

ORIGINAL ARTICLE

Parenting Styles and Attention Deficits Hyperactive Disorder Symptoms: Mediating Role of Temperament Traits in Young Adults

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ABSTRACT

Objective: To explore the mediating role of temperament traits in parenting styles and Attention Deficits Hyperactive Disorder (ADHD) symptoms in young adults.

Study Design: A Cross-sectional research design.

Place and Duration of Study: This study was carried out in Lahore from September 2019 to March 2020.

Materials and Methods: A sample of 310 university students (men 38%, and women 63%) with the age range of 18-24 were given Demographic Performa, Attention Deficits Hyperactive Symptoms Scale (ADHSS)²¹, Student Temperament Scale (STS)⁴ and My memories of upbringing (EMBU-A).²² Pearson Correlation was used to find the association among parenting styles, ADHD symptoms, and temperament traits and mediation analysis was used to investigate the mediating role of temperament traits between parental overprotection and ADHD symptoms and model 4 was used. The level of significance was taken as $p < .05$, $p < .01$ and $p < .001$.

Results: Women were 63% with higher percentage than men 38%. The mean of age was 20.12 years ± 1.60 SD. Correlation analysis indicate that a significant positive relationship among temperament traits, parental overprotection and ADHD symptoms. Mediation analysis indicate that impulsivity, cautiousness, and apprehension were partially parallel mediated the relationship between parental over-protection and ADHD symptoms.

Conclusion: The current study provides empirical evidence that temperament traits mediate the relationship between parental overprotection and ADHD symptoms.

Key Words: ADHD, Over Protection, Parenting, Temperament Traits, Young Adults.

Introduction

Parenting and temperament are said to be two influential factors in the development of several mental health concerns^{1,2} including anxiety, depression, adjustment problems, and attention deficits hyperactive disorder (ADHD)^{3,4,5,6}. ADHD symptoms enhance due to Lack of consistency in Parenting and temperament dimensions.⁷ Parenting is a complex process that needs various skills to influence the behavior of a child.⁸ Wilmshurst⁹ explored that parenting style plays in the manifestation of the development of pathology and found that if parenting is warm, supportive, and encouraging, adults have good academic

performance and high self-esteem.¹⁰ Parents who exert excessive control on individuals may promote resentment and hinder autonomy in their emerging adults that may create frustration, loneliness, hyperactivity, shyness, careless and anxious¹¹. Moreover, they expect parental support, and failure to receive may lead to inattention, hyperactivity, and anxiousness.⁶ ADHD is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity¹² with the prevalence rate in adults 2.8%-3.4%.¹³ Inconsistent parenting manifests impairment in parenting control like lack of organized or planned household routines and appreciation of an individual's needs or failure to monitor the individual which leads to impulsiveness and ADHD symptoms. ADHD deficits may also disturb the development of adults which leads to mental health problems.⁶ In emerging adults, a link is found between parental and offspring psychopathology like ADHD symptoms, internalizing and externalizing behaviors.¹⁴ A transitional period of ADHD adults continuously displays impairments that are associated with parenting⁶. When noticing the development of young adults with ADHD Jones¹⁵

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explained the interaction between parent-child-related factors and ADHD symptoms. In the framework of developmental psychopathology, reciprocal and transitional relations are proposed between problems in parental emotional responsiveness or behavioral control and child maladjustment including ADHD symptoms and closely related conditions like oppositional defiant and conduct disorder.¹⁶

All individuals with ADHD do not experience the same level of severity and type of symptoms but relevant factor temperament will identify as the greatest risk for adverse results.² Temperament influences psychological functioning and a greater risk for mental health problems (depressive symptoms, sleep problem, ADHD symptoms).³ Temperament traits are early markers of different developmental pathways that lead to ADHD¹⁷ and ADHD is an extreme manifestation of temperament traits.² In temperament, two broader pathways apprehension and impulsivity were associated with greater psychopathology.¹⁸

Temperament traits are explored as possible ways to the emergence of ADHD symptoms and may be relevant to the functioning of the parenting domain.¹¹ A link between certain temperament traits (impulsivity and Apprehension) and ADHD symptoms was found.² Temperament traits are related to the occurrence of ADHD in adulthood¹⁶. A link among parenting and temperament traits (impulsivity, Apprehension, and cautiousness) was also found.¹⁹ Parenting, temperament, and ADHD symptoms are correlated¹⁹. Parenting and temperament traits are bidirectional correlated.¹¹ Parenting affects an individual's temperament and behavior problem.¹⁹ Gau²⁰ reported that ADHD adults perceive more overprotection and control from their mothers. Researches^{18,20} explained the relationship between parenting factors (overprotection) and child psychopathology.

It can be concluded that parenting and temperament play a vital role in human development especially in psychopathologies like ADHD. The current research was carried out to explore how Parenting influence the temperament traits and ADHD symptom in a sample of Pakistani young adults. Pakistani is collectivistic culture, where parents focus on overprotection and provide guidance and expect

obedience from individuals. Therefore, the present study was aimed to explore the relationship among Parenting, temperament traits, and ADHD symptom in a sample of Pakistani young adults and find out the mediating role of temperament traits between Parental overprotection warmth and ADHD symptom.

Materials and Methods

A cross-sectional research design and government and private university settings were used. This study was carried out in Lahore from September 2019 to March 2020.

A sample of 310 undergraduate university students were taken from 2 government and 2 private universities of Lahore through convenient sampling. The current research was approved by Institutional Review Board (IRB). Only university students of Bs Hons and Msc Program were taken. University students of Mphil and Ph.D. were excluded from this study.

Demographic performa consists of age, gender, and academic class. Attention Deficits Hyperactive Symptoms Scale (ADHSS)²¹ was used to measure ADHD symptoms in young adults. It is a self-report measure consisting of 40 items with 3 factors *inattention*, *hyperactivity*, and *prosocial* on 5 point Likert scale such as 0 (*not at all*), 1 (*too little*), 2 (*to some extent*), 3 (*often*), and 4 (*too much*). In the current research, only 28 items of inattention and hyperactivity were used. The score of ADHSS (inattention and hyperactivity) lies between 0-112. A higher score represented more symptoms of ADHD. Internal consistency is *inattention* $\alpha=.85$ and *hyperactivity* $\alpha=.79$.

Student Temperament Scale (STS)⁴ measures temperament styles in university students consist of 56 items with 6 factors, *apprehension*, *impulsivity*, *cautiousness*, *introversion*, *submissiveness*, and *Extroversion* but in current research, only 38 items of apprehension, impulsivity, and cautiousness were used. The response options are on 4 point rating scale of 0(*never*), 1(*sometimes*), 2(*often*), and 3(*most of the time*). Internal consistency is apprehension $\alpha=.82$, impulsivity $\alpha=.81$, cautiousness $\alpha=.80$, introversion $\alpha=.77$, submissiveness $\alpha=.72$ and Extroversion $\alpha=.70$. My memories of upbringing EMBU-A²² is a self-report measure that provides the individual perception of parental rearing practices. It

has two forms for Father and mother separately. It consisted of 27 items with 3 factors emotional warmth, rejection, and overprotection but in current research, only 6 items of overprotection subscale were used for both Father and mother in Urdu. The response options are 0 (never), 1 (sometimes), 2 (often) and 3 (always). The scoring range is between 0-18 and higher represent more perceived rejection from both parents. With ensuring confidentiality and privacy, researcher collected the data from the participant in the group with a debriefing session. They were asked to rate each statement to the extent to which it applies to them. Mean and standard deviation and percentages were done through SPSS 21. Data were analyzed in SPSS 21 for Correlation and Mediation analysis was carried out through PROCESS and model 4 was used. The level of significance was taken as $p < .05$, $p < .01$ and $p < .001$.

Results

Women were 63% with higher percentage than men 38%. The mean of age was 20.12 and standard deviation is 1.60. The relationship among parenting style, ADHD symptoms and temperament traits were explored through Pearson Product Moment Correlation. Finding indicated significant positive association among father over protection, impulsivity cautiousness, apprehension, ADHD symptoms and mother overprotection Moreover, results showed significant negative association between cautiousness and ADHD symptoms. Pearson Product Moment Correlation indicates significant relationship among study variable, hence,

Table I: Summary of Inter-Factor Correlations of Parenting Style, ADHD Symptoms and Temperament Traits (N=310)

Variables	1	2	3	4	5	6
1. FOP	---	.65***	.27***	.24***	.21***	.23***
2. MOP	---	---	.15**	.19**	.11*	.15**
3. Impulsivity	---	---	---	.09	.55***	.50***
4. Cautiousness	---	---	---	---	.14*	-.15**
5. Apprehension	---	---	---	---	---	.36***
6. ADHSS-Total	---	---	---	---	---	---
	.48	.54	.77	.74	.77	.91
M	23.45	24.15	18.89	14.73	15.41	42.99
SD	9.13	8.73	6.73	4.27	5.87	18.47

Note. FOP= Father overprotection, MOP= Mother overprotection, ADHSS = Attention Deficits Hyperactive Symptoms Scale
 * $p < .05$, ** $p < .01$, *** $p < .001$.

the mediating role of apprehension, impulsivity and cautiousness in the relationship between parental overprotection and ADHD symptoms was explored by conducting parallel mediation analysis through Hayes²³ bootstrapping approach. Figure 1 shows the mediating role of impulsivity, cautiousness and apprehension in the association between father overprotection and ADHD symptoms. Total effect of father overprotection on ADHD symptoms ($\beta = .23$, $SE = .06$, $p < .001$, $R^2 = .05$) was significant. Furthermore, the direct effects of father overprotection on impulsivity ($\beta = .26$, $SE = .06$, $p < .001$, $R^2 = .07$), cautiousness ($\beta = .23$, $SE = .06$, $p < .001$, $R^2 = .06$) and apprehension ($\beta = .21$, $SE = .06$, $p < .01$, $R^2 = .04$) were significant. In contrast, an examination of the direct effects of the mediating variables on ADHD symptoms exhibited that the direct effects of impulsivity ($\beta = .40$, $SE = .06$, $p < .001$, $R^2 = .32$), cautiousness ($\beta = -.23$, $SE = .05$, $p < .001$, $R^2 = .32$) and apprehension ($\beta = .14$, $SE = .06$, $p < .05$, $R^2 = .32$) were significant. Findings suggests that impulsivity, cautiousness and apprehension partially mediate the association between father overprotection and ADHD symptoms as after controlling the mediating variables the direct effect of father overprotection on ADHD symptoms is reduced ($\beta = .15$, $SE = .05$, $p < .01$, $R^2 = .32$) but c' path is still significant. Figure 2 shows the mediating role of impulsivity, cautiousness and apprehension in the association between mother overprotection and ADHD symptoms. Findings indicated that total effect of mother overprotection on ADHD symptoms ($\beta = .15$, $SE = .06$, $p < .01$, $R^2 = .02$) was significant. Moreover, the direct effects of mother overprotection on impulsivity ($\beta = .15$, $SE = .06$, $p < .01$, $R^2 = .02$), cautiousness ($\beta = .19$, $SE = .06$, $p < .001$, $R^2 = .04$) and apprehension ($\beta = .11$, $SE = .06$, $p < .05$, $R^2 = .01$) were significant. Furthermore, the direct effects of the mediating variables on ADHD symptoms exhibited that the direct effects of impulsivity ($\beta = .42$, $SE = .06$, $p < .001$, $R^2 = .31$), cautiousness ($\beta = -.22$, $SE = .05$, $p < .001$, $R^2 = .31$) and apprehension ($\beta = .15$, $SE = .06$, $p < .01$, $R^2 = .31$) were significant. Findings suggests that impulsivity, cautiousness and apprehension partially mediate the association between mother overprotection and ADHD symptoms as after controlling the mediating variables the direct effect of mother overprotection

on ADHD symptoms is minimized ($\beta = .11, SE = .05, p < .05, R^2 = .31$) but c' path is still significant. Therefore, it can be concluded that temperament traits partially parallel mediate the association between parental overprotection and ADHD symptoms.

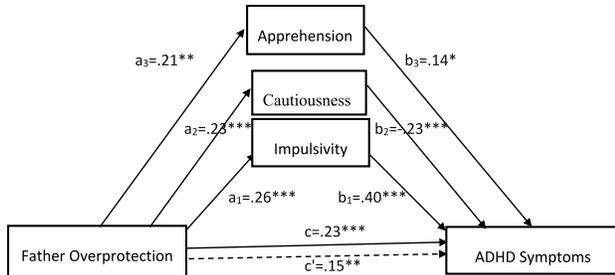


Fig 1: Mediation Path Framework of Father Over Protection, Temperament Traits, and ADHD Symptoms

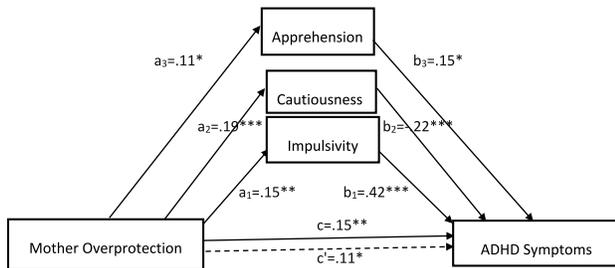


Fig 2: Mediation Path Framework of Mother Over Protection, Temperament Traits and ADHD Symptoms

Discussion

Family is the most significant context in the development of an individual. It plays an essential role in the upbringing process of an individual because parents provide a healthy relationship which is compulsory for the maturity of an individual.²⁴ Parenting may influence an individual's behavior problems, which may increase or decrease depending on the type of relationship¹⁹. The parent-child relationship defines according to different approaches and individualistic and collectivistic culture³. Parenting factors including warmth and overprotection may influence the relationship between parent and child psychopathology and problems of young adults increased over time.²⁵ Parental overprotection may have different consequences in young adults with a difficult temperament.²⁵ Therefore, the present research was aimed to explore the relationship among parental overprotection, temperament traits and ADHD symptoms and it was also aimed to explore the temperament traits that mediate the relationship between parental overprotection and ADHD

symptoms. The results revealed that Women were 63% with higher percentage than men 38%. The mean of age is 20.12 and standard deviation is 1.60. The greater ratio of women was found in university population. The finding of correlation analysis revealed a significant correlation was found among parental overprotection and maternal overprotection, temperament traits (impulsivity, cautiousness, and apprehension) ADHD symptoms of inattention and hyperactivity at the .001, .01 and .05 level of significance. The previous literature supports the results of the current study.^{2,10,11,13,19} The finding of mediation analysis revealed that temperament traits (impulsivity, cautiousness, and apprehension) partially parallel mediate the relationship between parental and maternal overprotection and ADHD symptoms of inattention and hyperactivity at the .001, .01 and .05 level of significance. The previous literature supports the results of the current study^{2,10,11,13,15,16, 17,18,19} and indicated that Parents who exert excessive control on their children may promote resentment and hinder autonomy in their emerging adults. It may create, hyperactivity, shyness, careless and anxious¹¹ and as a result of these consequences young adult could not pay attention to their studies, and increase impulsivity temperament trait (cautiousness). One interesting finding revealed that father overprotection is the most significant predictor of temperament and ADHD symptoms. fathers are found to be an authoritative figure of the family and a sign of power. Overprotection from fathers affects more on their temperament and inattention and hyperactivity. According to these findings, it can be said that parental overprotection may lead to a negative impact on an individual's life.

Conclusion

The current study provides empirical evidence that temperament traits mediate the relationship between parental overprotection and ADHD symptoms in young adults. Parenting style plays an important in the manifestation of the development of pathology in a clinical setting. As well perceived parenting plays a crucial role in an individual's life. Parent and child relationship is to be positive for decreasing their symptoms of ADHD. In the current study, a cross-sectional research design was used. In the future longitudinal studies

will be done for mediation. Another limitation, data was taken from adults. In the future, data would be collected from both parents and Adults for exploring parent-child bonding. The implication of this study is to understand the risk and protective of overprotection and counseling services needed for reducing the symptom of ADHD in young adults.

REFERENCE

- Walker CS, McKinney C. Parental and emerging adult psychopathology: moderated mediation by gender and affect toward parents. *J Adol.* 2015; 44: 158-167.
- Dattilo LE. Temperament, ADHD symptoms, and impairment in middle childhood. (Doctoral dissertation). 2018. Retrieved from: <https://scholarcommons.sc.edu/etd/4770>.
- Saleem S, Mahmood Z, Subhan S. Perceived parental practices and mental health problems: cross-cultural validation of EMBU-C on Pakistani adolescents. *FWU J Soc Sci.* 2015; 9(1): 44-52.
- Durrani SM, Mahmood Z, Saleem S. The Development and Validation of Temperament Scale for University Students, *FWU J Soc Sciences*, 2017; 11(1): 264-275.
- Johnston C, Mashb EJ, Natalie N, Ninowskida JE. Parenting in adults with attention-deficit/hyperactivity disorder (ADHD) *Clin Psychol Rev.* 2012; 32(4): 215–228. doi:10.1016/j.cpr.2012.01.007.
- Levy T, Kronenberg S, Crosbie J, Schachar RS. Attention-deficit/hyperactivity disorder (ADHD) symptoms and suicidality in children: The mediating role of depression, irritability and anxiety symptoms. *J Affe Disord.* 2020; doi:10.1016/j.jad.2020.01.022.
- Chen N, Deater-Deckard K, Bell MA. The Role of Temperament by Family Environment Interactions in Child Maladjustment. *J Abnorm Child Psychol.* 2014; 42(8): 1251–1262. doi:10.1007/s10802-014-9872-y.
- Anwer G, Masood S, Younas S, Ahmad M. Parental Rearing Practices as Predictors of Resilience and Emotional Intelligence among Young Adults. *Foundat Uni J Psych.* 2019; 3(2): 1-38. doi:10.33897/fujp3.2231082019
- Wilmhurst L. *Child and Adolescent Psychopathology: A Casebook* (3rd ed). Thousand Oaks, CA: Sage Inc; 2015.
- Saleem S, Mahmood Z, Asghar A, Subhan S. Parental Rejection and Mental Health Problems in College Students: Mediating Role of Interpersonal Difficulties. *Pak J Psych Res.* 2019; 34: 639-653.
- Antunez Z, Osa N, Granero R, Ezpeleta L. Parental psychopathology levels as a moderator of temperament and oppositional defiant disorder symptoms in preschoolers. *J Child Fam Stud.* 2016; doi 10.1007/s10826-016-0461-2.
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author; 2013.
- Fayyad J, Sampson NA, Hwang I, Adamowski T, Aguilar-Gaxiola S, Al-Hamzawi A, Andrade LHS. The descriptive epidemiology of DSM-IV adult ADHD in the world health organization world mental health surveys. *Atten Deficit Hyperact Disord.* 2017; 9: 47–65. doi:10.1007/s12402-016-0208-3.
- McKinney C, Franz AO. Latent profiles of perceived parental psychopathology: Associations with emerging adult psychological problems. *Child Psychia Human Develop.* 2018; 50: 411–424.
- Jones HA, Rabinovitch AE, Hubbard, RR. ADHD symptoms and academic adjustment to college: the role of parenting style. *J Atten Disord.* 2015; 19(3): 251–259. doi: 10.1177/1087054712473181.
- Ozdemiroglu F, Karakus K, Memis CO, Sevincok L, Mersin S. Temperament in Adulthood Attention Deficit-Hyperactivity Disorder without Bipolar Disorder. *Psychiatry Investig.* 2018; 15(3): 266-271. doi:10.30773/pi.2017.06.07.
- Rabinovitz BB, O'Neill S, Rajendran K, Jeffrey M. Halperin JM. Temperament, Executive Control, and ADHD across Early Development. *J Abnorm Psychol.* 2016; 125(2): 196–206. doi:10.1037/abn0000093.
- Achtergarde S, Postert C, Wessing I, Romer G, Müller JM. Parenting and Child Mental Health: Influences of Parent Personality, Child Temperament, and Their Interaction. *The Family J.* 2014; 23(2): 167–179. doi:10.1177/1066480714564316.
- Gau SS, Chang JP. Maternal parenting styles and mother-child relationship among adolescents with and without persistent attention-deficit/hyperactivity disorder. *Res Develop Disab.* 2013; 34: 1581-1594. doi:10.1016/j.ridd.2013.02.002.
- Goldner JS, Quimby D, Richards MH, Zakaryan A, Miller S, Dickson D, Chilson J. Relations of parenting to adolescent externalizing and internalizing distress moderated by perception of neighborhood danger. *J Clini Child Adole. Psycho.* 2016; 45: 141–154.
- Mushtaq R, Saleem S, Mahmood Z, The Development of a ADHD symptoms scale in young adults. *J Laiquat Uni Med Health Sci.* 2020; 20(02): 143-7. doi: 10.22442/jlumhs.2021.00758.
- Gerlsma C, Arrindell WA, Van der Veen N, Emmelkamp PM. A parental rearing style questionnaire for use with adolescents: Psychometric evaluation of the EMBU-A. *Personal Indi Diff.* 1991; 12(12): 1245-1253.
- Hayes AF. *Introduction to Mediation, Moderation, and Conditional Process Analysis A Regression-Based Approach* (2nd ed.). New York: The Guilford Press; 2018.
- Montejo JE, Duran M, Martínez M-DM, Hilari A, Roncalli N, Vilaregut A, et. al. Family functioning and parental bonding during childhood in adults diagnosed with ADHD. *J Atten Disord.* 2015; 1–8. doi: 10.1177/1087054715596578
- McKinney C, Steele EH, Story A-G. Effects of Parental Internalizing Problems on Irritability in Adolescents: Moderation by Parental Warmth and Overprotection. *J Child Family Studies.* 2019; doi:10.1007/s10826-019-01459-9.