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# Child Neglect and Its Association With Subsequent Juvenile Drug and Alcohol Offense

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**Abstract** This study presents empirical findings about the association between childhood neglect and adolescents' subsequent involvement with drug and alcohol related offense from a sample of 251 neglected children and their community matched control ( $N = 502$ ) from a 17-year period longitudinal data set. Findings confirmed that neglected children were at greater risk to be arrested for later juvenile drug and alcohol offenses than non-neglected children. Being male, White and the presence of domestic violence also significantly contributed to elevated risks of being arrested for juvenile drug and alcohol violations for neglected children. Implications for practice and future research are discussed.

**Keywords** Child neglect · Juvenile drug and alcohol offenses · Gender difference · Ethnic difference

## Introduction

Child neglect is an extremely serious issue challenging the healthy development of children. In the United States, about 7.4 out of every 1,000 children in the general

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population experience neglect; constituting 64.5% of all child maltreatment victims (DePanfilis 2006). In addition, the data collected from the National Child Abuse and Neglect Data System (NCANDS) revealed that there were more than half a million child neglect victims in 2008 and approximately 32% of child maltreatment fatalities occurring in the same year were attributed to child neglect alone (Child Welfare Information Gateway 2010). Since neglect is more likely to be a long term developmental issue rather than an event-specific crisis (McSherry 2007), many incidents of child neglect “fell under the radar” and went unnoticed by teachers, healthcare workers, law-enforcers, and others. As a result, many of these victims failed to receive any child welfare services and appropriate health care in a timely manner (Thompson 2010).

Although the definition of “child neglect” contains a variety of contextual complexities (McSherry 2007), it can be broadly defined as a type of child maltreatment that refers to the failure by the caregiver to provide needed, age-appropriate physical, educational, emotional, and medical care for the child (USDHHS 2009). There is, however, a critical challenge presented by the varying standards of what level of such care is considered to be sufficiently “adequate” by various researchers, practitioners, policy-makers and law enforcers (Dubowitz 2007). Furthermore, in various research on child maltreatment, the focus has primarily been directed to the study of abuse, perhaps due to the fact that harm inflicted on abused children is often more distinguishable; albeit the negative effects of child neglect, in reality, could be equally damaging (Gaudin 1999; Hildyard and Wolfe 2002). In many cases, child neglect was also found to be the precursor to abuse (Ney et al. 1994).

Despite the fact that child neglect has been increasingly reported as a serious social problem, research on the specific effects of child neglect remains limited (Schumacher et al. 2001; Zuravin 1999). To date, a substantial body of research has examined the negative effects of maltreatment as a collective term on children and adolescents, however, there is seldom a differentiation made between child abuse and neglect. Instead the majority of research on the topic combines child abuse and neglect into a single category. Behl et al. (2003) expressed the need to conduct quantitative studies exclusively on child neglect after their extensive review of child welfare literature. Although child neglect often co-exists with other types of maltreatment, grouping it with other forms of maltreatment would make it challenging to determine whether the consequent negative effects are due to neglect itself or in combination with other forms of abuse. This could potentially obscure important behavioral or psychological distinctions (Widom 1989).

Childhood is a pivotal developmental period of the life course where child neglect could lead to long-term detrimental consequences. Child neglect has been found not only to cause long lasting poor cognitive performance and lower academic achievement (Kendall-Tackett and Eckenrode 1996) for the victims, but also, potentially causes child neurobiological deficits—impairment of executive functions as well as elevation of the stress hormone cortisol (De Bellis 2005). In a study by Kendall-Tackett and Eckenrode (1996), results showed that neglected and abused/neglected children had significantly lower grades than the control group, but the grades of neglected children did not differ significantly from abused/neglected

children. This finding suggests that neglect alone, perhaps, has a significant effect on functioning, and poses the need for further examination into its consequences.

Children who were neglected during at a young age were found to have a significantly higher tendency to be involved in risky health behaviors such as violence perpetration, drug and alcohol abuse, and other behaviors during adolescence, and many extend these behaviors well into their adulthood (Brook et al. 2005; Hofstra et al. 2000; Moran et al. 2004; McGue and Iacono 2005). Among these delinquencies, underage alcohol abuse is a leading social and public health problem in this country. According to statistics from the 2005 Monitoring the Future (MTF) study, an annual survey of U.S. youth, more than 67% of 10th graders, and approximately 40% of 8th graders have consumed alcohol. Among these underage drinking adolescents in their respective groups, 22 and 11% were found to engage in binge drinking within the past 2 weeks (Johnston et al. 2006).

Even without knowing clearly whether or how the child neglect experience alone would increase the risks for adolescents' drug and alcohol abuse related offense, the relationship between child maltreatment and later adult use of alcohol has been established through empirical study. For instance, Ireland et al. (2002) found in their study that adolescents who have experienced child maltreatment are more likely to engage in drug and alcohol abuse, while Hamburger et al. (2008) reported a significant association between child maltreatment and preteen alcohol abuse among high risk youths. Additionally, Widom et al. (1995) reported that for women, childhood neglect significantly predicted the number of alcohol-related symptoms during adulthood while controlling for parental substance problems, childhood poverty, race, and age. In a study of female prisoners, Mullings et al. (2004) found that child neglect, not physical or sexual abuse was a significant predictor of later alcohol dependency. Specifically, neglect was the only childhood maltreatment variable that demonstrated direct effect.

Since the psychosocial processes by which child neglect alone could lead to subsequent alcohol and drug abuse during adolescence are less well understood, there is a need to conduct research to better understand the relationship between child neglect and later alcohol and drug abuse. An important question to ascertain is whether adolescents who have experienced child neglect are at higher risk later in life for alcohol and drug abuse. This research aims to investigate the long term connection between childhood neglect and adolescents' subsequent drug and alcohol offenses. The data analyzed derives from an existing data set that incorporates prospective research design in the original data collection. This study investigated three primary questions regarding the role of child neglect on juvenile drug and alcohol offenses. First, in comparison to their matched control group, are child neglect victims more likely to be involved with subsequent juvenile drug and alcohol offenses? Second, are there gender and ethnic differences regarding juvenile drug and alcohol offense behaviors between child neglect victims and their matched control? Third, what are the potential risk factors from natural parents on subsequent juvenile drug and alcohol offenses for child neglect victims? Addressing these questions moves forward our ability to identify the connection between child neglect and subsequent drug and alcohol offenses during adolescence.

## Drug and Alcohol Abuse and Childhood Neglect

De Bellis (2002) used a developmental traumatology perspective to discuss the connection between child maltreatment related PTSD and the likelihood of alcohol and substance use among adolescents and adults. Adverse life experiences during childhood made a serious and pervasive impact on biological stress response systems and healthy brain development leading victims to use drugs and alcohol as a response to their previous traumatic experiences. In a study by Dube et al. (2003), findings indicated that the more severe the childhood abuse and neglect, the more likely patients' were to report illicit drug use problems, addiction to illicit drugs, and prenatal drug abuse.

From an attachment perspective, neglected children who are unable to cultivate a bonding attachment relationship with their unresponsive early caregivers are more likely to develop a sense of insecurity, poor social skills, and peer problems (Crittenden and Ainsworth 1989; Howes and Eldredge, 1985). These challenges in attachment relationships could potentially lead to the formation of negative models of self, parents, and peers in relationships, and subsequently, deterioration of self-esteem and self-control. In a longitudinal study of peer relationships and self-esteem in maltreated children, results revealed that lack of self-esteem was associated with inadequate and inappropriate parental supervision (Bolger et al. 1998). Low self esteem has also been found to be connected to adolescent drug and alcohol abuse (Wild et al. 2004). Likewise, Pires and Jenkins (2007) found that parental rejection was positively related to adolescent illicit drug use. In response to a perceived loss of self-esteem and control, as well as a sense of hopelessness, adolescents were found more likely to use drugs as an avenue to "escape" from the realities of their daily lives (Newcomb and Harlow 1986).

In contrast to physically abused children, neglected children have more serious cognitive deficits, socializing problems, and appear to exhibit more internalizing behaviors instead of externalizing behaviors (Hildyard and Wolfe 2002). Since childhood neglect is associated with effects that are often unique from childhood abuse but no less severe than the effects of physical and sexual abuse (Dubowitz 2007), there is a dire need to conduct research that would distinguish the long term impact of neglect alone on a child from that of other forms of maltreatment. While Widom and White (1997) discovered that childhood maltreatment is significantly related to adult alcoholism and substance abuse, they did not however examine these behaviors during their critical developmental phase—adolescence, which could very likely shed light on the various pathways that child neglect may lead to drug and alcohol abuse over the entire maturity period from childhood to adulthood. This consideration leads to some interesting questions; could the effect of child neglect directly link to adolescent substance abuse behaviors? Could such health risk behaviors place them at higher risk of being involved with the juvenile justice system by being arrested for juvenile drug and alcohol offenses?

## Parental Risk Factors of Development Outcomes of Neglected Children

Several risk factors such as parental substance abuse, parental mental health issues, and the presence of domestic violence at home prevent parents from

assuming parenting tasks and responsibilities. It would be intriguing to investigate whether this could further aggravate the drug and alcohol issues for their neglected children and pose further negative impact on their healthy development.

Research has found that adolescents who had family members with alcohol or drug use problems were at increased risk for current substance abuse/dependence. It is likely that this factor could put adolescents who are abusing substances at a higher risk of arrest for juvenile drug and alcohol offenses (Kilpatrick et al. 2000). Likewise, parents or primary caregivers who have mental health issues can potentially pose serious threats to healthy child development due to their potential to be hostile, impulsive, inconsistent, and socially inappropriate making it difficult to provide appropriate care to their children (Vorrasi et al. 2005).

Children who have witnessed domestic violence, and experienced physical and sexual abuse not only exhibit higher levels of depressive and other traumatic symptoms (Graham-Bermann et al. 2009), but are significantly associated with pre-teen alcohol abuse initiation (Hamburger et al. 2008) and referral to juvenile court for delinquent behaviors (Herrera and McCloskey 2001). Therefore, it is possible that the presence of domestic violence may reduce the likelihood of caregivers to provide appropriate parenting to children. This exacerbates child neglect and adolescents begin to use drugs and alcohol to cope with life stressors.

### **Personal Traits, Neglect, and Adolescent Drug and Alcohol Abuse**

Several personal traits have been linked to increased risks of adolescent drug and alcohol abuse. Male gender, older age, and minority status are known risk factors for adolescent drug and alcohol abuse. Varying results have been found in gender difference response and adaptation to child neglect relative to future drug and alcohol behaviors. Females seem to be more affected by victimization experience, although boys are more likely to be the target of child abuse and neglect (Dube et al. 2003). Horwitz et al. (2001) reported that adult females who have experienced childhood abuse and neglect have a higher tendency to abuse drugs and alcohol in comparison to female control groups. This is postulated to be a consequence of the tendency toward inward coping for female victims.

With regard to age, research conducted by Kilpatrick et al. (2000) revealed that after controlling for other risk variables such as history of child abuse, PTSD, and family background, older age increased the risk of alcohol, marijuana, and hard drug abuse.

Outcomes based on race show that racial and ethnic differences exist in terms of psychosocial functioning and behavioral history (Vaughn et al. 2005; Vaughn et al. 2008). Kilpatrick et al. (2000) also found that African Americans, not Hispanics or Native Americans, were 3 times less likely to be substance dependent as compared to White Americans. These findings highlight the significance of including age, gender, and race in studying the effect of child neglect only on subsequent drug and alcohol abuse.

## Hypotheses

In this study, it is hypothesized that victims of childhood neglect are more likely to be arrested for juvenile drug and alcohol offenses than their community matched pairs. Second, we expect that adolescents who are male, minority, and neglect victims are at greatest risks of being arrested for juvenile drug and alcohol offenses in the child neglect and the control groups. Finally, we expect parental substance use, parental mental health issues, and presence of domestic violence will elevate the risk of being arrested for drug and alcohol violations for adolescent victims of childhood neglect.

## Method

### Sample

This study utilized data from prospective research, the “Childhood Victimization and Delinquency, Adult Criminality, and Violent Criminal Behavior in a Large Urban County in the Northwest United States, 1980–1997” by English and Widom (2003). It contains 877 substantiated cases of child abuse and neglect. The abuse/neglect sample was pulled from courthouse dependency records from 1980 to 1984. Dependency information was coded based on the Maltreatment Classification Coding Scheme (MCS) developed by Barnett et al. (1993). Based on each child’s gender, age, race, and family socioeconomic status, 877 matched cases were identified from Department of Health birth records data. The arrest records were retrieved from multiple law enforcement offices from 1980 to 1997. Five hundred and two adolescents—251 childhood neglect-only victims and 251 community matched control were selected from the original data to conduct this study. Childhood neglect includes cases indicating 1) parental failure to provide—food, clothing, shelter, medical, hygiene, 2) lack of supervision—lack supervision, environment, substitute care, 3) neglect with abandonment and no parent capable to provide care. The absence of parents or adequate legal guardians who could provide appropriate care for children was the major reason for the neglected children to come under the care of the child welfare system in this study ( $n = 212$ , 84.5%). Children who were victims of both child neglect and other types of child maltreatment were not included in this study.

### Study Variables

The dependent variable for this study is the number of arrests for juvenile drug and alcohol offenses. Juvenile drug and alcohol related offenses include general or illegal possession of controlled substance, manufacturing, delivering, or trafficking of controlled substance, and minors in possession or purchasing of alcohol. Individual’s age, gender, race, and residence census track socioeconomic information were used as demographic controls in sampling design to match child neglect victims and their community counterpart. There was no direct measure of individual family socioeconomic status in the data originally collected by English and Widom (2003). Additionally, potential risk factors from natural parents were explored as

contributors to the children's drug and alcohol offenses. Information about parental substance use, domestic violence at home, and parent mental health issues was examined. Parent risk factors were dichotomously coded (yes = 1).

### Analysis Strategy

STATA 10.0 was used to conduct our analyses for this study. Univariate analyses were adopted to generate a profile of the study participants. Bivariate analyses were conducted to compare the differences between the neglected group and the control group on later involvement with juvenile drug and alcohol offense. Tobit regression analysis was performed to analyze future juvenile drug and alcohol offenses only for the neglect group given that parent information about the control group was not available in the data set.

Tobit analysis was employed because juvenile drug and alcohol offenses were relatively rare for most adolescents in the data set; most of the adolescents had a value of zero for this variable. Another rationale for the Tobit model was that juvenile drug and alcohol arrests represent repetitive and severe juvenile drug and alcohol abuse behaviors that elevate the chances of arrest for these offenses. The Tobit model is suitable to estimate the effects of the predictors on this latent dependent variable (Tobin 1958). Logistic regression analysis was not adopted because if the numbers of juvenile drug and alcohol offense were converted into a dichotomous variable to represent whether an arrest for juvenile drug and alcohol violation occurred, the variability in the original data would be lost resulting in a loss of information.

## Results

### Descriptive Statistics

Table 1 presents the demographic information of the study participants. The neglect and control groups are identical in their demographic characteristics. Overall, there were more males than females in this study sample. There were approximately two thirds White and one third minority youth. The data collection design captured any drug and alcohol violation under age 18. Over a quarter of natural parents had issues of substance abuse, one fifth had mental health problems and nearly 4% contended with domestic violence. Slightly more than half of the neglected children were placed in foster care after dependency was substantiated. The average placement episodes were two with an average of 885 days in placement. However, the average length of placement varied widely ( $SD = 1073$ ).

The major research question in this study asked: Does neglecting the basic needs of children increase their future risk of juvenile drug and alcohol offense? In reviewing the juvenile arrest records, findings indicated that child neglect victims were significantly more likely to be involved with juvenile drug and alcohol related offense ( $X^2 = 6.67, p < .01$ ) (see Table 2). Compared to the control group, the child neglect group was nearly 1.7 times more likely to commit juvenile drug and

**Table 1** Study participants characteristics ( $N = 502$ )

	Neglect group		Control group		Totals	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Gender						
Male	138	54.9	138	54.9	276	54.9
Female	113	45	113	45	226	45
Ethnicity						
White	160	63.7	160	63.7	320	63.7
African American	64	25.5	64	25.5	128	25.5
Native Americans	23	9.2	23	9.2	46	9.2
Other	4	1.6	4	1.6	8	1.6
Age (in years) <sup>a</sup>						
Mean	23.86		23.80			
SD	2.83		2.82			
Parent characteristics						
Substance use						
Yes	69	27.5				
No	182	72.5				
Mental health issues						
Yes	50	19.9				
No	201	80.1				
Domestic violence						
Yes	9	3.6				
No	242	96.4				

<sup>a</sup> As of March 1, 1999

alcohol related offenses ( $RR = 1.67$ ). Thus, the first study hypothesis that victims of childhood neglect are more likely to be arrested for juvenile drug and alcohol offenses than their community matched pairs was confirmed. Additionally, among those who had a record of juvenile alcohol and drug offenses, the neglect group had higher average frequencies in violating juvenile drug and alcohol regulations than their matched control (mean = 3.69,  $SD = 2.97$  versus mean = 2.21,  $SD = 1.98$ ,  $t = 2.80$ ,  $p < .01$ ).

Our second hypothesis was partially supported: male adolescents had a higher percentage of being arrested for drug and alcohol related offenses. Among study participants, male child neglect victims were most likely to violate juvenile drug and alcohol regulations ( $X^2 = 5.48$ ,  $p < .05$ ). Compared to their control group counterpart, the neglect group was 1.6 times more likely to have problems with the law as juvenile drug and alcohol offenders ( $RR = 1.63$ ). However, our hypothesis that ethnic minority status would contribute to higher percentages of violating juvenile drug and alcohol regulations was not supported. Although this study also identified ethnic group differences in terms of the effect of child neglect on later juvenile drug and alcohol offense, the difference was found only for the White

**Table 2** Comparison of percentage/likelihood of juvenile drug and alcohol offenses ( $N = 502$ )

	Neglect $n = 251$ (%)	Control $n = 251$ (%)	$X^2$	Relative risk
Drug and alcohol offenses**	21.9	13.1	6.67	1.67
Gender				
Male*	31.9	19.6	5.48	1.63
Female	9.7	5.3		
Ethnicity				
White*	15.6	8.1	4.30	1.93
African American <sup>†</sup>	37.5	23.4	2.99	1.60
Native Americans	26.1	21.7		
Other	0.0			

\*  $p < .05$ , \*\*  $p < .01$ , <sup>†</sup>  $p = .08$

adolescent group. Compared to the White matched control group, White neglected children were nearly two times more likely to commit drug and alcohol related crimes during adolescence ( $X^2 = 4.30$ ,  $p < .05$ ,  $RR = 1.93$ ). However, this relationship did not hold for other ethnic groups in this study.

The study investigated other potential risk factors—characteristics from the individual child, their natural parents, and placement experience—that might contribute to juvenile drug and alcohol abuse of childhood neglect victims. There are a limited number of variables that could be included in this study as the data do not contain information about the family background of non-maltreated children (see Table 3). Three variables appeared to be noteworthy for further exploration regarding association with later juvenile drug and alcohol offenses at the bivariate level: male gender ( $r = -.19$ ,  $p < .001$ ), domestic violence ( $r = .13$ ,  $p < .05$ ), and minority status ( $r = -.12$ ,  $p = .06$ ).

### Result from Regression Analysis

For comparison with the Tobit model, an ordinary least square regression analysis of the data from the neglected group was conducted (See Table 4). Previous literature has highlighted the significant impact from natural parents on adolescent substance use behaviors; consequently, parental characteristics as predictors in the regression model are included here. The result indicated that the model was significant ( $F(5, 245) = 3.47$ ,  $p < .01$ ). Gender was the only significant predictor of the numbers of juvenile drug and alcohol arrest ( $\beta = -.17$ ,  $p < .01$ ). Males were more likely to have higher frequencies of juvenile drug and alcohol violation than female. Interestingly, none of the parental characteristics appeared to be a significant predictor of later juvenile drug and alcohol offenses for child neglect victims. A Tobit analysis of the same set of data was conducted (See Table 5). The Tobit regression, which modeled the underlying propensity of juvenile drug and alcohol abuse had uncovered slightly different results ( $X^2 = 29.12$ ,  $df = 5$ ,  $p < .0001$ ). First, larger effect sizes from the significant predictors were detected in the Tobit

**Table 3** Correlation of study variables for child neglect victims ( $n = 251$ )

	1	2	3	4	5	6
Drug and alcohol offense <sup>1</sup>	–	–.19**	–.12 <sup>†</sup>	–	–	.13*
Gender (female = 1) <sup>2</sup>	–.19**	–	.13*	–	–	–
White versus others <sup>3</sup>	–.12 <sup>†</sup>	.13*	–	–	–	–
Parent substance abuse <sup>4</sup>	–	–	–	–	–	.22**
Parent mental health issues <sup>5</sup>	–	–	–	–	–	–
Domestic violence <sup>6</sup>	.13*	–	–	.22**	–	–

Table shows significant correlation only

\*  $p < .05$ , \*\*  $p < .01$ , <sup>†</sup>  $p = .06$

**Table 4** Ordinary least square regression estimates: number of juvenile drug and alcohol offenses among child neglect victims ( $n = 251$ )

Predictors	Coefficient	SE
Female (male)**	–0.17	0.26
White (Non-White)	–0.09	0.27
Parental substance use	–0.08	0.29
Parental mental health problems	–0.02	0.32
Domestic violence	0.15	0.70
(Constant)****	1.42	0.24

$F(5, 245) = 3.47, p < .01$

\*\*  $p < .01$ , \*\*\*\*  $p < .0001$

regression than those in the ordinary least square regression. For example, gender was a significant predictor of juvenile drug and alcohol offenses in both models. The regression coefficient for female gender was  $-0.17$  while the corresponding coefficient in the Tobit model was  $-4.28$ . Second, the Tobit model revealed additional significant risk factors of juvenile drug and alcohol offenses. Ethnic minority status ( $\beta = -2.43, p < .05$ ) and families plagued by domestic violence ( $\beta = 5.86, p < .05$ ) were both significant predictors that increased the risk for later juvenile drug and alcohol offenses for neglected children. However, in terms of other parental risk factors on later juvenile drug and alcohol abuses, parental substance abuse and mental health issues did not have a statistically significant effect on propensity for juvenile arrest. Thus, the third study hypothesis was only partially supported in that domestic violence at home was a significant predictor of juvenile drug and alcohol offense for child neglect victims.

## Discussion

Given that literature on child neglect only is scarce in contrast to child maltreatment, this study is among the first to conceptualize and investigate how child neglect alone

**Table 5** Tobit regression estimates: number of juvenile drug and alcohol offenses among child neglect victims ( $n = 251$ )

Predictors	Coefficient	SE
Female (male)****	-4.28	1.21
White (Non-White)*	-2.43	1.07
Parental substance use	-1.03	1.26
Parental mental health problems	-0.74	1.39
Domestic violence*	5.86	2.38
(Constant)	-1.46	0.96

$$X^2 = 29.12, df = 5, p < .0001$$

\*  $p < .05$ , \*\*\*\*  $p < .0001$

could result in subsequent alcohol and drug abuse. The unique contribution of the study is to utilize a prospective data set and empirically substantiate a set of detrimental effects from child neglect. Through the utilization of the Tobit model, this study confirms various factors that could have contributed to juvenile drug and alcohol violations for child neglect victims, and provides further research direction on the potential interaction effects of child neglect only, age, gender, and ethnicity.

Based on the review of theoretical and empirical literature, various contributing factors, from which childhood neglect could potentially lead to juvenile drug and alcohol abuse were identified. The result from this study confirms an adverse effect of child neglect in youth development. Child neglect victims had elevated risks of abusing drugs and alcohol during adolescence when compared to their matched controls as demonstrated by higher percentage of being arrested for juvenile drug and alcohol offenses. In addition, among those who had a record of juvenile alcohol and drug violations, the neglect victims had higher average frequencies in violating juvenile drug and alcohol regulations than their matched control. With the built-in matched control data collection design, this study confirms the negative effect from child neglect can extend beyond the influence of an individual's age, gender, race, and family socioeconomic status. These findings are similar to those from previous studies that adolescents with child abuse and/or neglect history are at significantly higher risk of using alcohol and illicit drugs (Harrier et al. 2001; Moran et al. 2004), engaging in dangerous drug-related activities (Lau et al. 2005), and other delinquency behaviors (Wall and Barth 2005).

### Gender Difference in Drug and Alcohol Abuse as a Response to Childhood Neglect

In general, male adolescents and adults are more likely than their female counterparts to use alcohol or other drugs, and commit a drug and alcohol offense (Johnston et al. 2004; Widom and White 1997). This study confirms males are more likely than females to commit juvenile drug and alcohol offense in both the neglect victim and control groups. Although previous evidence suggests that the effects of child abuse and neglect could narrow the gender difference effects for subsequent

drug and alcohol offense (Horwitz et al. 2001; Schuck and Widom 2003; Widom and White 1997), our study found significant gender effect on juvenile drug and alcohol abuse behaviors for child neglect victims. Not only are boys at greater risk of being the target of child abuse and neglect, but childhood neglect also exercises greater negative influence on boys. Neglected boys were approximately 60% more likely to abuse drugs and alcohol during adolescence than their matched control group. The Tobit analysis yields similar findings and being male appeared to be a significant risk factor of juvenile drug and alcohol abuse for child neglect victims while controlling for other risk variables such as parental mental health issues, parental substance abuse, and presence of domestic violence at home. Similarly, Kirisci et al. (2001) revealed in their study that boys who were neglected during childhood were at greater risk for having used alcohol, marijuana, and tobacco, and for qualifying for a substance use disorder by age 19. Hamburger et al. (2008), similarly have reported heavy episodic drinking was related to childhood sexual abuse in boys, not girls.

For females, this study does not find any evidence that would suggest child neglect could significantly increase their risks of violating juvenile drug and alcohol regulations as compared to the matched control group. Widom et al. (1995), as well as Ireland and Widom (1994), found that neglected girls were at increased risk for subsequent alcohol problems during young adulthood, and that there was no relationship between childhood victimization and subsequent alcohol abuse found in men in their study. A possible explanation for these varying findings could be that girls are more discrete in their abuse and less volatile in behavior so that they do not come to the attention of police. Also it could be that law enforcement officials are less willing to arrest girls for this type of behavior and more likely to single out boys. This variation speaks to the fact that we need to continue to study child neglect as a separate construct because there are not enough studies signifying agreement or concurrence.

#### Interaction Effect of Race and Child Neglect on Adolescent Drug and Alcohol Abuse

Generally, minority status was one of the significant risk factors for juvenile drug and alcohol violations (Kilpatrick et al. 2000). Compared to community matched controls, childhood neglect functions equally for youth from various ethnic groups except for those who are White. An important question arises from these findings: why does child neglect appear to have more negative effects on White children than on other minority groups? The possible explanation could be that relative to White children, minority children are more challenged with various issues such as living in disadvantaged neighborhood, lower family income, and other risk factors, which appear to have cumulative negative effects on their healthy development (Gerard and Buehler 2004). As a result, child neglect would merely be one of the many negative life experiences for minority youth, and thus, its unique connection to the higher propensity to adolescent drug and alcohol abuse could be masked by other adverse life experiences.

### Influence from Natural Parent/Caregiver Problems

Consistent with other research findings (Hamburger et al. 2008), the findings of this study demonstrate that domestic violence was a significant predictor of an elevated risk of being arrested for juvenile drug and alcohol abuse for neglect victims. In fact, domestic violence was the strongest predictor of juvenile drug and alcohol offenses in our study model for child neglect victims. Such findings also confirm the multiplicative negative effect from the interrelatedness of multiple forms of adverse childhood experience on children (Dong et al. 2004).

However, parent substance abuse and parental mental health issues were not significant risk factors of being arrested for juvenile drug and alcohol usage for former neglect victims, although these two factors have been well documented to increase negative developmental outcomes and risk behaviors for child maltreatment victims. These results are intriguing from a research and practice perspective, whereby there are several possible explanations to this finding. First, the majority of child neglect victims in this study were placed in the child welfare system due to the lack of an adequate caregiver. Consequently, child neglect victims might not have had the opportunity to model substance abuse behaviors from their absent caregivers. A second possible explanation is that child neglect victims might not want to model the substance abuse behaviors of their caregivers. Those who have personally experienced the effect of parental substance abuse may not wish to adopt such behaviors because of the personal pain they have endured. Finally, adolescence is the developmental stage in which an individual expands social networks independently from family. Many adolescents gain social support and model positive behaviors from their peers or other supportive adults instead of replicating their caregivers' behaviors.

Additionally parental mental health issues did not appear to be a significant predictor of juvenile drug and alcohol violations in this study. Since we do not know the mental health status of neglecting parents from this data, it is likely that mental health issues mainly inhibited parents' ability to provide care, rather than becoming abusive to their children. Instead of turning to use drug and alcohol, neglected children can be sympathetic of their parents' condition and become the caregiver to their parent. Also as we do not know if the recorded parent mental health issue was a prolonged or temporary condition; the data set could be limited in capturing its effect on the neglected child.

Overall, our findings further reinforce the idea that the etiology of child neglect and child abuse could be very different. Not only are the risk factors for child abuse and child neglect different, but also the risk factors that contribute to adverse developmental outcomes can also vary significantly. What contributes to undesirable behavioral outcomes of child neglect victims warrants more investigation in the future. These findings concur with the emphasis by researchers such as Dubowitz (2009, 2007) that there is a pressing need to study the behavioral and psychological responses of child neglect, independent from child abuse as the outcomes are very likely to be different.

## Limitation

The exclusive reliance on official records for both child maltreatment and arrest information only capture the child neglect cases which were so severe that they were brought into the child welfare system. In the same vein, the official juvenile arrest record was reflective of the severity and high propensity for adolescent drug and alcohol abuse behaviors. To fully understand the connection between child neglect and adolescent drug and alcohol abuse, future study might want to consider use a mixed method approach to conduct survey and in-depth interview to solicit information from adolescents.

Many other risk factors such as individual mental health information, of interest to researchers and practitioners, for child neglect and adolescent drug and alcohol abuse were not included in official records. As a result, there would be many significant risk factors for juvenile drug and alcohol abuse behaviors that were not available. Additionally, since the original data set does not include information on age at the time of child neglect, we could not control for this factor. Similarly, this current study was unable to model the predictors for juvenile drug and alcohol offenses for the non-neglected group due to the unavailability of family background variables. Likewise, the lack of information on family, peer, or school characteristics from the original data set limited the scope of the investigation.

## Implication for Future Research and Practice

This study confirmed several risk factors that increase the likelihood of neglected adolescents being arrested for drug and alcohol violations. More research is needed to identify the risk and protective factors for juvenile drug and alcohol abuse among this vulnerable and under studied population. Specifically, the identification of the protective factors for child neglect victims would inform the design and delivery of effective intervention in child welfare services.

Findings from this study highlight that more study is needed to explore various responses from different gender and ethnic groups in order to understand the impact from child neglect. Furthermore, since parental mental health could represent a wide range of challenges that may impact their children in different ways, future study is required to further explore this important connection between different types of parental mental health issues and their various impact on child neglect victims.

### Implication for Practice

Important implications for practice are highlighted in this study related to the needs of children and youth who experience child maltreatment. Child welfare has tried to encapsulated child abuse and neglect under the umbrella of maltreatment, a convenient shorthand, particularly in the areas of policy and practice. This study provides clear evidence of the need to make a distinction between abuse and neglect. There must be recognition of the potentially unique needs, outcomes, strengths and

challenges that are presented by children that are abused from those that are neglected. This understanding can better assist practitioners in targeting treatment efforts within settings that may be involved with these youth, e.g. child welfare settings, juvenile facilities, and drug and alcohol treatment centers. This type of targeting must occur on two levels, first to determine if maltreatment has occurred and second to distinguish what type of maltreatment whether abuse, neglect or both have been experienced. Prior research indicates a high prevalence of maltreated youth within juvenile justice facilities (Jonson-Reid and Barth 2000; Malmgren and Meisel 2004; Stouthamer-Loeber et al. 2002) and evidence that the needs of maltreated youth may be qualitatively different from their non-maltreated counterparts in drug treatment facilities (Dennis and Stevens 2003) provides further support for making this important distinction.

Additional targeting efforts related to gender are suggested in this study. While there may be some inconsistency in the body of research related to gender and the effects of abuse and neglect, this study clearly shows a significant difference; approximately 60% of neglected boys were more likely to abuse drugs and alcohol during adolescence than their matched control group and were at greater risk for alcohol and drug related offenses. This suggests the need for practitioners to explore gender differences paying close attention to the fact boys may be more inclined to engage in behaviors that will involve alcohol and drug abuse and do so in a way that will cause them to be involved in the criminal justice system. Practice efforts therefore must be gender sensitive and specific to match the unique needs and behaviors of boys and girls.

The deleterious effects of maltreatment are widely reported in the literature and this study provides further confirmation of this fact. There is a clearly defined need for ongoing support and prevention efforts for children and families experiencing abuse and neglect. Approaches such as differential/alternative response offer a viable alternative whereby Child Protective Services can become involved with families *before* abuse or neglect is substantiated by providing needed supports and services. This approach has demonstrated success by providing individually tailored concrete services to families experiencing neglect through flexible funding and intense family engagement (Loman and Siegel 2005). Similar to differential/alternative response, home visiting programs attempt to reach high risk families with infants and children (Howard and Brooks-Gunn 2010). The primary objective of home visitation is to engage families by providing emotional support, while improving parenting practices through information, and referrals to other resources (Howard and Brooks-Gunn 2010). Both approaches, differential/alternative response, and home visitation, provide targeted prevention to families at risk for abuse and neglect; however, as suggested by the findings of this study, continued efforts that support families to provide essential care for their children and services are needed.

This study has provided empirical evidence that child neglect is a detrimental form of child maltreatment and needs further study to determine its impact on child developmental issues. The association between child neglect and adolescent alcohol and drug abuse cannot be underestimated in its contribution to future development and behavioral problems.

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