

Contribution of Illicit/Non-Prescribed Marijuana and Hard-Drug Use to Child-Abuse and Neglect Potential while Considering Social Desirability

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Abstract

Illicit drug use by mothers has been indicated to increase child abuse and neglect. However, investigators have not assessed the relative contribution of particular drugs on child-abuse and neglect potential using validated measures with collateral reports. This study compares the contribution of marijuana and hard-drug use to child-abuse and neglect potential in mothers referred to behavioural treatment by child-protective services. Reports of marijuana and hard-drug use by mothers were three times higher than reports of the mothers' marijuana and hard-drug use by family or friends, and marijuana- and hard-drug-use reports by mothers were more consistent with urinalysis testing than their significant others. Regression analyses showed mothers' marijuana and hard-drug-use reports contributed to their potential to abuse and neglect irrespective of socially desirable responding, stress and socio-demographic variables. Reports of mothers' marijuana and hard-drug use by significant others were not associated with mothers' child-abuse and neglect potential. Thus, mothers' self-reports of marijuana and hard-drug use appear to provide greater utility in the prediction of child abuse and neglect, as compared to reports from their significant others. Future recommendations and study limitations are discussed in light of these results.

Keywords: Child abuse and neglect, hard drug, marijuana, collateral reporting

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Introduction

Maternal illicit/non-prescribed drug use has been specifically identified as one of the key factors that predict increased reports to child-protective services (CPS) (Dubowitz *et al.*, 2011). More than one-quarter of substantiated child-abuse and neglect cases in the USA are estimated to involve parents who abuse illicit or non-prescribed drugs (US Department of Health & Human Services, 2017) and these rates are similar to those in other English-speaking countries (Angus and Hall, 1996). Complicating assessment and intervention, child abuse and neglect due to illicit and non-prescribed drug use by parents may be legally prosecuted in both the UK (United Kingdom Drug Situation, 2016) and the USA (Child Welfare Information Gateway, 2016).

Although it is well established that increased illicit and non-prescribed drug use is associated with increased child abuse and neglect, investigators have yet to examine the relative influence of marijuana and hard-drug use on child-abuse and neglect potential utilising psychometrically validated assessment measures in real-world settings (i.e. when presenting for behavioural treatment). Such studies are important because, although research is lacking, professionals in agencies that are oriented to child protection have historically provided more resources to individuals who ingest or consume 'hard drugs' (i.e. illicit or non-prescribed drugs other than marijuana and alcohol) than individuals who use marijuana (Pelton, 2008) and have been indicated to make child-placement recommendations based on the type of parental substance abuse (Laslett *et al.*, 2012). Additionally, substance use is often one of the factors guiding child placement in the home after referral to child-welfare services, so establishing an evidence base for self and significant-other reports of substance use is important to assisting clinicians in making skilled judgments that protect at-risk children while at the same time ensuring anti-oppressive practices for these families (Dominelli, 1996), who often have limited societal resources.

Intoxication effects are hypothesised to contribute to child abuse and neglect in several ways. For instance, intoxication has been indicated to influence child abuse and neglect through increased paranoia and aggression (Ells *et al.*, 2002; Wells, 2009) and withdrawal symptoms (i.e. lethargy, irritability, forgetfulness) may lead to unsafe environmental conditions (Wang and Harding, 1999). Drug use and intoxication also expose children to other risks, such as children ingesting illicit drugs (Matteucci *et al.*, 2007), poor supervision (Wasserman and Leventhal, 1993; Gottwald and Thurman, 1994), higher occurrence of infectious diseases (Raitasalo *et al.*, 2015), exposure to drugs during pregnancy (Wasserman and Leventhal, 1993) and increased risk of injury (Raitasalo *et al.*, 2015).

Investigators have also reported substance-specific influences to child abuse and neglect. [Carlson *et al.* \(2012\)](#) compared the effects of alcohol, methamphetamine and other illicit/non-prescribed drugs on child abuse and neglect. Participants who were indicated to abuse methamphetamine evidenced greatest risk to abuse and neglect their children. However, they also evidenced fewer allegations of physical abuse than those individuals who were reportedly abusing only alcohol. Women who abused methamphetamine were also more likely to have their children placed outside of the home as compared with other abusers of illicit and non-prescribed drugs in the study. It is important to indicate, however, that self-report data were retrospectively collected from case notes and collection varied among providers, possibly limiting accuracy of findings.

While illicit/non-prescribed drug use has consistently been found to be positively associated with child abuse and neglect, these studies have generally not incorporated psychometrically validated assessment measures and have examined illicit/non-prescribed drug use based on convenience sampling. This is important because most substance-abuse treatment programmes are developed to accept participants regardless of the type of drugs that are used. [Brown and Hohman \(2006\)](#) and [Carlson *et al.* \(2012\)](#) published the only studies examining the relationship between child abuse and neglect and illicit/non-prescribed drug use in persons presenting for behavioural treatment, which is when clinical problems are likely to be most severe, and responses to assessments are most likely to be influenced by social desirability. Along a similar vein, investigators have yet to examine marijuana and hard-drug use and child abuse and neglect utilising biological screens and self- and collateral reports of illicit drug use.

The relationship between marijuana use and child abuse and neglect, as compared with the relationship between hard-drug use and child abuse and neglect, has been less studied, perhaps because of the changing legal status and public opinion around marijuana use. As of 2017, in the USA, the District of Columbia and twenty-eight states have legalised medicinal use of marijuana. The District of Columbia and eight US states have also legalised recreational use of marijuana. Within the UK, a cannabis-derived drug, Sativex, has been prescribed since approximately 2010. There has also been recently proposed legislation aimed at legalising the regulated sale of marijuana in the UK as well as growing public support for its legalisation ([Doward, 2016](#)). Similarly, while the majority of Americans approve of legalising marijuana ([Pew Research Center, 2014](#)), federal law continues to prohibit its use.

Even obstetrics providers are unsure of the risks of marijuana use during pregnancy and perceive marijuana use as less dangerous than hard-drug use ([Holland *et al.*, 2016](#)). However, parental marijuana use has been associated with higher rates of child abuse and lower rates of physical neglect than illicit/non-prescribed hard-drug use ([Freisthler *et al.*, 2015](#)). On

the other hand, marijuana may contribute to child neglect by reducing goal-oriented behaviour (Newcomb and Loeb, 1999), such as helping children with homework, monitoring children and providing food or other pertinent needs in a timely manner. Moreover, mothers who use marijuana have been perceived to be more distant, rejecting and withdrawn than mothers who do not use marijuana (Dunn *et al.*, 2002; Denby, 2012) and case trials have shown infants may suffer life-threatening consequences from the ingestion of marijuana (Appelboam and Oades, 2006; Amirav *et al.*, 2011). Marijuana appears to be linked to negative effects on prenatal development, lasting into later life (Wells, 2009). However, little is known about the influence of marijuana use on child-abuse and neglect potential, as compared with hard-drug use. Lack of empirical studies related to the effects of maternal marijuana use on child-safety outcomes presents unique challenges to researchers and providers as they grapple with cultural trends towards the decriminalisation and legalisation of marijuana and make determinations regarding the risk marijuana may confer for increases in child abuse and neglect.

Almost all of the aforementioned studies examining the extent to which illicit/non-prescribed drug use is associated with various forms of child abuse and neglect rely upon self-report measures of drug use that are not psychometrically validated, and these studies have not included collateral reports of drug use (Dunn *et al.*, 2002; Furnham and Christoforou, 2007). In addition, individuals who are suspected of child abuse and neglect have been found to under-report undesirable behaviours, including drug use (Gilbert *et al.*, 2009; Hayashino *et al.*, 1995). However, socially desirable responding has yet to be considered when examining the relationship between illicit/non-prescribed drug use and child abuse and neglect. Social desirability may be particularly salient when parents are under investigation by CPS or referred for behavioural treatment due to suspected child abuse and neglect or parental marijuana and hard-drug use. This is particularly important because non-psychometrically supported measures are often relied upon to assess both child abuse and neglect and marijuana or hard-drug use.

The primary purpose of the present study is to determine the extent to which marijuana and hard-drug use contribute to child-abuse and neglect potential in mothers who are referred to CPS for behavioural treatment of child neglect and marijuana and hard-drug abuse. The contributions of this study, as compared with previously conducted studies, is that we examine mothers who have been explicitly referred for behavioural treatment of child neglect and illicit/non-prescribed drugs (i.e. marijuana, hard-drug use), control factors that have been shown in the literature to be associated with child abuse and neglect and marijuana and hard-drug use (i.e. socially desirable responding, age, ethnicity, marital status, participant's income, stress, number of children living in the home), employ psychometrically validated methods of assessing marijuana and hard-drug use

and child-abuse and neglect potential, use biological screens to assist detection of marijuana and hard-drug use, and incorporate collateral reports from primary significant others of participants' marijuana and hard-drug use. Based on the existing literature and the negative consequences associated with marijuana and hard-drug use, participants' hard-drug use was hypothesised to show greater utility in the prediction of child-abuse and neglect potential than marijuana use, and parents would report more marijuana and hard-drug use than their significant others.

Method

Participants

Participants were eighty adult mothers who were referred for treatment of drug abuse and child neglect by County Department of Family Services (DFS) or private agencies contracted by DFS. Mothers ranged in age from eighteen to forty-nine years ($M = 28.88$, $SD = 7.99$) and seventy-two (90.0 per cent) were unemployed. A diverse range of ethnic/racial backgrounds were represented, including thirty-nine Caucasian (48.8 per cent), nineteen African American (23.8 per cent), nine Latino (11.3 per cent), three American Indian (3.8 per cent), two Asian (2.5 per cent), two Pacific Islander (2.5 per cent) and six other ethnicities (7.5 per cent). Marital status of the participants included thirty-seven (46.3 per cent) single, sixteen (20 per cent) married and twenty-seven (33.8 per cent) cohabitating.

Participants had one to seven children ($M = 2.54$, $SD = 1.47$). The age of participants' primary child (i.e. the child who was the focus of the neglect report) ranged from one to fourteen years ($M = 3.83$, $SD = 3.67$) and forty-four (55.0 per cent) were female. All participants were required to indicate someone in their life who could be involved in supporting them in their assessment and treatment at the time of referral. The relationship type of these significant others included forty-two (52.5 per cent) boyfriend/husband/same-sex partner, twenty (25.0 per cent) parent/grandparent, nine (11.3 per cent) other family member and nine (11.3 per cent) 'other', such as friend or ex-boyfriend/husband.

Inclusion criteria

Data were gathered within the context of a randomised-controlled trial (see [Donohue et al., 2014](#)). Verification of study inclusion criteria occurred in two phases. In Phase 1, the CPS social worker was instructed to refer only mothers who were (i) initially reported for child neglect

and with at least one instance of ingesting or consuming illicit/non-prescribed marijuana and/or hard drugs (illicit drugs other than marijuana and alcohol) during the past four months; (ii) living locally with the child victim who prompted the CPS referral (or it was the intention of the court to return the child to the mother's home); (iii) not currently receiving psychotherapeutic services; (iv) not reported for sexual abuse or domestic violence; (v) at least eighteen years old; and (vi) had a family member or close friend willing to support the referred individual in her baseline assessment and treatment implementation (only baseline assessment data were included in the current study). In Phase 2, a research assistant validated the aforementioned inclusionary criteria with the referred individual and attempted to schedule the individual within a week of the referral for a pre-treatment appointment to complete study consent and a baseline assessment that included substance-use measures reported in this study. All participants who reported marijuana or hard-drug use during the previous four months during the baseline assessment (according to the Time-Line Follow-Back (TLFB; see the 'Measures' section) were included in the treatment component of this study. Data for this study were extracted from the pre-treatment baseline assessment occurring within the context of the aforementioned treatment-outcome study. The study flow of participants entering and exiting from the study is presented in [Figure 1](#).

Procedure

Upon being referred for treatment by the referring caseworker, eligible participants were contacted by phone to preliminarily assess that the above inclusion/exclusion criteria were met. Once a preliminary determination was made that participants met criteria, they were scheduled for pre-treatment assessment where marijuana and hard-drug use and child-safety measures were administered. Baseline assessment data, and not intervention data, were examined in the current study. The study was approved by the Institutional Review Board at the University of Nevada, Las Vegas, and a certificate of confidentiality was obtained from the National Institutes of Health to restrict participant data in the unlikely event of a judicial mandate. All participants provided written informed consent and selected the significant other(s) they would like to be involved in the study. Significant others were provided with information relevant to their role in the study and limits of confidentiality. All significant others provided verbal assent to study procedures. No adverse events were indicated in this study.

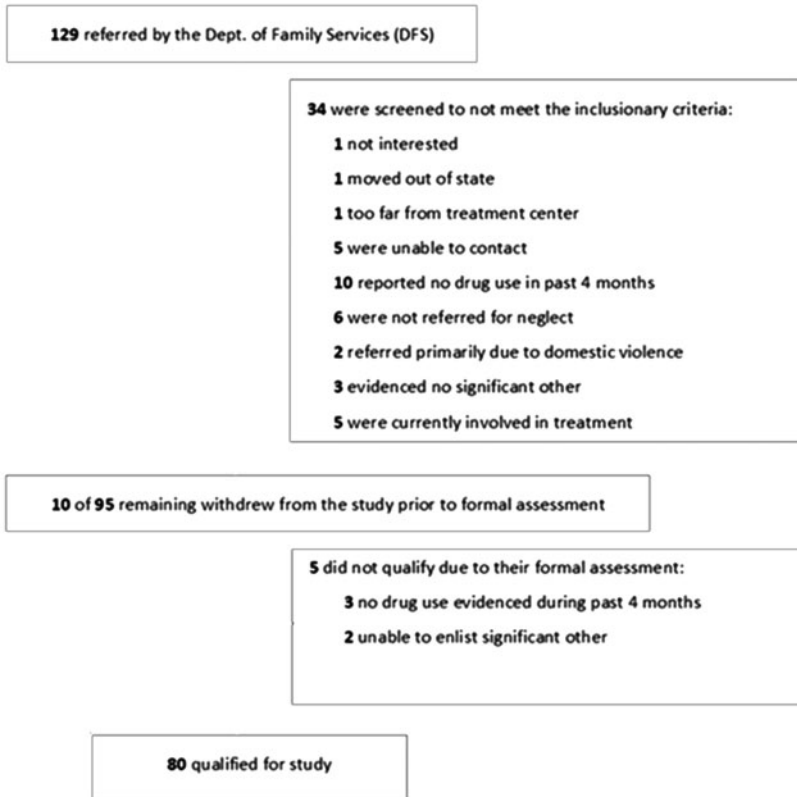


Figure 1: Flow chart of participant entry and exit

Measures

Covariates

The following variables were assessed using a standardised semi-structured interview during baseline and used as covariates in regression analyses (see the ‘Data-analysis plan’ below): the participant’s age (in years), ethnicity (dummy coded: dichotomized into ethnic minority and Caucasian), marital status (0 = single, 1 = married/cohabitating), number of children living in the home and participant’s income. Participants also completed the Parental Stress Index (PSI; [Abidin, 1995](#)) and Child Abuse Potential Inventory (CAPI; [Milner, 1986](#)). The PSI Total Stress score and CAPI-Lie subscale scores were included as covariates in the analyses. These variables were added as covariates in regression analyses because they have been indicated to influence the relationship between child-abuse and neglect potential and substance use ([White and Widom, 2008](#); [Morton *et al.*, 2014](#)).

The CAPI

The CAPI (Milner, 1986) is a 160-item self-report measure that assesses potential of parents to neglect and physically abuse their children. The CAPI-Abuse scale and Lie scale were examined in the current study and obtained during the pre-intervention assessment. The Abuse scale was used as the index of child-abuse and neglect potential. Scores can range from 0 to 486, with a cut-off score of 215 in child-welfare populations. The Lie scale was designed to assess socially desirable responding on the CAPI and so was used as an index of social desirability in the current study. Lie-scale scores range from 0 to 18, with a score of 8 or higher indicating probable response distortion consistent with socially desirable responding for participants with a 12th-grade education or less (Milner, 1986). The CAPI has been utilised to discriminate mothers known to maltreat their children from those who do not (Milner, 1986; Lutzker et al., 1998) and this scale is widely considered the most validated instrument to assess child-abuse and neglect potential (see Walker and Davies, 2010).

Urine drug screens

A urine sample was obtained during the baseline assessment to serve as an objective measure of drug use. An eight-panel urinalysis toxicology screen was used to test for marijuana, cocaine, amphetamines, barbiturates, opiates, benzodiazepines, methadone and phencyclidine. Urine samples were collected and analysed by a trained doctoral student from an independent research lab responsible for conducting blind assessment of participants for the randomised-controlled trial. Urine samples were analysed within one hour of collection. Detection varies between substances due to various inter-individual (e.g. weight, height, metabolism, physical activity) and other drug-clearance factors, but marijuana generally may be detected for up to two to three weeks, whereas most of the hard drugs may be detected for up to a week.

The Time-Line Follow Back

The TLFB (Sobell et al., 1986) was used to examine daily frequency of drug use over the four months prior to the initial assessment. The TLFB utilises calendars to record memorable events that occurred during the reporting period. These events are marked on the calendars to serve as memory anchors to facilitate recall and the participant is queried to recall instances of drug use that were temporally associated with these memory anchors. The TLFB was administered separately to both study participants and their primary adult significant others. Reports were obtained for hard-drug (illicit drugs other than marijuana) and

marijuana use. The same method was used for study participant and significant-other-reported data. The TLFB has been shown to have excellent psychometric support (e.g. see Carey, 1997; Donohue *et al.*, 2004, 2007).

In instances where participants denied both hard-drug and marijuana use on the TLFB but tested positive for a specified drug, a conservative estimate of one day of use for the identified drug was utilised (due to apparent use on at least one day from testing positive on objective measures). This method was also used for significant-other reports on participants' drug use.

Data-analysis plan

All statistical analyses were performed using pre-treatment assessment data. Descriptive statistics (means and standard deviations) were calculated for all variables of interest, including CAPI-Abuse, CAPI-Lie, participant-reported marijuana and hard-drug use, and significant-other-reported marijuana and hard-drug use. Bivariate Pearson correlations were then performed to examine relationships among the variables, with specific emphasis on associations between participant and significant-other reports of hard-drug and marijuana use, respectively. Two hierarchical multiple regression analyses were conducted to assess differential effects of participant-reported drug use and significant-other-reported drug use on CAPI-Abuse, while accounting for the aforementioned covariates (i.e. CAPI-Lie scores, participants' age, ethnicity, marital status, income, Total Stress scale scores from PSI, number of children living in the home). The first regression included participant-reported hard-drug use and marijuana use, while controlling for the covariates. The second regression included significant-other-reported hard-drug use and marijuana use, while controlling for the covariates.

Results

Preliminary analyses

An a priori power analysis using G*Power 3.1.9.2 was conducted to determine the number of participants needed for primary analyses in this study (Faul *et al.*, 2009). For linear multiple regression (fixed model, R^2 increase) with two tested predictors and nine total predictors, effect size of $f^2 = 0.15$, $\alpha = 0.05$ and power = 0.80, a total sample size of sixty-eight was required, suggesting that the sample size of eighty included in the current study was sufficient to test the study hypotheses.

Table 1 Pearson correlations for CAPI subscale scores and TLFB of mothers' drug use as reported by these mothers and their significant others (SOs) ($n = 80$)

Variable	1	2	3	4	5	6
1. CAPI-Abuse	–					
2. CAPI-Lie	–0.8**	–				
3. Mother hard drug	0.23*	–0.10	–			
4. SOs' report of mothers' hard drug	0.19	–0.17	0.37**	–		
5. Mother marijuana	0.15	0.04	–0.09	–0.18	–	
6. SO report of mothers' marijuana	–0.07	–0.01	–0.12	–0.04	0.37**	–
Mean	171.22	6.73	14.55	4.47	20.12	8.24
SD	105.27	3.39	24.10	11.37	35.55	21.89

* $p < 0.05$; ** $p < 0.01$.

Table 1 presents the means, standard deviations and Bivariate Pearson correlations for CAPI scales and TLFB drug use. CAPI-Abuse scores ranged from eighteen to 401 ($M = 171.22$, $SD = 105.27$), while CAPI-Lie scores ranged from 0 to 16 ($M = 6.73$, $SD = 3.39$). Paired samples t -tests revealed that participants reported more days of hard-drug use ($t = 4.09$, $p < 0.001$) and marijuana use ($t = 3.00$, $p < 0.01$) than their significant others. For instance, participants reported on average approximately fourteen days of hard-drug use compared to only about four days of hard-drug use reported by significant others. Similarly, participants reported on average approximately twenty days of marijuana use, whereas significant others reported about eight days of marijuana use.

Urinalysis results revealed that twenty-eight (35 per cent) participants tested positive for hard drugs and twenty-two (27.5 per cent) participants tested positive for marijuana. Taking into account combined hard-drug and marijuana urinalysis results, only four (5 per cent) participants tested positive for both drugs, while thirty-six (45 per cent) tested negative for both drugs.

The urinalysis for hard-drug use detected three (3.8 per cent) participants who self-reported zero hard-drug use on the TLFB and seventeen (21.3 per cent) participants whose significant other reported zero hard-drug use on the TLFB. The urinalysis for marijuana use detected one (1.3 per cent) participant who self-reported zero marijuana use on the TLFB and eight (10 per cent) participants whose significant other reported zero marijuana use on the TLFB. Thus, illicit-drug-use reports of participating mothers were more consistent with urinalysis testing than their significant others.

Based on the Pearson correlations, there was a significant negative relationship between CAPI-Abuse and CAPI-Lie scores ($r = -0.48$, $p < 0.001$). Participating mothers with lower abuse potential tended to have higher Lie scores, suggesting that severity of abuse potential

reports on the CAPI-Abuse scale scores may have been attenuated by social desirability. Participant-reported hard-drug use was significantly and positively correlated with CAPI-Abuse scores ($r=0.23$, $p<0.05$), such that participants with more days of hard-drug use had higher CAPI-Abuse scores than participants with fewer days. The association between significant-other-reported hard-drug use and CAPI-Abuse scores approached statistical significance ($r=0.19$, $p=0.09$). A moderate positive correlation ($r=0.37$, $p<0.01$) was found between participant-reported and significant-other-reported hard-drug use as well as between participant-reported and significant-other-reported marijuana use, suggesting their reports were reliable.

Regression analysis

Participant-reported drug use

To determine the contribution of participant-reported hard-drug use and participant-reported marijuana use to CAPI-Abuse scores while considering social desirability and other covariates, hierarchical multiple regression was used. In the first step of the analysis, the control variables were added, including the CAPI-Lie scores, age, ethnicity, marital status, income, PSI Total Stress score of the participants and number of children living in the home. In the second step, participant-reported hard-drug and marijuana use were added. The change in R^2 indicates the relative contribution of participant reports of their drug use to their child-abuse and neglect potential (see Table 2). Participant-reported drug use accounted for a significant amount of the variance in participants' CAPI-Abuse scores ($\Delta F(2, 70)=5.739$, $p<0.01$, $\Delta R^2=0.074$). Both participant-reported hard-drug use ($\beta=0.230$, $t=2.735$, $p<0.01$) and participant-reported marijuana use ($\beta=0.193$, $t=2.238$, $p<0.05$) accounted for a significant amount of variance in CAPI-Abuse scores. Participants who reported more days of hard-drug use and marijuana use evidenced higher CAPI-Abuse scores than participants who reported fewer days of use.

Significant-other-reported drug use of participants

A second hierarchical multiple regression analyses was conducted to determine the relative contribution of significant-other-reported hard-drug use and significant-other-reported marijuana use of participants to CAPI-Abuse scores (see Table 3). As in the previous regression analyses, the CAPI-Lie scores and other covariates were included in the first model, and significant-other-reported hard-drug use and significant-other-reported marijuana use of participants were added in the second

Table 2 Change in R^2 from hierarchical multiple regressions with child abuse and neglect potential scores regressed on participant-reported (PR) hard-drug use and PR marijuana use ($n = 80$)

Independent variables	Child-abuse potential scores	
	ΔR^2	β
<i>Participant-reported (PR):</i>		
Step 1: Control variables ^a	0.467**	
Step 2: PR hard-drug use	0.074**	0.230**
PR marijuana use		0.193*

^aControl variables included CAPI-Lie scores, age, ethnicity (dummy-coded), marital status (dummy-coded), income, PSI Total Stress score and number of children living in the home.

* $p < 0.05$; ** $p < 0.01$.

Table 3 Change in R^2 from second hierarchical multiple regressions with child-abuse and neglect potential scores regressed on significant-other (SO)-reported hard-drug use and SO-reported marijuana use ($n = 80$)

Independent variables	Child-abuse and neglect potential scores	
	ΔR^2	β
<i>Significant-other (SO)-reported:</i>		
Step 1: Control variables ^a	0.457**	
Step 2: SO-reported hard-drug use	0.016	0.131
SO-reported marijuana use		-0.007

^aControl variables included CAPI-Lie scores, age, ethnicity (dummy-coded), marital status (dummy-coded), income, PSI Total Stress score and number of children living in the home.

* $p < 0.05$; ** $p < 0.01$.

model. Significant-other-reported drug use did not account for a significant amount of the variance in CAPI-Abuse scores ($\Delta F(2, 70) = 1.017$, $p = 0.367$, $\Delta R^2 = 0.016$). Neither significant-other-reported hard-drug use ($\beta = 0.131$, $t = 1.420$, $p = 0.160$) nor significant-other-reported marijuana use ($\beta = -0.007$, $t = -0.082$, $p = 0.935$) accounted for a significant amount of variance in CAPI-Abuse scores.

Discussion

The current study results build upon those from other studies that have found increased prevalence of marijuana and hard-drug use in mothers who abuse or neglect their children (Jones, 2008; Freisthler, 2011; Denby, 2012) and the current findings are consistent with the results of previous studies that have found a positive association between marijuana and hard-drug use and child neglect and abuse (Walsh et al., 2003;

Wells, 2009). Examination of the associations between child-abuse and neglect potential and marijuana and hard-drug use demonstrated differential effects, thereby clarifying the relative contribution of these drug categories to abuse and neglect potential, which has not been examined up to this point. Thus, the current results extend prior findings in a sample of mothers presenting to treatment for child neglect utilising validated self-report and biological measurements of drug use (and collateral reports of drug use), as well as well-validated measures of child-abuse and neglect potential and social desirability.

Implications for behavioural treatment and social work practice

One of the strengths of this study concerns its external validity, as participants completed assessment measures in their pursuit of therapy, and the participant demographics reflect real-world settings. Both self- and collateral reports about the frequency of substance use were obtained from participants and participants' significant others. Urine analyses were also obtained as an objective measure of participants' substance use. Taken together, these methods of measuring substance use are similar to that which is conducted by CPS and other professionals (e.g. probation, social workers). Overall, when evaluating substance use, professionals evaluating a mother's need for social services or assistance in caring for her child typically obtain multiple forms of information in an attempt to provide the clearest and most comprehensive picture of substance-use frequency and severity. Overall, the results inform both behavioural treatment providers and social workers operating under the umbrella of CPS where child-abuse and neglect potential are the focus of assessment. In general, this study demonstrated that these various forms of evaluation should be utilised when assessing substance use and, within this process, mothers' reports are likely to be more sensitive to illicit/non-prescribed marijuana and hard-drug-use detection than collateral reports, and should thus be emphasised in the assessment process.

It is intriguing that participating mothers who were identified for child neglect and drug abuse by CPS social workers reported approximately three times more hard-drug and marijuana use than their significant others. The reports of the mothers were also more consistent with urinalysis results than significant-other reports of their drug use, suggesting the drug-use reports of mothers were more accurate than those of their significant others. Indeed, only 4 per cent of the sample were identified to use illicit hard drugs and 1 per cent were identified to use marijuana through urinalysis testing when the reports of mothers indicated zero use. Drug-use reports of significant others were consistent (positively correlated) with the reports of mothers, although significant others appeared to be less aware of the mothers' drug use or less likely to

report known drug use of mothers. Therefore, although significant-other reports of mothers' illicit drug use appeared to contribute to the reliability of results in this study, their relatively lower reports of mothers' drug use suggest mothers are better informants of their own drug use.

Given this information, behavioural health professionals, including social workers, may benefit most from examining the subjective and objective information provided by the individual client. Many individuals involved with CPS may be resistant to treatment due to fears of further persecution and judgement. This may be particularly true among racial and ethnic minority individuals where evidence supports harsher sentencing for drug-related offences (Sheppard and Benjamin-Coleman, 2001; Pope *et al.*, 2002; Dannerback-Janku and Yan, 2009).

Furthermore, the mothers themselves may be perceived as dishonest or untrustworthy due to their history of substance use and neglectful behaviour towards their children, leading to more oppressive behaviour (e.g. supervised visitations, regular drug screenings, mandated parenting courses) aimed at them by CPS and mental health professions. Consequently, behavioural health providers may attempt to obtain the greatest amount of information from as many sources as possible. Collateral information can thus be especially helpful with clients who may present as defensive or unwilling to participate in treatment. Nevertheless, this study demonstrated that mothers' self-reports may be the most representative of providing accurate information regarding the mothers' substance-use behaviours.

Of note, it may be that, since mothers knew collateral reports and biological drug screens were being separately obtained from their significant others, they were more motivated to provide accurate estimates of their own drug use. This matter was not directly examined in the current study. Nonetheless, if this were the case, there may be some value in obtaining such reports from significant others and biological screening data to assist in improving mothers' honesty even though it appears significant others and biological drug screens underestimate mothers' drug use.

Overall, hard-drug use appears to be more strongly associated with child-abuse and neglect potential compared to marijuana, and these results are consistent with contemporaneous decision-making practices of many CPS agencies, as well as social workers. This study demonstrated that CPS agencies and mental health treatment providers, specifically social workers, should focus on providing additional or distinct resources to hard-drug users as compared with marijuana users (Pelton, 2008). Drug-type information should also be utilised to assist social workers and other professionals in making child-placement recommendations (Wasserman and Leventhal, 1993; Davis, 1994; Laslett *et al.*, 2012).

Limitations

Despite the promising nature of these findings, there are limitations that should be considered. The current sample was relatively small ($n = 80$) and a cross-sectional design was utilised. Therefore, future studies will need to validate the findings in larger samples and through longitudinal designs to better understand the relationship among marijuana and hard-drug use and child-abuse and neglect potential, and to examine the generalisability of study results. This will be an important initiative because populations within child welfare are notoriously known to vary.

Another important limitation specific to the generalisability of study findings concerns the nature of study referral. Along this vein, our primary reason for assessing social desirability and utilising multiple assessment measures of marijuana and hard-drug use was to enhance study validity because (i) the assessed population is prone to deny future child-abuse and neglect potential and marijuana and hard-drug use when presenting to behavioural treatment and (ii) comorbid marijuana and hard-drug use and child abuse and neglect are detected to occur in the majority of cases served by child-protective service agencies. Therefore, the study findings may not generalise to similar child-welfare populations where marijuana and hard-drug use and/or child abuse and neglect have not been detected by social workers prior to behavioural treatment referral.

Concluding remarks

The current study provides an important first step and blueprint to elucidating the relationship between marijuana and hard-drug use and child abuse and neglect with higher levels of scientific rigour (i.e. psychometrically validated measures, assessment of socially desirability, collateral reports). Mothers with lower child-abuse and neglect potential scores evidenced higher Lie scores, suggesting their reports on the CAPI may have been compromised by social desirability. Further examination indicated that mothers' reports of illicit hard-drug use accounted for a significant amount of variance in CAPI-Abuse scores, irrespective of social desirability or socio-demographic covariates. Similarly, marijuana-use reports by mothers also account for a significant amount of variance in CAPI-Abuse scores, but the relationship was relatively weaker for marijuana use than hard-drug use. The reason for this was not directly examined, but is consistent with the notion that marijuana has fewer negative consequences in relation to child-abuse and neglect potential. This latter consideration is important because marijuana is anticipated to impact neglectful behaviours by reducing goal-oriented behaviour (Newcomb and Loeb, 1999) and contributing to a more distant, rejecting and

withdrawn parenting style (Dunn et al., 2002; Denby, 2012). The results of this study, utilising psychometrically validated self-report measures and controlling social desirability and other relevant covariates, extend the results of previous studies that have found hard-drug use to be positively associated with child-abuse and neglect potential, and confirm that child-abuse and neglect potential are positively associated with marijuana use in these mothers.

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