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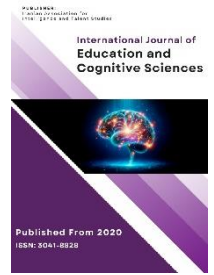
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Risk and Protective Factors of Oppositional Defiant Disorder in Children with Stuttering: Unraveling Familial Dynamics

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ABSTRACT

Purpose: The current study aimed to explore the role of familial conflict, psychological distress, and problem-resolution techniques on the prevalence of Oppositional Defiant Disorder (ODD) in stuttering children.

Methodology: This investigation employed a correlational research design. The sample comprised six-year-old children and their mothers from Mashhad. The study included 196 preschoolers (106 girls and 90 boys) selected through convenience sampling. The Oppositional Defiant Disorder Rating Scale (ODDRS), Family Environment Scale (FES), Family Distress Index (FDI), and Family Problem-Solving Communication (FPSC) were utilized for data collection. A linear regression analysis was performed with SPSS version 27 to assess the interrelations among the variables.

Findings: The analysis identified family conflict ($\beta=0.35$), distress ($\beta=0.39$), and problem-solving strategies ($\beta=-0.40$) as significant predictors of ODD symptomatology. Notably, family conflict and distress were positively correlated with ODD symptoms, whereas problem-solving strategies were inversely related. These factors collectively accounted for 49% of the variance in ODD symptomatology.

Conclusion: This research contributes to the existing literature by amalgamating various familial elements—conflict, distress, and problem-solving strategies—into an integrated framework to better comprehend the etiology of ODD in children.

Keywords: *Oppositional Defiant Disorder, Stuttering, Problem-solving Strategies, Family Distress, Family Conflict, Children.*

1. Introduction

The confluence of stuttering and oppositional defiant disorder (ODD) in children presents a unique challenge to clinicians, educators, and families alike. Stuttering, a speech disorder marked by disruptions in the flow of speech, affects approximately 1% of the global population, with its onset most commonly occurring in early childhood (Neef & Chang, 2024). While the precise causes of stuttering are not fully understood, it is recognized as a multifactorial condition influenced by genetic, neurophysiological, and environmental factors (Drayna & Kang, 2011; Neef et al., 2015). Oppositional defiant disorder, characterized by a persistent pattern of angry, vindictive, or irritable moods, as well as argumentative and defiant behavior, often complicates the clinical picture when co-occurring with stuttering (Serra-Pinheiro et al., 2004).

The prevalence of ODD is estimated to be around 3.3% among children and adolescents, with a higher incidence reported in conjunction with communication disorders such as stuttering (Neef et al., 2015). In a comprehensive epidemiological survey of psychiatric conditions among approximately 30,000 Iranian youths, it was observed that oppositional defiant disorder (ODD) was diagnosed in 3.2% of female and 4.6% of male participants. Furthermore, the study revealed that a significant majority, constituting 71.4%, were concurrently diagnosed with at least one additional psychiatric disorder (Mohammadi et al., 2019). Factors associated with the onset of oppositional defiant disorder (ODD) encompass a range of socio-environmental determinants (Burnette, 2013; Lavigne et al., 2015). Understanding the underlying theories of these elements is crucial for gaining a deeper insight into the risk and protective factors associated with oppositional defiant disorder.

The theoretical foundations of research into the risk and protective factors of oppositional defiant disorder (ODD) in children with stuttering are grounded in a multidisciplinary approach that encompasses psychological, behavioral, and developmental perspectives. The psychological framework often considers the role of temperament, emotional regulation, and the child's interaction with their environment as key factors in the development of ODD. Behaviorally, theories such as Patterson's Coercive Family Process model suggest that family interactions characterized by negative reinforcement can contribute to the development of conduct problems, including ODD (McKinney & Renk, 2007). Developmentally, the transactional model posits that

children and their environments are mutually influential, with early speech and language difficulties potentially contributing to frustration and behavioral issues (Ambrose, 2004). Additionally, the diathesis-stress model is frequently invoked to explain how genetic vulnerabilities interact with environmental stressors, such as family conflict, to increase the risk of ODD in children with stuttering (Ghosh et al., 2017). These theoretical frameworks provide a comprehensive understanding of the complex interplay between individual, familial, and environmental factors that contribute to the manifestation of ODD in children who stutter, guiding research and intervention strategies. One of the most important factors in the formation of psychiatric disorders in children is the family environment.

The family environment plays a crucial role in the development of Oppositional Defiant Disorder (ODD) in children, including those with stuttering. A maladaptive family environment, characterized by high levels of conflict, poor communication, and inadequate emotional support, can contribute to the emergence and maintenance of ODD symptoms. Children with stuttering may be particularly vulnerable to these family dynamics, as the stress associated with communication difficulties can exacerbate behavioral issues. Studies have identified multiple family factors associated with ODD, such as socioeconomic status, family dysfunction, marital conflict, and parent-child interactions. These factors can influence a child's emotional regulation and behavior, potentially leading to patterns of anger, irritable moods, and defiant behavior typical of ODD (Lin et al., 2022). Furthermore, parental mental health issues, such as depression, can also impact the family environment and, consequently, the child's psychological well-being (Zhang et al., 2023).

On the other hand, a supportive and understanding family dynamic can provide a safe space for children to express themselves and learn effective communication and problem-solving skills. Positive reinforcement, consistent discipline, and modeling of appropriate social behavior by family members can significantly reduce the occurrence of ODD symptoms. Understanding these dynamics is crucial for developing targeted interventions that can mitigate the impact of ODD and improve outcomes for children with stuttering (Dunsmore et al., 2013). Addressing these family factors is essential for preventing and mitigating the development of ODD in children with stuttering, highlighting the need for family-centered interventions.

Despite considerable research on oppositional defiant disorder (ODD) and stuttering independently, there is a

notable gap in the literature regarding their confluence and the influence of familial dynamics. Studies have extensively explored the etiology of ODD, focusing on risk factors and potential courses of the disorder, yet the intersection with stuttering remains under investigation (McKinney & Renk, 2007). Similarly, while the mechanisms of stuttering have been examined from various angles, the impact of ODD on these mechanisms is not well understood (Hawes et al., 2023). Furthermore, the role of family interactions, which are crucial in the development and management of both conditions, has not been sufficiently explored in the context of their co-occurrence. Research into how family conflict, parenting styles, and problem-solving strategies specifically affect children with both stuttering and ODD is sparse. This gap highlights the need for comprehensive studies that integrate the complexities of both disorders within the family system to develop targeted interventions (Ghosh et al., 2017). Addressing this research gap could lead to significant advancements in understanding and treating children with the dual challenge of stuttering and ODD. Consequently, this study was carried out to explore the role of conflict, distress, and problem-solving strategies in oppositional defiant disorder among children who stutter.

2. Methods and Materials

2.1. Study Design and Participants

The current research utilized a correlational framework. The demographic of interest comprised six-year-old children and their respective mothers residing in Mashhad. The study encompassed a sample of 196 preschool-aged children, with a gender distribution of 106 females and 90 males, chosen through convenience sampling methodology.

2.2. Measures

The Oppositional Defiant Disorder Rating Scale (ODDRS) is a diagnostic tool that encompasses the eight diagnostic criteria of ODD as explicitly stated in the DSM-IV-TR. It requires mothers to appraise the degree to which their child exhibits each symptom over a retrospective six-month period, using a four-tiered rating scale (0 = 'not at all', 1 = 'just a little', 2 = 'pretty much', 3 = 'very much'). The cumulative score of the ODDRS is derived by totaling the scores assigned to each of the eight items. In their 2006 study, Hommersen and colleagues reported a high internal consistency for the scale, with a Cronbach's alpha of 0.92, and a test-retest reliability coefficient of 0.70 over a span of

one year. The validity of the scale's exploratory factors was also corroborated in their analysis (Hommersen et al., 2006).

The Family Environment Scale (FES) is a 90-item assessment tool that measures an individual's perceptions of various aspects of their family environment. These aspects include Cohesion, Expressiveness, Conflict, Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation, Moral Religious Emphasis, Organization, and Control. The FES was developed by Moos and Moos (2002; 2013) (Moos & Moos, 1994, 2013). The language used in this text is clear, concise, and objective, adhering to a formal register and avoiding biased or ornamental language. Technical terms are explained when first used, and the text is free from grammatical errors, spelling mistakes, and punctuation errors. The content of the improved text is as close as possible to the source text, with no additional aspects added. Each subscale consists of 9 true/false statements. The subscales' total score ranges from 0 to 9, with higher scores indicating a greater perception of the participants in that family dimension. Cronbach's alpha ranged from 0.61 to 0.78, and test-retest coefficients during 2, 3, and 12 months ranged from 0.52 to 0.91 (Charalampous et al., 2013). In this study, parents answered 9 items related to conflict resolution.

The Family Distress Index (FDI), developed by McCubbin et al. (1966), consists of eight items that assess a family's self-relationship with the onset of family difficulties and challenges. This self-report scale uses a Likert scale ranging from 'not a problem' (0) to 'large problem' (3) for participants to state how much their family has faced family-specific obstacles in the past year (McCubbin et al., 1996). The total score is calculated, with a higher score suggesting more family troubles. The instrument demonstrates high reliability, with a Cronbach alpha of 0.93 (Chiş et al., 2022).

The Family Problem-Solving Communication (FPSC1996) is a self-administered 10-item instrument designed to measure positive and negative patterns in family communication related to family coping. Respondents use a 4-point Likert-type scale (0 = false, 1 = mostly false, 2 = mostly true, 3 = true) to indicate the degree to which the description is characteristic of behavior in their family. The total score is calculated by adding up the responses for all items, after reversing the scores of three items to make them all positive (McCubbin et al., 1996). The total score can range from 0 to 30, with higher scores indicating that the family tends to use affirming communication rather than incendiary communication to handle and resolve problems

and conflicts in stressful situations. The FPSC has an Alpha coefficient of .89, while for this sample it was .82.

2.3. Data Analysis

After obtaining the necessary permits, a preschool center in Mashhad was selected. The objectives of the research were explained to the mothers, and their participation was

completely voluntary. The mothers were required to answer all the questionnaires. The data was analyzed using Pearson's correlation coefficient and multiple regression with SPSS 27 software.

3. Findings and Results

Table 1 provides a demographic description.

Table 1

Demographic characteristics

Variables	Frequency	Percent
Mothers' Age		
20-30	48	24.49
31-40	64	32.65
41-50	41	20.92
50<	43	21.94
Mothers' Education		
Associate Degree	31	15.82
BSc.	94	47.96
MSc.	45	22.96
Ph.D.	26	13.27

Before analysis, data was screened for outliers. Box plot showed no univariate outliers, and examination of Mahalanobis distances revealed no multivariate outliers.

Table 2 shows the descriptive statistics and correlation coefficients.

Table 2

Descriptive statistics and correlation coefficients

Variables	Mean	SD	Skewness	Kurtosis	1	2	3
1. Family conflict	6.12	1.54	-0.15	-0.04	-		
2. Family distress	11.78	2.86	0.28	-0.49	-0.15	-	
3. Family problem-solving	10.50	2.62	0.10	-0.40	-0.28**	-0.03	-
4. Oppositional Defiant Disorder symptoms	11.34	1.98	0.29	0.09	0.41**	0.36**	-0.51**

SD= standard deviation; **P<.01; *P<.05

Table 2 demonstrates a positive correlation between conflict and distress with ODD symptoms, while a negative correlation exists between problem-solving and these symptoms. Other results show that the skewness and kurtosis values are within the range of -1 to +1. The tolerance values used to investigate multicollinearity ranged from 0.90 to 0.97, and the variance inflation values (VIF) ranged from 1.03 to 1.11. The Durbin-Watson statistic for autocorrelation was 1.89, which falls within

the optimal range. The results of the multiple regression are given in Table 3.

Table 3 shows that family conflict ($\beta=.35$), distress ($\beta=.39$), and problem-solving ($\beta=-.40$) are predictors of ODD symptoms. Family conflict and distress are positive predictors, while problem-solving is a negative predictor. The findings indicate that family conflict, distress, and problem-solving explain only 49% of the variance in ODD symptoms.

Table 3

Model summary and multiple regression coefficients

Variables	R ²	R ² _{adjusted}	F	b	S.E	β	t
Oppositional Defiant Disorder symptoms	0.49	0.48	45.59**	-	-	-	-
Family conflict				0.45	0.08	0.35	5.58**
Family distress				0.27	0.04	0.39	6.48**
Family problem-solving				-0.31	0.05	-0.40	-6.46**

S.E= standard error; **P<.01; *P<.05

4. Discussion and Conclusion

The present study investigated the role of family dynamics, specifically conflict, distress, and problem-solving, in predicting oppositional defiant disorder (ODD) symptoms among children with stuttering. Overall, the research findings indicate that family conflict, parental distress, and problem-solving abilities collectively account for 49% of the variability observed in oppositional defiant disorder (ODD) symptoms among children with stuttering. These factors play a significant role in shaping the behavioral outcomes of this specific population. Our findings contribute to the growing body of research on the complex interplay between family functioning and child behavioral outcomes.

The results revealed a significant association between family conflict and ODD symptoms. Children exposed to frequent conflict within their families were more likely to exhibit oppositional and defiant behaviors. This aligns with previous research emphasizing the impact of family environment on child development (Bush et al., 2020; Härkönen et al., 2017). Conflict disrupts the emotional stability of the household, leading to heightened stress levels for both parents and children (Jones et al., 2021). Consequently, children may internalize this tension and express it through oppositional behaviors.

Parental distress emerged as another critical factor. Parents experiencing high levels of stress are less equipped to provide consistent discipline, emotional support, and effective communication. The emotional strain they face may spill over into their interactions with their children (Lin et al., 2022). Our findings underscore the need for early identification and intervention to address parental distress, as it directly influences child outcomes.

Most notably, problem-solving skills within the family context played a protective role. Families that demonstrated effective problem-solving strategies were associated with

fewer ODD symptoms in their children. These families likely fostered open communication, collaboration, and adaptive coping mechanisms (Zhou et al., 2024). Teaching parents problem-solving techniques could enhance their ability to manage conflicts constructively and reduce the risk of ODD symptoms in their children.

Attachment theory (Ainsworth & Bowlby, 1991), provides a valuable lens for understanding the impact of family dynamics on child development, including the emergence of oppositional defiant disorder (ODD) symptoms. This theoretical framework emphasizes the significance of early caregiver-child relationships in shaping emotional regulation, social behavior, and mental health outcomes throughout the lifespan. Research consistently links insecure attachment (both anxious and avoidant) to behavioral difficulties, including ODD symptoms. Children with insecure attachment may struggle with emotional regulation, impulsivity, and defiance (Theule et al., 2016).

The study integrates multiple family factors- conflict, distress, and problem-solving- into a comprehensive model for understanding oppositional defiant disorder (ODD) development. By considering these factors together, the study provides a holistic view of the complex interplay between family dynamics and child outcomes. Drawing from established theories and previous studies, this evidence-based approach enhances the credibility and validity of the findings. However, the study acknowledges limitations related to available sampling, including potential impact on generalizability due to sample size, demographics, and recruitment methods. To enhance external validity, future research should aim for larger and more diverse samples. Additionally, the cross-sectional design employed limits the ability to establish causal relationships; longitudinal or experimental designs would provide stronger evidence for the proposed associations. While self-report measures (e.g., family distress, problem-solving abilities) were used, future studies could incorporate observational or behavioral assessments to complement self-report data.

Furthermore, despite the comprehensive model, other unmeasured variables (e.g., parenting styles, and social support networks) may contribute to ODD symptoms, prompting researchers to consider additional factors in future investigations.

Authors' Contributions

In this article, the corresponding author was responsible for the intervention implementation, data analysis, and manuscript writing, while the other authors supervised the data analysis and manuscript writing.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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