



Predictor factors of attention deficit/hyperactivity, conduct, and oppositional defiant disorders in children of parents with drug abuse

Kianoosh Najafi¹, Kazhal Mikaeili¹, Fayegh Yousefi¹

1 Department of Psychiatry, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran

Original Article

Abstract

BACKGROUND: Attention deficit hyperactivity disorder (ADHD), conduct disorder (CD), and oppositional defiant disorder (ODD) are problems that children of parents with drug abuse suffer from. The purpose of this study was to determine the predictor factors of ADHD, CD, and ODD in children of parents with drug abuse.

METHODS: The present study was a descriptive-analytic research. The statistical population of the study included the children of parents suffering from drug abuse in Sanandaj, Iran, during 2017-2018. The sample size included 196 individuals (91 girls and 105 boys) which were selected by stratified multistage random sampling. The instrument of this study was Child Symptom Inventory-4 (CSI-4). Descriptive statistics and multiple regression were used for analytical purposes.

RESULTS: Based on multiple regression's results analysis, predictors have a significant relationship between behavioral disorders (CD) in the children based on their fathers' job ($P = 0.001$), but there was no such a significant relationship between behavioral disorders (ODD, ADHD, CD) in the studied children in terms of parents' occupation and level of education ($P > 0.05$).

CONCLUSION: The results of the current study could be used for psychiatric clinics, mental health, and education organizations. In addition, they will be used for the supportive organizations that want to help and support children with ADHD, CD, and ODD with parents with substance abuse.

KEYWORDS: Attention; Deficit; Hyperactivity; Conduct; Oppositional Defiance; Drug Abuse

Date of submission: 25 Dec. 2021, **Date of acceptance:** 15 Mar. 2022

Citation: Najafi K, Mikaeili K, Yousefi F. **Predictor factors of attention deficit/hyperactivity, conduct, and oppositional defiant disorders in children of parents with drug abuse.** Chron Dis J 2022; 10(2): 65-71.

Introduction

Behavioral problems or behavioral disorders in children refer to those problems that disturb the general level of mental and behavioral balance of the child. Behavioral disorders reduce or minimize the educational-behavioral performance of children based on their intensity rates and at different times and places.¹ One of the most prevalent disorders of childhood, which is given particular attention by many researchers and scientists for various

reasons today, is attention deficit hyperactivity disorder (ADHD). ADHD is a disorder characterized by various forms and different names.² For example, one can refer to the definition of overall load that defines hyperactivity as follows: hyperactivity refers to developmental disorders in attention, control of impulsivity, restlessness, and behavior guidance that is naturally occurring and is not caused by major neurocognitive, sensory, motor, or emotional disorders.³

One of the problems is that there is not enough information about the additional direct and indirect costs associated with ADHD.⁴

Oppositional defiant disorder (ODD) is one of the externalizing problems in childhood. One

Corresponding Author:

Fayegh Yousefi; Department of Psychiatry, School of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran

Email: f.yousefi@muk.ac.ir

of the most important diagnostic symptoms of this disorder is stubbornness and deliberate defiance with the orders issued by parents and other adults. This disorder is characterized by a clear pattern of hostile and oppositional behaviors to power authorities that do not fit into the growth rate of the child and disrupt his/her educational and social performance.⁵

Children with ODD are much more likely to show conflicting behaviors, irritability, failure to comply with orders and regulations, and rule-breaking behaviors compared to children of the same age, but aggressive behavior patterns are observed as severe violations of social laws and regulations. ODD is more prevalent in boys before puberty, after which will be equally prevalent in both genders.⁵ Epidemiological studies have reported that the prevalence of ODD is 5.6%.⁶

Results of previous researches on the etiology of ODD have shown that the child starts showing oppositional behaviors in the second year of life when he/she adopts a conflicting behavioral process to demonstrate his/her independence and autonomy in daily activities.⁷ Conduct disorder (CD) is a stable set of behaviors that develops over time and is characterized by symptoms such as cruelty to animals and people, property sabotage, deception, lying, stealing, and violating the rights of others. Such issues will cause serious problems for the patient, family, and society.^{6,7}

The maximum CD prevalence rate occurs in childhood and adolescence, and the prevalence rate varies according to the type of studies and populations studied. CD was prevalent among about 6%-16% of boys and 2%-9% of girls under the age of 18, and some studies reported an overall prevalence rate of about 5%-10% in the 8-16 age group.⁵ Riegler *et al.* reported that the prevalence of CD was 4%.⁸

The results of studies in different parts of the world show that the severity of behavioral disorders varies in different regions and depends on many factors. The incidence of

behavioral disorders in Karachi (Pakistan), Leipzig (Germany), Malaysia, China, and Egypt was reported to be 34.4%, 16%, 15%, 10.5%, and 34.7%, respectively. The prevalence of ADHD, ODD, and CD in different parts of Iran was reported to be 17%, 4.45%, and 8.8% among children and adolescents, respectively.⁹⁻¹¹

The rates of behavioral disorders are higher in boys than girls in many cases.¹² Substance abuse and substance dependence are one of the major biopsychosocial problems and undoubtedly all countries are struggling with it.¹³ The type of behavior of adult people is rooted in their childhood. Since each society needs healthy and capable individuals to achieve development in social, economic, and cultural dimensions,¹⁴ the physical and psychological health of children and adolescents is very important in terms of its significant impact on personality and behavior in adulthood.¹⁵

Children and adolescents who are exposed to drug use or are dependent on the nicotine in the family are more likely to be at risk of behavioral disorders (ADHD, ODD, CD). A prospective meta-analysis study showed that the odds ratios of behavioral disorders and alcohol consumption rates in children exposed to nicotine and narcotic drugs was three and two times, respectively.^{16,17}

The prevalence of ADHD in substance-abusing populations is much higher than the general population, and up to 50% of adolescents and adults with substance abuse disorders are diagnosed with ADHD. Behavioral disorder, depression, anxiety, and low self-confidence are mentioned again to increase the risk of substance use in people with ADHD.¹⁸

However, the symptoms of ADHD have been shown repeatedly to be associated with increased risk of drug use.⁴⁻¹⁹

Methods

This study was descriptive-analytic. The

statistical population of the present study was the children of substance abusing parents in Sanandaj, Iran, during the years 2017-2018.

Inclusion criteria included the children of substance abusing parents who were referred to addiction treatment centers in Sanandaj, with an age range of 7-19 years old. Exclusion criteria included being single, having no child with the age range of 4-18 years, spouse's unawareness of addiction, spouse's unawareness of the drug addiction treatment process, divorce, the raising of the child by family members, lack of cooperation for personal reasons, a person's dissatisfaction with interviewing his/her spouse, lack of consent for disclosure of family information, and having no child.

The sample size was calculated as 192 (girls and boys) through the following formula [$n = z^2 \cdot p(1-p)/d^2$; $z = 1.96$, $p = 0.5$, $d = 0.005$] with the study power of 96%, and a random stratified multistage sampling method was used (Figure 1).

Indeed, in this study, 195 people were selected.

Procedure: When the project was approved by the Ethics Committee of Kurdistan

University of Medical Sciences, Sanandaj, Iran, (IR.MUK.REC.1396/243); necessary permissions were obtained, and licensing and coordination was made, the researcher referred to the Sanandaj drug addiction centers and carried out the sampling process using a stratified multistage random sampling.

To this end, 1/4 of the total forty centers in Sanandaj City were randomly selected. In the next stage, the sample number was randomly selected in proportion to the sample size in each center. Invitations were then made according to the inclusion and exclusion criterion as well as patient records and interviews with parents of eligible children. The questionnaires were later filled.

However, the questionnaires were filled up by parents who were not addicted; otherwise, both of them were excluded from the study.

This questionnaire was developed based on Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) diagnostic criteria by Professor Sprafkin and Professor Gadow at Stony Brook University in 1994. This questionnaire consists of two parent and teacher checklists and includes 97 questions. In this study, a parent checklist was used.

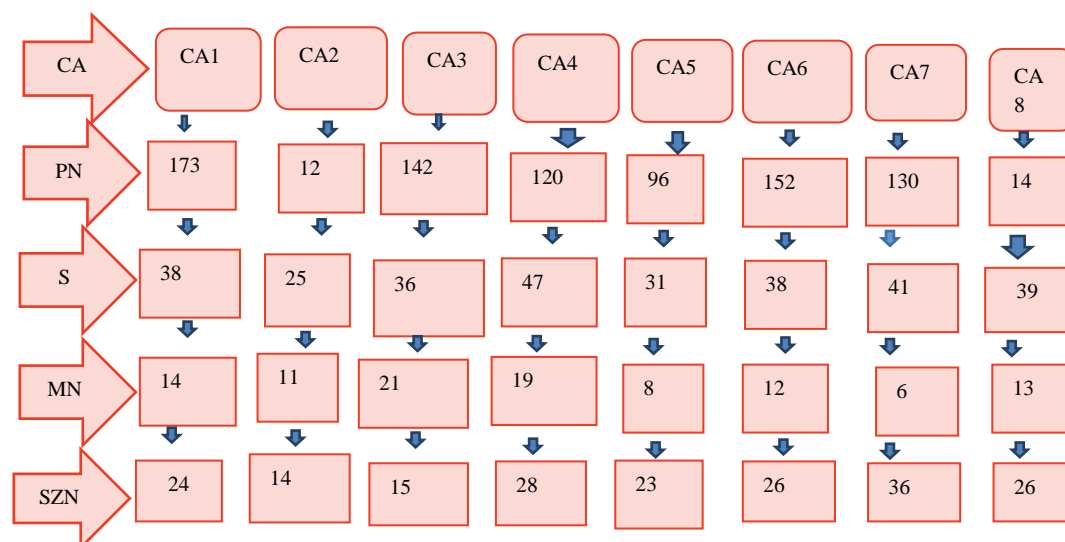


Figure 1. Consort diagram toward the number of the studied centers and the relevant statistics (CA: Centers of addiction; PN: Population of each center; S: Selection of sample in each center randomly; M: Missing of the sample; SZ: Sample size)

The validity and reliability of this questionnaire have been confirmed at Stony Brook University. In Iran, the reliability of the instrument was calculated using the test-retest method, and reliability coefficients of $r = 0.96$ and $r = 0.93$ were reported in the case of parent and teacher checklists, respectively. The face validity of the questionnaire, which is based on the DSM-IV diagnostic criteria, was confirmed by the psychiatric and psychology professors of Tehran Psychiatric Institute, Tehran, Iran.²⁰ Questions 1-18, 27-41, and 19-26 related to ADHD, CD, and ODD disorders, respectively. The overall reliability for these disorders was reported to be 84.6%.¹

Data were analyzed by SPSS software (version 20, IBM Corporation, Armonk, NY, USA). Moreover, the frequency, percentage, mean, and standard deviation (SD) were used for calculated descriptive purposes and multiple regression was also used for analytical purposes.

Results

The sample size of this study was 196 (105 boys and 91 girls). According to the demographic findings of this study, most of the children were boys with a frequency of 105 (53.57%). The majority of fathers and mothers were self-employed and housewives with a frequency of 115 (58.67%) and 135 (68.80%), respectively. Most of the fathers and mothers had a diploma and bachelor's degrees with the frequency of 49 (25.0%) and 63 (32.1%), respectively.

Table 1 shows the frequency and percentage of drug abuse types in parents of children with ADHD, attention deficit disorder (ADD), hyperactivity disorder (HD), and ODD. The results showed that the prevalence of ADHD, ODD, and CD in children was 7.14%, 13.26%, and 6.12%, respectively (Table 1).

The analytical results of the present study also showed a significant relationship between behavioral disorders (CD) in the children based on their fathers' job ($P \geq 0.003$), but there

was no such a significant relationship between behavioral disorders (ODD, ADHD, CD) in the studied children in terms of parents' occupation and level of education ($P > 0.05$) (Table 2).

Table 1. Types of drug abuse by parents of children with attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD)

Variables	n (%)
Type of drug consumed	
Opium juice	19 (9.7)
Opium	99 (50.5)
Crystal Metamethylamine hydrochloride	5 (2.6)
Alcohol	4 (2.0)
Heroin	29 (14.8)
Tramadol	3 (1.5)
Opium juice and DiMetamethylamine hydrochloride	4 (2.0)
Opium juice and opium	17 (8.7)
Opium and crystal DiMetamethylamine hydrochloride	7 (3.6)
Opium and alcohol	2 (1.0)
Opium, crystal DiMetamethylamine hydrochloride, and heroin	5 (2.6)
Opium and tramadol	2 (1.0)
Type of childhood behavior disorders	
CD	
Yes	14 (7.1)
No	182 (92.8)
ADHD	
Yes	12 (6.1)
No	184 (93.8)
ADD	
Yes	4 (2.1)
No	192 (97.9)
HD	
Yes	26 (13.2)
No	170 (86.7)
ODD	
Yes	26 (13.2)
No	170 (86.7)

ADHD: Attention deficit hyperactivity disorder; CD: Conduct disorder; ADD: Attention deficit disorder; HD: Hyperactivity disorder; ODD: Oppositional defiant disorder

Discussion

The present study was conducted to determine the behavioral disorders and their related factors among the children of substance abusing parents referred to addiction treatment centers in Sanandaj.

Table 2. Results of multiple regression analysis of behavioral disorders [conduct disorder (CD), oppositional defiant disorder (ODD), attention deficit hyperactivity disorder (ADHD)] according to parents' level of education and occupation

Model		Sum of squares	df	Mean square	f	P
CD	Regression	25.303	4	6.326	3.78	0.006
	Residual	319.330	191	1.672		
	Total	344.633	195			
ADHD	Regression	150.660	4	37.665	1.80	0.130
	Residual	3989.215	191	20.886		
	Total	4139.875	195			
ODD	Regression	14.619	4	3.655	0.61	0.651
	Residual	1130.524	191	5.919		
	Total	1145.143	195			

CD: Conduct disorder; ADHD: Attention deficit hyperactivity disorder; ODD: Oppositional defiant disorder; df: Degree of freedom

The results of this study showed that the prevalence of ADHD, ODD, and CD in the studied children was 7.14%, 13.26%, and 6.12%, respectively. A study showed that the prevalence of ADHD, ODD, and HD disorders in children of substance abusing parents was 21%, 9%, and 1%, respectively.¹ Munoz-Silva et al. showed in a study that the prevalence of ADHD and HD disorders in children with smoking parents was 18.5% and 3.5%, respectively.¹⁶ Some studies also showed that there was a high prevalence of ADHD, ODD, and CD disorders in children of parents with substance abusing.¹⁵⁻²² The majority of children who participated in the present study were boys with a frequency of 105 (53.57%). According to the American Psychiatric Association (APA) research, ADHD is a serious disorder that affects approximately 4%-6% of children.²³ The higher prevalence of behavioral disorders among boys may be because boys are biologically more vulnerable than girls.²⁴ The mortality rate is higher in boys than in girls since the fetal stage, serious diseases, malnutrition, and poverty seem to affect them more seriously.²⁴ Nonetheless, the differences affecting the social development of this group have also an impact on gender differences; for example, there is no doubt that aggression is accepted more easily in boys than girls.²⁵ However, there is evidence that the higher prevalence of behavioral disorders in

boys can be attributed to the fact that boys' deviance is heard more frequently.²⁴ Mothers expect boys to be involved with their troubles within a longer period as compared to girls.³ Teachers and parents are less tolerant of excessive mobility, instability, distraction, hypocrisy, and disintegration among boys. In the meantime, adults may be less tolerant of boys' actions, because it is more difficult to manage the boys from their birth, and the biological characteristics may merge with social upbringings and expectations. Consequently, they can be seen as the temporary growth crisis.³ In the present study, most of the fathers and mothers were self-employed and housewives with a frequency of 115 (58.67%) and 135 (68.80%), respectively. Most fathers and mothers had a diploma and bachelor's degrees with a frequency of 49 (25.0%) and 63 (32.1%), respectively. The analytical results of the present study showed a significant statistical relationship between behavioral disorders (CD) in the children based on their father's job ($P = 0.003$). However, there is no significant relationship between behavioral disorders (ODD, ADHD, CD) in the studied children in terms of parents' jobs and level of education ($P > 0.05$). Al-Ghannami et al. showed a significant relationship between fathers' parents' level of education and occupation with ADHD in children.²⁵ Parvaresh et al.

stated in their study that parents' level of education had a significant effect on the incidence of behavioral disorders (ADD, ADHD), and this relationship was statistically significant.³ They showed that the prevalence of such disorders is higher in children with illiterate fathers than those with fathers holding a bachelor's degree and higher. Father's level of education seems to be effective in the occurrence of behavioral disorders in children, which may be due to a higher level of awareness among fathers having a higher level of education on how to show more appropriate behaviors with children.^{2,3} CD is the most commonly diagnosed disorder in pediatric pathology. The overall prevalence of CD was between 2% and 10%, which varies according to the data collection method. The male-female ratio varies from 3:1 to 5:1 based on the age of the subjects.⁵⁻⁸

Conclusion

The results of other studies and the present study revealed that the children of substance abusing parents should be taken into consideration as a high-risk group. Therefore, efforts should also be made to be familiar with the early and prevalent symptoms of the disease, and conduct timely and necessary interventions.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

This study was supported and sponsored by Kurdistan University of Medical Sciences. The authors would like to appreciate the Research Council of the Kurdistan University of Medical Sciences for the approval of this project, as well as the Kurdistan Counter-Narcotics Headquarters for coordinating the implementation of this study.

This article has been extracted from the dissertation of Dr. Kianoush Najafi and Dr.

Kazhal Mikaeli, entitled "Investigating the behavioral disorders and their related factors in the children of substance abusing parents referred to Sanandaj Addiction Treatment Centers in 2017".

Financials support and sponsorship

This study was supported and sponsorship by the Kurdistan University of Medical Sciences.

References

1. Farokhzadi F, Mohammadi MR, Alipour A, Rostami R, Dehestani M. Substance abuse disorders in the parents of ADHD children, and parents of normal children. *Acta Med Iran*. 2012; 50(5): 319-27.
2. Parvareh N, Mazhari S, Nazari-Noghabi M. Frequency of psychiatric disorders in children of opioid or methamphetamine-dependent patients. *Addict Health*. 2015; 7(3-4): 140-8.
3. Parvareh N, Mazhari S, Mohamadi N, Mohamadi N. Evaluation of the prevalence of drug abuse and smoking in parents of children with attention deficit hyperactivity disorder. *Addict Health*. 2016; 8(1): 41-8.
4. Jennum P, Hastrup LH, Ibsen R, Kjellberg J, Simonsen E. Welfare consequences for people diagnosed with attention deficit hyperactivity disorder (ADHD): A matched nationwide study in Denmark. *Eur Neuropsychopharmacol*. 2020; 37: 29-38.
5. Ruisch IH, Dietrich A, Glennon JC, Buitelaar JK, Hoekstra PJ. Maternal substance use during pregnancy and offspring conduct problems: A meta-analysis. *Neurosci Biobehav Rev*. 2018; 84: 325-36.
6. Singer LT, Min MO, Minnes S, Short E, Lewis B, Lang A, et al. Prenatal and concurrent cocaine, alcohol, marijuana, and tobacco effects on adolescent cognition and attention. *Drug Alcohol Depend*. 2018; 191: 37-44.
7. Willford JA, Singhabahu D, Herat A, Richardson GA. An examination of the association between prenatal cocaine exposure and brain activation measures of arousal and attention in young adults: An fMRI study using the Attention Network Task. *Neurotoxicol Teratol*. 2018; 69: 1-10.
8. Riegler A, Volkl-Kernstock S, Lesch O, Walter H, Skala K. Attention deficit hyperactivity disorder and substance abuse: An investigation in young Austrian males. *J Affect Disord*. 2017; 217: 60-5.
9. Safavi P, Ganji F, Bidad A. Prevalence of attention-deficit hyperactivity disorder in students and needs modification of mental health services in Shahrekord, Iran in 2013.

- J Clin Diagn Res. 2016; 10(4): LC25-LC28.
10. Mohammadi MR, Ahmadi N, Salmanian M, Asadian-Koohestani F, Ghanizadeh A, Alavi A, et al. Psychiatric disorders in Iranian children and adolescents. *Iran J Psychiatry*. 2016; 11(2): 87-98.
 11. Yousefi F, Hoshiari S. Prevalence of conduct disorder and associated factors among the high school students in Sanandaj, 2013. *J Kermanshah Univ Med Sci*. 2015; 19(1): e70720.
 12. Yule AM, Wilens TE, Martelon M, Rosenthal L, Biederman J. Does exposure to parental substance use disorders increase offspring risk for a substance use disorder? A longitudinal follow-up study into young adulthood. *Drug Alcohol Depend*. 2018; 186: 154-8.
 13. Hill SY, Tessner KD, McDermott MD. Psychopathology in offspring from families of alcohol dependent female probands: A prospective study. *J Psychiatr Res*. 2011; 45(3): 285-94.
 14. Kollins SH, McClernon FJ, Fuemmeler BF. Association between smoking and attention-deficit/hyperactivity disorder symptoms in a population-based sample of young adults. *Arch Gen Psychiatry*. 2005; 62(10): 1142-7.
 15. Molina BSG, Gnagy EM, Joseph HM, Pelham WE. Antisocial alcoholism in parents of adolescents and young adults with childhood ADHD. *J Atten Disord*. 2020; 24(9): 1295-304.
 16. Munoz-Silva A, Lago-Urbano R, Sanchez-Garcia M, Carmona-Marquez J. Child/adolescent's ADHD and parenting stress: The mediating role of family impact and conduct problems. *Front Psychol*. 2017; 8: 2252.
 17. Ornoy A, Finkel-Pekarsky V, Peles E, Adelson M, Schreiber S, Ebstein PR. ADHD risk alleles associated with opiate addiction: Study of addicted parents and their children. *Pediatr Res*. 2016; 80(2): 228-36.
 18. Pedersen S, Walther C, Blazetic L, Pelham W, Molina B. The indirect effects of childhood ADHD on alcohol problems in adulthood through unique facets of impulsivity. *Alcohol Clin Exp Res*. 2013; 111(9): 37A.
 19. Vidal SI, Vandeleur C, Rothen S, Gholam-Rezaee M, Castela E, Halfon O, et al. Risk of mental disorders in children of parents with alcohol or heroin dependence: A controlled high-risk study. *Eur Addict Res*. 2012; 18(5): 253-64.
 20. Ghahari SH, Mehryar AH, Birashk B. Comparative study of some mental disorders in children of fatherless, martyred's, veteran's, and normal (7-12 years old) in chalus city. *J Mazandaran Univ Med Sci*. 2003; 13(41): 81-91.
 21. Chronis AM, Lahey BB, Pelham WE, Kipp HL, Baumann BL, Lee SS. Psychopathology and substance abuse in parents of young children with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*. 2003; 42(12): 1424-32.
 22. Kilic BG, Sener S. Family functioning and psychosocial characteristics in children with attention deficit hyperactivity disorder with comorbid oppositional defiant disorder or conduct disorder. *Turk Psikiyatri Derg*. 2005; 16(1): 21-8.
 23. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. Arlington, TX: American Psychiatric Publications; 2013.
 24. Meppelink R, de Bruin EI, Bogels SM. Meditation or medication? Mindfulness training versus medication in the treatment of childhood ADHD: a randomized controlled trial. *BMC Psychiatry*. 2016; 16: 267.
 25. Al-Ghannami SS, Al-Adawi S, Ghebremeskel K, Cramer MT, Hussein IS, Min Y, et al. Attention deficit hyperactivity disorder and parental factors in school children aged nine to ten years in Muscat, Oman. *Oman Med J*. 2018; 33(3): 193-9.