2 to 75.0% (25). This study addressed the interplay between six ACE variables — abuse, neglect, household dysfunction, parental separation, substance abuse, and mental illness — and the occurrence of CD. The complex correlation between these ACEs and the emergence of CD requires in-depth examination to inform targeted interventions and support strategies tailored to the unique context of Chinese children.

While ACEs and CD have been studied independently within the context of Chinese children, the correlation between ACEs and CD remains underexplored. There are few published studies on conduct disorder and adverse childhood experiences in Chinese children. This research gap represents a critical opportunity to enhance our understanding of the developmental pathways to CD and to inform culturally sensitive prevention and intervention strategies. This study sought to bridge this gap by investigating the correlation between ACEs and CD among children in China. The significance of this research lies in its potential to broaden the knowledge of child psychology and, at the same time, enhance the lives of countless Chinese children who suffer from conduct disorder. This study aspired to catalyze improved mental health and well-being among children facing the challenges of CD and ACEs in China's unique and evolving cultural context.

2. Methods

This study employed a cross-sectional design to investigate the population of Fujian Province, China. According to statistics released by the Fuzhou Education Bureau, the number of primary school students in Fuzhou, Fujian Province, China, is 614,000 as of February 9, 2023. The cluster random sampling method was used to select samples. Participants in this study were selected using a cluster sampling method.

First, Fujian province was chosen randomly from 31 provinces of China. Following that, Fuzhou City was also randomly selected from the province. Then, two districts out of the six available were randomly chosen, and one school was selected from each district, totaling two schools. Finally, two classes were selected from each institution, resulting in a total of 168 students participating in this study. Participants eligible for this study were children aged 10 to 12 years residing in Jin 'a District, Fuzhou City, Fujian Province, China. In addition, both scales were available in Chinese, and the questionnaires were distributed in Chinese. The Hualun Primary School, selected for this study, is among Fuzhou's top-tier private primary schools, renowned for its exceptional educational quality. Families enrolling their children in this private institution demonstrated a strong commitment to education and were willing to invest considerable resources into their children's educational development. The participants selected for this study were children in primary school (grades 5 and 6), representing a critical stage in children's development. This strategic selection ensures a representative cross-sectional sample, offering insights into the nuanced experiences of children within the local educational framework.

As the research hub, Fuzhou provides a microcosm for exploring the correlation between Adverse Childhood Experiences (ACEs) and Conduct Disorder among children aged 10 to 12 years old. A correlational analysis was used as a common research technique that aims to determine the correlation between multiple variables. In correlation studies, the researcher does not manipulate any independent variables but only measures two or more variables and then determines whether they are correlated (5, 22, 23). Correlation analysis in this study was performed using Pearson correlations and multiple linear regression.

Before data collection, the study protocol was submitted to the Institutional Ethics Committee of UCSI and the Ethics Committee of Fujian Normal University for review. After receiving the Ethics Committee approval, a form was designed which included information letters, informed consent, and questionnaires including demographic information, the international version of the Adverse Child Experiences Questionnaire (Chinese version), and the Strengths and Difficulties Scale (Chinese version). Before answering the questionnaire, the study participants were informed and asked to sign an informed written consent form. These questionnaires were administered as digital copies using directed questionnaire links. Upon completing the questionnaires, the data were carefully examined to exclude individuals who did not meet the inclusion criteria and missing and extreme values were removed to ensure that the original data were error-free. After data screening,

a descriptive analysis was conducted on the demographic information of the participants and the problems reported.

2.1. Strengths and Difficulties Questionnaire (SDQ): SDQ is a brief assessment tool designed for parents and teachers to administer to children aged 4 to 16 years and for self-reporting by children aged 11 to 16. It encompasses five dimensions: emotional symptoms, conduct problems, peer correlations, and prosocial behavior. This scale evaluates whether children exhibit difficulties in these areas (26). In this study, we used only five questions on the conduct disorder dimension, items 5, 7, 12, 18, and 22, to measure the behavioral problems of the participants. Item 7, however, will be reversely scored before calculating the total score for the conduct disorder dimension. Examples of the items include "Often loses temper" and "Often lies or cheats". These items were scored on a 2-point Likert scale. For scales with negative features, 0="not true", 1= "somewhat true", 2="certainly true", whereas scales with positive features scored the opposite (2="not true", 1="somewhat true", 0="certainly true". The Chinese version of the Strengths and Difficulties scale has been tested and shown good reliability and validity (27). Similarly, based on a study in China, CVI and CVR 0.83 and 0.79 were obtained, respectively. Convergent and discriminant validity are supported (28). For the Conduct Disorder scale, the reliability by Cronbach alpha value was 0.548.

2.2. Adverse Childhood Experience International Questionnaire (ACE-IQ): The Chinese version of the Adverse Childhood Experiences Scale was developed and translated at the School of Nursing, Hong Kong Polytechnic University (29). The Chinese version of ACE-IQ was obtained via email after obtaining authorization from Professor Ho. The 29-item ACE-IQ has been translated back from English to traditional Chinese to measure exposure to 13 classes of ACEs (29). The scale measures the impact of childhood emotional neglect/abuse, physical neglect/abuse, family environment, peer correlations, community violence and exposure to war or violence. According to WHO guidelines, emotional neglect is classified into 5 items from (0) never to (5) most of the time". Substance abuse in the family, incarcerated family members, mental illness in the family, and single parent/separation/divorce were (1) YES and (2) NO options. The items of single parent/separation/divorce were scored in reverse. The remaining 8 categories of 22 items were from (0) never to (4) very many times. Total scores range from 0 to 13, with higher scores indicating a greater number of ACEs experienced at the lowest threshold. Simultaneously, the split-half reliability (Spearman-Brown coefficient) was 0.621, and the previous findings (30, 31) calculated a CVI of 0.89 and a CVR of 0.81 for the scale. Instead of using the frequency scoring method, more participants reported exposure to at least one ACE and four or more ACEs when using the binary scoring approach. The SC-ACE-IQ is a valid and reliable ACE instrument for Chinese health science students (31). The Adverse childhood experience scale showed strong reliability with a Cronbach alpha of 0.815.

2.3. Statistical Analysis

We used IBM SPSS version 25 to conduct a multiple regression analysis on the relationship between adverse childhood experiences (ACEs) and conduct disorder (CD), as well as to examine the predictive power of ACEs in shaping CD among Chinese children.

3. Results

Table 1 shows the demographic information of the study participants. The age of the participants ranged from 9 to 12 years (M=10.79 years, SD=1.053 years). In this study, 23 participants (13.7%) were 9, 46 participants (27.4 %) were 10, 43 participants (25.6%) were 11, and 56 participants (33.3%) were 12 years old, respectively. This study had 92 girls (54.8%) and 76 boys (45.2%). Regarding the family structure, 46.4% of the participants were single parents (n=78), 43.5% were parents (n=73), and 10.1% were parents with grandpa or grandma (n=17). In terms of the educational level of the participants' parents, there were 21 (12.5%) fathers with a high school education or below, 115 (68.5%) with a Bachelor's degree, and 32 (19.0%) with a Master's or Doctoral degree. On the other hand, 23 (13.7%) participants had mothers with a high school education or below, 126 (75%) with a Bachelor's degree, and 19 (11.3%) with a Master's or Doctoral degree.

Likewise, the researcher described the main variables of the study and examined the assumptions

Table 1: Descriptive data for adverse childhood experience and conduct disorder scale

Variables	Mean±SD	Skewness	Kurtosis	Kolmogorov-Smirnov		Shapiro-Wilk	
				Statistic	P value	Statistic	P value
Adverse childhood experience	2.208±2.08	1.250	1.269	0.97	0.088	0.61	0.528
Conduct disorder	1.77±1.35	1.043	0.444	0.99	0.078	0.818	0.43

SD: Standard Deviation

Table 2: Correlations among various adverse experiences and conduct disorder score

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Emotional neglect	1													
Physical neglect	-0.099	1												
Families addicted	0.013	0.194*	1											
Families mental disorder	-0.073	-0.036	0.567**	1										
Families imprisoned	-0.051	-0.070	0.483**	0.515**	1									
Parental separation	-0.098	0.357**	0.165*	0.115	0.131	1								
Domestic violence	-0.122	0.301**	0.076	0.099	0.069	0.376**	1							
Emotional abuse	-0.118	0.254**	0.095	0.064	0.044	0.197*	0.618**	1						
Physical abuse	-0.022	0.346**	0.049	0.064	-0.065	0.329**	0.386**	0.449**	1					
Sexual abuse	-0.004	0.319**	0.044	-0.059	-0.041	0.065	0.038	0.050	0.092	1			.	
Bullying	-0.113	0.280**	0.078	0.096	0.116	0.268**	0.450**	0.421**	0.289**	0.106	1			
Community violence	0.058	0.090	0.115	0.096	0.067	0.247**	0.162*	0.157*	0.087	0.053	0.320**	1		
Conduct disorder	-0.022	0.302**	0.001	0.016	0.083	0.443**	0.567**	0.397**	0.463**	0.132	0.344**	0.139	1	
Total scores	0.026	0.573**	0.370**	0.287**	0.228**	0.588**	0.698**	0.662**	0.585**	0.263**	0.647**	0.495**	0.560**	1

**Correlation significant at 0.01 level (2-tailed). *. Correlation significant at 0.05 level (2-tailed).

in Table 1. Nevertheless, previous research has also shown that the skewness and kurtosis levels can be used to determine the normality of variables (32). Also, this study has further explained that as long as the skewness and kurtosis level of the data is within the range of ±2.00, the data is considered to be normally distributed. The skewness and kurtosis values for ACE (1.250 and 1.269) and CD (1.043 and 0.444) showed that they were normally distributed (Table 1). Likewise, the researcher checked the normality of the variables with the Kolmogorov-Smirnov and Shapiro-Wilk Test. The P value was not significant in normality tests.

In Table 2, Pearson correlations were conducted to examine the correlations between various factors and conduct disorder among children in China. The study found no significant correlation between emotional neglect and conduct disorder, r=-0.22, P=0.776, indicating no significant association between emotional neglect and conduct disorder. However, a significant positive correlation was observed between physical neglect and conduct disorder, r=0.302, P<0.001, indicating a significant positive correlation between physical neglect and conduct disorder. Conversely, no significant correlation was found between families addicted and conduct disorder, r=0.001, P=0.996, suggesting no significant association between families addicted and conduct disorder. Similarly, no significant correlation was observed between families' mental disorder and conduct disorder, r=0.016, P=0.840, indicating no significant correlation between these variables. Additionally, no significant correlation was found between families imprisoned and conduct disorder, r=0.083, P=0.285, suggesting no significant association between families imprisoned and conduct disorder. Conversely, a significant positive correlation was observed between parental separation and conduct disorder, r=0.443, P<0.001, indicating a significant positive correlation between parental separation and conduct disorder. Similarly, a significant positive correlation was found between domestic violence and conduct disorder, r=0.567, P<0.001, indicating a significant positive association between these variables. Likewise, a significant positive correlation was observed between emotional abuse and conduct disorder, r=0.397, P<0.001, suggesting a positive significant correlation between emotional abuse and conduct disorder. Additionally, a significant positive correlation was found between physical abuse and conduct disorder, r=0.463, P<0.001, indicating a significant correlation between physical abuse and conduct disorder.

Table 3: Regression between predictive variables adverse childhood experience and conduct disorder

	B	SE	ß	t	P
Adverse childhood experience					
Childhood maltreatment	0.433	0.093	0.335	4.655	0.001
Family dysfunction	0.482	0.109	0.325	4.416	0.001
Violence outside home	0.085	0.130	0.046	0.650	0.001

SE: Standard Error

Table 4: Multiple correlation coefficient

	Number	Mean	SD	1	2	3	4
Conduct disorder	168	1.779	1.35	1			
Childhood maltreatment	168	0.869	1.052	0.490**	1		
Family dysfunction	168	0.601	0.91	0.486**	0.430**	1	
Violence outside home	168	0.738	0.73	0.283**	0.334**	0.386**	1

SD: Standard Deviation

However, no significant correlation was found between sexual abuse and conduct disorder, r=0.132, P=0.089, suggesting no significant association between sexual abuse and conduct disorder. Conversely, a significant positive correlation was observed between bullying and conduct disorder, r=0.344, P<0.001, indicating a significant positive correlation between bullying and conduct disorder. Furthermore, no significant correlation was found between community violence and conduct disorder, r=0.139, P=0.072, suggesting no significant association between community violence and conduct disorder. Overall, the findings revealed a highly significant positive connection between the total score and conduct disorder on the ACE scale, suggesting that Chinese children with higher ACE scores exhibit more behavioral problems. Specifically, physical neglect, parental separation, domestic violence, emotional abuse, physical abuse, and bullying all showed a positive association with conduct disorder.

In Table 3, multiple linear regression was carried out to determine the influence of the three dimensions, Childhood maltreatment, Family dysfunction, and Violence outside a home, on Conduct disorder. The analysis suggested that Childhood maltreatment (ß=0.335) was the most influential predictor in the model, and Violence outside the home (ß=0.046) of the participant was the least influential predictor in the model. Childhood maltreatment (t=4.655, P<0.001) and Family dysfunction (t=4.416, P<0.001) were shown to be statistically significant predictors of Conduct disorder. The score of Violence outside the home was shown not to be a statistically significant predictor of Conduct disorder. The results indicated that children with more maltreatment and a high family dysfunction score tend to have a high conduct disorder score.

Based on Table 4, we observed a significant correlation between childhood maltreatment and conduct disorder, r=0.490, P<0.001, indicating a positive correlation between childhood maltreatment and conduct disorder. Similarly, a significant correlation was found between family dysfunction and conduct disorder, r=0.486, P<0.001, suggesting a positive association between family dysfunction and conduct disorder. Additionally, a significant correlation was identified between violence outside the home and conduct disorder, r=0.283, P<0.001, highlighting a positive correlation between violence outside the home and conduct disorder.

4. Discussion

This research focused on exploring the connection between adverse childhood experiences (ACEs) and Conduct Disorder in Chinese children. The data collected from the instruments for the current sample did not violate the normality assumption; thus, a parametric test was used. Two hypotheses were validated based on the Pearson correlation coefficient and the regression analysis results. ACEs are significantly associated with CD and can serve as a predictor of CD. Specifically, emotional neglect, parental divorce, domestic violence, physical and emotional abuse, and bullying were all positively correlated with an increased risk of conduct disorder. However, no significant association

was found between CD and emotional neglect, having family members with addiction or mental disorders, or being incarcerated. Additionally, sexual abuse and community violence did not show any significant correlation with CD.

Loneliness is an internal, subjective bad affect that occurs when a person's social relationship suffers a quantitative or qualitative loss (32-34). It is a frequent experience for teenagers moving from childhood to adulthood (33, 35)but the mechanisms underlying these associations and gender differences in these effects have received little attention. We examined the mediating effects of coping styles from impulsivity, and BIS/BAS to Internet addiction as well as gender differences in these associations. A total of 416 Chinese adolescents were examined using a cross-sectional survey involving Young's Diagnostic Questionnaire for Internet Addiction, Barratt Impulsiveness Scale, BIS/BAS scales, and Coping Style Scale for Middle School Students. The data were analyzed using the independent sample t-test, chi-square test, Pearson correlation, and structure equation modeling. The results from the multiple-group (by adolescent gender. Previous research explained that the feeling of loneliness is beyond the frequency of social interactions but rather the discrepancies between one's ideal frequency and quality of social interaction and the actual social correlation that they currently engage in (2-5). Previous studies also identified that loneliness brought about various outcomes psychologically and physically. Individuals who feel lonely are more susceptible to health issues such as obesity, cardiovascular diseases, and metabolic disorders (35). The feeling of loneliness is also evident to affect an individual's sleep (34). Besides that, loneliness is suggested to have a positive correlation with cognitive functioning (35) specifically loneliness and depressive symptoms, manifest over a brief timeframe and in a pandemic context. Method: Data was gathered over 4 months (March – June 2020, where the higher the level of loneliness, the higher the chances of an individual having dementia, paranoia, and other psychotic symptoms (36, 37). Psychologists agreed that loneliness had a strong positive relationship with depressive symptoms (34). Another study found that loneliness is substantially related to suicide attempts (38). In recent years, the COVID-19 pandemic has resulted in many new psychiatric problems related to loneliness, including anxiety, schizophrenia, and bipolar illness (39). Thus, the present study investigated the relationship between loneliness and impulsivity.

Firstly, we examined the relationship between unfavourable childhood experiences and conduct disorder. The findings indicated a substantial link between unfavourable childhood experiences and conduct disorder. Specifically, several key dimensions of adverse childhood experiences exhibit a robust association with conduct disorder. Domestic violence emerges as a robust predictor, whereby parental marital conflict engenders an adverse emotional climate within the family, consequently heightening the vulnerability of children to exhibit disruptive behaviour over prolonged periods (2, 14, 31, 39, 40). Physical neglect emerges as a key factor, underscoring the significance of insufficient care and attention in shaping conduct-related outcomes (2, 8, 10, 28, 31). Emotional and physical abuse exhibit substantial roles in CD development, shedding light on the profound impact of maltreatment on children's behavioral trajectories (15-17). Parental separation emerged as a significant factor, with children who experienced such separation displaying heightened vulnerability to internalizing problems and exhibiting elevated levels of externalizing problems. These findings underscored the detrimental impact of shifts in family structure on the manifestation of conduct disorder (11, 12). Bullying, both within family dynamics and peer interactions, signifies the pervasive influence of social dynamics on the development of CD (4). These findings aligned with existing literature, reinforcing the notion that ACEs are pivotal precursors to CD (5, 25).

Another objective of the present study was to investigate the potential predictive role of adverse childhood experiences in relation to conduct disorders. The findings from the rigorous analysis illuminated a robust association, highlighting three key dimensions: childhood maltreatment, family dysfunction, and violence outside the home as significant predictors of conduct disorders. Childhood maltreatment, encompassing emotional, physical, and sexual abuse, emerges as a potent predictor, underscoring the profound impact of such adversities on the development of conduct disorders (5, 6). The scars left by maltreatment reverberate through a child's psychological

landscape, contributing to the manifestation of disruptive behaviors (7-9). Family dysfunction surfaces as another crucial predictor, emphasizing the pivotal role of family dynamics in shaping a child's behavioral outcomes. Dysfunctional family environments, marked by instability, conflict, and inadequate support systems, prove to be influential factors in the development of conduct disorders. Violence outside the home emerges as a noteworthy predictor, shedding light on the broader socio-environmental influences on children's behavior. Exposure to violence in the community or peer groups contributes significantly to the risk of developing conduct disorders, emphasizing the need for comprehensive societal interventions. These findings underscored the multifaceted nature of the ACEs-CD correlation, pointing towards the interconnectedness of various adverse experiences.

4.1. Limitation

The present study had limitations that should be considered when generalizing the results. Firstly, using a quantitative design for the questionnaire may exaggerate participants' subjective judgments, thus straying from actual facts and diminishing the dependability of their ACE scores. Secondly, there are some differences between the questionnaire dimension assessed by the scale and Chinese culture, which may cause bias when evaluating adverse childhood experiences in Chinese children. Finally, since the questionnaires were filled out online, there is a possibility that the results may not be entirely accurate.

4.2. Recommendations

Given the limitations of the present study, conducting a mixed-method study is suggested to improve accuracy. Aside from conducting quantitative research using questionnaires, it is recommended that interviews be conducted to obtain more personal information and provide a more objective assessment of participants' situations. Furthermore, adding responses from parents, teachers, and caregivers can help to reduce bias caused by subjective self-report questionnaires. Since the main aim of this study was to investigate the correlation between adverse childhood experiences (ACEs) and conduct disorders (CD), a more thorough analysis of the correlation between ACEs and CD is possible if participants are followed for longitudinal studies and relevant data are collected in depth during the growth process.

5. Conclusions

Adverse childhood experiences have the potential to serve as predictors of conduct disorder, with factors such as domestic violence, emotional and physical abuse, parental separation, and bullying playing significant roles in its development. Several factors impact the prevention of conduct disorder, including the child's living environment, parental relationships, and family members' physical and emotional health. Further research should focus on protective variables that may reduce the influence of bad childhood experiences on behaviour problems.

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Authors' Contribution

Mi Tian: Contributions to data collection, analysis, and interpretation of results, as well as drafting the work and revising it critically. Saeid Motevalli: Contributions to analysis and interpretation of results, planning and supervision, aiding in interpreting results, drafting the work, and revising it critically. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

Ethical Approval

Due to ethical concerns regarding the engagement of minors, parental approval was sought for the youngsters, who were between the ages of 10 and 12, who participated in this study. Participants had read and comprehended the information letters, and participation in the study was completely voluntary. The information

gathered was kept totally anonymous and used only for study. Lastly, participants were still able to opt out of the research.

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