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Parental Perceptions and Usage of Unlicensed Cannabidiol Products in Children With Anxiety and Neurodevelopmental Disorders

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OBJECTIVE Data evaluating the use of unlicensed cannabidiol (CBD) products for the treatment of symptoms associated with anxiety and neurodevelopmental disorders in children are limited despite increasing product availability. The objectives of this study are to quantify the usage of unlicensed CBD products among pediatric patients diagnosed with anxiety and neurodevelopmental disorders and compare the perceptions of CBD between parents who administer a CBD product to a child and parents who do not.

METHODS A survey containing 31 items was designed after pretesting with pediatric health care professionals. The refined survey was distributed using Qualtrics Panels to a representative sample of US parents of a child 7 to 18 years of age diagnosed with attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and/or generalized anxiety disorder (GAD). Responses were analyzed with descriptive statistics and compared using a χ^2 or Mann-Whitney *U* test.

RESULTS Of the 518 completed surveys, 162 parents (31.3%) reported the administration of an unlicensed CBD product to a child with ADHD, ASD, and/or GAD. The highest prevalence of use was found in the West geographic region and among children diagnosed with GAD or with 2 or more diagnoses (i.e., ADHD, ASD, GAD). Parents who administered CBD products had more positive views of product safety and higher perceived community support for usage.

CONCLUSIONS Nearly one-third of parents have administered an unlicensed CBD product to a child with ADHD, ASD, and GAD. Health care providers should assess pediatric patients for CBD use and be prepared to engage parents in conversations regarding the safety of these products.

ABBREVIATIONS ADHD, attention-deficit/hyperactivity disorder; ASD, autism spectrum disorder; CAM, complementary and alternative medicine; CBD, cannabidiol; DEA, Drug Enforcement Agency; FDA, US Food and Drug Administration; GAD, generalized anxiety disorder; THC, tetrahydrocannabinol

KEYWORDS ADHD; anxiety; autism spectrum disorder; cannabidiol; cannabinoid; neurodevelopmental disorder; pediatrics

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Introduction

With the passage of the Federal Agriculture Improvement Act of 2018, which lightened restrictions on the availability of products derived from the *Cannabis sativa* plant in the United States,[1] there has been an ever-increasing interest in using plant-derived cannabinoids for a variety of indications. Among these compounds, cannabidiol (CBD) has garnered much of this interest among the public. Currently, the only US Food and Drug Administration (FDA)-approved CBD formulation available is Epidiolex, which is indicated for the treatment of seizures in pediatric and adult patients diagnosed with Lennox-Gastaut syndrome, Dravet syndrome, and tuberous sclerosis complex.[1] However, there is a strong interest in the use of CBD for other diagnoses in children,[2] including anxiety and neurodevelopmental disorders.[3]

Blogs, social media posts, and popular press articles sharing the subjective benefits of CBD use in children are ubiquitous, yet there is limited evidence available regarding safety and efficacy of products.[3] Based on these sources, there is significant interest in CBD as a treatment for anxiety and neurodevelopmental disorders including attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and generalized anxiety disorder (GAD). Data on the safety and efficacy of CBD in children and its use in the aforementioned disorders are limited.[4–6] One recent systematic review found that cannabis products positively affected the number and severity of ASD symptoms.[7] Available

research indicates that there could be beneficial effects of CBD in adolescents with ASD and anxiety disorders; however, this research is limited by small sample sizes, significant differences in dosing strategies, variable methodological approaches, and conflicting data.[4,5,8]

Given the rising interest in CBD products, the growing commercial market of these products, estimated at $56.2 billion by 2028,[9] and limited evidence in children, it is important for health care professionals to understand parental perceptions of the safety and efficacy of unlicensed CBD products in children. Further, given limited information on the prevalence of CBD use, particularly in childhood anxiety and neurodevelopmental disorders such as ADHD, GAD, and ASD, it is important for health care professionals to have a proper awareness of the prevalence of use to guide patient conversations. Thus, the objectives of this study were to determine the frequency of use of CBD products in pediatric patients diagnosed with ADHD, ASD, and/or GAD and the differences in parental perceptions of CBD use in children diagnosed with neurodevelopmental disorders of ADHD, ASD, and GAD.

Materials and Methods

This study used a prospective, cross-sectional survey design. The study received Institutional Review Board approval from Cedarville University. The survey was developed from a review of the literature with keywords related to "cannabidiol," "perceptions," "pediatrics," and the 3 selected disorders (i.e., ADHD, ASD, and GAD). These diagnoses were selected by the research team based on the frequency of mentions from online sources. Based on the health belief model, identified literature, and expertise of the research team including a pediatric clinical pharmacist and a social and administrative sciences expert, the research team created a list of questions that were iterated until consensus was achieved to address the research objectives.

The survey was created in Qualtrics and pretested by 3 pediatric health care professionals (i.e., psychiatrist, pharmacist) and 2 parents of children with neurodevelopmental disorders to evaluate content, clarity, cohesion, and completeness of each survey item. Changes to the survey items were incorporated based on this feedback prior to finalization of the survey. The final survey consisted of 14 demographic items with exclusion criteria built into the survey, 7 questions related to perceptions of CBD use (5-point Likert-type), and 10 items related to CBD use.

Parents were recruited for the survey using Qualtrics panels, which are designed to enhance the representativeness of the study cohort in reference to the general population. Included participants were parents who were 18 years of age and older, had children 7 to 18 years of age, and served as the primary caretaker of the child >50% of the time. Health care professionals and those caring for foster children were excluded. The survey was made available until ≥500 completed surveys were received.

All participants completed the demographic items and questions related to perceptions of CBD. For questions regarding CBD use, participants were able to complete the section for each child they administered a CBD product to. If a parent did not report administration of CBD to at least 1 child with ADHD, ASD, and/or GAD, he or she did not complete the final 10 items related to CBD usage patterns.

Data Analysis

The final data set was analyzed using IBM SPSS version 28.0 (Armonk, NY). After descriptive statistics were analyzed, χ^2 and Mann-Whitney *U* tests, as appropriate, were used to compare group responses to survey items. Participants indicated their state of residence as part of the demographic items. For analysis, the states were stratified into 4 regions: South, Northeast, Midwest, and West based on the US Census Bureau regions.[10]

Results

A total of 518 completed survey responses were received and analyzed. Overall, 162 of 518 parents (31.3%) reported the administration of an unlicensed CBD product to a child with ADHD, ASD, and/or GAD. There were no significant demographic differences between parents who administered CBD and those who did not, including race, parental role, parental education, presence of a mental health disorder in the parent, parental age, and parental religious affiliation (Table 1). The mean age of the child to whom CBD products were administered was 11.9 ± 3.79 years (IQR, 8–15).

Significant differences were found in the prevalence of unlicensed CBD product administration in children based on diagnosis (Table 2). Parents were more likely to administer one of these products if the child was diagnosed with GAD only (36.1%) compared with ADHD only (25.2%) and ASD only (27.7%). Parents were also more likely to administer a CBD product if the child was diagnosed with more than 1 of the 3 diagnoses studied (38.4% for children with 2 of the diagnoses, 41.4% for children with all 3 diagnoses). Significant differences in the prevalence of unlicensed CBD product use in children with ADHD, ASD, and GAD were also observed among geographic regions (Table 2). The highest prevalence of use was observed in Western States, while the lowest was found in the Northeast (43.4% versus 18.6%, respectively, $p < 0.050$).

The most common unlicensed CBD products administered by parents were chewable gummies (n = 56), oils (n = 19), drops (n = 7), tinctures (n = 6), lotions or creams (n = 4), and lollipops or edibles (n = 3). Parents reported obtaining these products most often from CBD storefronts (n = 46), followed by health care stores (n = 36), online retailers (n = 35), marijuana dispensaries

Table 1. Parental Demographic Information Based on Administration of Unlicensed CBD Products to a Child*

Characteristic	Overall, n (%), N = 518	Uses CBD, n (%), n = 162	Does Not Use CBD, n (%), n = 356
Race			
White	426 (82.6)	130 (81.3)	296 (83.1)
Black or African American	51 (9.9)	18 (11.3)	33 (9.3)
Other races	41 (7.9)	27 (7.6)	14 (8.6)
Hispanic or Latino origin	59 (11.4)	19 (11.7)	40 (11.3)
Parental role			
Mother	404 (78.1)	128 (79.5)	276 (77.5)
Father	85 (16.4)	29 (18)	56 (15.7)
Legal guardian	20 (3.9)	4 (2.5)	16 (4.5)
Educational attainment			
Some high school	30 (5.8)	9 (5.6)	21 (5.9)
High school or GED	153 (29.5)	53 (32.7)	100 (28.1)
Some college	186 (35.9)	50 (30.9)	136 (38.2)
Bachelor's degree	99 (19.1)	34 (21.0)	65 (18.3)
Master's degree	30 (5.8)	11 (6.8)	19 (5.3)
Professional or doctorate degree	15 (2.9)	4 (2.5)	11 (3.1)
Personal diagnosis of mental health disorder			
Yes	327 (63.5)	101 (62.7)	226 (63.8)
No	161 (31.3)	53 (32.9)	108 (30.5)
Maybe	22 (4.3)	5 (3.1)	17 (4.8)
Religious affiliation			
Protestant	171 (33.3)	54 (33.8)	117 (33.1)
Nothing in particular	96 (18.7)	31 (19.4)	65 (18.4)
Catholic	78 (15.2)	23 (14.4)	55 (15.5)
Spiritual but not religious	76 (14.8)	22 (13.8)	54 (15.3)
Agnostic	21 (4.1)	8 (5.0)	13 (3.7)
Atheist	14 (2.7)	4 (2.5)	10 (2.9)
Other	40 (11.3)	18 (11.3)	58 (11.3)
Parental age, median (IQR)	37 (26–48)	37 (26.7–47.3)	37 (26–48)

CBD, cannabidiol; GED, Test of General Education Development

* Unless specified, there are no significant differences between groups.

(n = 32), pharmacies (n = 22), and vape shops (n = 15). Other sources of CBD products reported less frequently included family and friends, health care providers, convenience stores, and home production of CBD products.

Table 2. Prevalence of Unlicensed CBD Product Administration to Children With ADHD, ASD, and GAD by Diagnosis and Geographic Region

Diagnosis	Uses CBD, n (%)	Does Not Use CBD, n (%)
ADHD, GAD, ASD*		
ADHD only (n = 242)	61 (25.2)	181 (74.8)
GAD only (n = 61)	22 (36.1)	39 (63.9)
ASD only (n = 47)	13 (27.7)	34 (72.3)
At least 2 of the diagnoses (n = 138)	53 (38.4)	85 (61.6)
All 3 diagnoses (n = 29)	12 (41.4)	17 (58.6)
Other diagnoses†		
OCD (n = 71)	36 (50.7)	35 (49.3)
Conduct disorder (n = 24)	11 (45.8)	13 (54.2)
MDD (n = 73)	32 (43.8)	41 (56.2)
Geographic region*		
South (n = 211)	65 (30.8)	146 (69.2)
Northeast (n = 70)	13 (18.6)	57 (81.4)
Midwest (n = 124)	36 (29.0)	88 (71.0)
West (n = 83)	36 (43.4)	47 (56.6)

ADHD, attention-deficit/hyperactivity disorder; ASD, autism spectrum disorder; CBD, cannabidiol; GAD, generalized anxiety disorder; MDD, major depressive disorder; OCD, obsessive-compulsive disorder

* $p < 0.050$.
† No statistical analysis performed.

Parental perceptions of unlicensed CBD products varied significantly between parents who administered a CBD product to a child and parent who have not. Parents who administered CBD products had more positive perceptions of product safety and risks, the amount of research and evidence available, and regulation of products. There were no significant differences between the groups regarding perceptions of the quality of CBD products, except for packaging, with a higher importance on packaging identified among parents who administered CBD. Parents who used CBD products for their children also felt they had greater community support for this practice (Table 3).

Discussion

The administration of unlicensed CBD products to children with ADHD, ASD, and GAD in the United States is common (nearly one-third of parents) based on these results. The prevalence of unlicensed CBD product use in children reported in this study was similar to other literature focusing on the use of other complementary and alternative medicine (CAM) treatments in children, with 20% to 40% of the pediatric population reportedly being treated with some type of CAM.[11] Higher rates of CAM use also have been reported in patients with developmental disabilities such as ASD and those with co-occurring medical conditions.[12]

Table 3. Differences in Parental Perceptions of Unlicensed CBD Products Based on CBD Administration to a Child

Survey Item	Uses CBD, median (IQR), n = 162	Does Not Use CBD, median (IQR), n = 356
Agreement: 1 = *definitely yes*, 5 = *definitely not*		
Do you think it is safe to use CBD products in children?*	1 (1–2)	2 (2–3)
Are there risks associated with using CBD products in children*	3 (2–4)	3 (2–3)
Do you believe there is enough research and evidence to help you decide what CBD products you should use for your child?*	2 (1–2)	3 (2–4)
Do you think the CBD products available to you are well regulated by governing bodies?*	2 (1–3)	3 (2–4)
Which of the following options are most important for helping you determine a "good" quality CBD product: 1 = *not at all important*, 5 = *extremely important*		
The product is made by a well-known manufacturer/brand	4 (3–5)	4 (3–5)
The product has been approved for US marketing	5 (3–5)	5 (4–5)
Packaging†	3 (2–4)	3 (2–4)
Price	4 (3–5)	4 (3–5)
Recommendation	4 (3–5)	4 (3–5)
Dosage form (e.g., tablet, capsule, gummy, oil, vape, pen)	5 (4–5)	4 (3–5)
Rate your perceived level of support by the following people in your life for using CBD products in children in your community: 1 = *fully oppose*, 5 = *fully support*		
Family*	5 (3–5)	3 (2–5)
Friends*	5 (4–5)	4 (3–5)
Local community*	4 (3–5)	3 (2–4)
Religious leaders*	3 (2–4)	3 (1–3)

CBD, cannabidiol

* $p < 0.001$.

† $p = 0.024$, viewed as more important by the CBD use group upon statistical analysis despite similar median and IQR.

One contributing factor to usage patterns of CBD may be the regulatory landscape, which differs significantly among states. Even before the passage of the Federal Agriculture Improvement Act of 2018, which declassified hemp-derived CBD products containing <0.3% tetrahydrocannabinol (THC) from the Drug Enforcement Agency (DEA) Schedule I, many states had deregulated the use of CBD and other products derived from both marijuana and hemp sources. Additionally, Epidiolex, the FDA-approved CBD product indicated for the treatment of select epilepsy syndromes, was approved in 2018. While the FDA-approved CBD product is no longer considered a controlled substance by the DEA, some unlicensed CBD products fall under the purview of the DEA based on either the THC content or the CBD source. At this time, most states have fully legalized the use of unlicensed CBD products, while others have varying degrees of restriction regarding how products can be obtained. Among Western states, where the use of unlicensed products in children was most prevalent in this study, 12 of 14 states have fully legalized the use of CBD.[13] In contrast, only 7 of 16 Southern states have fully legalized its use.[13] These differences in state regulation and the subsequent social acceptance of the populace may influence on the usage patterns and perceptions of unlicensed CBD in various geographic regions. It is important to note that from a federal perspective, CBD cannot legally be used as a food additive since it is approved as an active pharmaceutical ingredient in a prescription drug product.

Of particular concern in this study are the types and sources of unlicensed CBD products administered to children. The lack of quality assurance of these products has been well-documented. In 1 study of 84 products, only 30.95% of CBD products tested matched the labeled strength with oils being the most common form to match the labeled strength.[14] THC was detected in 21.43% of the samples analyzed.[14] Another study found that only 54% of 80 hemp-derived CBD products matched the labeled strength.[15] Additional processing into food products such as beverages or chewable gummies further reduces the accuracy of CBD content compared with the labeled strength.[16] In our study, parents who reported administering an unlicensed CBD product to a child rarely used oil formulations even though these dosage forms are more likely to contain accurate amounts of the active ingredient in relation to the labeled strength compared with other forms. Additionally, parents often obtained CBD products from sources that lack quality assurance mechanisms. The stability of these CBD products is also questionable and may vary over time.

Unlicensed CBD products are not benign despite parental perceptions of safety as a natural product.

The annual number of cases managed by poison control centers in the United States involving CBD has skyrocketed from zero in 2014 to nearly 3500 in 2021.[17] This increase has been observed in all ages, including children. Based on clinical trials of the FDA-approved CBD product, common adverse effects include somnolence, decreased appetite, nausea, insomnia, irritability, agitation, weight loss, and diarrhea specifically for the oil-based formulation.[18] Other more serious adverse reactions include a risk for hepatocellular injury, hypersensitivity reactions, and withdrawal upon discontinuation, which may lead to increased seizures in patients with comorbid epilepsy.[18] Depending on the dosage form and dose administered to a child, unlicensed CBD products would likely be associated with many of these same effects. Additionally, the long-term effects of exposure to CBD and other cannabinoids on brain development in children of varying ages are not well-known.

Parents who administered unlicensed CBD products reported greater community support from family, friends, the local community, and religious leaders. Given the potentially effective role of the community in the decision to use CBD products, our results are not surprising. For example, some literature has suggested that parents often follow advice from other parents who have children with similar conditions in making decisions about the use of CBD in a variety of neurological conditions.[19] Further, research has indicated that parents may feel that health care resources are insufficient and instead seek support from other families and social media.[20] These findings underscore the importance of parent-provider relationships and open dialogue for information-sharing, eliciting concerns, and informed decision-making.

Strengths of this study include a nationwide representative sample with demographic parameters that mirror the population of the United States in all regions. This representative sample was accomplished using a panel system. The sample size also was large enough to explore not only the rates of use, but to compare rates of use by different demographic characteristics. The results of this study are limited by parental report of anxiety and neurodevelopmental disorder diagnoses. The accuracy of diagnoses and use of specific CBD products were not verified against medical records or actual products in the home. Further, depending on the recency of CBD product administration or diagnosis of the studied conditions, the findings could be subject to recall bias. Lastly, more mothers responded than fathers or other caregivers. While this could be accurate in terms of caregiver involvement in child health, there is limited literature exploring the role of fathers in neurodisability care.[21] It may be important for future research to further explore the perceptions of fathers and other caregivers regarding CBD use.

Conclusions

Despite the lack of clinical data, the administration of unlicensed CBD products to children for the treatment of symptoms associated with ADHD, ASD, and GAD in children is common in the United States. Rates of usage varied by geographic region, with a higher proportion of parents from western states using CBD compared with other regions of the United States. Use of CBD also varied by diagnosis, with administration being more common in children and adolescents with GAD and those with multiple diagnoses. Significant differences in the perceptions of the efficacy, safety, and regulation of unlicensed CBD products were observed between parents who administered CBD to their children and those who did not.

Considering data from this study, health care providers must be prepared to engage with patients regarding CBD use in children. For example, health care providers caring for children diagnosed with anxiety or neurodevelopmental disorders should be asking specific questions regarding the use of unlicensed CBD products in this population. Providers also should be well-versed in the risks, potential benefits, drug interactions, and legal constraints related to CBD use in this population. A useful approach for providers could be to use the "ARMED" approach: Ask parents about different therapies they are using, giving examples to facilitate the conversation; Respect parents' perspectives, values, and beliefs; Monitor the child's response to treatment using measurable outcomes; Educate yourself (and the family) on CBD products; and Distribute evidence-based information.[22,23] As part of self-education, health care providers should also be familiar with resources published by the FDA on the use of CBD-containing products. Using evidence, building relationships with families, and engaging in dialogue will aid in improved patient outcomes given current evidence.[23]

Additional research is needed to explore the usage patterns of CBD products in children and factors associated with use. Further study is also necessary to elucidate the benefits and risks of CBD in the treatment of anxiety, neurodevelopmental disorders, and other conditions in pediatric populations.

Article Information

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take responsibility for the integrity of the data and the accuracy of the data analysis.

Ethical Approval and Informed Consent. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national guidelines on human experimentation and have been approved by the appropriate committees at Cedarville University. All respondents provided informed consent prior to completing the survey.

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References

1. US Food and Drug Administration. FDA regulation of cannabis and cannabis-derived products, including cannabidiol (CBD). Accessed November 7, 2022. https://www.fda.gov/news-events/public-health-focus/fda-regulation-cannabis-and-cannabis-derived-products-including-cannabidiol-cbd#childeats
2. US Food and Drug Administration. FDA and cannabis: research and drug approval process. Accessed November 7, 2022. https://www.fda.gov/news-events/public-health-focus/fda-and-cannabis-research-and-drug-approval-process#main-content
3. Singer L, Tokish H, Park F, Campisi C, Milanaik RL. The cannabidiol conundrum: potential benefits and risks of cannabidiol products for children. *Curr Opin Pediatr.* 2020;32(1):198–205.
4. Barchel D, Stolar O, De-Haan T, et al. Oral cannabidiol use in children with autism spectrum disorder to treat related symptoms and co-morbidities. *Front Pharmacol.* 2018;9:1521.
5. Pedrazzi JFC, Ferreira FR, Silva-Amaral D, et al. Cannabidiol for the treatment of autism spectrum disorder: hope or hype? *Psychopharmacology.* 2022;239(9):2713–2734.
6. Cooper RE, Williams E, Seegobin S, Tye C, Kuntsi J, Asherson P. Cannabinoids in attention-deficit/hyperactivity disorder: a randomised-controlled trial. *Eur Neuropsychopharmacol.* 2017;27(8):795–808.
7. Silva Junior EAd, Medeiros WMB, Torro N, et al. Cannabis and cannabinoid use in autism spectrum disorder: a systematic review. *Trends Psychiatry Psychother.* 2022;44:e20200149.
8. Berger M, Li E, Rice S, et al. Cannabidiol for treatment-resistant anxiety disorders in young people: an open-label trial. *J Clin Psychiatry.* 2022;83(5):21m14130.
9. Global Market Insights. Cannabidiol market size. Accessed December 14, 2022. https://www.gminsights.com/industry-analysis/cannabidiol-cbd-market
10. US Census Bureau. Geographic levels. Accessed June 5, 2023. https://www.census.gov/programs-surveys/economic-census/guidance-geographies/levels.html
11. Kemper KJ, Vohra S, Walls R; American Academy of Pediatrics. The use of complementary and alternative medicine in pediatrics. *Pediatr.* 2008;122(6):1374–1386.
12. Zisman CR, Patti MA, Kalb LG, et al. Complementary and alternative medicine use in children with a developmental disability and co-occurring medical conditions. *Complement Ther Med.* 2020;53:102527.
13. World Population Review. CBD legal states in 2022. Accessed December 14, 2022. https://worldpopulationreview.com/state-rankings/cbd-legal-states
14. Bonn-Miller MO, Loflin MJE, Thomas BF, Marcu JP, Hyke T, Vandrey R. Labeling accuracy of cannabidiol extracts sold online. *JAMA.* 2017;318(17):1708–1709.
15. Johnson E, Kilgore M, Babalonis S. Label accuracy of unregulated cannabidiol (CBD) products: measured concentration vs. label claim. *J Cannabis Res.* 2022;4(1):28.
16. Leafreport. CBD market report: over half of CBD products are mislabeled. Accessed December 14, 2022. https://www.leafreport.com/education/cbd-market-report-over-half-of-cbd-products-are-mislabeled-15084
17. America's Poison Control Centers. Cannabidiol (CBD). Accessed December 14, 2022. https://aapcc.org/CBD-Alert
18. US Food and Drug Administration. What you need to know (and what we're working to find out) about products containing cannabis or cannabis-derived compounds, including CBD. Accessed December 14, 2022. https://www.fda.gov/consumers/consumer-updates/what-you-need-know-and-what-were-working-find-out-about-products-containing-cannabis-or-cannabis
19. Sobo EJ. Parent use of cannabis for intractable pediatric epilepsy: everyday empiricism and the boundaries of scientific medicine. *Soc Sci Med.* 2017;190:190–198.
20. Gibbard M, Mount D, Rassekh SR, Siden H. Family attitudes about and experiences with medical cannabis in children with cancer or epilepsy: an exploratory qualitative study. *CMAJ Open.* 2021;9(2):E563–E569.
21. Bogossian A, King G, Lach LM, et al. (Unpacking) father involvement in the context of childhood neurodisability research: a scoping review. *Disabil Rehabil.* 2019;41(1):110–124.
22. McClafferty H, Vohra S, Bailey M, et al. Pediatric integrative medicine. *Pediatrics.* 2017;140(3):e20171961.
23. Salgado CA, Castellanos D. Autism spectrum disorder and cannabidiol: Have we seen this movie before? *Global Pediatr Health.* 2018;5:2333794X18815412.