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Relationship Between Child Behavior Problems, Parental Stress, Child Abuse Potential, and Substance Use Among Mothers in the Child Welfare System

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RELATIONSHIP BETWEEN CHILD BEHAVIOR PROBLEMS, PARENTAL
STRESS, CHILD ABUSE POTENTIAL, AND SUBSTANCE USE AMONG
MOTHERS IN THE CHILD WELFARE SYSTEM

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A dissertation submitted in partial fulfillment
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ABSTRACT

Relationship Between Child Behavior Problems, Parental Stress, Child Abuse Potential,
and Substance Use Among Mothers In the Child Welfare System

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Substance abuse, elevated levels of child behavior problems, and high stress are common among mothers who maltreat their children. However, there is a dearth of research that investigates variables associated with specific types of maltreatment, such as child neglect. Complicating matters, contradictory results between studies have been found among the available research. The present study extends research in this area by investigating the relationships between substance abuse, child behavior problems, parental stress, and child abuse potential in a sample of neglectful mothers with co-occurring substance use disorders. A model is proposed in which parental stress mediates the relationship between child behavior problems and child maltreatment potential. Substance use severity was hypothesized to be predictive of child maltreatment potential. A series of regression analyses were conducted to test the proposed model. Implications and limitations of the present study are discussed.

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CHAPTER 1

INTRODUCTION

Child neglect accounts for the majority (62-65%) of child welfare reports (USDHHS, 2009). In addition to accounting for over half of the initial referrals made to child welfare services, neglect is the most common reason for subsequent referrals, regardless of the type of maltreatment for which the family was initially referred (Jonson-Reid, Drake, Chung, & Way, 2003). Although the prevalence of neglect reports is alarmingly high, these numbers are most likely an underrepresentation of the actual scope of the problem. Estimates suggest only 50% of maltreatment cases are reported to child protective services (Sedlak & Broadhurst, 1996). In spite of the high prevalence of child neglect, this subject receives the least attention compared to other types of child maltreatment. Most government funding is allocated to the research of sexual abuse, followed by physical abuse, with less than 2% of federal research funds allocated toward child neglect (Chaffin, 2006). A by-product of this “neglect of neglect” is that rates of child neglect referrals have remained steady while rates of sexual and physical abuse have declined (Child Welfare Information Gateway [CWIG], 2012; Whitaker & Self-Brown, n.d.).

Researchers have suggested that child neglect is difficult to study due to the lack of a standard definition (CWIG, 2012). Legal definitions of child neglect vary between states. Thus, what is considered neglect in one state may not be considered neglect in another. While state definitions vary, researchers have identified the following definition and subcategories of neglect (CWIG, 2008). Child neglect involves a failure to provide basic necessities to children, the lack of which may endanger the physical well-being,

health, psychological growth, or development of children. Physical neglect is a type of neglect that includes behaviors such as lack of supervision, abandonment, and failure to provide for food or shelter. Physical neglect is the most commonly reported subtype (DePanfilis & Salus, 1992). Educational neglect is a failure to address academic needs of children. Indicators of educational neglect include a failure to enroll children in school, chronic truancy, failure to provide, or refusal of, necessary special education. Emotional neglect incorporates the failure to attend to a child's emotional needs. This includes behaviors such as engaging in physical violence in front of a child and allowing a child to use drugs or alcohol. Lastly, medical neglect is the failure to provide appropriate health care to children, including physical and mental health needs.

Professionals often disagree as to the "basic needs" of children and what constitutes "appropriate care," so that researchers attempting to identify neglect use variable criteria (Tyler, Allison, & Winsler, 2006). Assessment of child neglect is further complicated because failure to provide basic necessities sometimes does not constitute neglect. If, for example, a parent has a sick child, but has no access to medical care, failure to provide health care cannot be considered medical neglect. However, if assistance or resources are available, and parents fail to use them, neglect may be indicated. Despite these difficulties defining child neglect, researchers have been able to identify many characteristics and factors associated with child neglect (i.e., characteristics of the parents, child characteristics, and environmental factors).

Parental characteristics that are related to child maltreatment include demographic characteristics such as age and ethnicity (Chaffin, Kelleher & Hollenberg, 1996; Haveman, Wolfe, & Peterson, 1997; Whipple & Webster-Stratton, 1991). Younger

parental age and being a member of a minority group are associated with increased maltreatment potential (Benedict, Wulff, & White, 1992). Other factors that are related to child maltreatment are parental substance use, parental stress, and psychiatric conditions (Guterman, Lee, Taylor, & Rathouz, 2009; Ondersma, Simpson, Brestan, & Ward, 2000). Parental use of drugs and alcohol is related to higher child maltreatment potential (Jaudes, Ekwo, & Van Voorhis, 1995; Kelleher, Chaffin, Hollenberg, & Fischer, 1994). High levels of parental stress, that is stress that is associated with one's role as a parent, may also lead to higher maltreatment potential (Guterman et al., 2009). Additionally, parents who evidence psychiatric disorders, such as depression, are at higher risk to maltreat their children than parents without psychiatric conditions (Dubowitz & Bennett, 2007).

Child factors or characteristics that are related child maltreatment include behavior problems, having a disability, and age (Hastings, 2002). Children who evidence behavior problems, either due to having disabilities, medical conditions, or lack of effective parenting, are at higher risk for child maltreatment victimization (Dubowitz & Bennett, 2007; Sullivan, & Knuston, 2000). Children with disabilities often require extra attention and care, which can be burdensome for some parents. Children under the age of 4 years old are at the highest risk of maltreatment, as this age group needs a higher degree of supervision and care, compared to older, school-aged children, and some parents have difficulty effectively meeting these extra demands (Glaser, 2008; USDHHS, 2009).

Common environmental factors that are related child maltreatment include socioeconomic status, social support, and number of children (USDHHS, 2003).

Financial struggles are a major stressor for families, which may lead to increased child

maltreatment potential (Slack, Holl, McDaniel, Yoo, & Bolger, 2004). Low finances may impact childcare directly by influencing parents to be unable to afford basic necessities for their children, or indirectly through enhanced stress in parents (Lee, Lee, & August, 2011). Social support has been indicated to prevent child (Lee et al., 2011). Lastly, the greater number of children a parent has, the greater the risk of maltreatment (USDHHS, 2003). This finding is particularly salient because parents with many children have fewer resources (less time, money, attention) to devote to their individual children.

Factors that contribute to child maltreatment likely interact with each other (Dubowitz & Benedict). Some studies have shown that substance use severity is related to the severity of child maltreatment (Sprang, Clark, & Bass, 2005). Other studies have pointed to an association between substance use and child behavior problems (Bailey et al., 2012; Chatterji & Markowitz, 2000; Kandel, 1990; Whitaker, Orzol, & Kahn, 2006). Research among parents of children with disabilities has shown that child behavior problems affect child maltreatment indirectly via the mediating variable of parental stress (Baker, Blacher, Crnic, & Edelbrock, 2002). The United States Department of Health and Human Services (2003) noted that factors contributing to child maltreatment are complex and varied, particularly within substance abusing populations. For instance, this report specifies that it is difficult to identify where and when to intervene. Some research has found that different types of child maltreatment are associated with different perpetrator profiles (Pittman & Lee, 2004; USDHHS, 2005) However, these studies are limited to male and military populations. Further research with a more representative sample is needed to support the theory that each type of child maltreatment is associated with

unique risk factors. Identification of these risk factors, and their interactions, will provide a clearer understanding of the differences among neglectful and abusive families.

Models that delineate causal relationships between child neglect, parental stress, substance abuse, and child behavior problems are relatively scarce in the literature. However, identifying what factors are directly, versus indirectly, related to maltreatment potential is an important task. Identification of factors that mediate or moderate child maltreatment potential may assist in the development of problem-specific interventions.

State agencies may benefit from learning better ways to assess, identify, and treat neglect. For individuals who are mandated to treatment, attrition is a major concern (Houser-Marko, Curry, Mermelstein, Emery, & Pugach, 2011). Among substance abusers, many individuals withdraw before treatment is complete, with the highest attrition occurring in the first month (Baekeland & Lundwall, 1975; Harrison et al., 2007). Mandated clients are more likely to be in the precontemplative state of change, and have more extrinsic, and less intrinsic, motivation to change (Houser-Marko et al., 2011). Therefore, it is important to identify treatment targets in these populations, so that providers can target these areas early on, before the client is likely to drop out. This will enable the client to receive the most benefit in the shortest amount of time.

To assist in identification of appropriate treatment targets, it is helpful to accurately assess family needs. However, when individuals are referred for care from state agencies, such as the Department of Family Services or Child Protective Services, there are multiple barriers to obtaining accurate assessments. Mothers who are in the child welfare system may fear losing custody of their children, which may motivate them to minimize problems on self-report questionnaires or in interviews (Hennigan, O'Keefe,

Noether, Rinehart, & Russel, 2006). Further complicating the problem, mothers in the child welfare system are more likely to have one or more mental health disorders than mothers not in the system (Park, Solomon, & Mandell, 2006; Westad & McConnell, 2012). These disorders affect mothers in their ability to accurately report behavior problems (Hennigan et al., 2006). Obtaining objective data on family functioning, such as through unobtrusive observation of the family, is often not possible for researchers. Therefore, it is important to identify how best to assess and treat various aspects of family and parental functioning among families in the child welfare system.

Unfortunately, even if a family has been accurately identified for neglect, they may not get the services they need. In many agencies, priority is given to providing resources and intervention to families referred for physical and sexual abuse (DePanfilis, 2006). This is unfortunate because child neglect has a high likelihood of recurrence without intervention (DePanfilis & Zuravin, 1998; DePanfilis & Zuarvin, 1999; Jonson-Reid, Drake, Chung, & Way, 2003) and can have significant deleterious consequences, such as developmental delay, cognitive impairment, injury, or death (Block, Krebs, Hibbard, Jenny, Kellogg, & Spivak, et al., 2005; Crozier & Barth, 2005; DePanifilis, 2006; USDHHS, 2009). As they age, neglected children display higher rates of mental illness than their non-maltreated counterparts (McCauley, Kern, Kolodner, Dill, Schroeder, DeChant, et al., 1997), putting them at greater risk of suicide, victimization, incarceration, and substance abuse or dependence (Dube, Anda, Felitti, Chapman, Williamson, & Giles, 2001; Gilbert, Widom, Browne, Fergusson, Webb, & Janson, 2009; Tyler, Johnson, & Brownridge, 2008). It is critically important to bring awareness to

problem of child neglect, so that families can begin to obtain much needed attention and services.

The Present Study

There is a pressing need for research in the area of child neglect. While risk factors for child neglect have been identified, few models have been proposed to explain how these risk factors work together to contribute to child maltreatment. The present study assessed the relationship between parent, child, and environmental factors in order to determine how these factors relate to child maltreatment in a sample of mothers founded for child neglect. A model is proposed that specifies a relationship between child behavior problems, parental stress, and child maltreatment potential. Evaluation of this model serves to elucidate factors that mediate child maltreatment potential. The presence of mediating variables indicates that multiple variables contribute to maltreatment potential to varying degrees. The resulting model is hoped to assist treatment providers in their identification of critical areas for interventions intended to prevent or eliminate child maltreatment.

CHAPTER 2

LITERATURE REVIEW

The relationships between maternal substance abuse, child behavior problems, stress, and child maltreatment are rarely examined within the same study. While pairs of these variables have been examined, the maltreating samples typically consist of physical abuse alone or a mix of child neglect and physical abuse. Thus, it is unclear if results can be generalized across child maltreatment populations. The population of interest in this study, mothers who are referred for family services by state agencies due to substance abuse and child neglect, is unique in that little research has been conducted in child neglect (Chaffin, 2006). Typically, researchers combine different types of maltreating parents together in the same study, such as using parents identified for child physical abuse as well as those identified for child neglect (Black, 2000). Of course, this strategy permits comparison across child maltreatment groups. However, it is difficult to draw definitive conclusions when multiple types of child maltreatment are combined (Stith et al., 2009). Researchers have recommended that indicators of child maltreatment be further evaluated and identified to enable more effective screening procedures for children at risk of maltreatment (Simmons, Havens, Whiting, Holz, & Bada, 2009). Therefore, there is great need to investigate factors associated with child neglect alone, to better understand how to intervene when neglect is the only type of child maltreatment indicated in the family.

Association of Child Maltreatment and Substance Abuse

Among neglectful mothers, illicit substance use is often indicated during pregnancy (Ondersma, Simpson, Brestan, & Ward, 2000). In an evaluation of

maltreatment risk among children with chronic conditions, it was found that infants exposed to illicit substances in utero were more likely than non-exposed infants to be the victim of abuse or neglect between the ages of three and six years old (Jaudes & Mackey-Bilaver, 2008). Drug exposed infants are at risk for problems associated with low birth weight, cognitive deficiencies, behavior problems, inattention, and impulsivity (Block et al., 2005; Liu et al., 2010; Ornoy, 2002; Pulsifer, Butz, Foran, & Belcher, 2008; Williams & Ross, 2007). Each of these issues, in turn, can influence maltreatment potential, and this will be discussed in a later section (see Association of Behavior Problems and Child Abuse Potential).

Many neglectful parents evidence substance abuse and dependence. Indeed, some estimates of the prevalence of co-occurring substance abuse and neglect have been as high as 70% among child welfare cases (Carter & Myers, 2007; Young, Boles, & Otero, 2007). In a large community sample, over 50% of the mothers who qualified for a diagnosis of substance abuse self-reported neglect of their children (Chaffin, Kelleher, & Hollenberg, 1996; Kelleher, Chaffin, Hollenberg, & Fischer, 1994). Parents who use illicit substances are two to four times more likely to be reported for child neglect (Carter & Myers, 2007; Jaudes, Ekwo, Van Voorhis, 1995). Estimates of the number of child welfare cases in which substance use is also a problem range from 40%-80% (Young et al., 2007).

Substance use can affect parenting ability in a variety of ways. Parents may use their money to purchase drugs or drug paraphernalia, rather than spending money on basic life necessities, such as food, clothing, and so on (Center for Substance Abuse Treatment, 2004). Parents who use illicit substances may get involved with risky or

illegal activities that put their children in harm's way (Zuckerman, 1994). In addition, the effects of the particular substance can affect parenting ability. Sedatives and narcotics cause impairments in motor ability and attention and cause drowsiness and mood swings (Weiten, 2008). For example, during mood swings, drug-using parents may become depressed, impairing their ability to attend to the needs of their children (Whitaker et al., 2006). Individuals often become less aware of their surroundings when under the effect of sedatives and narcotics due to the depressant effects of these drugs on the central nervous system (Weiten, 2008). Thus, it can be inferred that parents who use sedatives when around their children are likely to go through periods when they are unaware of their children's needs or even whereabouts. Such instances could lead to a parent being reported for child neglect. Even after the effects of the substance have worn off, parenting may be negatively impacted by prior substance use (Field et al., 1998). Field et al. (1998) found that adolescent mothers who abuse drugs show impaired interactions with their infants as compared to non-drug-using adolescent mothers.

Stimulant use can also negatively impact parenting ability. Stimulants increase alertness, energy level, and can lead to psychomotor agitation (National Institute on Drug Abuse [NIDA], 2010; Weiten, 2008). Amphetamines can cause violent behavior, such that parents who abuse stimulant drugs are at risk to become irritable, aggressive, and lash out at their children or other household members while under the effect of the drug (NIDA, 2010; Rycus & Hughes, 1998). Chronic amphetamine use may lead to disorganized thinking and delusional beliefs, causing parents to act irrationally, which also puts children at risk for harm (Rycus, & Hughes, 1998). Among couples, physical aggression is up to three times more likely on days of drug use (Fals-Stewart, Golden, &

Schumacher, 2003; O'Leary & Schumacher, 2003). The consequences of being exposed to such violence are significant; children who are exposed to domestic violence are more likely to be abused themselves, have mood or anxiety disorders, and have problem behaviors (World Health Organization, 2002). In some cases, exposure to domestic violence may be considered child neglect ("Child Neglect," 2011).

An evaluation of the effects of pre- and post-natal drug and alcohol abuse on child maltreatment was conducted by reviewing the case histories of 117 children between the ages of three and six in foster care (Smith, Johnson, Pears, Fisher, & DeGarmo, 2007). Structural equation modeling was used to test various relationships between maternal prenatal drug and alcohol use, maternal and paternal post-natal drug and alcohol use, child maltreatment, and placement changes in foster care. Maternal prenatal drug use was not associated with child maltreatment. However, maternal prenatal alcohol abuse was significantly associated with subsequent maltreatment. Maternal post-natal drug use was strongly associated with paternal drug use. There was an indirect relationship between maternal post-natal substance use and child maltreatment, which was mediated by paternal substance use. Paternal substance use was also associated with the number of transitions in foster care placements. Among the variables assessed, pre- and post-natal substance and alcohol use was most strongly associated with subsequent child physical abuse and neglect. This research provides support for the existence of a relationship between parental substance abuse and child maltreatment, and is relatively unique in that paternal substance use was also investigated. Given that maternal substance use was indirectly related to child maltreatment in the above study, this raises the question of

whether other variables may also mediate this relationship, and highlights the need for further research.

Sprang, Clark, and Bass (2005) evaluated 208 families referred to outpatient services by state agencies due to substantiated cases of child maltreatment. Substance use severity was determined by assessing if the parent qualified for a diagnosis of substance abuse or substance dependence, with substance abuse being considered less severe than substance dependence. Child maltreatment severity was determined by the nature of the offense for which the parent was reported. Extreme neglect was defined as life threatening unmet health needs or living arrangements. Severe neglect was defined as serious unmet health needs, diagnosable malnutrition, or serious problems with living conditions. Moderate neglect was operationalized as a lack of medical care, insufficient shelter, or lack of supervision of children eight-years-old and under. Mild neglect was identified as a lack of supervision of children eight-years-old or older. The researchers found the severity of drug use was predictive of the severity of child neglect, and more severe use was positively associated with severe neglect. The present study aims to include the use of a measure of substance use severity, but will extend this research by examining if substance use severity is related to child maltreatment potential. If substance use severity can be used to predict child maltreatment potential, families at risk of child maltreatment may be more easily identified, allowing service providers to engage in rehabilitative or preventative measures.

In a similar study, Kandel (1990) found that greater maternal drug involvement was related to poorer parenting. Increased levels of alcohol use in the past year, and high levels of current or past drug use were related to lack of supervision, lack of closeness,

and more punitive parenting (Kandel, 1990). Ammerman, Kolko, Kirisci, Blackson, and Dawes (1999) evaluated fathers and mothers with past and current substance use disorder diagnoses. They found that parents with past and current diagnoses had higher child maltreatment potential, and that there was no difference in risk between parents with a past versus current substance use disorder diagnosis. Further, they found that having a partner with a past or current substance use disorder diagnosis increased respondents' child maltreatment potential, even if the respondent had no SUD history. These are interesting findings, as they suggest that past drug use can have as deleterious an effect as current use. It also suggests that even if a mother or her partner stopped abusing drugs, their children would continue to be at risk of maltreatment. Therefore, it may be beneficial for mothers with a past history of substance use, or who have partners with an SUD history, to undergo an assessment of family functioning, to identify potential parenting problems.

Association of Child Maltreatment and Child Behavior Problems

Child neglect has devastating consequences. A recent national survey found that 34% of child fatalities are due to neglect (USDHHS, 2009). Malnourishment, failure-to-thrive, and other health problems are commonly experienced in neglected children (Block et al., 2005). Malnourished children and children with failure-to-thrive are at increased risk for developmental delay, academic underachievement, learning disorders, cognitive deficits, and behavior problems (Kerr, Black, & Krishnakumar, 2000). Among children diagnosed with failure-to-thrive, 27-48% show elevated levels of behavior problems by the time they reach school age (Kerr et al., 2000). Brown, McIntyre, Crnic, Baker, & Blancher (2011) found that sickly infants were more at risk to develop into difficult

children, and that negative parenting contributed to how difficult the child became. This suggests a reciprocal relationship between behavior problems and poor parenting, where difficult children who have parents with limited parenting ability, are raised in ways that make the children even more of a challenge.

Children with physical or developmental disabilities are nearly twice as likely to be victims of abuse than normally developed children (NCCAN, 1993). Children with disabilities often evidence a higher rate of behavior problems, which may partially explain why disabled children are more likely to be victims of maltreatment (Baker et al., 2002). Physical and sexual abuse of children with disabilities is more common than neglect; however, neglect of children with disabilities occurs at a rate 1.6 times higher than among non-disabled children.

In addition to physical consequences, neglect often causes psychological, social, and emotional problems in affected youth. Victims of neglect evidence a myriad of deficits in social skills, self-regulation, and cognitive and academic abilities (Crozier & Barth, 2005; Fantuzzo, Weiss, Atkins, Meyers, & Noone, 1998; Maughan & Cicchetti, 2002). Maltreated children display higher rates of mental illness than their non-maltreated counterparts (McCauley et al., 1997), putting them at greater risk of suicide, victimization, incarceration, and substance abuse or dependence (Dube et al., 2001; Gilbert et al., 2009; Tyler, Johnson, & Brownridge, 2008).

Among Pakistani children with ADHD, mothers reported a high level of behavior problems (Anjum & Malik, 2010). These behavior problems were associated with elevated stress levels among the children's mothers. Both stress and behavior problems were predictive of higher maltreatment potential among mothers of children with ADHD.

Longitudinal analyses reveal that neglect is associated with subsequent school engagement, delinquency, well being, and for females, victimization (Tyler et al., 2008). Poor self-regulation skills in children and adolescents are related to higher risk of maternal maltreatment (Schatz, Smith, Borkowski, Whitman, & Keogh, 2008). Parents who are unable to control their children's behavior evidence a higher maltreatment risk than parents who are able to effectively manage their children's behavior (Hansen & MacMillen, 1990). Thus, it appears there is a bidirectional relationship between behavior problems and maltreatment. Having a history of maltreatment leads to behavior problems, and having a child with behavior problems increases the likelihood that the child will be maltreated. It is clear that children who are maltreated, or whose parents have a high maltreatment potential, are at risk to develop behavior problems. However, assessing child behavior problems via parent report is fraught with challenges.

When working with ethnically diverse populations, researchers need to be sensitive to sociocultural factors that may affect their assessments. For instance, Bardwell and Dimsdale (2001) found that African-Americans scored 30% higher on a scale of socially desirable responding, suggesting minimization of their symptoms on a separate scale measuring negative affect. Another study revealed that, compared to Whites, Non-Whites showed a greater tendency to underreport behaviors that would be considered inappropriate (Stein et al., 2002). Reasons for this tendency are multifaceted and can be broken down into several categories with an overarching theme of mistrust (Ayalon & Alvidrez, 2007; Williams, Beckmann-Mendez, & Turkheimer, 2013). It is important to note that mistrust is affected by individual experiences with racism and discrimination, as well as the very real history of marginalization and victimization of minorities in medical

and psychological research (Freimuth, Quinn, Thomas, Cole, Zook, & Duncan, 2001; Suite, La Bril, Primm, & Harrison-Ross, 2007).

Several studies have assessed African-American attitudes toward psychological research and treatment (Ayalon & Alvidrez, 2007; Katz et al., 2006; Suite, La Bril, Primm, & Harrison-Ross, 2007; Williams, Beckmann-Mendez, & Turkheimer, 2013). Williams, Beckmann-Mendez, & Turkheimer (2013) conducted a qualitative analysis regarding concerns African-Americans had about participating in psychological research. They found that concerns fell into six general categories: confidentiality, self and group presentation concerns, repercussions of disclosure, preference to confide only in close others, potential covert purposes of the study, and not wanting to speak for others. Ayalon & Alvidrez (2007) found similar concerns in their qualitative analysis of perceived barriers to mental health treatment. African American respondents most commonly noted concerns about confidentiality, perceived stigma, and suspicions about the mental health system. Respondents in this study recommended that providers take more care to fully inform potential clients about confidentiality and privacy practices. Others have found that to increase trust it is beneficial to provide ample time to build rapport, to facilitate rapport by adapting the interview style from task-focused to relationship-focused, and to provide ethnically-matched interviewers (Jackson et al., 2004; Rosenberg, Almeida, & MacDonald, 2012). Particularly with resistant or involuntary participants, such as those involved with Child Protective Services, it is important to foster a collaborative environment where the participant feels informed and involved with the proceedings as opposed to a feeling like a “subject” who is undergoing a one-sided evaluation (Purves, 2002).

Substance use can also affect one's willingness to discuss problems with an interviewer. Individuals who abuse illicit substances tend to minimize problems, particularly to healthcare providers (Center for Substance Abuse Treatment, 2004). Not only do they deny the extent or severity of their own use, they also tend to minimize problems in other areas and are overly positive in their assessments of areas of concern (Hennigan, O'Keefe, Noether, Rinehart, & Russell, 2006; Zaldívar, Molina, López Ríos, & García Montes, 2009). This presents a dilemma for researchers who are interested in assessing maltreating mothers who also have a substance abuse problem. On the one hand, mothers with high child maltreatment potential are more likely to exaggerate or over-report problems (Lau, Valeri, McCarty, & Weisz, 2006). However, a mother with a substance abuse problem is likely to minimize any difficulties she is experiencing. Therefore, it is difficult for researchers to know whether to expect exaggeration or minimization of symptoms in a dually diagnosed population.

Assessments of child functioning are typically completed by the child's mother, occasionally with adjunct data from sources such as teachers. However, various factors influence how mothers respond on such assessments, and may lead to inaccurate results. Mothers with high child maltreatment potential tend to report high levels of behavior problems among their children, and underreport positive child behaviors (Dopke, Lundahl, Dunsterville, & Lovejoy, 2003; Paz Montes, de Paul, & Milner, 2001; Thurber & Osborn, 1993). This bias holds true for neglectful mothers, as well. Parents who have substantiated cases of child neglect report higher levels of behavior problems among their children compared to non-neglecting mothers (Lau, Valeri, McCarty, & Weisz, 2006). Some researchers attribute this bias to the mother's mental state. For instance, mothers

who are depressed tend to over-report child behavior problems (Hennigan, O'Keefe, Noether, Rinehart, & Russell, 2006; Najman et al., 2000). To detect such distortion, one could collect data from multiple informants, and review inter-rater reliability. When there is low reliability, it may indicate biased reporting. However, a child's behavior may vary by setting, in which case one would expect low reliability between informants. Obtaining data from multiple informants may not solve the problem of bias in reporting.

Another way researchers have dealt with the issue of biased or exaggerated reports of behavior problems is by conducting observational studies. In such studies, interactions of parents and their children are recorded, and an objective observer notes behavior problems. Interestingly, comparison of neglectful and non-neglectful mothers shows that neglectful mothers report higher rates of behavior problems, when objective analysis indicates similar levels of behavior problems (Lau et al., 2006; Whipple & Webster-Stratton, 1991). This may suggest that neglectful mothers have a low tolerance for behavior problems and that they find behavior problems particularly stressful compared to non-maltreating mothers.

Chance & Scannapieco (2002) investigated characteristics related to parents, children, the environment, and prior maltreatment incidents in an attempt to elucidate risk factors for child fatalities as a result of abuse or neglect. They compared maltreatment cases that resulted in a child fatality to maltreatment cases that did not result in a fatality. Neglect was present in over half of the cases in each group, and was more prevalent in the fatality group. They found that both groups of maltreating parents had high levels of inappropriate expectations of their children, and that the fatality group had the highest level of inappropriate expectations. The researchers also found that children in the fatality

group were reported to have more “provoking behavior” than children in the non-fatality group. This suggests that maltreating parents have unrealistic expectations for child behavior, and that they justify maltreatment by believing the child provoked the maltreatment. Further supporting this notion, Caselles & Milner (2001) found that, compared to non-abusive mothers, abusive mothers anticipate noncompliance from their children, and react more negatively to perceived noncompliance. That is, abusive mothers believed their children should behave well, but expected that they would be disobedient. This belief system may set up a self-fulfilling prophecy where abusive mothers see what they expect to see, in this case, disobedience. Indeed, maltreating mothers often minimize compliant behaviors in their children (Dopke et al., 2003).

The studies discussed above support the present study’s model of the relationship between child behavior problems and child maltreatment potential. The studies discussed above also suggest that parental reports of high levels of child behavior problems, in the absence of corroborating evidence, may be an indicator of child maltreatment potential. The present study will attempt to describe the relationship between child behavior problems, stress, and child maltreatment potential.

Association of Child Behavior Problems and Parental Stress

All parents experience some degree of stress related to their role as a parent (Morgan, Robinson, & Aldridge, 2002). However, parents of children with behavior problems tend to feel more stress than parents whose children evidence few behavior problems (Broadhead, Chilton, & Crichton, 2009). There has been a great deal of research on behavior problems among special needs children and the effect on parental stress, as it has been assumed that these children are more stressful due to their special

needs. A comparison of developmentally delayed and non-delayed children revealed the delayed children were over three times more likely to have clinically significant behavior problems (Baker et al., 2002). The parents of these delayed children reported higher levels of parental stress, and the child's behavior problems were a stronger predictor of the parent's stress level than the developmental delay itself.

Along these lines, a review of administrative data identified children under the age of 6 years who are on Medicaid and had either a chronic physical condition, mental retardation or developmental delay, or behavioral/mental health problems (Jaudes & Mackey-Bilaver, 2008). Among these children, those with behavioral/mental health problems were at the highest risk for neglect. Similarly, Tervo (2012) evaluated parental stress among 201 parents of children with global delay. Forty-two percent of these parents reported clinically significant behavior problems. Elevated stress levels were reported related to having a difficult child and having poor interactions with the child. Yet another study investigating parental stress among parents of children with cerebral palsy showed similar results (Sipal, Schuengel, Voorman, Van Eck, & Becher, 2009). In this study, behavior problems were related to increased stress independent of the severity of the cerebral palsy. That is, the severity of the child's illness did not contribute to the parent's level of stress. Research appears to support that, among special needs children, parental stress is affected by behavior problems, rather than the child's needs. However, it also appears that having a child with a physical or cognitive problem puts that child at risk to have more behavior problems.

Among language-delayed children, 50% of parents reported significant child behavior problems (Long, Gurka, & Blackman, 2008). These parents also reported

increased parental stress. The relationship between parental stress and child behavior problems became stronger as children approached preschool age, suggesting that as children became older their behavior problems became more stressful to their parents.

In a meta-analytic review of the predictors of parental stress, it was found that parents of children with externalizing behavior problems reported higher levels of stress than parents of children without behavior problems (Morgan et al., 2002). Child characteristics related to increased parental stress were having Attention Deficit Hyperactivity Disorder, having many siblings, being the first born, and having health problems. These parents also reported having less parenting knowledge, less competence, and less support than parents of children without behavior problems. Morgan et al. proposed that stress decreases the parent's tolerance for behavior problems, leading to dysfunctional parenting practices. It was suggested that by eliminating stress, one could eliminate or decrease dysfunctional parenting practices, and thereby decrease child behavior problems.

The Maternal Lifestyle Study is a longitudinal study following 1,388 infants with and without a history of prenatal cocaine exposure (Bagner et al., 2009). An evaluation of the association between parental stress and child behavior problems included a subset of the sample from the Maternal Lifestyle Study. Participants selected for the study were mothers and infants with and without a history of prenatal cocaine exposure, who had been living together without a change in the primary caregiver from the time the infant was four months old until the age of three years. It was found that parenting stress at four months predicted child behavior problems at age three. This relationship was the same between children prenatally exposed to cocaine and those who were not. Both groups of

children had similar levels of reported behavior problems. While this study supports a link between child behavior problems and stress, methodological issues limit generalizability of these findings. That is, the participants in this study retained custody of their children, while participants who had children removed from their custody were excluded. The excluded participants were of a lower SES and were more likely to have used cocaine, and thus the sample is not representative of a population involved with child protective services. The proposed study will examine the relationship between parental stress and child behavior problems in a sample of caregivers referred by the Department of Family Services for treatment of child neglect and current substance abuse or dependence. While some of these mothers may have used illicit substances while pregnant, they will also evidence current illicit substance use, which was not controlled for in the Bagner (2009) study.

Martin et al. (2010) found that family stress and parental investment in the child predicted adolescent behavior problems. These results may have implications regarding maltreatment risk; a parent who is not invested in their child may be at increased risk for neglect, as they are not overly concerned with providing for their child. In the treatment research, Kazdin and Whitley (2003) found that targeting parental stress in treatment enabled parents to provide more effective care for their children, and led to better treatment outcomes for aggressive and conduct-disordered children. Thus, it appears that high levels of parental stress can impair parenting ability, and that decreasing stress enables parents to care for their children to the best of their abilities.

Frampton, McArthur, Crowe, Linn, & Lovering (2008) conducted a longitudinal study assessing the outcomes of families who had participated in Scallywags, a treatment

program for youth at risk for conduct disorder. The program is founded on the idea that by reducing parental stress via the provision of support and psychoeducation, child behavior problems can be reduced. The results support this idea; following treatment, parental stress decreased drastically among parents whose children showed sub-clinical levels of behavior problems at the two-year follow-up. Parental stress decreased only slightly for parents whose children still evidenced clinically significant behavior problems. The children who continued to have clinically significant behavior problems were more likely to be hyperactive, or have a developmental or psychiatric disorder. Thus, it appears that when parental stress decreases, behavior problems decrease as well. A second evaluation of the Scallywags program showed similar results (Broadhead, Chilton, & Crichton, 2009). Parental stress and behavior problems were reduced following treatment. The researchers noted that although parental distress and child-parent dysfunctional relationships showed improvement, parent perception of their child as a problem was resistant to change. Maltreatment status was not assessed in these studies, but having negative evaluations of one's child has been related to maltreatment risk (Hildyard & Wolfe, 2007; Nakaya & Nakaya, 2006). It is unclear if in these studies, parents who had negative evaluations of their child were at increased risk to maltreat the child. The proposed study will attempt to clarify whether "problem children" are at higher risk to be abused or neglected.

Judge (2003) evaluated parental stress among parents who had recently adopted a child. Child behavior problems were strongly associated with parental stress for both mothers and fathers, while the other variables assessed (i.e., medical problems, length of time in an orphanage, developmental delay, and family demographics) were not

correlated with stress. Mothers found child behavior problems more personally distressing than fathers, indicating mothers may be particularly sensitive to the impact of child behavior problems.

A qualitative approach was taken to evaluate parental and clinician perspectives on factors that relate to child behavior problems (Baker-Ericzén, Jenkins, & Brookman-Fraze, 2010). Participants were recruited from community mental health centers that treat child behavior problems, and included 26 therapists and 14 parents. Participants were given topics to discuss related to the treatment of child behavior problems. Parents, more so than clinicians, identified parenting stress as a primary issue that needed to be addressed in order to treat child behavior problems. Clinicians emphasized parent attitudes as an important factor in treatment. The authors suggested that to increase therapy buy-in, clinicians should address those issues that are most salient to the parent early in treatment. It appears that parents perceive parental stress as a key variable affecting their ability to raise their children, and it may behoove clinicians and researchers to address this variable more fully in treatment and research.

In an effort to account for differing reports of behavior problems from different informants, researchers classified children according to the severity of their behavioral impairment as reported by their teacher and parent (Vaughn, DeLisi, Beaver, & Wright, 2009). A large sample of 17,212 children was followed for several years. Data was collected from parents and teachers at the beginning of kindergarten, end of kindergarten, and mid-way through first grade. Overall, externalizing behavior problems were related to parental stress. The children identified by both parents and teachers to be the most behaviorally impaired (i.e., poor social skills, externalizing behavior problems, poor

approach to learning) had families who were more stressed than families of children with fewer behavior problems or lower concordance between reports of behavior problems from teachers and parents. These children were also more likely to be physically abused and received less affection from their parents.

Several of the researchers discussed above have suggested that parental stress impairs parenting ability, which in turn leads to child behavior problems. Other researchers have found evidence that disconfirms this hypothesis. McConnell, Breitzkreuz, & Savage (2011) evaluated the relationship between child behavior problems, parental stress, and ineffective parenting. They found that parental distress was the strongest predictor of child behavior problems, predicting 41% of the variance in their model. The researchers also assessed whether ineffective parenting mediated the relationship between parental distress and child behavior problems. In this sample, no support was found for mediation among these variables. That is, parental distress contributed directly to child behavior problems, with ineffective parenting explaining little of the relationship. This finding casts some doubt on the direction of the relationship between child behavior problems and parental stress. It is unclear whether behavior problems increase stress, or if stress impairs parenting, which in turn leads to behavior problems. Further complicating this finding, it may also be that this relationship is bidirectional. Further research is therefore needed to understand these processes.

Many children are being raised by grandparents, rather than their mother or father (Harrison, Richman, & Vittimberga, 2000). Single parents, two-parent households, and grandparents raising their grandchildren were assessed to evaluate how child behavior problems were related to caregiver stress among these different family types (Harrison, et

al., 2000). Child behavior problems were reported to be similar between all three groups. However, parenting stress was clinically elevated within single- and two-parent households, while it was significantly lower, and below the clinical range, among grandparent-headed households. These results provide evidence suggesting there is not a relationship between child behavior problems and caregiver stress among grandparents raising children. This has been hypothesized to be due to the fact that grandparents, having raised children of their own, feel more equipped to deal with child behavior problems, and therefore feel less stress when confronted with child behavior problems. Also, grandparents typically volunteer to become caregivers to their grandchildren, often in order to protect the child from the foster care system. Their involvement with their grandchildren is voluntary, and often accompanied by involvement with social services, which may serve to provide them with more support. Single- and two-parent households appear to be particularly vulnerable to becoming stressed by child behavior problems, as compared with grandparents. This research suggests that involvement with social services may decrease stress. However, as we will see in the following section, involvement with social services does not always have a beneficial effect on stress levels (McCurdy, 2005).

Association of Parental Stress and Child Maltreatment

High levels of parent and child-related stress often lead to dysfunctional parenting (Morgan et al., 2002). Abusive and neglectful mothers tend to be more directive, critical, and punitive than non-maltreating mothers, even when their child is being relatively compliant (Mash & Johnston, 1990). This suggests a low tolerance for problem behaviors, which may be a result of high stress levels due to a variety of factors. If child behavior problems influence child maltreatment potential indirectly via parental stress,

than managing stress levels may be a more appropriate treatment target than parent training when working with abusive parents.

Stressors come in many forms. Life changes, for the better or worse, may lead to stress (Rahe & Arthur, 1978). This stress may impact parenting ability. McCurdy (2005) investigated how parent characteristics, child characteristics, and stress affect child maltreatment potential among mothers referred to a program for children at-risk for maltreatment. The women enrolled in the program after the birth of a child and were followed for one year. Many maternal characteristics were evaluated, notably psychiatric conditions, history of abuse, education, and expectations of their child. Child characteristics evaluated were related to physical health and included birth weight, age, and nursery type (i.e., intensive care). Various life changes were identified as potential sources of stress, such as social support, changing employment status, or changes in the receipt of public assistance. Of the many variables evaluated, only stress and support were found to be significantly related to child maltreatment potential. Notably, in regard to stressors the strongest relationship was found between changes in receipt of public assistance and child maltreatment potential. Mothers who either began or quit receiving public assistance during the year evaluated were more likely to endorse punitive parenting practices. This is a surprising finding, as the receipt of public assistance is intended to decrease financial stress, and thus, overall stress among families. However, it appears that entering into public assistance is stressful, and this stress may increase child maltreatment risk.

Whipple and Webster-Stratton (1991) found that among mothers of children with behavior problems, highly stressed mothers were more likely to be abusive than lower

stressed mothers. Although stress may arise from a variety of sources, such as low income or lack of social support, some researchers have found that stress related to one's parenting role plays a distinct role in child maltreatment potential (Guterman, Lee, Taylor, & Rathouz, 2009; Holden & Banez, 1996). In a sample of college students, parental stress was found to have a positive correlation with child abuse potential; as parental stress increases, so does the risk of maltreatment (Rodriguez & Green, 1997). Compared to non-maltreating parents, parents who received child maltreatment services were more likely to have higher levels of parental stress and higher child abuse potential (Holden & Banez, 1996). Guterman et al. (2009) used structural equation modeling to test a model of neighborhood processes, stress, personal control, and their effects on child maltreatment potential in a sample of low SES parents. They found a direct relationship between parental stress and neglect. Parental stress showed the highest correlation to neglect of the mediating variables that were examined.

Sprang et al. (2005) stress the importance of evaluating relational characteristics when assessing maltreatment, as maltreatment suggests the absence of a healthy relationship. They suggest that measures of parental or family stress may reflect this relationship. In their own research, they found that family stress was significantly related to maltreatment severity, such that increased stress was associated with more severe forms of neglect and abuse (Sprang et al., 2005). Similarly, among a Canadian sample comparing neglectful from non-neglectful mothers, it was found that parental stress was highly elevated among the neglectful mothers (Ethier, Lacharite, & Couture, 1995).

In an attempt to control for stress caused by sources other than children, a comparison was conducted of families with substantiated reports of child maltreatment,

families with children enrolled in Head Start programs, and families without child maltreatment reports (Curenton, McWey, & Bolen, 2009). Financial stress is often elevated among low socioeconomic status families and maltreating families, and the researchers sought to control for this source of stress (Slack, Hall, McDaniel, Yoo, & Bolger, 2004). The maltreating families and Head Start families showed similar levels of poverty, holding this source of stress constant. However, parental stress was only clinically elevated among the maltreating families. Factors that contributed the most to parental stress were parent self-reports of a dysfunctional relationship with their child and having a child with a difficult temperament.

An investigation into the predictors of child maltreatment risk evaluated the factors of parental stress, parental empathy, and parental attributions of child behavior (Rosenstein, 2008). Mothers and fathers were evaluated and separated according to their risk to maltreat: low risk, at-risk, and high risk. As risk level increased, so did total parental stress. Parental empathy differed between the low and high-risk groups, such that low risk parents were more empathic. Total parental stress predicted maltreatment potential for fathers, but for mothers parental distress (stress related to personal characteristics) was a greater predictor of empathy, attributions, and abuse potential. This suggests that characteristics such as being depressed or having relationship problems exert a greater influence on child maltreatment potential for mothers than for fathers.

Other researchers have examined the differing role of stress among mothers and fathers in abusive families and have found similar results (Whipple & Webster-Stratton, 1991). Families with conduct-disordered children were enrolled in the study, which included both abusive and non-abusive families. Data was collected from mothers,

fathers, and observers. Based on the mothers', but not fathers', self-report data, abusive families had higher levels of parental stress than non-abusive families. Mothers in both conditions tended to report more stress, child behavior problems, depression, and anxiety than fathers. The proposed study will use data collected from mothers. Given that mothers appear to have a unique presentation as compared to fathers, this suggests that variables most salient to mothers (e.g., parental distress) should be included.

An analysis of the predictors of parental stress among adolescent mothers in foster care evaluated parenting variables and personal adjustment variables (Budd, Holdsworth, & HoganBruen, 2006). Parenting variables assessed were parenting beliefs, maltreatment potential, and the quality of parent-child interactions. Personal adjustment variables were emotional distress and social support. It was hypothesized that adolescent mothers would have inappropriate or unrealistic parenting beliefs, higher maltreatment potential, and poor quality interactions with their child. And it was hypothesized that two years later these mothers would report greater parental stress. At the two-year follow-up, it was found that only parenting variables contributed to current parental stress. Of the parenting variables, having inappropriate parenting expectations was the most strongly related to parental stress, while maltreatment potential was only marginally related. This suggests that the relationship between parental stress and child maltreatment potential may be complicated, and that other variables may impact this relationship.

Crouch and Behl (2001) proposed that the relationship between parental stress and child maltreatment potential might be moderated by parental values regarding corporal punishment. A small sample of parents (25 non-maltreating and 16 at-risk parents) was evaluated. A positive correlation was identified between parenting stress and

maltreatment potential only among parents who endorsed corporal punishment. Among parents who did not endorse corporal punishment, no correlation between parenting stress and child maltreatment risk was found. Thus, parental stress alone is not sufficient to account for child maltreatment. However, it is clear that for some families, high levels of parental stress are related to elevated child maltreatment risk.

Association of Child Behavior Problems and Substance Abuse

Parents who engage in deviant behaviors (e.g., substance use) have children with higher levels of externalizing behavior problems (Brook, Brook, Balka, & Rosenberg, 2006). Children of drug users are at increased risk for internalizing and externalizing disorders such as depression, aggression, and anxiety (Kelley & Fals-Stewart, 2004; Kelley & Fals-Stewart, 2008; Osborne & Berger, 2009; Stanger et al., 1999). Alcohol abuse is more prevalent among fathers of children with attention deficit/hyperactivity disorder (ADHD), oppositional defiant disorder, or conduct disorder, than among fathers of children without such disorders (Biederman, Faraone, Keenan, Knee, & Tsuang, 1990). To cope with child behavior problems, stress, and perceived life difficulties, parents may engage in unhealthy behaviors that further impair their parenting ability (Pelham & Lang, 1999).

A meta-analytic review examined results of 37 studies linking prenatal drug exposure to child behavior problems (Dixon, Kurtz, & Chin, 2008). The illicit substances included in the studies evaluated were alcohol, cocaine, polydrug abuse, marijuana, nicotine, and two studies included opiates. Children who were prenatally exposed to illicit substances evidenced higher rates of behavior problems. However, after controlling for post-natal environment, the effect of prenatal exposure was minimal. This indicates

that the post-natal environment exerts a powerful influence on the development of behavior problems. Post-natal environment factors, such as recent maternal drug use, contribute to the development of behavior problems.

Bailey et al. (2012) used data from longitudinal studies to evaluate the relationship between early parental substance use (use from ages 21-24) and later child behavior problems (when parents were ages 27-28). In some of the participants, substance use occurred before the individual became a parent. A path analytic model found a significant, indirect relationship between early parental substance use and subsequent child behavior problems. Poor parenting practices mediated the relationship between early substance use and child behavior problems. Interestingly, current parental substance use was not associated with current parenting practices. These researchers suggested that early substance use disrupts an individual's functioning in lasting ways that can affect later parenting practices. This may indicate that having a current substance use disorder has no added effect on a child's behavior, if the parent has a prior substance abuse history.

A longitudinal study using a large, national sample, attempted to identify a causal relationship between maternal alcohol and substance abuse and subsequent child behavior problems (Chatterji & Markowitz, 2001). Maternal alcohol, marijuana, and cocaine abuse were predictive of child behavior problems. Maternal alcohol use in the month preceding the data collection was assessed by mothers' self-report of the number of days they consumed alcohol that month. The magnitude of the relationship between maternal alcohol use in the preceding month and child behavior problems was small; a 1% increase in reported child behavior problems was associated with heavy alcohol consumption.

However, any marijuana or cocaine use in the preceding year was related to larger effects on child behavior problems. Marijuana use was related to an 8% increase in child behavior problems, and cocaine use was associated with a 19% increase in behavior problems. Based on the results of this study, hard drugs may have a larger effect on the development of child behavior problems than use of substances such as alcohol or marijuana. This information suggests that substance use alone may not be an accurate predictor of child behavior problems, and that type of substances used needs to be examined.

An investigation into the predictors of delinquent behavior in adolescents was conducted using longitudinal data from a large, Australian sample of mothers and children (Bor, McGee, & Fagan, 2004). Mothers were interviewed at their first hospital visit during pregnancy, and completed questionnaires several days after the birth of the child, when the child was six months old, five years old, and 14 years old. The sample contained 5,278 mothers and their 14-year-old children. Early behavior problems were the strongest predictor of adolescent delinquency. Substance abuse also emerged as predictor, albeit weaker, of adolescent delinquency. The researchers assessed only cigarette smoking and alcohol use as measures of substance abuse, which is a weakness of the study. However, it reveals that use of legally sanctioned substances can have a negative impact on child development. Additionally, participants who dropped out of the study were predominantly from low SES backgrounds, so the data reflects a largely middle-class sample. The researchers suggest that due to these factors, the results likely underestimate the relationships that would likely be found in a more representative

sample. The proposed study will involve a low SES population, which will serve to extend the aforementioned research.

It has been argued that parental substance use leads to the development of child behavior problems. However, some researchers argue that child behavior problems can lead to parental substance use (Pelham & Lang, 1999). Pelham and Lang suggested that parental alcohol use might be a coping mechanism for dealing with child behavior problems. They proposed a model in which child behavior problems lead to increased parental stress, which leads to alcohol consumption, which leads to maladaptive parenting, which contributes to child behavior problems, creating a vicious cycle. Mothers of children with and without ADHD were recruited for the study. It was hypothesized that mothers of ADHD children would have a higher stress level, and be more susceptible to maladaptive coping. The mothers spent time with a “normal” child and then with a “problem” child. After each interaction, the mother was given a period of time in which she was permitted to consume alcohol, with no limits on how much she could consume. Mothers of children with ADHD were particularly vulnerable to becoming stressed by child behavior problems, showing a greater physiological stress response, and evidenced higher rates of alcohol consumption than mothers of children without ADHD. After interacting with a problem child, ADHD mothers consumed 20% more alcohol than when they interacted with a normal child. Among the ADHD mothers, single mothers were most vulnerable to stress and subsequent alcohol consumption. The researchers noted that there was a small, but significant, number of ADHD mothers who decreased their alcohol use after interacting with a problem child. This unexpected

finding highlights the need for investigation of individual differences in coping mechanisms among mothers of children with ADHD.

A birth cohort study followed new mothers for 3 years to assess how maternal functioning was related to child behavior problems (Whitaker, Orzol, & Kahn, 2006). The areas of maternal functioning that were assessed included substance abuse, mental health problems, and domestic violence. A positive correlation was found between the number of maternal functional impairments and the prevalence of child behavior problems. This effect persisted even after controlling for paternal mental health and substance use. As the number of maternal impairments increased, more children were reported to have problems with mood symptoms, attention and hyperactivity, and aggression. Maternal substance abuse, in addition to other factors, is associated with behavior problems among young children.

Kandel (1990) assessed how various aspects of parental functioning were related to child functioning. One hundred sixty six parents of children aged six and over were interviewed about their substance use (both legal and illegal) and child's behavior. A strong, positive association was found between maternal, but not paternal, substance abuse and child behavior problems. Maternal drug involvement and maternal closeness to child were the strongest predictors of child behavior problems. Mothers who used more drugs reported more difficulty controlling their children. They were also more likely to report their children as noncompliant, aggressive, and maladjusted. Fathers who used illicit substances in the past year showed the opposite effect. Higher rates of paternal substance use were associated with fathers giving more positive reports of their child's behavior. This finding is unsurprising, as fathers as a group tend to give more positive

behavior reports regarding their children (Earls, 1980; Schroeder, Hood, & Hughes, 2010; Whipple & Webster-Stratton, 1991). Given the preponderance of evidence from the above studies, there appears to be a unique relationship between mothers and their children. Maternal substance use has a larger impact on child behavior problems, and child behavior problems have a larger impact on maternal substance use. Paternal substance use plays a smaller role in the development of child behavior problems, and fathers appear to be less sensitive to stress, and subsequent substance abuse, associated with child behavior problems.

Thus far, child behavior problems have been reported by parents or observers. A unique study investigated the effects of parental methamphetamine use on children using data collected from the affected children (Ostler et al., 2007). Participants were 26 children from a rural area involved in social services due to parental use of methamphetamine. The children were interviewed and completed checklists, caseworkers were interviewed, and case records were reviewed. Over half of the children (57%) reported emotional and behavioral problems. A full 65% of children reported dissociative symptoms and symptoms of post-traumatic stress disorder. Children reported not knowing how to deal with their experiences, and not having any help in dealing with them. The researchers suggested that these numbers might be an underestimate of the actual scope of the problem, as caseworkers reported more symptoms among the children than the children reported. Thus, children of substance abusing caregivers are aware of the distress caused by their parents' substance use.

The Present Study

The aforementioned literature suggests there are complex relationships between child behavior problems, maternal substance abuse, parental stress, and child maltreatment potential that warrant careful attention. The present study, therefore, aims to extend research in this area by examining the relationship between these variables in a sample of substance-abusing mothers identified for concurrent child neglect. The studies reviewed in prior sections have demonstrated how pairs of these variables interact among varied populations. This study will demonstrate the interaction of all of these variables within a single population. By defining the nature of the relationship between these variables in this neglecting population, treatment providers will be able to target variables that most directly impact child maltreatment potential. Additionally, community agencies will be better able to screen for factors associated with higher child maltreatment potential, allowing them to better identify at-risk families who may benefit from preventative services.

Hypotheses

1. A model is proposed in which substance use severity, child behavior problems, and parental stress are predictive of child abuse potential. It is hypothesized that substance use severity, child behavior problems and parental stress will predict child maltreatment potential.

2. Determine if parental stress mediates the relationship between child behavior problems and child maltreatment potential. It is hypothesized that parental stress will mediate the relationship between child behavior problems and child maltreatment potential.

CHAPTER 3

METHODS

Participants

Data included in this study were collected as part of a prospective randomized controlled trial that was aimed at evaluating the effectiveness Family Behavior Therapy in concurrent child neglect and substance use disorders. The participants were 100 mothers who were referred by local Department of Family Service (DFS) caseworkers and related agencies for treatment of child neglect and comorbid substance use disorders. To be eligible for referral, mothers needed to evidence illicit drug use in the four months prior to being referred for treatment, living with the child victim of child neglect or it was the intention of the Court to return the child to the home, have at least one adult willing to be involved in the participant's treatment, and sexual abuse or domestic violence could not be the primary reason for referral. To qualify for participation, mothers needed to obtain a diagnosis of Substance Abuse or Dependence according to their responses to structured clinical interviews with program staff at the time of referral. An a priori power analysis indicated that a sample size of 76 would be sufficient to detect a moderate effect with a power of 0.8 and an alpha of 0.05.

Demographics. The participants ranged between 16 and 49 years old, with an average age of 29 years. Thirty-one percent of the participants self-identified as Caucasian, 18% as African American, 9% Hispanic/Latino, 3% American Indian, 3% Asian/Pacific Islander, 4% as "Other", and 32% declined to answer. The marital status of the participants was 32% single, 21% cohabitating with their partner, 14% married, and 33% were unknown. The mothers had one to eight children, with an average of 1.52

children in the home. The age of these children ranged from newborn to 16 years old, with an average age of 4 years old.

Measures

Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 2002). The SCID-IV is a structured diagnostic interview designed to assess for the presence of disorders that are listed in the DSM-IV. The SCID-IV has demonstrated good reliability and validity across administrations (Spitzer, Williams, Gibbon, & First, 1992), and it has been found useful in clinical controlled outcome studies with substance users (Azrin et al., 2001). In this study, only the sections on drug and alcohol use were administered to determine if there was existing drug or alcohol abuse or dependence.

Parenting Stress Index–Short Form (PSI-SF; Abidin, 1995). The PSI-SF is a 36-item measure of stress in the parent–child system. It includes three scales (i.e., Parental Distress, Parent-Child Dysfunctional Interaction, Difficult Child) with a 5-point Likert-type scale response format (i.e., *strongly agree, strongly disagree*). The parental distress subscale examines the extent to which the parent experiences stress in his/her role as a caregiver. It measures sense of parenting competence, stress associated with restrictions on his/her life, conflict with child’s other parent, social support, and depression. The Difficult Child subscale measures the parent’s perception of how easy/difficult their child is. The measure also includes a Defensive Responding scale that evaluates whether the parent is answering items in a way that casts them in a positive light. Scores of 10 or less on this scale indicates the individual may be responding in a defensive manner.

The Child Abuse Potential Inventory (CAPI; Milner, 1986). The CAPI consists of 160-items designed to assess an individual's risk to engage in physical abuse of a child. The CAPI factors include the following subscales: Abuse, Distress, Rigidity, Unhappiness, Loneliness, and Problems With Others, Problems With Child And Self, and Problems With Family. The clinical cutoff score for the Abuse Potential Scale is 215. To detect response distortions, the CAPI contains three validity scales: the lie scale, the random response scale, and the inconsistency scale. The validity scales are paired in different combinations that result in three validity indexes: the faking-good index, the faking-bad index, and random response index. If a validity index is elevated, the abuse score may not be an accurate representation of the respondent's "true" abuse score. The CAPI is a widely used instrument, and has been shown to have good reliability and validity (Milner, 1986). Although not designed specifically for the detection of neglect, many researchers have found that the CAPI accurately identifies neglectful parents in addition to those who may be at risk for physical abuse (Couron, 1982; Milner, 1991; Milner & Robertson, 1990).

Procedure

The study was approved by the Institutional Review Board for the protection of human participants at the University of Nevada, Las Vegas. Upon referral for treatment by a DFS caseworker, research assistants contacted the mother to conduct a phone screening to provide a preliminary determination of whether study inclusion criteria were met. Based on this screening, eligible mothers were scheduled for a pre-treatment assessment. Prior to conducting the assessment, confidentiality procedures were reviewed and informed consent was obtained. Participants were informed that their data was

protected by a federal certificate of confidentiality, unless threats to harm self or others were indicated. A comprehensive evaluation was conducted to ensure the mothers met study criteria. Participants were evaluated at their place of residence, and measures were collected as part of this comprehensive evaluation. A \$50 gift card was provided to the mothers for their participation in the assessment.

Select measures from this assessment were included in the analyses. The Difficult Child scale from the PSI-SF was used as the child behavior problems measure. The Parental Distress scale from the PSI-SF was used as the measure of parental stress. The SCID was used to determine substance use severity, with a diagnosis of substance abuse identified as less severe than substance dependence.

CHAPTER 4

RESULTS

Hypothesis 1

To test the hypothesis that substance use severity, parental stress, and child behavior problems predict child abuse potential, a standard multiple regression was conducted. First, multicollinearity and homogeneity of variance was assessed to ensure the dataset did not violate basic assumptions of normality in regression. Tolerance and VIF scores were in an acceptable range and indicated that multicollinearity was not present (see Table 1).

The linear combination of substance use severity, parental stress, and child behavior problems was significantly related to child abuse potential ($F(3, 75) = 13.34$, $p < .001$, $R = .590$, $R^2 = .349$). Parental stress had a significant unique effect on child maltreatment potential ($\beta = .496$, $p < .001$); however, substance use severity ($\beta = .032$, $p > .05$) and child behavior problems ($\beta = .158$, $p > .05$) did not have significant unique effects. These data are summarized in Figure 1.

Hypothesis 2

A series of regression analyses were run to assess mediation among the variables using the four-step approach recommended by Baron and Kenny (1986). To test for mediation or indirect effects among variables, a series of four statistical analyses was performed. First, a significant relationship between the independent variable and outcome variable must be established. To accomplish this task, child behavior problems was evaluated as a predictor of child abuse potential using linear regression. The second criterion in establishing mediation is that a significant association must exist between the

independent variable and mediator variable. To this end, child behavior problems was evaluated as a predictor of parental stress using linear regression. A third analysis was conducted in which the independent and mediator variables were entered as predictors in a multiple regression. In this third step, evidence for full or partial mediation must be established. Full mediation occurs when the independent variable (child behavior problems) ceases to have a statistically significant relationship with the outcome variable (child maltreatment potential) when the mediator (parental stress) is included in the regression. Partial mediation is present if the relationship between the independent and outcome variable is weakened by the inclusion of the mediator, but still statistically significant. If the relationship between the independent and outcome variable remains the same, there is no evidence for mediation. If the prior three steps meet the criteria for mediation, the fourth and final step must be conducted. Sobel's test of indirect effects was conducted to establish whether the impact of parental stress is statistically significant (Sobel, 1982).

On step one of the mediation analysis (summarized in Table 2), child behavior problems were significantly associated with child abuse potential ($\beta = .33, p = .001$; $R^2 = .11, p = .001$). On step two, child behavior problems were significantly associated with parental stress ($\beta = .38, p < .001$; $R^2 = .14, p < .001$). On step three, parental stress was significantly associated with child abuse potential ($\beta = .60, p < .001$), while child behavior problems ceased to be significantly related to child abuse potential ($\beta = .10, p = .24$). On step 4, results of the Sobel test suggest that the relationship between child behavior problems and child abuse potential is significantly mediated by parental stress ($z = 3.68, p < .001$). Together, these results suggest that child behavior problems have an

indirect effect on child abuse potential by being associated with increased parental stress. Steps 1-3 are represented in Figure 2.

Validity Indices

The Defensive Responding scale from the PSI-SF was evaluated to assess whether participants responded to the questionnaire in an open and honest manner. Scores of 10 and below indicate the parent may be minimizing problems, stress, or negativity in their relationship with their child. A small percentage (4.9%) of the sample scored 10 or below, suggesting the majority of participants responded openly to the items and that the data from the PSI-SF scales are interpretable.

The CAPI contains validity indices that indicate whether an individual appears to be engaging in positive impression management (Faking Good) or negative impression management (Faking Bad). Forty-three percent of the sample scored in the normal range, 20.9% scored in the elevated range, and 4.6% scored above the validity cut-off, indicating this 4.6% was likely engaging in positive impression management. No participants scored above the cut-off for negative impression management, suggesting that no participants were attempting to cast themselves in a negative light. Data from the CAPI appears to be interpretable.

CHAPTER 5

DISCUSSION

In this study, substance use severity, child behavior problems, and parental stress were hypothesized to predict child abuse potential. Results of regression analysis supported the overall model. However, further analysis showed that only parental stress significantly predicted child abuse potential. A second hypothesis specified a mediated relationship where parental stress mediates the relationship between child behavior problems and child abuse potential. Both child behavior problems and parental stress were significantly and positively associated with child abuse potential. Further analysis of how these variables relate to each other revealed that child behavior problems have an indirect effect on child abuse potential by being associated with increased stress. That is, higher reports of child behavior problems are associated with higher parental stress levels. These higher stress levels are more strongly associated with increased maltreatment risk. These data suggest that child behavior problems are not directly related to increased child maltreatment potential within a child neglecting population.

These results extend previous research in child maltreatment by demonstrating this relationship in a sample of mothers who had been exclusively identified to neglect their child. It is hoped that by identifying the variables that directly affect child maltreatment potential, treatment components can be originated to target these areas. Often, parent training is the treatment of choice for neglectful parents in the child welfare system (Whitaker & Self-Brown, n.d.). It appears the underlying assumption is that parents maltreat their children due to a lack of parenting skills. There is some evidence to support this statement in the treatment of child physical abuse (Whitaker and Self-Brown,

n.d.), but it is unclear whether this is true for child neglect. The results of the present study suggest that parental stress plays a large role in child maltreatment risk. With neglecting families it may be that stress management techniques would complement skills training aimed at managing child behavior problems. Mothers reported to child welfare services for child neglect may benefit from therapy that focuses on decreasing stress through increasing social support, improving communication between parents, and increasing the sense of parental confidence. Parent training interventions may help to increase parental confidence, and thereby lower parental stress. Further research determining the active ingredients in parenting skills classes could help clarify this hypothesized relationship. Additionally, parents may benefit from interventions that directly target stress, such as mindfulness-based stress reduction, deep breathing, guided imagery, progressive muscle relaxation, or mantram repetition.

Limitations

These data provide some preliminary evidence that parental stress mediates the relationship between child behavior problems and child maltreatment potential. However, due to limitations in sample size and data collection procedures, causal inferences cannot be made. To evaluate whether child behavior problems cause increased parental stress, which in turn increases maltreatment risk, it would be necessary to collect data at first on child behavior problems, then parental stress, then maltreatment potential. In this study, data was collected at the same point in time, meaning that although we can see that the variables are related, we cannot identify the direction of these relationships.

The sample size in the present study was relatively small and did not allow for more sophisticated statistical analysis. Due to sample size constraints, the number of

variables in the mediational model was limited to two. A larger sample size would permit the use of structural equation modeling or path analysis, which would allow for analysis of a more complicated model that would potentially account for a larger degree of the variance in the model. Additionally, small sample size may account for the lack of support for unique effects of child behavior problems and substance use severity in Hypothesis One. Missing data from 23 participants resulted in a sample size of 77 for the multiple regression in Hypothesis One.

Future Directions

Future areas of research include replicating the study with a larger sample of individuals to enable path analysis. This would enable substance use severity to be included as a variable in the model. Additionally, as mentioned above, collecting data at multiple time points would allow for causal inferences to be made. The DSM-5 contains new criteria for substance use disorders that enables coding of Mild, Moderate, and Severe disorders based on the number of symptoms reported. Future research should investigate the effect of these levels of use on child behavior problems, stress, and child maltreatment. In addition, it would be interesting to compare the model between individuals with current substance use disorders and those with disorders in remission. There is some evidence to suggest that past substance use has lingering effects on maltreatment risk and parenting (Ammerman, Kolko, Kirisci, Blackson, & Dawes, 1999; Kandel, 1990). If past substance use affects current parental stress and/or child maltreatment potential, it would enable caseworkers and clinicians to better identify those at risk to maltreat their children and provide preventative interventions.

Future research in this area should not only evaluate the effect of the severity of substance use disorders, but also at the type of substance being used. Recent actions to legalize medicinal, and in some states, recreational marijuana use suggest that it is seen as a relatively harmless substance. It would be beneficial to investigate the individual effects of marijuana, as well as alcohol, benzodiazepenes, cocaine, methamphetamine, opiates, and other drugs. Often, this type of analysis is complicated because people may use several types of substances concurrently. In the present study, a significant minority of the participants used marijuana alone. However, the decriminalization of marijuana in some states may lead to increased use, or perhaps increased transparency about use, and it should be an area of continued focus in research.

A future clinical trial comparing the impact of parent training and parent training plus stress reduction interventions is warranted. Indeed, the results of this study would suggest the effects of parent training would be enhanced with stress reduction interventions. Reasons for this could include greater buy-in from participants receiving stress reduction and parent training, as compared with parent training alone. That is, parents may become defensive and in turn less engaged when it is suggested that their parenting skills need improvement. It may be that indicating a parent is experiencing parental stress is less stigmatizing than indicating the parent has parenting skill deficits because stress may be inherently influenced by outside factors beyond the parent's control, whereas parenting skill deficits are often perceived to be inherently self-determined. Therefore, parents may be more open and willing to engage in interventions designed to lower stress than improve parenting.

There is some evidence that treatment outcomes may differ based on the type of neglect for which a parent is referred (Donohue et al., 2014). Analysis of whether the model of the relationship between child behavior problems, parental stress, and child maltreatment potential holds true across different types of neglect was not possible in the present study due to the small sample size. Future research should include the type of neglect as a variable in the model. Analysis of this research could help inform treatment providers whether different interventions are necessary for different types of neglect. Research on child neglect as a whole is lacking, and there is even greater need to identify variation in treatment needs among families founded for various types of neglect. Though results of the present study are tentative, they provide initial evidence that child maltreatment potential among child neglecting mothers is strongly related to parental stress. However, the results also suggest there is much work to be done in specifying the relationship between predictors of child neglect.

Table 1.

Results of the multiple linear regression predicting child maltreatment potential

Variables	<i>B</i>	<i>SE B</i>	β	Tolerance	VIF	R^2
Substance Use Severity	6.845	20.28	.032	.955	1.048	--
Child Behavior Problems	1.941	1.276	.158	.808	1.238	--
Parental Stress	7.066	1.509	.496*	.775	1.290	--
						.348*

Note: * Significant at $p < .01$

Table 2.

Results of the mediation analysis

	<i>B</i>	<i>SE B</i>	β	R^2
Step 1: Regression of child behavior problems on child maltreatment potential	4.04	1.17	.33*	.11*
Step 2: Regression of child behavior problems on parental stress	.33	.08	.38*	.14*
Step 3: Regression of child behavior problems and parental stress on child maltreatment potential				.41*
Child Behavior Problems	1.23	1.04	.10	
Parental Stress	8.37	1.18	.60*	

Note: * Significant at $p < .01$

Figure 1.

Relative contribution of substance use, parental stress, and child behavior problems in predicting child abuse potential

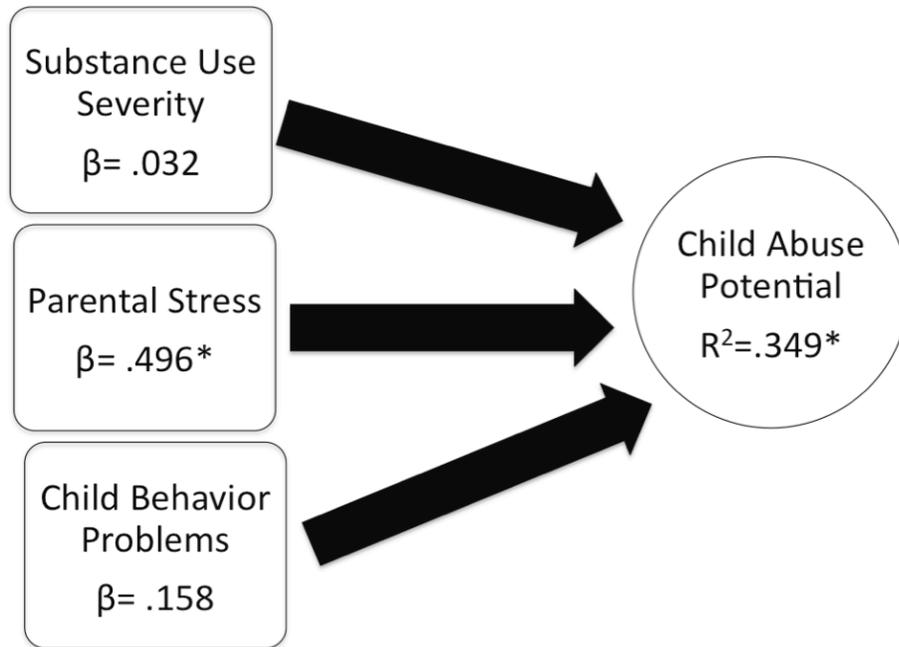
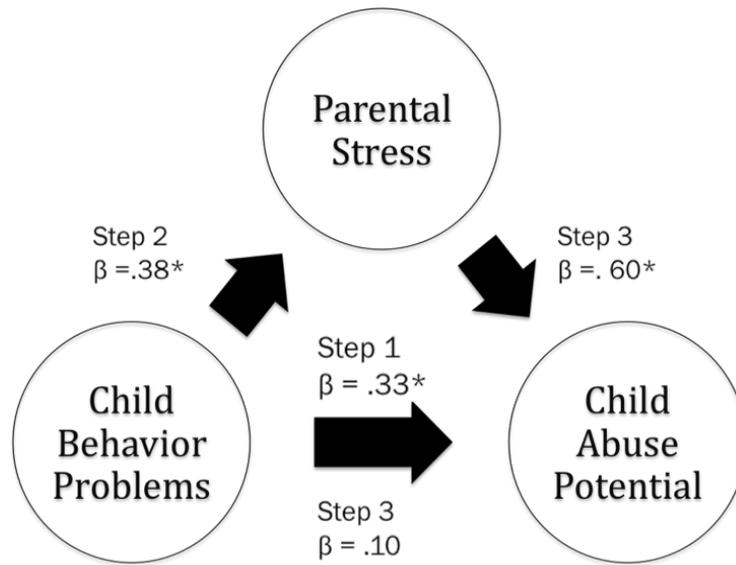


Figure 2.

Parental stress mediates the relationship between child behavior problems and child abuse potential



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