

Parental Rejection and Attention Deficit and Hyperactivity Disorder Symptoms in University Students: Role of Trait Impulsivity

Rehana Mushtaq and Sadia Saleem

University of Management and Technology

The aim of the current study is to explore the mediating role of impulsivity between parental rejection and attention deficit and hyperactivity disorder (ADHD) symptoms in university students. Sample consisted of 310 university students (38% men and 62% women) with the age range of 18-24 years ($M = 20.12$, $SD = 1.6$) who were given a demographic performa, My Memories of Upbringing EMBU-A (Arrindell et al., 1999), Temperament Scale (Durrani et al., 2017) for University Students, and Attention Deficits Hyperactive Symptoms Scale (Mushtaq et al., 2021). Pearson Product Moment correlation was carried out to investigate the relationship between parental rejection, impulsivity, and symptoms of ADHD. Mediation analysis was carried out through Process Macro to determine the mediating role of impulsivity between parental rejection and symptoms of ADHD in university students. The findings indicated that impulsivity partially mediated in the association between parental rejection and symptoms of ADHD in university students.

Keywords: Impulsivity, parental rejection, ADHD, university students, mediation

Parenting plays a significant role in the development of psychological aspects from childhood to adulthood and the impact of parenting can be apparent throughout life (Khan & Munaf, 2017; Mckinney & Kwan, 2018). In university life, students are in the process of establishing self-identity and forming personal relationships. If university students have attention deficit and hyperactive disorder (ADHD) symptoms (Kwon et al., 2018), they face many emotional, academic, and social pressures that reduce life

Rehana Mushtaq and Sadia Saleem, Department of Clinical Psychology, School of Professional Psychology, University of Management and Technology, Lahore, Punjab, Pakistan.

Correspondence concerning this article should be addressed to Rehana Mushtaq, Department of Clinical Psychology, School of Professional Psychology, University of Management and Technology, Lahore, Punjab, Pakistan.
Email: rehanamushtaq93@yahoo.com

satisfaction and increase mental health problems like anxiety, stress, and depression. Inattention and hyperactivity have a negative impact on their academic functioning, self-esteem, social functioning, and relationship difficulties (Kwon et al., 2018). They require parental support, guidance, and monitoring or supervision to overcome these problems (Johnston et al., 2012). Difficulties would arise when parenting becomes inconsistent as extremely harsh, over-controlling, or over-reactive and outcomes are the perceptions of the child as hostile, cold or rejecting (Johnston et al., 2012).

Therefore, psychosocial risk factors are parental rejection, mistreatment, lack of interaction, and ignoring (Khan & Munaf, 2017). Bowlby (1973) describes in attachment theory that every human being understands the relationship according to the experience of the internal working model built through the attachment figure and interacts with others accordingly. University students with ADHD become aggressive in stressful situations, face difficulty in developing relationships with others, are unable to understand the feelings of others, initiate conflicts, have distrust, are emotionally unstable, and are disappointed (Kim et al., 2016). The prevalence of ADHD in adults was reported 2.5 to 5 % (Nylander et al., 2013; Polanczyk et al., 2014; Ramos-Quiroga et al., 2014). In Pakistan, 16% university students are having very severe category of ADHD symptoms who need clinical attention (Mushtaq et al., 2021).

Parenting is consistently related to negative consequences in the child (Bornstein & Bradley, 2014). Parental rejection in young adults has a negative consequence on behavioral and emotional functioning which further leads to impulsivity, low self-esteem, and behavioral problems (Anwer et al., 2019). Parental rejection is negative parenting which comprises neglect, disapproval, and criticism of the emotional and physical needs of the child (Dwairy, 2010 as cited in Abbas et al., 2022) and children perceive their parents as humiliating, unaffectionate, criticizing cold, aggressive, and hostile (Temel & Atalay, 2020). In behavioral and psychoanalytic theories, the association between mental health problems and child-rearing practices is used by parents (Khan & Munaf, 2017). ADHD is characterized by excessive inattention, impulsivity, and hyperactivity (American Psychiatric Association, 2013); these characteristics developmentally differ in different ways in adulthood (Jones et al., 2015).

In indigenous literature, Saleem et al. (2015) explored parental rejection as a significant positive predictor of mental health issues. Saleem et al. (2019) indicated that interpersonal relationships mediate the association between parental rejection and mental health issues. If

an individual is experiencing rejection from their parents they have more anger, impulsivity, and ADHD symptoms (Granero et al., 2015). Mushtaq and Saleem (2021) explored the relationship between parenting style, temperament traits, and ADHD symptoms. Parental rejection including attachment and problems between parents and individual increased the chances of ADHD (Storebo et al., 2016). Berkien et al. (2012) indicated that individuals who perceive parental rejection have more behavioral problems. Negative parenting relates to the symptoms of ADHD throughout childhood and adulthood because the parents of these individuals are more critical, harsh, aggressive, and hostile (Li, 2018).

Similarly, family relationships tend to influence the severity and persistence of symptoms of ADHD. Family and parents help individuals create a suitable environment to deal with problems and build their natural strengths (Molinam & Musich, 2015). The negative attitude of the mother leads to perceived rejection and affect the child's psychopathology (Guzel et al., 2018). Sajid and Riaz (2016) indicated that neglect/indifferent parental rejection predicts psychological maladjustment among convicts. Parental acceptance and rejection theory enlightens the biopsychosocial outcomes of perceived parental acceptance/rejection on the development of a child (Rohner et al., 2017).

In the framework of developmental psychopathology, parenting contributes to psychopathology throughout childhood to adulthood (Gau et al., 2010 as cited in Beauchaine et al., 2017), and a reciprocal relationship between negative parenting and child maladjustment including ADHD Symptoms exists (Chan et al., 2022). In childhood, impulsivity appears and increases manifestation in adolescence till early adulthood (Martel et al., 2016). Negative parenting has a negative effect on the temperament of individuals (Rioux et al., 2019). The relationship between negative parenting and ADHD is due to temperament impulsivity and inflexibility (Rioux et al., 2019). Slagt et al. (2016) explored that difficult temperament in children has more behavioral consequences of more anger or pressure from their parents or negative parenting. McKinney et al. (2019) explored the correlation between parenting and ADHD symptoms. Negative parenting has been linked with the severity of ADHD symptoms (Deater-Deckard, 2017; Molinam & Musich, 2015). Caregiving environment influences ADHD symptoms in adults that realizes into developmental trajectories, which lead to ADHD symptoms (Johnston et al., 2012).

To sum up the above literature, it can be concluded that negative parenting styles and temperament have significant impact on ADHD symptoms. In the developmental period of an individual, parenting

and temperament are important for mental health and attention. Current research was conducted to determine how parental rejection influences impulsivity traits and ADHD symptoms in university students. In a collectivistic culture like Pakistan, dependence and conformity are encouraged and cultivated and parents tend to control and guide and expect from children obedience and submissiveness (Saleem et al., 2019). Rioux et al. (2019) explained that with parental rejection, the impulsive temperament trait increases the symptom of inattention and hyperactivity as an individual with a difficult temperament faces more rejection from their parents and rejection with impulsivity leads to more inattention and hyperactive symptoms. So, the current research is aimed to investigate the relationship among parental rejection, impulsivity trait, and ADHD symptoms in university students and also find out the mediating role of impulsivity between parental rejection and ADHD symptoms. The objectives of the research are stated as follows:

Objectives

1. To see the relationship between parental rejection, impulsivity trait, and ADHD symptoms among university students.
2. To see the mediating role of impulsivity in the relationship between parental rejection and ADHD symptoms among university students.

Method

The current study is approved by Institution Review Board (IRB). A cross-sectional research design was used, and data were taken from the government and private setting. This research was conducted from September 2019 to May 2020.

Participants

A sample of 310 undergraduate university students (38% men and 63% women) with an age range of 18-24 years ($M = 20.12$, $SD = 1.60$) were taken from two public- and two private-sector universities of Lahore.

Measures

Demographic Performa

Demographic Performa comprises of questions related to age, gender, academic class, etc.

My Memories of Upbringing EMBU-A

It is a self-report measure (Arrindell et al., 1999) that explains the person's perception of perceived parental practices in two forms for the father and mother separately. It consists of 27 items and 3 factors Emotional Warmth, Overprotection, and Rejection. In this study, both for the father and mother, only 6 items of Rejection were used in Urdu. Responses were measured on a 4-point scale like 0 (*never*), 1 (*sometimes*), 2 (*often*), and 4 (*always*). The score range of the EMBU-A is 0 - 54 and the score range of this subscale (Rejection) is 0-18. A higher score represents more perceived rejection from both parents (Gerlsma et al., 1991). The reliability of this subscale is $\alpha = .78$ and $\alpha = .74$ for Father and Mother, respectively in current study.

Students Temperament Scale (STS)

Durrani et al. (2017) developed the Scale and it is used to measure temperament styles in university students and consists of 56 items and 6 factors Introversion, Impulsivity, Extroversion, Apprehension, Submissiveness, and Cautiousness. Only 14 Items of Impulsivity were used in the current study. Responses were measured on a 4-point scale like 0 (*never*), 1 (*sometimes*), 2 (*often*), and 4 (*most of the time*). The score range of this subscale is 0-42. A higher score shows a more impulsive temperament. The internal consistency of impulsivity is $\alpha = .81$ (Durrani et al., 2017).

ADHD Deficits Hyperactive Symptoms Scale (ADHSS)

ADHSS was a self-report measure (Mushtaq et al., 2021) used to measure ADHD symptoms in young adults. It is comprised of 40 items with 3 factors Hyperactivity, Proactive, and Inattention on 5-point Likert scale like 0 (*Not at all*), 1 (*too little*), 2 (*to some extent*), 3 (*often*), and 4 (*too much*). Only 28 items of Hyperactivity and Attention were used in the current study. The scores of these subscales lie between 0-112. A higher score represents more symptoms of ADHD. The reliabilities of Inattention and Hyperactivity is .85 and .79, respectively (Mushtaq et al., 2021).

Procedure

First, permission was taken from the university authorities for data collection. After getting consent from participants, they were ensured their privacy and confidentiality. Data was collected from the participants in the group session, and they were debriefed at the end of the session. Participants were asked to rate themselves on each

statement that applies to them. It took 20-25 minutes to complete the scales.

Results

Pearson Product Moment Correlation was used through SPSS 21 for exploring the relationship among variables and mediation analysis was conducted through Process Macro.

The relationship among parental rejection, impulsivity, and ADHD symptoms was found out through Pearson Product Moment Correlation.

Table 1
Correlation Between Parental Rejection, Impulsivity, and ADHD Symptoms (N=310)

Variables	α	<i>M</i>	<i>SD</i>	1	2	3	4
1 FR	.72	5.20	3.67	-			
2 MR	.70	5.98	3.70	.60***	-		
3 Impulsivity	.77	17.34	6.35	.40***	.38***	-	
4 ADHSS-T	.91	42.99	18.47	.39***	.32***	.50***	-

Note. FR = Father Rejection; MR = Mother Rejection; ADHSS-T = Attention Deficits Hyperactive Symptoms Scale.

*** $p < .001$.

The finding in [Table 1](#) shows a significant positive relationship between father rejection and mother rejection; father rejection and impulsivity, father rejection and ADHD symptoms; mother rejection and impulsivity; mother rejection and ADHD symptoms; and impulsivity and ADHD symptoms. Pearson Product Moment Correlation finding indicates a significant association among parental rejection, impulsivity, and ADHD symptoms. Mediation analysis was used to explore the mediating role of impulsivity in the association between parental rejection and ADHD symptoms by [Hayes \(2018\)](#) through the bootstrapping approach.

[Table 2](#) and [Figure 1](#) indicate the mediating role of impulsivity in the relationship between father rejection and symptoms of ADHD. A significant total effect of father rejection on ADHD symptoms ($\beta = .39$, $SE = .05$, $p < .001$, $R^2 = .15$) is found. Moreover, the direct effect of father rejection on impulsivity is significant with 16% variance with $F(1,308) = 59.78$, $p = .000$. In contrast, an examination of the direct effects of mediating variable impulsivity along father rejection on ADHD symptoms has 29% variance which is significant with $F(2,307) = 63.23$, $p = .000$. The result indicates that impulsivity

partially mediates the relationship between father rejection and ADHD symptoms and the direct effect of father rejection on ADHD symptoms is reduced to $\beta = .22, p < .001$ though still significant.

Table 2
Regression Coefficients, Standard Error, and Model Summary for Father Rejection Impulsivity and ADHD Symptoms (N=310)

Predictors	Outcomes							
	Impulsivity (M)				ADHS (DV)			
		β	SE	p		β	SE	p
Constant	<i>i</i>	.000	.05	1	<i>i</i>	.000	.05	1
FR (IV)	<i>a</i>	.40	.05	.000	<i>c'</i>	.22	.05	.000
Impulsivity (M)					<i>b</i>	.41	.05	.000
R ²		.16						.29

Note. FR = Father Rejection.

Figure 1
Mediating Role of Impulsivity on the Relationship Between Father Rejection and ADHD Symptoms

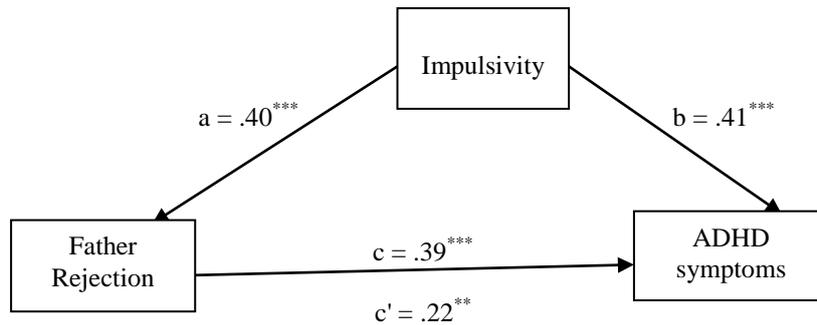


Table 3 and Figure 2 indicates the mediating role of impulsivity in the relationship between mother rejection and symptoms of ADHD. A significant total effect of mother rejection on ADHD symptoms ($\beta = .32, SE = .05, p < .001, R^2 = .10$) is found. Moreover, the direct effect of mother rejection on impulsivity with 15% variance is significant with $F(1,308) = 52.70, p = .000$. In contrast, an examination of the direct effects of mediating variable impulsivity on ADHD symptoms with 27% variance (along mother rejection) is significant with $F(2,307) = 56.39, p = .000$. The result indicates that impulsivity partially mediates the relationship between mother rejection and ADHD symptoms and the direct effect of mother rejection on ADHD

symptoms is reduced ($\beta = .15$, $SE = .05$, $p < .001$) after controlling mediating variable though still significant.

Table 3

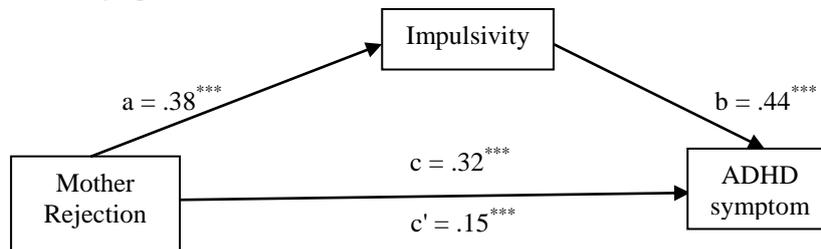
Regression Coefficients, Standard Error, and Model Summary for Mother Rejection, Impulsivity, and ADHD Symptoms (N = 310)

Predictors	Outcomes							
	Impulsivity (M)				ADHS (DV)			
		β	SE	p		β	SE	p
Constant	i	.000	.05	1	i	.000	.05	1
MR (IV)	a	.38	.05	.000	c'	.15		.000
Impulsivity (M)					b	.44	.05	.000
R ²		.15						.27

Note. MR = Mother Rejection.

Figure 2

Mediation Path Framework of Mother Rejection, Impulsivity, and ADHD Symptoms.



The result of this research can be concluded that temperament traits (impulsivity) partially mediate the relationship between parental rejection on ADHD symptoms.

Discussion

Attention Deficit Hyperactive Disorder (ADHD) is a neurodevelopment disorder in which people exhibit hyperactivity, inattention, and impulsivity symptoms (APA, 2013). ADHD is found in children and adults. The prevalence rate of ADHD in adults was reported between 2.5% to 5% (Nylander et al., 2013; Ramos-Quiroga et al., 2014). ADHD has many negative consequences in the life of an individual in context of academics, interpersonal relationship,

emotional functioning, adjustment, and family settings (Levy et al., 2020; Murtani et al., 2020). In the development of a child and the process of upbringing, family plays an essential role in which parents provide a base for healthy bonding that helps in individual's psychosocial and emotional functioning, especially in collectivistic culture (Ahmad & Hinshaw, 2017; Azhar et al., 2020; Montejo et al., 2019; Saleem et al., 2015; Saleem et al., 2019).

Furthermore, Granero et al. (2015) explained that early parent relationships with child influence future relationship of the child. Perceived parental practices such as rejection may lead to externalizing and internalizing problems (Saleem et al., 2015); especially parental rejection enhances mental health problems as well as ADHD Symptoms (Husnain et al., 2013). These problems develop in individuals who feel rejected and unloved by their parents (Saleem et al., 2015). When it comes to an individual with ADHD symptoms, it enhances the symptoms for getting the attention of parents in form of impulsivity (Montejo et al., 2019).

Moreover, parenting and temperament predict developmental consequences in individuals with ADHD (Slagt et al., 2016). Parenting and temperament traits are linked with ADHD symptoms (Rioux et al., 2016). Negative parenting is also linked with ADHD symptoms (Rioux et al., 2019). Emotionally hostile and rejected environment at home predicted bad Symptoms of ADHD in adult age (Montejo et al., 2019). Relationship between symptoms of ADHD and parenting practices is bi-directional, however, parental rejection is considered a core aspect of an individual's maltreatment (Xiao et al., 2017). Negative parenting and trait impulsivity manifest the symptoms of ADHD (Beauchaine & McNulty, 2013).

Therefore, the current research was aimed to explore the mediating role of impulsivity in the association between parental rejection and ADHD symptoms among university students. The findings of this research indicate that impulsivity partially mediates the relationship between parental rejection on ADHD symptoms. Negative parenting and impulsivity are associated with ADHD symptoms which are supported by the previous literature (Beauchaine & McNulty, 2013; Saleem et al., 2015; Slagt et al. 2016; Rioux, et al., 2016) and showed that parents who provide their children rejected and unloved environment at home leads to impulsivity and symptoms of ADHD in adulthood (Montejo et al., 2019). In Pakistan, as a collective culture, the mother as a parent seems to be loving, caring, and concerned and the father as a parent seems to be authority having power and control (Saleem et al., 2015). If there is a lack of love, care power and control for a child from their parents (mother and father), it

leads to problems of impulsivity, inattention, and hyperactivity in their later life.

Conclusion and Implication

This research provides empirical support to the literature that impulsivity as temperament trait partially mediates in the association between parental rejections and ADHD symptoms. Negative parenting enhances the symptoms of ADHD and rejection from parents increases impulsive traits of temperament. For decreasing impulsivity and ADHD symptoms, the parent-child relationship should be positive and parents should be accepting and understanding their children for their better development. This research highlights negative parenting as the risk which indicates that counseling services are needed for reducing the effect of negative parenting to reduce ADHD symptoms in university students in context of impulsivity.

Limitations and Suggestions

In the current study, there was a focus on negative parenting. In future research, it is recommended to focus on positive parenting. Another limitation is that research data was taken from young adults, so in the future research data from children and adolescents can be taken and parental perspective can be considered.

References

- Abbas, F., Zahra, R., Sahar, Z., & Yusuf, A. (2022). Relationship between parental acceptance-rejection and confidence in university students. *Journal of Education and Humanities Research*, 14(2), 85-94. <http://journal.uob.edu.pk/journal/index.php/jehr/article/view/360>
- Ahmad, S. I., & Hinshaw, S. P. (2017). Attention-deficit/hyperactivity disorder, trait impulsivity, and externalizing behavior in a longitudinal sample. *Journal of Abnormal and Child Psychology*, 45(6), 1077-1089. doi.org/10.1007/s10802-016-0226-9.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Anwer, G., Masood, S., Younas, S., & Ahmad, M. (2019). Parental rearing practices as predictors of resilience and emotional intelligence among young adults. *Foundation University Journal of Psychology*, 3(2), 1-38. doi.org/10.33897/fujp3.2231082019
- Arrindell, W. A., Sanavio, E., Aguilar, G., Sica, C., Hatzichridhou, C., Eismann, M., Recinos, L. A., Gaszner, P., Peter, M., Battagliese, G., Kállai, J., & Der Van Der Ende, J. (1999). The development of a short

- form of the EMBU: Its appraisal with students in Greece, Guatemala, Hungary and Italy. *Personality and Individual Differences*, 27(4), 613-628. doi.org/10.1016/S0191-8869(98)00192-5
- Azhar, M., Saleem, S., & Mahmood, Z. (2020). Perceived parenting and distress tolerance as predictors of mental health problems in university students. *Journal of Research in Social Sciences*, 8(1). <https://www.numl.edu.pk/journals/subjects/15885975516.%20Maha%20Azhar.pdf>
- Beauchaine, T. P., & McNulty, T. (2013). Comorbidities and continuities as ontogenic processes: Toward a developmental spectrum model of externalizing psychopathology. *Development and Psychopathology*, 25(4), 1505-1528. doi.org/10.1017/S0954579413000746.
- Beauchaine, T. P., Zisner, A. R., & Sauder, C. L. (2017). Trait impulsivity and the externalizing spectrum. *Annual Review of Clinical Psychology*, 13, 343-368.
- Berkien, M., Louwse, A., Verhulst, F., & Ende, J. V. D. (2012). Children's perceptions of dissimilarity in parenting styles are associated with internalizing and externalizing behavior. *European Child and Adolescent Psychiatry* 21, 79-85. doi.org/10.1007/s00787-011-0234-9
- Bornstein, M. H., & Bradley, R. H. (2014). *Socioeconomic status, parenting, and child development*. Routledge.
- Bowlby, J. (1973). *Attachment and loss: Separation* (Vol. 2). Basic Books.
- Chan, W. W., Shum, K. K. M., & Sonuga-Barke, E. J. (2022). Attention-deficit/hyperactivity disorder (ADHD) in cultural context: Do parents in Hong Kong and the United Kingdom adopt different thresholds when rating symptoms, and if so why?. *International Journal of Methods in Psychiatric Research*, 31(3), e1923. <https://doi.org/10.1002/mpr.1923>
- Deater-Deckard, K. (2017). Parents' and children's ADHD in a family system. *Journal of Abnormal and Child Psychology*, 45, 519-525. doi.org/10.1007/s10802-017-0276-7
- Durrani, S. M., Mahmood, Z., & Saleem, S. (2017). The development and validation of Temperament Scale for university students. *FWU Journal of Social Sciences*, 11(1), 264-275.
- Gerlsma, C., Arrindell, W. A., Van der Veen, N., & Emmelkamp, P. M. (1991). A parental rearing style questionnaire for use with adolescents. Psychometric evaluation of the EMBU-A. *Personality and Individual Differences*, 12(12), 1245-1253.
- Granero, R., Louwaars, L., & Ezpeleta, L. (2015) Socio economic status and oppositional defiant disorder in preschoolers: Parenting practices and executive functioning as mediating variables. *Frontiers in Psychology*, 6, 1412. doi.org/10.3389/fpsyg.2015.01412
- Guzel, H. S., Guney, E., & Dinc, G. S. (2018). Assessment of perceived parental acceptance rejection and psychological adjustment levels of children diagnosed with attention-deficit hyperactivity disorder. *Dusunen*

- Adam: The Journal of Psychiatry and Neurological Sciences*, 31, 50-60. doi.org/10.5350/DAJPN2018310105
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). The Guilford Press.
- Husnain, S., Alvi, T., Zeeshan A., & Nadeem, S. (2013). Perceived childhood paternal acceptance-rejection among adults. *Journal of the College of Physicians and Surgeons Pakistan*, 23(4), 269-271. <https://www.researchgate.net/publication/236103564>
- Johnston, C., Mash, E. J., Miller, N., & Ninowski, J. E. (2012). Parenting in adults with attention-deficit/hyperactivity disorder (ADHD). *Clinical Psychology Review*, 32(4), 215-228. doi.org/10.1016/j.cpr.2012.01.007.
- Jones, H. A., Rabinovitch, A. E., & Hubbard, R. R. (2015). ADHD symptoms and academic adjustment to college: The role of parenting style. *Journal of Attention Disorder*, 19(3) 251-259. doi.org/10.1177/1087054712473181
- Khan, B., & Munaf, S. (2017). Perceived childhood parental rejection and criminal behavior in adulthood. *Journal of Pakistan Psychiatric Society*, 14(3), 21-23.
- Kim, Y., Choi, J., & Yoo, Y. (2016). College adjustment among first year students with ADHD symptoms. *Cognitive Behavior Therapy in Korea*, 16, 161-85.
- Kwon, S. J., Kim, Y., & Kwak, Y. (2018). Difficulties faced by university students with self-reported symptoms of attention deficit hyperactivity disorder: A qualitative study. *Child and Adolescent Psychiatry and Mental Health* 12(12). doi.org/10.1186/s13034-018-0218-3
- Levy, T., Kronenberg, S., Crosbie, J., & Schachar, R. S. (2020). Attention-Deficit/Hyperactivity Disorder (ADHD) symptoms and suicidality in children: The mediating role of depression, irritability and anxiety symptoms. *Journal of Affective Disorders*, 265, 200-206. doi.org/10.1016/j.jad.2020.01.022
- Li, J. J. (2018). Children's reward and punishment sensitivity moderates the association of negative and positive parenting behaviors in child ADHD-symptoms. *Journal of Abnormal Child Psychology*, 46, 1585-1595. doi.org/10.1007/s10802-018-0421-y
- Martel, M. M., Levinson, C. A., Langer, J. K., & Nigg, J. T. (2016). A network analysis of developmental change in ADHD symptom structure from preschool to adulthood. *Clinical Psychological Science: A Journal of the Association for Psychological Science*, 1-14. doi.org/10.1177/2167702615618664.
- McKinney, C., & Kwan, J. W. (2018). Emerging adult perceptions of and preferences for parenting styles and associated psychological outcomes. *Journal of Family Issues*, 39(9), 2491-2504. doi.org/10.1177/0192513X18756928

- McKinney, C., Steele, E. H., & Story, A. G. (2019). Effects of parental internalizing problems on irritability in adolescents: Moderation by parental warmth and overprotection. *Journal of Child and Family Studies*, 28, 2791-2799. doi.org/10.1007/s10826-019-01459-9
- Molinam, M. F., & Musich, F. M. (2015). Perception of parenting style by children with ADHD and its relation with inattention, hyperactivity/impulsivity and externalizing symptoms. *Journal of Child and Family Studies*, 25, 1656-1671. doi.org/10.1007/s10826-015-0316-2
- Montejo, J. E., Duran, M., Martínez, M-D.M., Hilari, A., Roncalli, N., Vilaregut, A., Corrales, M., Nogueira, M., Casas, M., Linares, J. L., & Ramos-Quiroga, A. (2019). Family functioning and parental bonding during childhood in adults diagnosed with ADHD. *Journal of Attention Disorder*, 23(1), 57-64. doi.org/10.1177/1087054715596578
- Mushtaq, R., & Saleem, S. (2021). Parenting styles and ADHD symptoms: Mediating role of temperament traits in young adults. *Journal of Islamic International Medical College (JIIMC)*, 16(4), 255-259.
- Mushtaq, R., Saleem, S., & Mahmood, Z. (2021). The development of a ADHD symptoms scale in young adults. *Journal of Liaquat University Medical Health Sciences*, 20(2), 143-147. doi.org/10.22442/jlumhs.2021.00758
- Murtani, B. J., Wibowo, J. A., Liu, A., Goey, M. R., Harsono, K., Mardani, A. A. P., & Wiguna, T. (2020). Knowledge/understanding, perception and attitude towards attention deficit/ hyperactivity disorder (ADHD) among community members and healthcare professionals in Indonesia. *Asian Journal of Psychiatry*, 48, 101912. doi.org/10.1016/j.ajp.2019.101912.
- Nylander, L., Holmqvist, M., Gustafson, L., & Gillberg, C. (2013) Attention-deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) in adult psychiatry. A 20-year register study. *Nordic Journal of Psychiatry*, 67(5), 344-50. doi.org/10.3109/08039488.2012.74 8824.
- Polanczyk, G.V., Willcutt, E. G., Salum, G. A., Kieling, C., & Rohde, L. A. (2014). ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis. *International Journal of Epidemiology*, 43, 434-442.
- Ramos-Quiroga, J. A., Nasillo, V., Fernández-Aranda, F., & Casas, M. (2014). Addressing the lack of studies in attention-deficit/hyperactivity disorder in adults. *Expert Review Neurotherapeutics* 14, 553-567.
- Rioux, C., Castellanos-Ryan, N., Parent, S., Vitaro, F., Tremblay, R. E., & Séguin, J. R. (2016). Differential susceptibility to environmental influences: Interactions between child temperament and parenting in adolescent alcohol use. *Development and Psychopathology*, 28, 265-275. doi.org/10.1017/s0954579415000437
- Rioux, C., Murray, J., Castellanos-Ryan, N., Séguin, J. R., Tremblay, R. E., & Parent, S. (2019). Moderation of parenting by inhibitory control in the prediction of the common and unique variance of hyperactivity-

- impulsivity and inattention. *Development and Psychopathology*, 1-13. doi.org/10.1017/S0954579419000774
- Rohner, R. P., Khaleque, A., & Cournayer, D. E. (2017). *Introduction to parental acceptance-rejection theory, methods, evidence, and implications*. <http://csiar.uconn.edu/wp-content/uploads/sites/494/2014/02/introduction-to-parental-acceptance-3-27-12.pdf>.
- Sajid, B., & Riaz, M. N. (2016). Perceived parental rejection and psychosocial maladjustment: A study of convicts. *Journal of Behavioral Sciences*, 26(2), 39-54.
- Saleem, S., Mahmood, Z., Asghar, A. & Subhan, S. (2019). Parental rejection and mental health problems in college students: Mediating role of interpersonal difficulties. *Pakistan Journal of Psychological Research*, 34, 639-653. doi.org/10.33824/PJPR.2019.34.3.35
- Saleem, S., Mahmood, Z., & Subhan, S. (2015). Perceived parental practices and mental health problems: Cross-cultural validation of EMBU-C on Pakistani adolescents. *FWU Journal of Social Sciences*, 9(1), 44-52.
- Slagt, M., Dubas, J. S., Dekovic, M., & van Aken, M. A. G. (2016). Differences in sensitivity to parenting depending on child temperament: A meta-analysis. *Psychological Bulletin*, 142, 1068-1110. doi.org/10.1037/bul0000061
- Storebo, O. J., Rasmussen, P. D., & Simonsen, E. (2016). Association between insecure attachment and ADHD: Environmental mediating factors. *Journal of Attention Disorders*, 20(2), 187-96. doi.org/10.1177/1087054713501079
- Temel, M., & Atalay, A. A. (2020). The relationship between perceived maternal parenting and psychological distress: Mediator role of self-compassion. *Current Psychology*, 39, 2203-2210. doi.org/10.1007/s12144-018-9904-9
- Xiao, B., Liu, J., Gong, J., & Luo, X. (2017). Perceived parental rejection mediates the effects of previous maltreatment on emotional and behavioral outcomes in Chinese adolescents whereas mental illness has no moderating effect. *South African Journal of Psychiatry*, 23(0), a1073. doi.org/10.4102/sajpsychiatry.v23i0.1073

Received 20 October 2021

Revision received 24 April 2023