Published in final edited form as:

J Soc Work Pract Addict. 2019 ; 19(3): 262–283. doi:10.1080/1533256X.2019.1640019.

Types of Substance Use and Punitive Parenting: A Preliminary Exploration

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Abstract

Very little is known about how type of substance use is comparatively related to a range of parenting behaviors. We conduct a preliminary examination to ascertain effects of substance type on physical abuse compared with other child discipline tactics with data from a telephone survey in 2009 of 3,023 parents in 50 cities in California. Kruskal-Wallis tests and hierarchical generalized linear models are conducted to determine the relationship between substance type and frequency of nonviolent discipline, corporal punishment, and child physical abuse. Type of drug used is differentially related to use of discipline strategies in multivariate models. Nonviolent discipline and corporal punishment show a dose-response relationship when a parent who reported using more substances also reported using both types of discipline more frequently. We suggest that addiction professionals should consider partnering with a specialist in child development or child welfare to conduct in-depth assessments of parenting strategies among the highest-risk groups, such as those with past-year alcohol use or a history of polysubstance use or methamphetamine use.

Keywords

Alcohol and other drug use; substance type; physical abuse; corporal punishment; nonviolent discipline

Approximately 12% of children in the United States live with at least one parent who meets criteria for alcohol and/or other drug use disorders (Substance Abuse and Mental Health Services Administration, 2014), with more children likely residing with at least one parent engaging in high-risk alcohol and/or other drug use (Manning, Best, Faulkner, & Titherington, 2009). This proportion of children exposed to parental substance use is a concern, given the higher likelihood of substance-using parents engaging in punitive parenting (Hien & Honeyman, 2000; Stith et al., 2009). Both parental substance use and child physical abuse are considered adverse childhood experiences (ACE); experiencing a cluster of these ACEs has been shown to be related to variety of physical health conditions

in adulthood (Batten, Aslan, Maciejewski, & Mazure, 2004; Dube et al., 2009; Felitti et al., 1998; Goodwin & Stein, 2004; Goodwin & Weisberg, 2002; Wegman & Stetler, 2009). However, prevention of these outcomes requires further understanding of how to effectively assess and target risks during childhood, such as addressing our limited understanding of the role substance type plays in the contribution to punitive parenting strategies (Kepple, 2017; Testa & Smith, 2009). This study conducted an exploratory analysis guided by evidence that (a) specific types of psychoactive substances vary relatively in their scale and degree of harm to the individual user and to others (Nutt, King, & Phillips, 2010), and (b) discipline tactics used by parents encompass a wide range of parenting behaviors from nonviolent discipline to corporal punishment to physical assault (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998).

First, each type of psychoactive substance has drug-specific effects that can result in different degrees of substance-related harm to self (e.g., neuropsychological impairments, loss of tangible resources, or strained social relations) and to others (e.g., injury, family adversities; Nutt et al., 2010), which mirror findings in works that have identified alcohol and other drug use as risks for child physical abuse (Stith et al., 2009). Nutt et al. (2010) compared overall harms across drug type; they found the greatest potential for harm (in ranked order from most harmful to least) was observed for alcohol, heroin, crack cocaine, and methamphetamine; cannabis was observed to have a middle-range harm score (Nutt et al., 2010). This study examines whether we see comparative differences in drug-specific harms when solely focusing on aggressive parenting approaches.

Second, discipline strategies can range from nonviolent discipline (e.g., time-outs, loss of privileges) to corporal punishment (e.g., spanking, slap on body) to more severe physical assault associated with child physical abuse (e.g., kicked hard, hit on head; Straus et al., 1998). Nonviolent child discipline is common practice in the United States; however, prior work has shown that parents who frequently depend upon nonviolent strategies are more likely to also use psychologically and physically aggressive strategies with their children (Straus et al., 1998). High frequency of nonviolent strategies may also indicate an over-reactive parenting style, which aligns with an authoritarian style of discipline and has previously been associated with a higher likelihood of children demonstrating externalizing child behaviors (Prinz, van der Sluis, de Haan, & Dekovic, 2010; Rhoades & O'Leary, 2007). Violent child discipline, which we refer to as punitive parenting strategies in this article, remains a pervasive practice in the United States with estimates as high as 75% for less severe forms of physical discipline (i.e., slapping; Gershoff, 2013) and 10% of children under 17 reporting experiences of physical abuse (Finkelhor, Turner, Shattuck, & Hamby, 2015). A recent meta-analysis demonstrated that even spanking alone is associated with adverse child outcomes we often associate with child physical abuse, such as impaired cognitive ability, low levels of self-esteem and self-regulation, and struggles with mental health or substance abuse during childhood and later adulthood (Gershoff & Grogan-Kaylor, 2016).

With these concepts in mind, this study built upon the prior literature by exploring frequency of parenting behaviors across a range of discipline strategies (i.e., nonviolent, corporal

punishment, physical abuse) by type of substance used. The purpose of this exploratory analysis is to provide initial insight into differential risk for child harm by substance type.

Punitive Parenting by Type of Drug

Some studies have investigated the relationship between specific types of substances and punitive parenting based on the prior rationale that substances vary in degree of potential harm to the individual user and to the child; however, they have typically evaluated correlations between one parenting outcome measure and parental use of one type of substance. For example, studies have observed a relationship between alcohol use and physical abuse frequency for light to moderate levels of drinking and heavy drinking in both high-risk child welfare and general population samples (Freisthler, Holmes, & Wolf, 2014; Freisthler & Wolf, 2016; Kepple, 2018). It may be that alcohol use—related effects—such as disinhibition even at low levels of drinking (Oscar-Berman & Marinkovi, 2007)—can increase disciplinary or aggressive parenting behaviors relative to nonusers. Alternatively, alcohol use may also have myopic effects that focus a parent's attention toward child misbehavior, increasing all forms of disciplinary responses (Giancola, Josephs, Parrott, & Duke, 2010). However, higher frequency of physical abuse behaviors among ex-drinkers (relative to lifetime abstainers) suggests that concomitant factors (e.g., mental health, social stressors, trait impulsivity; Stith et al., 2009) may also be contributing to this relationship (Freisthler et al., 2014; Freisthler & Wolf, 2016). This suggests the importance of exploring differences in behaviors across current users, former users, and lifetime abstainers.

Regarding marijuana, Freisthler, Gruenewald, and Wolf (2015) observed past-year marijuana use was positively associated with frequency of child physical abuse. However, a review of marijuana use and violent behaviors observed contradictory findings for this relationship (Ostrowsky, 2011). As a result, the extent or nature of marijuana-related effects relative to other substances also remains unclear.

In contrast, methamphetamine use is associated with known impairments in global neuropsychological functioning and high levels of affective distress, which can contribute to polarized parenting strategies (i.e., extreme feelings of anger or apathy) and relational violence in the home (Brown & Hohman, 2006; Iudicello et al., 2010). However, very little empirical work has focused on methamphetamine use specific to parenting in a general population sample, with most focusing on child exposure to manufacturing the drug (Hohman, Oliver, & Wright, 2004) or child welfare outcomes (Akin, Brook, & Lloyd, 2015). For other drugs such as opioids, studies focused primarily on child welfare or clinical treatment populations (McGlade, Ware, & Crawford, 2009). McGlade and colleagues (2009) compared mothers who disclosed other drug use (reporting opiate, amphetamine, or methadone use) with matched nonsubstance-using mothers and found infants of substance-using mothers were more likely to experience substantiated harm or enter foster care (as determined by child protective services); however, these outcomes are not specific to punitive parenting behaviors and may be more indicative of neglect.

Comparative Risk by Drug Type

Even less is known about how drug type is related comparatively to punitive parenting (e.g., alcohol vs. methamphetamines), with most studies focused on reunification outcomes in child welfare (Akin et al., 2015) and drug treatment populations (Grella, Needell, Shi, & Hser, 2009; Slesnick, Feng, Brakenhoff, & Brigham, 2014). For example, parental use of methamphetamines, other illicit drugs, or polysubstance use (but not alcohol) compared with no alcohol/drug use was associated with lower rates of reunification and higher rates of adoption (Akin et al., 2015). Additionally, mothers in drug treatment who primarily used heroin or other opiates were less likely to reunify with their children compared with those who primarily used alcohol (Grella et al., 2009). These results suggest that perceived harm potential and/or case complications are heightened in cases where illicit substance or polysubstance use was indicated. However, one study using mothers engaged directly in outpatient treatment observed less negative parent-child interaction and self-reported parenting behaviors among opioid-addicted mothers compared with alcohol-addicted mothers (Slesnick et al., 2014). These contrasting outcomes suggest that perceived harm (as indicated by child welfare outcomes) may not be indicative of actual punitive parenting practices, emphasizing the importance of further exploring the associations between specific drug types and punitive parenting in the general population.

Study Purpose

To address this gap in the literature, we conducted an exploratory examination of past-year and lifetime alcohol and other drug use by using a probabilistic community sample to ascertain the relationship between substance type and a range of disciplinary parenting practices. Further, by delineating the differences between different types of substance use, we can begin to refine risk assessments for drug-specific harms related to high-risk parenting behaviors. Our study does not answer all the questions about drug use and parenting, but it serves as a starting point to assess how specific types of drug use over the life course may affect parenting.

METHOD

Data Collection

We collected data in 2009 via telephone for 3,023 parents from listed samples in 50 cities in California. The 50 cities were chosen because they had populations between 50,000 and 500,000 in 2000 in order to achieve geographic validity across the state. Listed samples increase efficiency and reduce costs, while at the same time producing samples comparable with those obtained through other less efficient techniques (Brick, Waksberg, Kulp, & Starer, 1995). Eligible respondents included those who were 18 years or older, were a parent or guardian of a child 12 years or younger who lived with them at least 50% of the time, and spoke English or Spanish. The interview took 30 minutes (on average) and respondents received a \$25 incentive. The response rate was 47.4%. The unweighted sample was approximately two thirds female, with an average age of 39, and highly educated (see Table 1). Data were weighted based on gender, race/ethnicity, and household type to represent the demographic composition of the cities in the sample.

Measures

Respondents replied to the Conflict Tactics Scale, Parent-Child (CTSPC) version (Straus et al., 1998), which included questions about frequency of using nonviolent discipline, corporal punishment (i.e., physical assault), and physical abuse (i.e., severe physical assault). The four questions for nonviolent discipline included the frequency of explaining why something was wrong, putting a child in time-out, taking away privileges, and redirecting behavior. Cronbach's alpha for nonviolent discipline subscale was .678. The corporal punishment scale included five items for children over 2 years of age (and four items for children under 2) that assessed the use of spanking with a bare hand or hitting a child on the bottom with something like a hairbrush, stick, or belt. Reliability, using Cronbach's alpha, was measured at .528. Child physical abuse was measured using four items for children older than 2 and five items for children under 2, including throwing or knocking a child down or hitting the child with a fist or kicking the child hard. The reliability for child physical abuse was .162, using Cronbach's alpha. As discussed by Straus and colleagues (1998), rare behaviors such as child physical abuse may have temporal consistency without internal consistency. Thus, the low Cronbach's alpha reported in this study does not mean the scale is not reliable, but may reflect how rare physical abusive behaviors are in the general population. Response categories for these questions were *never*, *1 to 5 times*, *6 to 10 times*, and *more than 10 times*. The midpoint for each response category was summed to create a count of the number of times the parent reported using child physical abuse in the past year. Parenting behaviors, particularly as they relate to use of physical abuse, are often difficult to assess as they are prone to social desirability bias and mandated reporting to child protective services. To address issues related to socially desirable reporting, the items from the CTSPC were interspersed so that severe physical discipline behaviors were sandwiched between nonviolent measures. These items were also asked using interactive voice response (IVR) technology, so that parents were transferred to a voice recording to answer questions specifically related to abusive and neglectful parenting (Kepple, Freisthler, & Johnson-Motoyama, 2014).

We documented alcohol use with an item that asked how often the respondent drank any kind of alcoholic beverage (a glass of beer, wine, or a drink with hard liquor) to identify those parents who drank in the past year. The response items were recoded to reflect those that reported drinking any alcohol in the past year and those who had not had an alcoholic drink in the past year. Drug use was measured through a series of items adapted from the National Survey on Drug Use and Health. Parents were asked if they had ever used marijuana. For those who answered "yes," they were asked how many times they used marijuana in the past year. These items were used to create categories including nonmarijuana users, lifetime users (used in their lifetime, but not in the past year), and past-year marijuana users. The same two questions were asked for methamphetamine and other illicit drugs, which included the use of cocaine, crack, heroin, hallucinogens, uppers, or downers. Over 90% of the drug users also reported being past-year drinkers. To examine the combined use of alcohol and the three specific types of drugs included here, we created an exhaustive and mutually exclusive list of categories: (1) No use; (2) Nondrinker, Lifetime (but not past-year) drug use; (3) Past-year drinker, No drug use; (4) Past-year drinker, Lifetime (but not past year) drug use; and (5) Past-year drinker, past-year drug use. The last

category applies only for marijuana use because there were not enough past-year methamphetamine and other drug users.

In order to ascertain the effect of multiple substance use on parenting behavior, we created a count variable of the number of substances used. We summed the number of illicit drugs used during a lifetime (0 to 3) and added a category for parents who reported drinking in the past year. Thus the potential total number of substances used was four ($\bar{x}$ = 1.45, sd = 1.10).

Variables measuring child demographics, parent demographics, and parental risk factors were also included as controls in multivariate models. Child demographics were reported by the parent and included gender (male/female) and age (in years). Parents self-reported their demographics, which included gender (male/female), age (in years), race/ethnicity (White/Black/Hispanic/Other Race), marital status (married or cohabitating/other), and education level (less than high school/high school or more). Parental risk factors for punitive parenting included depressive symptoms (0 = not present, 1 = present) and anxiety symptoms (0 = not present, 1 = present) measured using the Primary Care Evaluation of Mental Disorders (PRIME-MD) tool (Kroenke, Spitzer, & Williams, 2003; Kroenke, Spitzer, Williams, Monahan & Lowe, 2007). Impulsivity was measured using items from the Dickman's Dysfunctional Impulsivity Scales (Dickman, 1990); a sum score was calculated that ranged from 1 (low impulsivity) to 7 (high impulsivity). Finally, parenting stress was measured using two items from the Dimensions of Discipline Inventory (Straus & Fauchier, 2007); a mean score was calculated that ranged from 1 (low stress) to 4 (high stress).

Data Analysis Procedures

We conducted bivariate analyses using Kruskal-Wallis H Test, a rank-based nonparametric test that can be used to determine whether there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable. This method is ideal to assess drug use type or number of drugs used by punitive parenting frequencies, given the abnormal distribution of our dependent variables. Additional bivariate analyses were conducted to assess differences in distribution of key variables by gender. Specifically, we used Kruskal-Wallis H Test to compare punitive parenting frequency by gender. We then used a chi square test for independence to compare drug use type by gender.

For multivariate analyses, we used hierarchical linear models, given that respondents were nested within cities. To examine the relationships between drug use type or number of drugs use and nonviolent discipline frequency, we created separate hierarchical linear models (HLM) for each drug type (i.e., alcohol, marijuana, methamphetamine, and other illicit drug), controlling for child demographics, parent demographics, and parental risk factors. To account for the right-skewed distribution of corporal punishment frequency and physical abuse frequency, we used hierarchical generalized linear models (HGLM) with a log link function (assuming a Poisson distribution) to analyze these data (Raudenbush & Bryk, 2002). For all models, Level 2 included only the city-specific slope to address the within-city correlation of the dependent variable observed in the unconditional model. We used the HLM and HGLM modules of the HLM Version 7 software (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011).

RESULTS

Bivariate analyses indicated no significant differences in the frequency of past-year nonviolent discipline, corporal punishment, or physical abuse between mothers and fathers. However, significant differences in the proportion of mothers and fathers using specific types of drugs were observed. Specifically, fathers were more likely to report past year alcohol use ($\chi^2(2) = 18.44, p < .001$), past-year marijuana use ($\chi^2(2) = 10.93, p = .004$), and other illicit drug use ($\chi^2(1) = 72.06, p < .001$). No significant differences in lifetime methamphetamine use were observed by gender.

Table 2 shows the results examining the bivariate relationship between types of substance use and parenting behaviors. All four types of substance use (alcohol, marijuana, methamphetamine, and other drugs) are significantly related to frequency of nonviolent discipline. All three drug types were significantly related to use of corporal punishment, while only marijuana use was related to frequency of physical abuse. We conducted supplemental analyses where past-year drug use was further differentiated by drinking amount (e.g., heavy drinking). We found similar results to those presented in Table 2 and the results are available on request.

In Table 3, we examine the relationship of combined alcohol use and type of drug use on parenting behaviors. We see similar results in that all three types of drug use paired with alcohol use are related to use of nonviolent discipline and corporal punishment. Comorbid marijuana and alcohol use behaviors are significantly related to frequency of physical abuse.

Table 4 shows the results examining the multivariate relationships between types of substance use and parenting behaviors. Parents reporting past-year alcohol use were associated with significantly higher annual frequencies of nonviolent discipline, corporal punishment, and physical abuse compared with parents reporting no history of alcohol use. Parents reporting past-year or lifetime marijuana use were associated with higher annual frequencies of nonviolent discipline and corporal punishment than parents reporting no history of marijuana use; however, this was not the case for physical abuse frequency. In fact, lifetime use of marijuana appears to be associated with a significantly lower frequency of physical abuse compared with parents with no history of marijuana use or a past-year history of marijuana use. Lifetime histories of methamphetamine and other illicit drug use were both significantly associated with a higher frequency of nonviolent discipline and corporal punishment compared with no use categories.

Figure 1 shows the significant relationship between the number of substances used and parenting behaviors. For nonviolent discipline and corporal punishment, the figure shows a dose-response relationship in which a parent who reports using more substances also reports using both types of discipline more frequently. Number of substances used was also significantly related to physical abuse.

Table 5 verifies the observed relationships shown in Figure 1, indicating significant increase in frequency of nonviolent discipline and corporal punishment for parents using more than one type of drug compared with parents reporting no drug use. A different pattern was observed for physical abuse frequency with either parent reporting use of one type of drug

(category composed of 89% reporting alcohol use only) or reporting use of four types of drugs being associated with a higher annual frequency of physical abuse compared with parents reporting no drug use.

DISCUSSION

Parents' use of three categories of discipline differed largely by use of substances and the number of different substances used. With respect to the number of substances used, use of nonviolent discipline and corporal punishment generally show a typical dose-response relationship in which the use of more substances was related to more frequent use of both of those types of discipline. Although the relationship between number of substances used and frequency of physical abuse was statistically significant, the relationship did not follow the dose-response relationship. When controlling for other factors, parents who reported using the most number of substances practiced physical abuse at a rate about 1.45 times greater than the next highest group (only one substance used, of which the majority were drinkers). Observed relationships between single substance-use type and parenting show important patterns across drug types, even when controlling for child demographics, parent demographics, and parenting risk factors. An interesting observation is that parents reporting any substances over their lifetime use all types of discipline practices more often, not just the practices that would be considered punitive or physical abuse. These findings align with prior findings that high frequency of nondiscipline strategies were associated with more physically aggressive or punitive parenting strategies, and emphasize the importance of addressing a range of disciplinary strategies with high-risk populations, such as substance-using parents (Straus et al., 1998).

Past-year alcohol use (but not lifetime alcohol use) was associated with higher frequencies of all types of discipline, ranging from nonviolent discipline to physical abuse compared with no alcohol use. These findings align with prior work observing that past-year parental alcohol use is associated with higher annual frequency of abusive behaviors and extends this to the full range of parental discipline approaches (Freisthler et al., 2014; Freisthler & Wolf, 2016; Kepple, 2018). Our study also observed a significant bivariate relationship between a history of methamphetamine use and physical abuse, without including alcohol use. However, these findings did not remain when controlling for psychosocial correlates, such as parenting stress and impulsivity. These findings suggest a history of methamphetamine use may serve as a red flag for further assessment of psychosocial correlates—such as underlying impairments in neuropsychological or parental functioning—for all physically assaultive parenting behaviors (Iudicello et al., 2010).

An important next step is to study these relationships in a larger sample of drug users to capture a larger proportion of past-year methamphetamine and other illicit drug users. Based on these exploratory findings, prevention approaches with these parents might focus on what is or is not normative for the child's age-specific behaviors so parents do not feel the need to over-discipline their child. These parents may also have children who have more difficult temperaments. In this case, parents may try to use all forms of discipline techniques more frequently, including use of corporal punishment or physical abuse.

Exploratory assessment of comorbid alcohol use provided some further (albeit preliminary) insights. For example, single drug use findings indicated lifetime marijuana use was associated with lower frequency of physical abuse while a past-year marijuana use was associated with a higher frequency of physical abuse (compared with lifetime marijuana use). When evaluated in relation to comorbid alcohol use, we observe that the highest average frequencies were attributed to categories for past-year drinker, past-year marijuana user, whereas the lowest average frequencies were attributed to both non-drinker, no drug use and lifetime marijuana users (with and without past-year drinking). Over 92% of past-year marijuana users also reported comorbid past-year alcohol use, which may be driving high physical abuse frequencies observed for past-year marijuana use.

That being said, comorbid alcohol and marijuana use in the past year was associated with a mean annual frequency for physical abuse that was 0.5 times higher than past-year drinking without marijuana use, further highlighting the particular importance of polysubstance use for physically abusive behaviors (as indicated by association with drug number) and aligning with prior work looking at the influence of polysubstance use identification in child welfare samples (Akin et al., 2015; Lloyd & Akin, 2014). It also may be that parents who choose to refrain from past-year marijuana use after a prior history of use have unmeasured experiences or psychosocial traits that can be attributed to the lower-observed frequencies for current drinkers who report lifetime marijuana use, but none in the past year. Future work should further explore factors contributing to the observed parenting differences between lifetime and past-year marijuana use. Given the low base rate of physical abuse in our general population sample, this study did not have the statistical power to conduct further multivariate analyses across five categories.

LIMITATIONS

Results should be interpreted cautiously because of several limitations. Our data were collected via telephone sampling methods using landlines and will have missed possible respondents who have only a cell phone. Given the small numbers of parents who used substances other than alcohol or marijuana in the past year, we could look only at some of these relationships based on lifetime use. It is possible that individuals reporting past-year methamphetamine or other illicit drug use demonstrate higher frequencies of all forms of punitive parenting; future work would benefit from oversampling parents from the general population who use these types of drugs to be able to examine these relationships. Similarly, we had very few drug users in our sample who did not use alcohol in the past year, which limited how we could analyze these differences with respect to parenting, using only bivariate statistics for exploring combination of alcohol and other drug type categories. General population studies that recruit a larger sample of current drug users will be able to assess these relationships by adjusting for possible confounding variables, such as impulsivity, depression, or anxiety. In addition, recruiting a larger sample of current drug users could help to understand how concurrent or successive use may affect parenting behaviors, particularly those that are abusive.

Further differentiating alcohol use to include binge or heavy drinking behaviors as well as comorbid drug use is an important next step in this work. To be included in the study,

parents had to have a child 12 years or younger. Use of physical abuse, particularly for parents using substances, may differ for parents of older children. We attempted to control for self-desirability bias through the use of IVR and interspersing parenting items, but the parents may still choose to not answer or report less use of behaviors they think may be socially unacceptable. The next steps for this work should include developing and testing theoretical mechanisms underlying the relationships between type of substance use and abusive parenting.

CONCLUSION

Although these findings are exploratory, they highlight the importance of understanding how the relationship between parental substance use and punitive parenting behaviors can differ across substance type and polysubstance use history. Specifically, social workers in the addictions field can use this information to justify screening for and subsequently addressing any identified punitive parenting behaviors with substance-using parents to potentially mitigate child harm. According to these findings, practitioners should also consider conducting in-depth assessment of parenting strategies among the highest-risk groups, such as those with past-year alcohol use or a history of polysubstance use or methamphetamine use. Best practices suggest this can be achieved through addictions professionals partnering with a specialist in child development or child welfare (Center for Substance Abuse Treatment, 2010; Children and Family Futures, 2011). Although these examples have had substance use professionals colocated in children and family agencies, it may be equally beneficial to colocate a child and family specialist in addiction-focused agencies to help with maltreatment screenings, parenting classes, and/or parent coaching.

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Figure 1.
Number of substances used by past year frequency of different types of discipline behaviors.

Table 1**Unweighted Descriptive Statistics of Study Sample**

	% or $\bar{x}(sd)$	Sample <i>n</i>
Parenting Behaviors		
Nonviolent discipline	39.27 (26.25)	2,672
Corporal punishment	3.08 (6.55)	2,782
Physical abuse	0.33 (1.98)	2,770
Biological Sex (<i>n</i> = 3,023)		
Male	34.7	1,050
Female	65.3	1,973
Age, in years	39.18 (7.81)	3,023
Race/Ethnicity (<i>n</i> = 3,009)		
Asian	7.8	236
African American	3.7	111
Hispanic	24.4	733
White, non-Hispanic	58.3	1,753
Multiracial	3.1	92
Other	2.8	84
Marital Status (<i>n</i> = 3,023)		
Married or living in a marriage-like relationship	88.4	2,673
Single, Divorced, Widowed	11.6	350
Education (<i>n</i> = 3,021)		
Less than high school graduate	5.0	150
High school graduate	12.8	387
Some college	22.5	680
College graduate	59.7	1,804
Alcohol Use (<i>n</i> = 3,008)		
Never	9.7	292
Lifetime use	18.7	564
Past-year use	71.5	2,152
Marijuana Use (<i>n</i> = 3,009)		
Never	52.9	1,593
Lifetime use	42.8	1,287
Past-year use	4.3	129
Methamphetamine Use (<i>n</i> = 3,021)		
Never	90.7	2740
Lifetime use	9.3	281
Other Drug Use (<i>n</i> = 3,018)		

	% or $\bar{x}(sd)$	Sample n
Never	82.4	2,487
Lifetime use	17.6	531
Number of substances used	1.45 (1.11)	2,995

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Table 2

Bivariate Relationships Between Frequency of Parenting Behaviors and History of Drug Use by Drug Type

	<u>Alcohol*</u>		<u>Marijuana*</u>		<u>Methamphetamine*</u>		<u>Other Drug*</u>	
	<i>Mean</i>	<i>p</i>	<i>Mean</i>	<i>p</i>	<i>Mean</i>	<i>p</i>	<i>Mean</i>	<i>p</i>
Past-Year Frequency Nonviolent Discipline		< 0.001		< 0.001		< 0.001		< 0.001
No Use	31.39		33.69		36.37		35.66	
Lifetime Use	34.48		40.90		46.91		43.92	
Past-Year Use	38.80		48.44		--		--	
Past-Year Frequency Corporal Punishment		ns		< 0.001		0.003		< 0.001
No Use	2.80		2.91		3.06		2.98	
Lifetime Use	2.67		3.33		4.05		3.86	
Past-Year Use	3.33		4.40		--		--	
Past-Year Frequency Physical Abuse		ns		ns		0.002		ns
No Use	0.16		0.41		0.36		0.37	
Lifetime Use	0.32		0.29		0.53		0.43	
Past-Year Use	0.41		0.82		--		--	

* Refers to the result of the type of substance use analyzed with the frequency of parenting behaviors. Analyzed using Kruskal-Wallis H Test.

Notes. ns = not statistically significant at $p < .05$; substance use categories are mutually exclusive: (a) those who report substance use in the past year are counted only in "Past-Year Use" and (b) those who report using a substance use at some point in their lifetime, but not in the past year, are coded in the "Lifetime Use" category.

Table 3

Bivariate Relationships Between Frequency of Parenting Behaviors and History of Comorbid Alcohol and Other Drug Use by Drug Type

	<u>Marijuana*</u>		<u>Methamphetamine*</u>		<u>Other Drug*</u>	
	<i>Mean</i>	<i>p</i>	<i>Mean</i>	<i>p</i>	<i>Mean</i>	<i>P</i>
Past-Year Frequency Nonviolent Discipline		< 0.001		< 0.001		< 0.001
Non-Drinker, No Drug Use	30.80		32.87		32.41	
Non-Drinker, Lifetime Drug Use	40.81		41.22		39.33	
Past-Year Drinker, No Drug Use	35.48		37.71		36.96	
Past-Year Drinker, Lifetime Drug Use	40.83		48.40		45.10	
Past-Year Drinker, Past-Year Drug Use	46.72		--		--	
Past-Year Frequency Corporal Punishment		< 0.001		0.013		< 0.001
Non-Drinking, No Drug Use	2.58		2.56		2.64	
Non-Drinker, Lifetime Drug Use	3.07		4.38		3.14	
Past-Year Drinker, No Drug Use	3.12		3.26		3.12	
Past-Year Drinker, Lifetime Drug Use	3.40		3.95		4.06	
Past-Year Drinker, Past-Year Drug Use	4.29		--		--	
Past-Year Frequency Physical Abuse		0.047		ns		ns
Non-Drinker, No Drug Use	0.26		0.27		0.24	
Non-Drinker, Lifetime Drug Use	0.32		0.29		0.45	
Past-Year Drinker, No Drug Use	0.51		0.39		0.42	
Past-Year Drinker, Lifetime Drug Use	0.26		0.60		0.39	
Past-Year Drinker, Past-Year Drug Use	0.89		--		--	

* Refers to the result of the type of substance use analyzed with the frequency of parenting behaviors. Analyzed using Kruskal-Wallis H Test.

Notes. ns = not statistically significant at $p < .05$; substance use categories are mutually exclusive: (a) those who report substance use in the past year are counted only in "Past-Year Use" and (b) those who report using a substance use at some point in their lifetime, but not in the past year, are coded in the "Lifetime Use" category.

Table 4
Adjusted Models Regressing Frequency of Parenting Behaviors on History of Drug Use by Drug Type

	<u>Alcohol</u> [*]			<u>Marijuana</u> [*]			<u>Methamphetamine</u> [*]			<u>Other Drug</u> [*]		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Past-Year Frequency Nonviolent Discipline [^]												
No Use (ref)												
Lifetime Use	4.44	2.99	ns	4.29	1.34	.001	8.07	2.12	<.001	8.67	1.76	<.001
Past-Year Use	5.44	2.76	.049	11.59	3.16	<.001	--	--	--	--	--	--
Past-Year Frequency Corporal Punishment ^{^^}												
No Use (ref)												
Lifetime Use	-0.06	0.07	ns	0.18	0.03	<.001	0.18	0.04	<.001	0.34	0.04	<.001
Past-Year Use	0.16	0.07	.015	0.28	0.07	<.001	--	--	--	--	--	--
Past-Year Frequency Physical Abuse ^{^^}												
No Use (ref)												
Lifetime Use	0.41	0.29	ns	-0.46	0.10	<.001	0.20	0.13	ns	-0.07	0.11	ns
Past-Year Use	0.70	0.29	.014	0.27	0.17	ns	--	--	--	--	--	--

^{*} Refers to the result of the type of substance use analyzed with the frequency of parenting behaviors, controlling for focal child demographics (i.e., age and gender), parent demographics (i.e., gender, race/ethnicity, marital status, and education status), and parent risk factors (i.e., depressive symptoms, anxiety symptoms, impulsivity, and parenting stress).

[^] Analyzed using HLM due to continuous, normal distribution of the dependent variable.

^{^^} Analyzed using HGLM with a log link model due to a continuous, Poisson distribution of the dependent variable.

Notes. ns = not statistically significant at $p < .05$; substance use categories are mutually exclusive: (a) those who report substance use in the past year are counted only in "Past-Year Use" and (b) those who report using a substance use at some point in their lifetime, but not in the past year, are coded in the "Lifetime Use" category.

Adjusted Models Regressing Frequency of Parenting Behaviors on Number of Drugs Used

Table 5

	Past-Year Frequency Nonviolent Discipline [^]			Past-Year Frequency Corporal Punishment ^{^^}			Past-Year Frequency Physical Abuse ^{^^}		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Level 2 (City)									
Intercept	35.95	4.79	< .001	0.74	0.13	< .001	-3.86	0.39	< .001
Level 1 (Individual)									
Number of Drugs									
Zero (ref)									
One	3.02	1.90	ns	0.07	0.05	ns	0.51	0.14	< .001
Two	4.71	1.99	.018	0.22	0.05	< .001	0.24	0.16	ns
Three	8.95	2.54	< .001	0.40	0.06	< .001	-0.55	0.21	.008
Four	14.94	3.17	< .001	0.44	0.07	< .001	0.88	0.20	< .001
Focal child male	5.55	1.23	< .001	0.13	0.03	< .001	0.35	0.09	< .001
Focal child age (in years)	-0.65	0.20	.001	-0.04	0.01	< .001	0.06	0.01	< .001
Parent male	-0.84	1.43	ns	0.17	0.03	< .001	0.14	0.09	ns
Parent age (in years)	-0.42	0.10	< .001	-0.03	0.00	< .001	0.01	0.01	ns
Parent race/ethnicity									
White (ref)									
Black	-5.55	3.36	ns	0.62	0.06	< .001	0.74	0.17	< .001
Hispanic	-10.36	1.57	< .001	-0.19	0.04	< .001	-0.02	0.15	ns
Other Race	-10.39	2.07	< .001	0.27	0.05	< .001	0.28	0.15	ns
Married/Cohabiting	6.29	2.09	.003	0.31	0.05	< .001	-0.21	0.12	ns
Less than High School	-5.06	3.62	ns	0.52	0.07	< .001	0.95	0.16	< .001
Depressive Symptoms	-1.09	1.97	ns	-0.02	0.04	ns	0.26	0.12	.031
Anxiety Symptoms	2.26	1.37	ns	0.14	0.03	< .001	-0.15	0.10	ns
Impulsivity	-1.60	0.48	< .001	0.02	0.01	.018	0.13	0.03	< .001
Parenting Stress	8.24	1.05	< .001	0.44	0.02	< .001	0.52	0.06	< .001
	VC	$\chi^2(49)$	<i>p</i>	VC	$\chi^2(49)$	<i>p</i>	VC	$\chi^2(49)$	<i>p</i>
Level 2 variance, τ_{00}	2.59	59.68	ns	0.18	1982.06	< .001	0.97	1823.99	< .001
Level 1 effect, r_{ij}	564.27			n/a			n/a		

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Analyzed using HLM due to continuous, normal distribution of the dependent variable.
 Analyzed using HGLM with a Log Link Model due to a continuous, Poisson distribution of the dependent variable.

Notes. ns = not statistically significant at $p < .05$.