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Original Article

Shadows of Dependence: Temperament and Behavioural Changes among Children of Fathers with Opioid Dependence

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Abstract

Background: Parental opioid dependence has been associated with increased behavioural and emotional difficulties in children, including internalizing and externalizing problems. Despite the high prevalence of opioid use in our region, research on its impact on children of fathers with opioid dependence remains scarce. This study aimed to assess temperament and behavioural problems among children of fathers with opioid dependence.

Methodology: In this observational case-control study, 30 children of fathers with opioid dependence were compared with 30 age and gender matched controls. Information was collected from mothers. Mothers were screened for psychopathology using the General Health Questionnaire (GHQ), and children's behavioural and temperamental characteristics were assessed using the Child Behaviour Checklist (CBCL) and Malhotra's Temperament Schedule (MTS).

Results: No significant differences were observed between groups regarding age and gender. Children of opioid-dependent fathers exhibited significantly higher CBCL scores across internalizing domains (Anxious/Depressed: p=0.021; Withdrawn/Depressed: p=0.043; Somatic Complaints: p=0.004) and externalizing domains (Aggressive: p=0.001; Rule-Breaking: p=0.003). Significant temperament differences were observed, with lower sociability (p<0.001), higher emotionality (p<0.001), and greater distractibility (p=0.001) in these children in comparison to controls, while energy and rhythmicity did not differ significantly.

Conclusion: Based on our findings, early identification and clinical screening are recommended to detect these behavioural and temperamental problems in childhood, as they may otherwise increase the risk of substance use and psychiatric disorders later in life. Family-centered interventions, along with supportive policy measures, can help prevent long-term adverse mental health outcomes in this vulnerable population.

Keywords: Opioid dependence, Parental substance use, Child behaviour, Child Psychopathology, Temperament, Father with opioid dependence

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Introduction

Opioids in various forms have been used in ancient times in many parts of India, especially in the western part. In India, the prevalence of current use of any opioid is 2.06 % and of opioid dependence is 0.26 %. Rajasthan is one of the states with a higher number of opioid use disorders, with 0.18 % opioid dependence.[1] It has been found that children of substance use disorders are at a greater risk of internalizing, externalizing, social, emotional, and mental problems, and they may experience more socioeconomic disadvantages, social isolation, and higher stress levels.[2-5] Children with low temperamental reactive control and lesser resilience may have disruptive behaviour and substance abuse during adolescence.[6] Parental substance abuse and psychopathology have an influence on children's behaviour by disrupting parenting and adverse caregiving environments.[7-8]

Previous research, conducted mainly in the Western world, has shown that children of parents with opioid dependence exhibit significantly higher rates of behavioural difficulties, including withdrawal, delinquent and aggressive behaviours, as well as internalizing and externalizing problems.[2,9] Limited research has also assessed issues in children who were exposed to opioids in utero and found that these children frequently have complaints of aggressive, hyperactive, and oppositional behaviour.[10] They also had an increased risk of behavioural and emotional problems, more attention, and cognitive issues.[11,12] A systematic review revealed that children of parents with opioid use disorders showed greater disorganized attachment, more avoidant, and increased risk of behavioural and emotional problems, poor social skills and academic difficulty. Later in life, this may lead to unemployment, legal issues, and substance abuse in these children.[13] Thus, evidence suggests that children of parents with opioid dependence are at risk of different behavioural and emotional problems. Difficult temperamental characteristics in these children make them more vulnerable to developing behavioural problems in adulthood. The existing literature is predominantly maternal-focused, leaving significant gaps in understanding the behavioural and temperamental problems associated with paternal opioid dependence in their children. With this background and high consumption of opioid use in western Rajasthan, the present study was planned with the aim of assessing temperament and behavioural problems in children of fathers with Opioid dependence.

Material and Method

Study design and Sample

This was an observational case–control study. The study included children aged 6 to 14 years whose biological fathers were attending the De-addiction Clinic of the Psychiatry Department at a tertiary care hospital in western Rajasthan and had a diagnosis of opioid dependence based on DSM-5 criteria.

Participants were selected using purposive, non-random sampling. A total of 60 children were included in the study, 30 children in the case group and 30 in the control group. A formal sample size calculation was not conducted because this was an exploratory/pilot study.

Children were included in the case group if their father had opioid dependence, they were between 6 and 14 years of age, had no known psychiatric disorder, had no parental psychiatric illness other than opioid use, and their mother had a General Health Questionnaire (GHQ) score below 4. The child must also have been living with the affected parent for at least one year prior to the study.

Children were excluded if they had any major medical, neurological, or psychiatric condition, were uncooperative, had intellectual disability (IQ below 70) or a diagnosed neurodevelopmental disorder, or if parental consent was not provided.

The control group consisted of age and sex matched children whose fathers did not have opioid dependence.

The mothers were screened using the General Health Questionnaire (GHQ) [14] for psychopathology. Those mothers who had a GHQ score less than 4 were further interviewed using a socio-demographic data sheet, the Childhood Behaviour Checklist [15], and Malhotra's Temperament Schedule (MTS).[16] The children identified as having behavioural and temperamental problems were further assessed and managed accordingly at the Child Guidance Clinic within the institute.

Tools

1. Semi-structured socio-demographic data sheet: - The sociodemographic, clinical, and pattern of substance use details were recorded as per the specially designed data sheet for the study.

2. General Health Questionnaire (GHQ): - This tool is used to assess psychological well-being. It has 12 questions, and each question is rated on a four-point scale ranging from “less than usual” to “much more than usual.” Total scores can range from 12 (minimum) to 48 (maximum).

3. Childhood Behaviour Checklist (CBCL): - The Child Behaviour Checklist (CBCL) is a parent-rated questionnaire used to evaluate emotional and behavioural difficulties in children and adolescents aged 6 to 18 years. It contains 113 items that cover a wide range of problem areas. These include symptoms related to anxiety and depression, physical complaints linked to emotional distress, difficulties in social interaction, unusual thoughts, problems with attention, rule-breaking behaviour, and aggressive actions. Each item is rated on a three-point scale, where 0 indicates the problem is not present, 1 means it occurs sometimes, and 2 means it occurs often.

4. Malhotra Temperament Schedule (MTS): - This scale measures nine temperamental variables identified by Thomas and Chess.[17] It includes 45 items that assess different aspects of a child’s temperament. Using factor analysis, the original nine temperament traits were grouped into five main factors. The first factor, Sociability, includes approach or withdrawal, adaptability, and sensitivity to stimuli. The second factor, Emotionality, covers mood and persistence. The third factor, Energy, relates to activity level and intensity. The fourth factor, Attentivity, measures distractibility, while the fifth factor, Rhythmicity, remains a separate factor. Each item is rated on a five-point scale, with scores from 1 to 5 showing how often and how strongly a behaviour occurs, in both positive and negative directions. Mean scores for each factor are calculated by dividing the total score by five.

Ethical consideration

The study was approved by the Institutional Ethics Committee of our institute (Approval No: AIIMS/IEC/2019/2006 dated 02/11/2019). Permission to use the CPMS and MTS questionnaires was obtained from their original authors. Indian-adapted standardized versions of all scales are freely available in the public domain. Written consent was taken from the parents of all participating children in a language they could understand, and written assent was obtained from the children. Both parents and children were informed verbally and in writing about the purpose of the study and were told that they could withdraw from the interview at any time without any consequences.

Statistical analysis

Data were entered and analysed using the Statistical Package for the Social Sciences (SPSS Statistics, version 21.0.0). Frequencies and percentages were calculated for categorical variables, while means and standard deviations were determined for continuous variables. Data normality was assessed using the Shapiro–Wilk test. Comparisons between the case and control groups were conducted using independent samples t-tests for continuous variables and Chi-square tests for categorical variables. A p-value < 0.05 was considered statistically significant.

No formal correction for multiple comparisons was applied, as this was an exploratory study and findings are intended not to confirm definitive hypotheses.

Results

Table1: Socio-demographic and clinical profile of study sample

Variables	Cases (n=30)	Controls (n=30)	P value
Age of children (Mean ± SD in years)	13.48±1.2	13.04 ± 1.1	0.16
Male	18 (60%)	18 (60%)	1.0
Female	12 (40%)	12 (40%)	
The education status of the father			
Upto 5th Standard	11 (36.66%)	10 (33.33%)	0.88
6th-10th Standard	16 (53.33%)	15 (50%)	
10th and above	03 (10%)	05 (16.66%)	
Family income (rupees per month)			
5000-15000	25 (83.33%)	22 (73.33%)	0.66
16000-30000	04 (13.33%)	06 (20%)	
>30000	01 (03.33%)	02 (6.66%)	
Duration of Father's Opioid use (years)			
< 10 Years	15 (50%)	-	-
11-20 Years	06 (20%)	-	
>20 Years	09 (30%)	-	

The mean age of children was 13.48 ± 1.2 years in the case group and 13.04 ± 1.1 years in the control group, with no significant difference (p = 0.16). Gender distribution was the same across groups, with 18 males and 12 females in each (p = 1.0). Most fathers in both groups had education up to the 10th grade (53.3% in cases vs. 50% in controls), with no significant difference between groups (p = 0.88). The majority of families reported a monthly income of ₹5,000–15,000 (83.3% in cases vs. 73.3% in controls), also showing no significant difference (p = 0.66). Approximately half of the fathers in the case group had used opioids for less than 10 years.

Table 2: Comparison of Behavioural problems according to CBCL scores between the two groups

Behavioural problems	Mean±SD		t-value	P value
	Cases	Controls		
Internalizing scale				
Anxious/Depressed	58.10±11.88	52.80±3.29	2.35	0.021
Withdrawn/Depressed	64.08 ±9.64	59.90±6.44	2.069	0.043
Somatic complaints	61.82±7.90	56.90±4.34	2.990	0.004
Externalizing scale				
Aggressive	67.88±10.48	59.60±9.14	3.261	0.001
Rule breaking	68.64±12.08	59.44±11.12	3.069	0.003

Significant differences were found between the two groups in all domains of internalizing and externalizing scales of CBCL ($p < 0.05$) indicate that children of fathers with opioid use have more internalizing and externalizing behavioural problems compared to controls. ($p < 0.05$)

Table 3: Comparison of Temperamental problems in children between the two groups

Temperamental Trait	Mean±SD		t-value	P value
	Cases	Controls		
Sociability	28.08±6.58	34.18±5.62	3.861	0.001
Energy	31.94±6.08	33.42±3.29	1.173	0.245
Emotionality	36.44±4.12	31.72±4.71	4.131	0.001
Distractibility	24.60±1.48	22.76±2.68	3.292	0.001
Rhythmicity	14.96±4.62	17.08±4.28	1.844	0.070

Significant differences were found between the two groups on several temperament traits, i.e. Sociability ($p < 0.001$), Emotionality ($p < 0.001$) and Distractibility ($p = 0.001$). Although differences in Energy and Rhythmicity were not statistically significant ($p = 0.245$ and $p = 0.070$, respectively).

Discussion

There is a notable paucity of research evaluating behavioural and temperamental difficulties among children of fathers with opioid dependence. Most existing research has primarily focused on maternal opioid use, including use during the prenatal period, whereas the effects of paternal opioid dependence remain largely unexplored.[13] To the best of our knowledge, no Indian studies have examined the effects of parental opioid use, particularly on their children.

Given the high prevalence of opioid use in western Rajasthan, our study sought to address this gap. Findings revealed that children of fathers who used opioids exhibited significantly elevated CBCL scores across both internalizing domains (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints) and externalizing domains (Aggression, Rule-Breaking) ($p < 0.05$ for all).

Various Meta-analysis and studies suggests that both maternal and paternal substance abuse have been associated with higher parent-rated externalising problems and internalising problems like anxiety and depression in their children in comparison with non-exposed peers.[18-21] According to multiple studies[2,22,23], children whose parents are receiving treatment for substance dependence, including opioids, have higher rates of internalizing and externalizing issues as well as elevated rates of psychopathology in comparison to demographically matched children.

Children of parents with opioid dependence showed much higher scores on the CBCL scale in areas such as aggression, anxiety and depression, delinquent behaviour, thought, and attention problems. These differences were statistically significant. The elevated scores indicate that these children have serious emotional and behavioural problems, along with notable difficulties in their social and psychological functioning.[9] Compared to children of the same age and gender, children whose parents were undergoing treatment for cocaine or opiate dependence had more withdrawn behaviour, thought problems, aggressive behaviour, delinquent behaviour, and internalizing and externalizing issues.[2]

Evidence indicates that parental opioid use is associated with increased behavioural and emotional challenges in children, including delayed development, disorganized attachment, lower social competence, hyperactivity, and disruptive behaviours. [13,24,25] These children often show deficits in IQ and adaptive social functioning.[26]

Children of mothers receiving methadone maintenance treatment exhibited a significant number of internalizing and externalizing Problems.[27] As per one study, 59% of children with opioid-using parents had at least one major psychological disorder, compared to 41% in the alcohol group and 28% in the control group. Children in the opioid group also showed greater emotional and behavioural difficulties and poorer overall functioning than those in the alcohol group.[23]

In our study, children demonstrated significant differences in key temperamental traits, including lower Sociability ($p < 0.001$), higher Emotionality ($p < 0.001$), and greater distractibility ($p < 0.001$), compared to controls. We did not find any research specifically examining temperament traits in children whose parents use opioids. However, one study from India found that children of parents with alcohol use problems were lower on Rhythmicity, had lower Energy, were highly distractible, had pronounced negative Emotionality, and were more likely to withdraw socially compared to controls.[28] Children with parental substance use displayed higher levels of dysregulated irritability and Emotionality, which led to negative urgency, behavioural dysregulation, maladaptive developmental patterns, and substance experimentation in adolescence.[28-30]

Recent systematic reviews indicate that opioid exposure, even in the prenatal period, is linked to poorer cognitive, motor, and socio-emotional outcomes, with increased internalizing, externalizing, and attention problems observed from infancy through childhood. [31-33]

Children of parents with substance use have a higher chance of developing different psychiatric disorders, which include attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder, depression, generalized anxiety, obsessive–compulsive disorder, specific phobias, and separation anxiety disorder.[21,27] A Large Swedish cohort study demonstrated that children exposed to parental substance use disorders during childhood and adolescence had a more than twofold increased risk of developing substance use disorders (SUD) and externalizing psychiatric problems such as conduct disorder and

ADHD.[34] Evidence from recent meta-analyses suggests that children with maternal or paternal substance use exposure are more likely to exhibit internalizing and externalizing behavioural problems, which substantially increases their vulnerability to behavioural and psychiatric disorders.[35,36]

In one study, oppositional defiant disorder was present in 60% of school children whose mothers were dependent on opioids or cocaine.[37] In addition to having more psychopathology, these children struggle more in school, have difficulties with friends and family, and experience a gradual decrease in their overall well-being over time. [20,23,38]

However, a small number of studies have found no statistically significant differences in conduct or oppositional issues between children of parents using drugs and opioids. [39,40]

Parental opioid use negatively impacts parent-child relationships, which may increase the risk of child maltreatment and lead to various problematic behaviours in children.[13] Parental substance abuse and related psychopathology cause disrupted parenting and significantly influence children's behaviour. Fathers with opioid use disorder frequently have coercive or disengaged parenting styles with little positive involvement, which harms children's socioemotional development and results in behavioural dysregulation. [13,23]

Fathers with opioid dependence often face financial problems, relationship issues, and limited social support. These challenges make it harder for them to be consistent and emotionally involved as parents, thus increasing parenting stress, which can prevent them from fulfilling their children's basic physical and emotional needs. [41,42] Such parenting problems directly lead to externalizing problems in early childhood. At later ages, these problems may lead to various negative outcomes such as academic difficulties, rejection by peers, low self-esteem, depression, antisocial attitudes, delinquency, and substance use etc. [13]

Strengths of the study

Our study has several notable strengths. First, its specific focus on impact of paternal opioid dependence on their children addresses a significant gap in the predominantly maternal-focused substance use literature. Second, the inclusion of regional data from western Rajasthan enhances local relevance and global lower-middle-income country (LMIC) perspective. Third, we used well-validated instruments like the Child Behavior Checklist (CBCL), General Health Questionnaire (GHQ), and Malhotra's Temperament Schedule (MTS) which are appropriate for the study population and research objectives. Finally, the findings consistently demonstrate significantly higher levels of internalizing and externalizing problems, as well as adverse temperament traits, among exposed children, supported by appropriate statistical analyses.

Limitations and further research

This study provides relevant insights into both temperament and behavioural outcomes in children, with implications for early identification and targeted interventions. However, our study has a few limitations. Firstly, Purposive, non-random sampling, a small sample size, and a cross-sectional design substantially limit generalizability. Secondly, sample size calculations and power analyses were not conducted. Thirdly, Child behaviour problems were assessed solely through maternal reports, which introduces reporting and perception bias.

We recommend that future longitudinal studies with larger sample sizes and comprehensive multi-informant assessments, including reports from teachers, clinicians, children themselves, and peers, be conducted to enhance understanding of psychological problems and contributing factors in children of fathers with opioid dependence.

Conclusion

Based on our findings, early identification and clinical screening of behavioural and temperamental problems in these children is crucial, as unaddressed difficulties may increase the risk of substance use, emotional disturbances, and psychiatric disorders later in life. Timely interventions can reduce developmental and social risks, while family-centered psychosocial interventions can strengthen parental support and coping skills, creating a healthier environment for the child's overall development. Additionally, implementing supportive policy measures, including routine screening in clinical and school settings, access to mental health services, and community-based prevention programs, can reduce long-term adverse mental health outcomes in this vulnerable population.

References

1. Ambekar A, Agrawal A, Rao R, Mishra AK, Khandelwal SK, Chadda RK, et al. Magnitude of substance use in India. New Delhi: Ministry of Social Justice and Empowerment, Government of India; 2019. Available from: www.socialjustice.nic.in. Last updated 2019 Aug 2.
2. Stanger C, Higgins ST, Bickel WK, et al. Behavioural and emotional problems among children of cocaine- and opiate-dependent parents. J Am Acad Child Adolesc Psychiatry. 1999;38(4):421–8.
3. Kumpfer KL, Demarsh J. Family environmental and genetic influences on children's future chemical dependency. J Child Contemp Soc. 1986;49:91.
4. Hussong AM, Cai L, Curran PJ, Flora DB, Chassin LA, Zucker RA. Disaggregating the distal, proximal, and time-varying effects of parent alcoholism on children's internalizing symptoms. J Abnorm Child Psychol. 2008;36:335–46.
5. Puttler LI, Zucker RA, Fitzgerald HE, Bingham CR. Behavioural outcomes among children of alcoholics during the early and middle childhood years: familial subtype variations. Alcohol Clin Exp Res. 1998;22:1962–72.
6. Mun EY, Fitzgerald HE, Von Eye A, Puttler LI, Zucker RA. Temperamental characteristics as predictors of externalizing and internalizing child behaviour problems in the contexts of high and low parental psychopathology. Infant Ment Health J. 2001;22:393–415.
7. Luthar SS, Cushing G, Merikangas KR, Rounsaville BJ. Multiple jeopardy: risk and protective factors among addicted mothers' offspring. Dev Psychopathol. 1998;10(1):117–36.
8. Patterson GR, Reid JB, Dishion TJ. Antisocial boys. Vol. 4. Eugene, OR: Castalia; 1992.
9. Wilens TE, Biederman J, Kiely K, Bredin E, Spencer TJ. Pilot study of behavioural and emotional disturbances in the high-risk children of parents with opioid dependence. J Am Acad Child Adolesc Psychiatry. 1999;34(6):779–85.
10. Clarke C, Fitzpatrick C. Psychiatric problems of children exposed to opiates in utero – a descriptive study. Ir J Psych Med. 2005;22(4):121–3.
11. Behnke M, Smith VC; Committee on Substance Abuse and Committee on Fetus and Newborn. Prenatal substance abuse: short- and long-term effects on the exposed fetus. Pediatrics. 2013;131(3):1009–24.
12. Lester BM, Lagasse LL. Children of addicted women. J Addict Dis. 2010;29(2):259–76.
13. Romanowicz M, Vande Voort JL, Shekunov J, Oesterle TS, Thusius NJ, Rummans TA, et al. The effects of parental opioid use on the parent–child relationship and children's developmental and behavioural outcomes: a systematic review of published reports. Child Adolesc Psychiatry Ment Health. 2019;13:5.

14. Goldberg D, Williams P. A user's guide to the General Health Questionnaire. NFER-Nelson; 1988.

15. Malhotra S, Varma VK, Verma SK, Malhotra A. Childhood psychopathology measurement schedule: development and standardization. Indian J Psychiatry. 1988;30(4):325–31.

16. Malhotra S, Malhotra A. Manual of Malhotra's Temperament Schedule. Agra: National Psychological Corporation; 1988.

17. Thomas A, Chess S. Temperament and development. New York: Brunner/Mazel; 1977.

18. Lee SJ, Bora S, Austin NC, Westerman A, Henderson JMT. Neurodevelopmental outcomes of children born to opioid-dependent mothers: a systematic review and meta-analysis. Acad Pediatr. 2020;20(3):308–18.

19. McGovern R, Bogowicz P, Meader N, Kaner E, Alderson H, Craig D, et al. The association between maternal and paternal substance use and child substance use, internalizing and externalizing problems: a systematic review and meta-analysis. Addiction. 2023;118(5):804–18.

20. Adams ET, Williams J, Palen LA, Wondimagegnehu F, Elek E, Cance JD. Parental opioid misuse and adolescent-reported positive parenting behaviours: an analysis of parent-child dyads from the National Survey on Drug Use and Health. J Adolesc Health. 2025;77(4):636–42.

21. Sarkar S, Patra BN, Kattimani S. Substance use disorder and the family: an Indian perspective. Med J DY Patil Univ. 2016;9(1):7–14.

22. Nunes EV, Weissman MM, Goldstein RB, McAvay G, Seracini AM, Verdeli H, et al. Psychopathology in children of parents with opiate dependence and/or major depression. J Am Acad Child Adolesc Psychiatry. 1998;37(11):1111–9.

23. Wilens TE, Yule A, Martelon M, Zulauf C, Faraone SV. A family study of the high-risk children of opioid and alcohol-dependent parents. Am J Addict. 2002;11(1):41–51.

24. Essau CA, de la Torre-Luque A. Parent's psychopathological profiles and adolescent offspring's substance use disorders. Addict Behav. 2021;112:106611.

25. Cioffi CC, DeGarmo DS. Improving parenting practices among fathers who misuse opioids: Fathering Through Change Intervention. Front Psychol. 2021;12:683008.

26. Bauman PS, Dougherty FE. Drug-addicted mothers' parenting and their children's development. Int J Addict. 1983;18:291–302.

27. Borelli JL, Luthar SS, Suchman NE. Discrepancies in perceptions of maternal aggression: implications for children of methadone-maintained mothers. Am J Orthopsychiatry. 2010;80(3):412–21.

28. Ravindran OS, Hima K, Natarajan S, Sathianathan R. Behavioural problems and temperamental characteristics among children in alcoholic families. J Ment Health Hum Behav. 2018;23(1):52–6.

29. Waddell JT, Sternberg A, Eisenberg N, Chassin L. Longitudinal relations among parental substance use disorder and adolescent drinking behaviour: the role of temperament, negative urgency, and maternal parenting. J Youth Adolesc. 2024;53(4):833–48.

30. Klein RJ, Gyorda JA, Lekkas D, Jacobson NC. Dysregulated emotion and trying substances in childhood: insights from a large nationally representative cohort study. Subst Use Misuse. 2023;58(13):1625–33.

31. Lee SJ, Pritchard VE, Austin NC, Henderson JMT, Woodward LJ. Neurodevelopmental outcomes of children born to opioid-dependent mothers: a systematic review and meta-analysis. Acad Pediatr. 2020;20(3):308-18.

32. Jaekel J, Kim HM, Lee SJ, Schwartz A, Henderson JMT, Woodward LJ. Emotional and behavioral trajectories of 2 to 9-year-old children born to opioid-dependent mothers. Res Child Adolesc Psychopathol. 2021;49(4):443-457.
33. Balalian AA, Graeve R, Richter M, Fink A, Kielstein H, Martins SS, Philbin MM, Factor-Litvak P. Prenatal exposure to opioids and neurodevelopment in infancy and childhood: a systematic review. Front Pediatr. 2023;11:1071889.
34. Manhica H, Lundin A, Wennberg P, Danielsson AK. Parental substance use disorders and psychiatric conditions in offspring: a Swedish population-based cohort study with over 1,000,000 individuals. J Psychiatr Res. 2024;179:156–162.
35. Anderson AS, Siciliano RE, Pillai A, Jiang W, Compas BE. Parental drug use disorders and youth psychopathology: Meta-analytic review. Drug Alcohol Depend. 2023;244:109793.
36. McGovern R, Bogowicz P, Meader N, Kaner E, Alderson H, Craig D, et al. The association between maternal and paternal substance use and child substance use, internalizing and externalizing problems: a systematic review and meta-analysis. Addiction. 2023;118(5):804–818.
37. Weissman MM, McAvay G, Goldstein RB, Nunes EV, Verdeli H, Wickramaratne PJ. Risk/protective factors among addicted mothers' offspring: a replication study. Am J Drug Alcohol Abuse. 1999;25(4):661–79.
38. Parvaresh N, Mazhari Sh, Nazari-Noghabi M. Frequency of psychiatric disorders in children of opioid or methamphetamine-dependent patients. Addict Health. 2015;7(3–4):140–8.
39. Eslami Shahrbabaki M, Ziaaddini H, Saieedi H, Nakhaiee N. Disruptive behaviour disorders in 8 to 14 years old offspring of opium- and heroin-dependent parents: a case-control study. Addict Health. 2009;1(2):81–5.
40. Ziaaddini H, Amirkafi A, Nakhaie N. Prevalence of conduct disorder in students of primary schools in the city of Kerman in educational year 2003–4. Hormozgan Med J. 2007;11(2):221–8.
41. Smith JC, Alderman L, Attell BK, Avila Rodriguez W, Covington J, Manteuffel B, et al. Dynamics of parental opioid use and children's health and well-being: an integrative systems mapping approach. Front Psychol. 2021;12:687641.
42. Suchman NE, Luthar SS. The mediating role of parenting stress in methadone-maintained mothers' parenting. Parent Sci Pract. 2001;1:285–316.