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The Influence of Caregiver Mental Health On Parenting Focused Intervention Service Utilization and Parenting Behavior Change

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Running head: MENTAL HEALTH AND CPS OUTCOMES

The Influence of Caregiver Mental Health On Parenting Focused Intervention Service
Utilization and Parenting Behavior Change

3-Manuscript Dissertation

Tia McGill Rogers, MPH

Georgia State University

School of Public Health

Spring 2016

MENTAL HEALTH CHILD WELFARE OUTCOMES

Acknowledgments

“Education is for improving the lives of others and for leaving your community and world better than you found it.”

-Marian Wright Edelman

American rights activist for the rights of children and notable Spelman College Alumna

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Chapter 1
Introduction and Statement of Purpose
(Content Area Literature Review)

I. The Scope of Child Maltreatment

The Centers for Disease Control and Prevention (CDC) has identified child maltreatment (CM) as a significant public health problem and has placed importance on prevention efforts (Hammond, 2003; Saul et al., 2014; Whitaker, Lutzker, & Shelley, 2005). Child maltreatment is defined as “abuse or neglect of a child by a parent or other caregiver that results in potential harm, actual harm, or threat of harm to a child” (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008). There are four major categories of child maltreatment 1) physical abuse (e.g., hitting, kicking, shaking, or burning); 2) sexual abuse (e.g., rape or fondling); 3) psychological abuse (e.g., terrorizing or belittling); and 4) neglect (e.g., failure to supervise a child or meet a child’s basic physical, emotional, or educational needs) (Leeb, Paulozzi, Melanson, Simon, & Arias, 2008). Evidence supports that all forms of child maltreatment place victims at risk for poor outcomes in a number of domains.

The National Child Abuse and Neglect Data System (NCANDS) is a federally sponsored effort that collects and analyzes case-level data on child abuse and neglect from referrals made to State child protective service (CPS) agencies (USDHHS, 2013). The most recent report from NCANDS indicates that during federal fiscal year (FFY) 2012, an estimated 6.3 million children were reported to state CPS agencies for alleged maltreatment. That same year, based on reports from 49 states, a national estimate of 1,640 children died from child abuse and neglect (USDHHS, 2013). Although NCANDS data submitted from 51 states show nearly 700,000 substantiated cases of child

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maltreatment, this data is believed an underestimate of the true number of cases, because many are never reported to CPS (USDHHS, 2013; Stoltenborg, Bakermans-Kranenburg, Alink Lenneke, & Jzendoorn Marinus, 2014).

Since awareness of child maltreatment increased in the 1970's, research aimed at quantifying the long-term consequences of child maltreatment has grown. Findings from cross-sectional studies, retrospective cohort studies, and the more rigorous prospective cohort studies provide evidence for associations between maltreatment and negative outcomes in the domains of education, mental health, physical health, violence, and criminal behavior (Gilbert, Widom, Browne, Fergusson, Webb, & Janson, 2009). Prospective longitudinal studies have consistently shown that maltreated children are at risk for lower school functioning (Kerr, Black, & Krishnakumar, 2000; Perez & Widom, 1994), are more likely to require special education (Jonson-Reid, Drake, Kim, Porterfield, & Han, 2004; Lansford, Dodge, Pettit, Bates, Crozier, & Kaplow, 2002; Perez & Widom, 1994; Boden, Horwood, & Fergusson, 2007), and obtain employment in semi-skilled occupations (Widom, 1998). Victims of child maltreatment are also at increased risk of internalizing (anxiety, depression) and externalizing (aggression, acting out) behavior problems (Lansford, Dodge, Pettit, Bates, Crozier, & Kaplow, 2002; Manly, Kim, Rogosch, & Cicchetti, 2001, Thornberry, Ireland, Smith, 2001; Fergusson, Boden, & Horwood, 2008; Herrenkohl, Herrenkohl, Rupert, Egolf, & Lutz, 1995; Herrenkohl & Herrenkohl, 2007; Banyard, Williams, & Siegel, 2001). Additionally, child maltreatment victims have an increased risk of developing an array of mental health problems in adolescence and adulthood including: depression, post-traumatic stress disorder, and substance use problems (Cutajar et al., 2010; Fergusson, Horwood, &

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Lynskey, 1996; Gilbert et al., 2009; Tebbutt, Swanston, Oates, & O'Toole, 1997). Child maltreatment is also financially costly. In 2010, the estimated average lifetime cost per victim, of nonfatal child maltreatment was \$210,012. This total cost is distributed across: child healthcare (\$32,648), adult healthcare (\$10,530), lost lifetime productivity (\$144,360), CPS costs (\$7,728), criminal justice (\$6,747), and special education (\$7,999) costs (Fang, Brown, Florence, & Mercy, 2012).

II. Response to Child Maltreatment

Social services targeting child maltreatment perpetrators are a relatively recent phenomenon. In 1974, the Child Abuse Treatment and Prevention Act (CAPTA) provided financial assistance to states for the prevention, identification, and treatment of child abuse and neglect. Since then, child abuse has primarily been addressed through social services agencies (public, private, community-based, and faith-based) and justice agencies through formal reporting laws in all states and an expanded CPS system serving at-risk families.

When CPS reports are made, an investigation of that report results in one of several outcomes, depending on the severity of the alleged maltreatment. In severe cases, children may be removed from the home and placed with relatives or in foster care. In less severe cases, children often remain in the home, and a range of services can be provided to the family. Because by definition, maltreatment involves some dysfunction of or deficit in the parenting process, parent training is one service that is virtually always provided (Barth et al., 2005; Chaffin & Friedrich, 2004). In addition to parent training, caregivers are also commonly referred to additional services to address a variety of other problems such as mental health and substance use issues, domestic violence, job training,

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and homelessness.

There is a very large literature supporting the use of parenting focused intervention programs across a variety of settings to strengthen parenting skills and reduce child maltreatment (Barth et al., 2005; Chaffin & Friedrich, 2004). Generally, the data show that child maltreatment is less likely if caregivers improve and expand their child-rearing skills, rely less on coercive child management strategies, and modify attitudes linked to harsh parenting (Lundhal, Nimer, & Parsons, 2006; Lundahl, Risser, & Lovejoy, 2006). Widely implemented, evidence-supported interventions such as: SafeCare[®] (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012), Parent-Child Interaction Therapy (PCIT; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Chaffin et al., 1996), and Triple P (Prinz, Saunders, Shapiro, Whitaker, & Lutzker, 2009) have been found effective at reducing child maltreatment recidivism and preventing maltreating behavior through improvements in caregiver interaction patterns and parenting skill development.

Meta-analytic data also support the use of parenting focused child maltreatment intervention as a response to child maltreatment. For example, MacLeod & Nelson (2000) conducted a meta-analysis of five programs designed to decrease child maltreatment. Results indicated that there was a moderate effect across the five studies for the use of parenting programs with prevention samples of caregivers ($d=0.36$). In 2006, Lundhal, Nimer, and Parsons formally assessed the impact of parent training programs on caregiver risk of child abuse across 23 studies. Results indicated that immediately following parent training, caregivers exhibited a significant gain ($d=0.45-0.60$) in all outcomes (e.g., caregiver emotional adjustment, child rearing attitudes and

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behaviors, documented abuse). Further, moderator analyses suggested that home visitor delivered training versus other methods of delivery, and conducting parent training in a combination of settings including both a home and office setting, as opposed to an office setting only, was related to increased program effectiveness. Finally, inclusion of a behavioral component and delivering at least some of the parent training in an individual setting, as opposed to group only, enhanced outcomes significantly (Lundhal, Nimer, & Parsons, 2006).

Although parenting focused intervention programs can have an impact on risk for maltreatment perpetration and other related caregiver outcomes, there is little literature examining the differential effectiveness of parenting programs across caregiver-related factors. Caregivers who are at risk for perpetrating child maltreatment often have a multitude of co-occurring problems. In particular, they are also at risk for mental health problems including depression, substance use, and trauma exposure. These mental health problems could impede skill uptake in parenting focused intervention programs directly, or by impacting caregivers' willingness to enroll in and complete the course of intervention.

III. Mental Health Risk Factors for Child Maltreatment

In a broad scale review of the existing literature, Schumacher, Slep, & Heyman (2001) examined psychological, and behavioral characteristics as risk factors for child neglect, the most prevalent form of child maltreatment in the United States. Although few factors were examined in more than one study, when taken together, the findings suggest that caregiver psychological characteristics are among the most consistently documented risk factors for neglect (Schumacher, Slep, & Heyman, 2001). Moderate to strong effect

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sizes were found for the associations between neglect and caregiver self-esteem, impulsivity, substance abuse diagnosis, lack of social support, and daily stress (Schumaker, Slep, & Heyman, 2001). In a parallel review of risk factors for child physical abuse (CPA), Black, Heyman, & Slep (2001), evaluated studies that used common measures of parenting tactics including the: Conflict Tactics Scale (CTS), Parent-Child Conflict Tactics Scale (CTS-PC), and Diagnostic Interview Schedule (DIS). CPA perpetration was associated with several caregiver mental health factors such as: stressful life events and parenting stress, emotional distress, loneliness, unhappiness, anxiety, depression, somatic complaints, and alcohol use.

Data from several large, longitudinal studies indicate that specifically, caregiver depression (CD), substance use (CSU), and trauma exposure (CTE) represent three of the most common mental health concerns among caregivers at risk for child maltreatment. The Fourth National Incidence Study of Child Abuse and Neglect (NIS-4) is one example of such data. The NIS-4 follows a nationally representative design and includes children who were investigated by CPS agencies as well as children who were screened out by CPS without investigation. According to the NIS-4, perpetrators' alcohol and drug use was a factor in approximately 11% of countable child maltreatment cases and perpetrator mental illness was a factor in 7% of child maltreatment cases (Sedlak et al., 2010). Furthermore, data collected from 5,873 children, aged birth to 17, sampled from CPS investigations closed between February 2008 and April 2009 in 83 counties nationwide as a part of The Second National Study on Child and Adolescent Well-Being (NSCAW II), revealed four major findings related to caregiver mental health. First, nearly a quarter (24.2%) of female caregivers were exposed to intimate partner violence in the previous

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year and possibly experienced trauma from this exposure. Second, approximately one-fifth (19.6%) of caregivers had a score within the clinical range for depression. Third, approximately 8% of in-home caregivers reported alcohol consumption habits that indicated some risk of harmful use. Fourth, the responses of 15% of in-home caregivers showed a moderate risk for a substance abuse problem (Dolan, Casanueva, Smith, Lloyd, & Ringeisen, 2012). In a recent analysis of CPS reports from one state (Oklahoma), Chaffin and colleagues (Chaffin, Hecht, Bard, Silovsky, and Beasley, 2012) reported that 29% of families with CPS reports who received in-home family preservation services had a diagnosed substance use disorder at some point in their lifetime, and 27% reported clinically significant depression.

Research indicates that CD, CSU, and CTE often co-occur with each other, further compounding caregiver's risk for child maltreatment perpetration (Tracy, Morgenstern, Zivin, Aiello, & Galea, 2014; RachBeisel, J., Scott, J., & Dixon, L., 1999; Bedard-Gilligan, Cronce, Lehavot, Blayney, & Kaysen, 2014). In the U.S., approximately 4% of all adults have co-occurring addiction and mental health disorders, with 8.9 million suffering from any mental illness and substance use dependence and 2.8 million suffering from serious mental illness and substance use dependence (SAMHSA, 2010). Also, of those with a substance use disorder (20.8 million), it is estimated that 42.8% had co-occurring mental illness, and of those with any mental illness, 19.7% had co-occurring substance use dependence (SAMHSA, 2010). In the next sections, theory and research relating CD, CSU, and CTE to maltreatment are discussed.

Caregiver Depression

Over the past decade, depression has risen to the second leading cause of global

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disability and mortality (Ferrari et al., 2013). According to The National Survey on Drug Use and Health (NSDUH) 6.7% of U.S. adults (15.7 million people) aged 18 years and above had at least one major depressive episode in 2013 (SAMHSA, 2013). Many adults will experience depression during the child-rearing years (Hasin, Goodwin, Stinson, & Grant, 2005), and depression can interfere greatly with effective parenting practices.

Belsky's (1984) process model of parenting suggests that caregivers' psychological resources are the most important determinant of parenting behaviors. For this reason, depression is an important, direct link to parenting (Belsky, 1984). Other theoretical perspectives suggest that depression impairs the sufferer's interpersonal relationships and functioning, which includes the caregiver-child relationship (Coyne, 1976). These theoretical perspectives suggest a strong, negative relationship between CD and positive parenting behaviors – a relationship that is supported by empirical research (Cummings, Keller, & Davies, 2005; Eiden & Leonard, 2000; Franck & Buehler, 2007; Leinonen, Solantaus, & Punamäki, 2002; Papp, Cummings, & Goeke-Morey, 2005).

Meta-analytic exploration of depression and parenting reveals that self-reported paternal (Wilson & Durbin, 2010) and maternal (Lovejoy, Graczyk, O'Hafre, Neuman, 2000) depression is associated with lower levels of positive and higher levels of negative parenting behaviors. Among depressed caregivers with no prior incident of child maltreatment, depression is associated with increased child abuse potential (Rinehart et al., 2005) and actual maltreatment initiation (Chaffin, Kelleher & Hollenberg, 1996). Longitudinal data from the National Institute of Mental Health's Epidemiology Catchment Area Survey (N = 7,103) revealed that, among cases with no reported physical abuse at baseline, depressed caregivers were more than three times as likely as caregivers

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who were not depressed to initiate physical abuse of a child (Chaffin, Kelleher, & Hollenberg, 1996).

Depressed caregivers are also more likely than their non-depressed counterparts to engage in neglectful behaviors (Egami et al., 1996; Ethier et al., 1995; Tyler et al., 2006) characterized by a lack of sensitivity to their children's physical and emotional needs, caregiver disengagement, and unresponsiveness (Campbell et al., 2004; Cummings & Cicchetti, 1993; Kohl, Kagotho, & Dixon, 2011; Lovejoy et al., 2000; Trapolini, Ungerer, & McMahon, 2008). These neglectful behaviors observed among depressed caregivers can be attributed to their higher likelihood of reported aggravation with their children (Lyons-Ruth et al., 2002), negative emotions about their children (Bird, 1997), and decreased emotional investment in their children (Bradley et al., 1997). Depression is also associated with more overt forms of child maltreatment. For example, depressed caregivers more frequently practice harsh and physical forms of discipline than non-depressed caregivers (Bodovski & Youn, 2010; Cummings and Davies, 1994; Kochanska et al., 1987; Lyons-Ruth et al., 2002) and exhibit more coercive, hostile, or threatening gestures toward their children (Lovejoy, Craczyk, O'Hare, and Neunian (2000). Furthermore, caregivers who suffer from depression often show increased use of psychological aggression (Conron, Beardslee, Koenen, Buka, & Gortmaker, 2009) and psychologically abusive methods of discipline such as using guilt or withholding love to control children's behavior (Cummings et al., 2005).

Caregiver Substance Use

Recent estimates suggest that more than 8 million children live in a home with at least one substance-using caregiver (USDHHS, 2013). As with CD, CSU has been

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shown to relate strongly to both poor parenting and maltreatment. Substance using caregivers may have difficulty regulating stress and other emotions, which often leads to impulsive and reactive behavior that may escalate to physical abuse (Chaplin & Sinha, 2013). Substance using caregivers are more likely to display authoritarian parenting strategies (Mayes, 1995), aggressive parenting, low warmth, and unskillful caregiver-child interactions (Das Eiden & Leonard, 2000; Locke & Newcomb, 2004). The combination of poor emotion regulation and authoritarian parenting, produce extreme reactions to child behavior, resulting in caregivers' harsh or punitive discipline (Walsh et al., 2003; King & Chassin, 2004) that can lead to physical abuse.

Substance-using caregivers are three times more likely to engage in neglectful behaviors than non-substance using caregivers (National Center on Addiction and Substance Abuse, 1999). Neglectful behaviors most commonly exhibited by substance using caregivers include poor supervision (Amirav, Luder, Viner, & Finkel, 2011; Appelboam & Oades, 2006; Donahue et al., 2014), exposure to dangerous environments (Ondersma, Delaney-Black, Covington, Nordstrom, & Sokol, 2006; Sprang, Clark & Staton-Tindall, 2010; Seay, & Kohl, 2013), and neglect of basic needs including hygiene and nutrition (Brown & Hohman, 2006; Barnard & McKeganey, 2004; Dunn, Tarter, Mezzich, et al., 2002). Additionally, substance users' inadequate child monitoring and protection increases the risk of non-caregiver victimization (Widom & Hiller-Strumhofel, 2001). For example, children of alcoholic mothers are at increased risk for sexual abuse by someone outside of the family (Flemming et al., 1997).

Regarding child maltreatment outcomes, caregiver substance use is a major predictor of child maltreatment and neglect, (Chaffin et al. 1996; Larrieu et al. 2008;

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Berger et al. 2010; Institute of Medicine and National Research Council, 2013; Kelleher et al. 1994; De Bortoli, Coles, & Dolan, 2013) which more often results in more severe outcomes. Among families in which caregivers are reported for maltreatment, children of substance users are more likely to be placed in out-of-home care (Barth, Gibbons, & Guo, 2006) and experience delayed family reunification once removed (Carlson, Williams, & Shafer, 2012) than children of non-substance using caregivers. In fact, The National Survey of Child and Adolescent Well-Being (NSCAW) estimates that 61% of infants and 41% of older children in out-of-home care, are from families with active alcohol or drug abuse problems (Wulczyn, Ernst, & Fisher, 2011). Finally, children of substance using caregivers have a greater risk of maltreatment related injury or death due the higher likelihood of chronic neglect and recurrent maltreatment (Barth, Gibbons, & Guo, 2006; Wolock and Magura 1996; US DHHS, 1999).

Caregiver Trauma Exposure

Trauma exposure (i.e., disaster, combat/warzone exposure, experiencing or witnessing assault, threat or injury or oneself, family, or friends) is prevalent among the U.S. population. According to national estimates of trauma exposure, approximately 90% of people in the U.S. reported exposure to at least one traumatic event during their lifetime (Kilpatrick et al., 2013). Approximately 6 - 12% of traumatized individuals develop psychological consequences as a result of trauma exposure; the most common of which, is Post Traumatic Stress Disorder (PTSD; Breslau et al., 1998; 2004; Kessler, Chiu, Demler, Merikangas, & Walters, 2005).

Caregiver trauma exposure limits the extent to which caregivers can foster a healthy caregiver-child relationship. To do that, caregivers must be able to: (a) detect and

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clearly read the child's emotional and physical cues, (b) be sensitive and attuned to the child's needs, (c) display an appropriate level of affection, and (d) demonstrate acceptance of their child's behavior and feelings (Ainsworth, 1978). Trauma exposure significantly impedes caregivers' ability to accomplish these goals, due the diminished capacity for overall healthy interpersonal engagement and poor emotion regulation, which hinders caregiver ability to be physically and/or psychologically available to their child (Lyons-Ruth & Block, 1996; Bosquet Enlow et al., 2011).

Furthermore, when trauma exposed caregivers attempt engagement with the world around them, their interactions are often associated with a heightened vigilance for threat-related stimuli and increased attention to threat-related information (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van Ijzendoorn, 2007; Buckley, Blanchard, & Neill, 2000; Cisler & Koster, 2009; Thomas, Goegan, Newman, Arndt, & Sears, 2013). In regards to parenting, trauma related hyper-vigilance is associated with a lower threshold for arousal and a decreased capacity for positive parenting interactions, leading to an emphasis on children's negative behavior and minimization of their good behavior (Chemtob et al., 2010).

CTE is predictive of child abuse potential, more punitive behavior, and psychological aggression (Cohen, Hien, Batchelder, 2008). Several studies have examined the impact of trauma on the broad experience of parenting in clinical samples. Results of Banyard, Williams, and Siegel's (2003) study of 152 adult trauma survivors, indicated that higher rates of trauma exposure are related to decreased parenting satisfaction, reports of child neglect, use of physical punishment, and a history of CPS reports. Evidence indicates that the relationship between CTE and poor parenting can be

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present, regardless of when CTE occurred. For example, childhood trauma exposure, in the form of caregivers' own history of abuse, predicts elevated risk of maltreatment perpetration (Milner et al., 2010), harsh parenting (Dubowitz et.al, 2001), and CPS involvement (Noll, Trickett, Harris & Putnam, 2009). Additionally, the sum of trauma exposure experienced over the life course is associated with low parenting satisfaction, endorsement of punishment, harsh physical discipline, and frequent CPS referrals (Cohen, Hein & Batchelder, 2008). Finally, young children are disproportionately impacted by CTE, because of their close proximity to, and dependence on their caregivers. For example, mothers with sexual abuse and assault histories are often “much more anxious about engaging in parenting behaviors that involve being physically intimate with their children . . . including changing diapers, bathing children, and tucking them in to bed” (DiLillo & Damashek, 2003).

IV. Summary

There is wide agreement that CD, CSU, and CTE is associated with parenting and increases the risk of child maltreatment perpetration. These mental health problems are prevalent in the general population and highly prevalent among caregivers at risk for maltreatment or already engaged in CPS systems. Given that parenting focused intervention programs are a central focus of child maltreatment prevention and intervention efforts, some key questions are, “*How do caregiver mental health problems (depression, substance use, and trauma) affect caregivers' parenting focused service use and performance in interventions for child maltreatment?*” “*Do they benefit just as much?*” “*What happens when caregivers utilize multiple services?*” “*Does that help or hinder?*”

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The primary goal of this dissertation is to examine whether caregiver mental health variables (i.e., depression, substance use, and trauma exposure) impact utilization of and benefit from parenting focused interventions, among caregivers receiving services to address or prevent child maltreatment. The specific rationale for each study is elaborated in chapter two. Overall, this dissertation will address the following three questions:

1. What are the unique impacts of specific, common mental health problems on home visiting service utilization in early, preventive, parenting focused intervention among a sample of first-time mothers?
2. Does the mental health of caregivers under the supervision of CPS impact their use of parenting skills training and their parenting behavior change?
3. How does dual enrollment in mental health services and parenting intervention impact parenting skill uptake and program completion in an early intervention parenting program for child maltreatment and neglect?

**Chapter 2
Research Studies**

Manuscript 1

**Do parent mental health factors influence service utilization and changes in child
abuse potential in an early intervention home visiting program?**

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Abstract

Home visiting is a common tool for the prevention/intervention of child maltreatment. Parents enrolled in home visiting programs often have mental health problems, but little is known about how those mental health problems interfere with program uptake. In this study, common mental health factors – depression risk, substance use, and trauma symptoms – were examined to determine if they were predictive of home visiting program utilization and changes child maltreatment risk, among parents participating in an early intervention program, Nurse Family Partnership (NFP). A sample of 240 first-time mothers, who were enrolled in NFP, was followed longitudinally for three waves of data collection. Measures included self-reported depressive symptoms, substance use, trauma symptoms, and child abuse potential. Findings indicate a significant interactive relationship between depression risk and substance use on home visiting service utilization, but no relationship was found between parent trauma symptoms and home visiting service utilization. Findings also indicate a significant main effect for depression risk as well as an interactive effect between substance use and trauma symptoms on changes in child abuse potential. Results point to parental depression risk, substance use, and trauma symptoms as important factors in determining home visitation service utilization and changes in child abuse potential.

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Introduction

1.1. Early Intervention For Child Maltreatment

The use of early intervention home visiting programs for parents is proliferating in the United States (Barlow, 2015; Casillas, Fauchier, Derkash, & Garrido, 2015; Lanier, Maguire-Jack, & Welch, 2015). Analyses of the 2011/2012 National Survey of Children’s Health estimates that 2,137,044 U.S. children and parents engaged in ‘home visiting’ services during pregnancy and up to child age of 3-years old (Lanier, McGuire-Jack, & Welch, 2015). Most home visiting programs target parents whose children may be “at risk” for poor outcomes in the areas of social, emotional, and physical health, because of the presence of a variety of risk factors (e.g., poverty, teen parents, poor social support, etc.). Home visiting programs are also used broadly to strengthen parenting skills and reduce child maltreatment risk (Barlow, 2015; Barth et al., 2005; Chaffin & Friedrich, 2004; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012; Chen, M., & Chan, K. L., 2015; Miller, 2015; Olds et al., 2010; Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009). Although the use of home visiting programs for the prevention of maltreatment (and promotion of child social and emotional health) has increased, many parents who are eligible do not enroll in, or complete home visiting services (McGuigan & Gassner, 2016).

One of the major challenges for home visiting programs is client engagement and program retention. Between 20% and 80% of the families who are enrolled in home visiting programs leave before services are scheduled to end—an average attrition rate of approximately 50% (Duggan et al., 1999; Gomby, 2005; Gomby, Culross, & Behrman, 1999; McGuigan, Katzev, & Pratt, 2003). Furthermore, nearly 50 % of early home

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visiting families leave services before the target child is 12-months old (Duggan et al. 2007; O'Brien et al. 2012), despite the length of these programs being up to 5 years. Although no study to date has determined the program dosage needed to effect change, early termination of service use is likely to diminish program effects and result in poorer outcomes (Durlak & Dupree, 2008). Given that several program investigations show larger program effects with increased levels of program participation, (Kelley, Bravo, Braitman, Lawless, & Lawrence, 2016; Korfmacher, Kitzman, & Olds, 1998; Lyons-Ruth & Melnick, 2004; Raikes et al., 2006; Olds, Henderson, Chamberlin & Tatelbaum, 1986; Olds et al., 1999), striving to maintain families in services until completion has become an important goal for service providers that seek to reduce and prevent child maltreatment.

1.2. Parent mental health as a barrier to service utilization

Often, parents who receive home visiting programs have mental health risk factors, especially depression, substance use, and prior trauma exposure (Ammerman, Putnam, Chard, Stevens, & Van Ginkel, 2012; Conron, Beardslee, Koenen, Buka, & Gortmaker, 2009; Egami, Ford, Greenfield, & Crum, 1996; Eiden & Leonard, 2000; Kessler, Chiu, Demler, & Walters, 2005). There is a broad literature on individual level predictors of home visiting service utilization (Booth, Munsell & Doyle, 2014; Brand & Jungman, 2014; Damashek, Doughty, Ware, Silovsky, 2011; Daro, McCurdy, Falconnier, & Stojanovic, 2003; Goyal, et al., 2014; Holland, Christensen, Shone, Kearney & Kitzman, 2014; Lefever, Bigelow, Carta, Borkowski, 2013; Wong, Roubinov, Gonzales, Dumka & Millsap, 2013) but, the data regarding the impact of mental health risk factors on service utilization and completion are mixed. Some studies indicate that parents with

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mental health risk are more likely to enroll in/complete home visiting services (Damashek, Doughty, Ware, & Silovsky, 2011; Duggan et al., 1999; Girvin, DePanfilis, & Daining, 2007; Baydar, Reid, and Webster-Stratton; 2003), others indicate that they are less likely to enroll in/complete home visiting services (Navaie-Waliser, Martin, Tessaro, Campbell, & Cross, 2000; Damashek, Doughty, Ware, & Silovsky, 2011) and some have found no impact (Brand & Jungman, 2014; LeFever, Bigelow, Carta, & Borkowski, 2013).

For example, data support that caregivers who suffer from depression can and do report both higher levels of program enrollment (Damashek, Doughty, Ware, & Silovsky, 2011) and completion (Girvin, DePanfilis, & Daining, 2007) of home based preventive interventions than parents with lower or no reported depression. Similarly, Duggan and colleagues (1999) reported that families with parental substance use were likely to stay in home visiting services more than one year longer than other families. However, in a sample of female caregivers with an active substance abuse disorder, Damashek, Doughty, Ware, & Silovsky (2011), found that caregiver alcohol and drug symptoms predicted a reduced likelihood of service completion. Finally, Brand and Jungman (2014) reported that psychological distress was not related to attrition. Furthermore, LeFever and colleagues (2013) found a risk score index, which included a measure of depression, was not a significant predictor of intervention completion in a home visiting program targeting child maltreatment prevention. While the relationship between parental mental health and home visiting service utilization warrants further study, inadequate participation in home visiting services is only partially responsible for attenuation of program effects in real-world settings (Folger et al., 2016). Parent mental

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health factors might also directly impede parents' overall benefit from program components, such as reductions in child abuse potential.

1.3. Parent mental health and child abuse potential

Parental depression, substance use, and trauma exposure increases parents' risk for child physical abuse and neglect. Among depressed parents with no prior incident of child maltreatment, depression is associated with lower levels of positive and higher levels of negative parenting behaviors and an overall increased risk of child abuse potential (Kelley, Lawrence, Millettich, Hollis, & Henson, 2015; Lovejoy, Graczyk, O'Hafre, Neuman, 2000; Rinehart et al., 2005; & Wilson & Durbin, 2010). Longitudinal data from the National Institute of Mental Health's Epidemiology Catchment Area Survey (N = 7,103) revealed that, among cases with no reported physical abuse at baseline, depressed parents were more than three times as likely as parents who were not depressed to initiate child physical abuse (Chaffin, Kelleher, & Hollenberg, 1996). Depressed parents are also more likely than their non-depressed counterparts to engage in neglectful behaviors (Egami et al., 1996; Ethier et al., 1995; Tyler et al., 2006), show increased use of psychological aggression (Conron, Beardslee, Koenen, Buka, & Gortmaker, 2009), and use psychologically abusive methods of discipline such as guilt or withholding love to control child behavior (Cummings et al., 2005).

As with parental depression, parent substance use has been shown to relate strongly to poor parenting, leading to increased potential for child abuse. Substance using parents often exhibit impulsive and reactive parenting behavior that may escalate to physical abuse (Chaplin & Sinha, 2013). They are also more likely to display authoritarian parenting strategies, aggressive parenting, low warmth, and unskillful

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parent-child interactions (Kelley, Lawrence, Milletich, Hollis, & Henson, 2015; Locke & Newcomb, 2004). Child reports of substance-using caregivers' parenting suggests high levels of caregiver rejection, psychological control, and inconsistent discipline practices (Slesnick, Feng, Brakenhoff, & Brigham, 2014).

Parental trauma exposure is also predictive of child abuse potential, more punitive behavior, and psychological aggression (Cohen, Hien, Batchelder, 2008). Several studies have examined the impact of trauma on the broad experience of parenting, in clinical samples. Results of Banyard, Williams, and Siegel's (2003) study of 152 adult trauma survivors indicated that higher rates of trauma exposure are related to decreased parenting satisfaction, reports of child neglect, use of physical punishment, and a history of child protective services (CPS) reports. Furthermore, evidence indicates that the relationship between parental trauma exposure and poor parenting can be present, regardless of when exposure occurred. For example, childhood trauma exposure, in the form of parents' own history of abuse, predicts elevated risk of maltreatment perpetration (Milner et al., 2010), harsh parenting (Dubowitz et.al, 2001), and CPS involvement (Noll, Trickett, Harris & Putnam, 2009). Additionally, the sum of trauma exposure experienced over the life course is associated with low parenting satisfaction, endorsement of punishment, harsh physical discipline, and frequent CPS referrals (Cohen, Hein & Batchelder, 2008).

While much has been discussed regarding how parent mental health risk factors can affect program outcomes, few studies have examined how *combinations* of mental health risk factors impact program enrollment/completion and one possible outcome related to early interventions used among parents who are at risk for child maltreatment – changes in child abuse potential. This is important because there is a high degree of

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comorbidity among the common mental health risk factors of depression, substance use, and trauma exposure. Depression and alcohol use have been found to co-occur at higher than expected rates in many epidemiological studies (Kessler et al., 1994, Lai, Cleary, Sitharthan, & Hunt, 2015; and Merikangas & Gelernter, 1990), with lifetime prevalence rates reported to be as high as 35% to 40% (Hasin, Goodwin, Stinson, & Grant, 2005, & Mericle, Park, Holck, & Arria, 2012). Furthermore, drug users are approximately four times more likely than non-drug users to develop major depression (OR = 3.803, 95% CI 3.024–4.782). In addition to being highly correlated with early development of major depression (Shalev et al., 2014), trauma exposure is also highly correlated with substance use. Among substance users, rates of current (past 12 months) trauma exposure ranged from 25% to 50% (Back et al., 2000; Gielen, Havermanas, Tekelenburg, & Jansen, 2012; Killeen, Back, & Brady, 2015). Whether experienced individually or together, depression, substance use, and trauma symptoms can negatively impact a range of life situations, including parenting. Despite the common overlap, little is known about how these factors combine additively or interactively to influence program outcomes.

1.4. Overview of current study

The primary goals of this study are to examine whether three common mental health problems are predictive of parent service utilization and change in child abuse potential among a sample of parents in an early intervention home visiting program, the Nurse Family Partnership (NFP; Olds, 2006). NFP is an evidence-based home visiting program for promoting the maternal and child health of low-income, first-time mothers. Participation in NFP begins during the second trimester and continues through the child's second birthday. Through NFP, mothers participate in regular home visits conducted by

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community health nurses. The overarching goal of NFP is to increase the likelihood of positive birth outcomes, sensitive and effective parenting, and to encourage a positive life course for both mother and child by promoting healthy behaviors during and after pregnancy.

The current study was conducted using a sample of 240 women who were enrolled in the NFP program, while participating in a randomized trial of an experimental intervention for intimate partner violence (IPV). Women were surveyed at three time points and data were collected on depression symptoms, substance use, trauma symptoms, and child abuse potential. We examined the independent, cumulative, and interactive effects of depression risk, substance use, and trauma symptoms on service utilization and change in child abuse potential. It was hypothesized that caregiver depression risk, substance use, and trauma symptoms will be *individually* predictive of lower levels of service utilization and less change in child abuse potential over time. It was also hypothesized that these risk factors will combine *interactively* such that parents who are exposed to depression risk, substance use, and trauma symptoms will have a greater risk of poor service utilization and child abuse perpetration.

2. Methods

2.1. Data Source

This study was completed using data from a two-group randomized trial involving women in the Nurse Family Partnership (NFP) program who agreed to be part of the trial of an experimental intervention for IPV. Women were assigned at the point of referral to receive either the standard NFP curriculum, or the standard NFP curriculum that included the IPV intervention. The experimental IPV intervention focused on assessing for IPV

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and providing interventions to address current IPV (if present) and relationship skills to prevent IPV. The experimental IPV intervention is described in detail elsewhere (Niolon et al., 2009). Initial participant study eligibility was based on the eligibility screen for NFP (not past 28 weeks pregnant with first child, WIC-eligible, and English or Spanish speaking). Women were consented to the study only after agreeing to NFP services.

2.2. Sample

The sample for the current study included 240 first-time mothers with a mean age of 20.4 years (ranging from 15-37 years). The sample was poorly educated, with half (50.0%) reporting less than a high school education. Hispanic participants represented the largest racial/ethnic majority (50.0%), followed by Caucasian participants (29.2%), and African American, Asian, and Native American participants accounted for the remaining 20.4% of the sample. About one-third reported annual income less than \$11,000 (31.7%) and only a small majority (2.9%) reported annual income above \$36,000. Of the 240 women who completed baseline assessment, 87.5% (n = 210) completed the one-year follow up assessment and 80% (n = 192) completed the two-year follow-up assessment.

2.3. Measures

Participants completed a battery of self-report measures via an audio computer-assisted survey. The survey contained measures on a variety of topics including demographics, violence, relationships, depression, trauma, substance use, social support, and parenting. Trained data collectors administered baseline and follow-up assessments at one and two years after baseline. Data collection occurred at clients' homes or another private location. Only the relevant measures are described below (see Niolon et al., 2009

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for a complete description of measures).

2.3.1 Independent variables

Depression Risk. Depression risk was assessed using The Edinburgh Depression Inventory (EDI; Cox, Holden, & Sagovsky, 1987), a 10-item self-report screening scale originally developed to identify postpartum depression risk in outpatient, home visiting settings. The EDI has since been validated to assess depression risk outside of the postnatal period (Murray & Carothers, 1990), with good sensitivity and specificity (Figueira, Correa, Malloy-Diniz, & Romano-Silva, 2009; Gibson, McKenzie-McHarg, Shakespeare, Price, & Gray, 2009; Murray & Carothers, 1990). In the current sample, the alpha for the 10 items of the EDI was .90.

Substance Use. Maternal alcohol use was assessed using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). The AUDIT is a 10-item self-report questionnaire that yields a minimum score of 0 and a maximum score of 40. The AUDIT was designed to identify individuals whose alcohol use places them at risk for developing an alcohol use disorder, and has been validated for use in a community contexts (Lima et al., 2005). In the current study, participants who answered “never” to the first question of the AUDIT (whether they ever drink alcohol) obtained an AUDIT score of 0 and were categorized as “abstainers” (n = 145, 65.4%). Participants with AUDIT scores ≥ 1 were categorized as “drinkers”, (n = 65, 27.1%).

Maternal drug use was assessed using the Drug Abuse Screening Test (DAST; Skinner, 1982). The DAST is a 28-item face valid, self-report measure of problematic substance use that is utilized for clinical screening and treatment/evaluation research.

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Responses to the DAST are given as binary (yes/no) items, each valued at one point, yielding a total score ranging from 0 to 28. Similar to alcohol use, participants who answered “No” to the first question of the DAST (Have you used drugs other than those required for medical reasons?) were categorized as “abstainers” (n = 190, 79.2%) while participants who answered “Yes” to the same question were categorized as “drug users” (n = 20, 8.3%).

There was considerable overlap on the AUDIT and DAST. Approximately 42% of women (41.9%) scoring “yes” on the AUDIT also scored “yes” on the DAST. Thus, women scoring “yes” to either were classified as substance users (n = 72, 30.0%), and those scoring “no” to both were classified as non-users (n = 163, 67.9%).

Trauma Symptoms. The total number of trauma symptoms experienced by each participant was assessed using the Screen for Posttraumatic Stress Symptoms (SPTSS; Carlson, 2001), a 17-item self-report measure that assesses DSM-IV symptoms of PTSD. In the current sample, the alpha for the 17 items of the SPTSS was .94.

2.3.2. *Dependent variables*

NFP Early Intervention Service Utilization. Both the number of NFP sessions completed and the number of days in NFP services were used as dependent measures. The number of days was computed using the number of days between the date of baseline data collection and the reported end of service date. The actual service entry data obtained from NFP data records contained a fair amount of missing data, and the baseline data collection date was much more complete. Baseline data collection occurred after 1-2 service contacts and consent into the NFP program.

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Child Abuse Potential. Maternal child abuse potential was measured using the Brief Child Abuse Potential Inventory (CAPI; Ondersma et al., 2005). The CAPI is a 34-item scale assessing child abuse and neglect risk that was developed from the larger Child Abuse Potential Inventory (Milner, 1986). Internal consistency for CAPI subscales ranges from .89 to .95 (Ondersma et al., 2005). In the current sample, the internal consistency of the 34 items of the CAPI was .91.

2.4. Data analysis

Data analyses were conducted using SPSS, version 22, and began with descriptive statistics to examine variable distributions. Correlational analyses were conducted first, to examine the simple relationships between study variables. Then, regression analyses were conducted to address the main study research questions. For each set of regression analyses, maternal age, education, and race were included as control variables. We also included study condition as a control variable.

The first set of regression analyses included nine linear regression models in which each mental health risk factor was regressed onto each outcome variable of interest (Table 2). In models one through six, each baseline mental health risk factor was regressed onto the two service utilization outcomes (days in NFP service and number of NFP visits), while controlling for a set of covariates. In models seven through nine, three additional linear regression models were conducted in which the individual relationship between each Time 2 mental health risk factor (depression risk, substance use, and trauma symptoms) were regressed onto the Time 3 child abuse potential variable (CAPI), while controlling for a set of covariates. We also controlled for Time 2 CAPI scores, to assess change in CAPI responses between the two data collection time points.

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(Note that baseline CAPI data were not examined because study participants were first time mothers enrolled during pregnancy in accord with NFP inclusion criteria.)

To examine the independent, combined and interactive effects of the mental health variables, multiple regression analyses were conducted in which main effects of mental health variables were entered individually into the regression model, and change in R^2 were examined to determine additive effects. Then, interactions between the three mental health variables were entered and examined.

3. Results

3.1. Bivariate correlations

Correlations between baseline predictor variables and service utilization variables are shown in Table 1. For main study variables, baseline depression risk was positively and significantly correlated with baseline trauma symptoms ($r = .72$). There were four statistically significant correlations involving demographic variables and the service utilization outcome variables under study. Mothers' age at baseline was positively correlated with the number of NFP visits. Being in the NFP+ study condition was related to both fewer visits and shorter days in service. As expected, days in NFP service was highly correlated with the number of completed NFP visits.

Correlations between baseline demographics, Time 2 mental health predictor variables, and CAPI variables are also shown in Table 1. For main study variables, Time 2 depression risk was positively and significantly correlated with Time 2 substance use ($r = .25$), Time 2 trauma symptoms ($r = .76$), and Time 3 CAPI scores (.59). Time 2 substance use was also positively and significantly correlated with Time 2 trauma symptoms ($r = .34$) and Time 3 CAPI scores ($r = .32$). Additionally, Time 2 trauma symptoms were also positively and significantly correlated with Time 3 CAPI scores ($r =$

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.56) and CAPI score change ($r = .21$). Neither baseline age nor education level were significantly correlated with Time 3 CAPI scores or CAPI score change. Likewise, NFP study condition was also not correlated with Time 3 CAPI scores or CAPI score change, but it was related to lower depression risk.

3.2. Main effects of mental health problems

Linear regression models were conducted to examine service utilization and change in child abuse potential (Table 2) while controlling for covariates. None of the key mental health measures – baseline depression risk, substance use, or trauma symptoms – were related to number of days in NFP service or number of NFP visits. For CAPI, Time 2 depression risk was significantly related to Time 3 CAPI scores (controlling for Time 2 CAPI), but Time 2 substance use and trauma symptoms were not.

3.3. Combined and interactive effects of mental health problems

Because there were no significant bivariate relationships between depression risk, substance use, trauma symptoms, and service utilization, and only the relationship between Time 2 depression risk and Time 3 CAPI scores was significant, we did not examine additive impacts of those variables.

To test the interactive effect of depression risk, substance use, and trauma symptoms on study outcomes, we ran a fully crossed model that contained all of the control variables, the three main effects (depression risk, substance use, and trauma symptoms), the three two-way interactions, and the three-way interaction (Table 3). We ran this model for each dependent variable (days in NFP service, number of NFP visits, and Time 3 CAPI scores). For days in NFP service, none of the interactions were significant. For number of NFP visits, there was a significant depression risk by

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substance use interaction. Probing the depression risk by substance use interaction indicated that for substance using mothers, symptoms of depression risk was significantly related to an increase in the number of NFP visits ($B=.64$, $SE=.32$, $p=.05$). In contrast, for non-substance using mothers, depression risk was not related to the number of NFP visits ($B= .17$, $SE= .27$, $p=.52$).

For Time 3 CAPI scores, there was a significant substance use by trauma symptoms interaction. Probing the interaction indicated that for substance using mothers, trauma symptoms predicted greater child abuse potential at Time 3 ($B = .05$, $SE = .02$, $p = .03$), but for non-substance-using mothers, trauma symptoms were not associated with Time 3 CAPI scores ($B= -.01$, $SE=.02$, $p=.82$).

4. Discussion

Early intervention home visiting programs are widely used with at risk families. Prior research has shown that parent mental health risk may be associated with poor home visiting service utilization (Navaie-Waliser, Martin, Tessaro, Campbell, & Cross, 2000; Damashek, Doughty, Ware, & Silovsky, 2011) and poor parenting and child maltreatment outcomes (Bodovski & Youn, 2010; De Bortoli, Coles, & Dolan, 2013; Enlow et al., 2011; Seay, & Kohl, 2013; Wilson & Durbin, 2010). Relatively less is known about how those variables work together to impact participation in and benefit from home visiting intervention programs. The present study explored the association between three mental health variables (depression risk, substance use, and trauma symptoms), service utilization as indexed by number of visits and days in service, and change in child abuse potential. Hypotheses for this study were partially supported.

We found that depression risk and substance use interacted to predict number of

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NFP visits. In the current study sample, depression risk was associated with an increased number of number of NFP visits, but only for mothers with co-occurring substance use. Prior research has been mixed, with some reporting that parents with higher levels of depression risk were more likely to complete parent training programs (Baydar, Reid, & Webster-Stratton, 2003; Girvin, DePanfilis, & Daining, 2007), and others reporting that parents with higher levels of mental health problems exhibit poorer program completion (Damashek, Doughty, Ware, & Silovsky, 2011; Navaie-Waliser, Martin, Tessaro, Campbell, & Cross, 2000). To our knowledge, none have examined how depression risk, substance use, or other variables interact to affect program completion.

Because of the high comorbidity of mental health problems, it is possible that the cumulative mental health risk account for these discrepant findings. Data suggest that continued participation in home visiting services is greater for parents with multiple risk factors (Duggan, et al., 2000). It could be that parents with multiple problems may benefit more immediately than other parents, and find value or a need to stay in the program longer. Because all maternal mental health risk factors were self-reported, it is also important to consider that there may be some self-selection in our sample of high-risk mothers. A willingness to report symptoms of depression and substance use may indicate a self-awareness and willingness to change that might have influenced mothers' decision to remain in services.

Results of this study revealed a significant association between depression symptoms and child abuse potential for parents (Cummings, Keller, & Davies, 2005; Eiden & Leonard, 2000; Franck & Buehler, 2007; Leinonen, Solantaus, & Punämäki, 2002; Papp, Cummings, & Goeke-Morey, 2005). This relation was not surprising. The

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brief CAPI and the full CAPI demonstrate strong association with the BDI (Ondersma, Chaffin, Mullins, & LeBrenton, 2005). Theory supports the negative impact of depression on the sufferer's interpersonal relationships and functioning, which includes the parent-child relationship (Coyne, 1976). These theoretical perspectives support that the presence of depressive symptoms have a strong, negative impact on parenting such that positive parenting behaviors are more difficult, thereby increasing the potential for child abuse and neglect perpetration. This same relation has also been illustrated through meta-analytic exploration of depression and the potential for engaging in child abuse (Lovejoy, Graczyk, O'Hafre, Neuman, 2000, Wilson & Durbin, 2010).

Trauma was related to increased child abuse potential, but only when substance use was present, resulting in a particularly harmful combination of risk factors. There is a considerable literature that documents the high co-occurrence of trauma exposure and substance use (Back et al., 2000; Gielen, Havermanas, Tekelenburg, & Jansen, 2012; Killeen, Back, & Brady, 2015). Some parents with trauma who have difficulty coping may turn to substance use to dull the experience of trauma symptoms (Berenz, Cho, Overstreet, Kendler, Amstadter, & Dick, 2016; Lee, Brook, Finch, & Brook, 2016; Rich, Wilson, & Robertson, 2016). While substance use might provide relief from the negative consequences associated with trauma symptoms, it can also be reasoned that substance use inhibits parents' ability to be physically and/or psychologically available to their child (Lyons-Ruth & Block, 1996; Bosquet Enlow et al., 2011).

There are several limitations of the current study. First, there were several limitations to measurement including, a) actual diagnosis of depression was not measured, b) measurement did not differentiate between type of substances used or

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problematic drinking thresholds, and c) trauma symptomology was measured and not posttraumatic stress disorder. Second, the study sample size was relatively small, which limited the group samples sizes (depression risk, substance use, trauma symptoms). Although group sample sizes were reasonable to detect statistically significant relationships, larger samples of parents within each subgroup would have effectively increased the available statistical approaches. Third, this study relied on two measures of service utilization (days in service and NFP visits), but did not take into account client engagement, which is perhaps a more important variable when considering uptake of program content. However, given that enrollment in this program was voluntary and clients were free to discontinue at any time point, the number of sessions attended is a reasonable proxy for engagement. Fourth, the study sample consisted of pregnant women who voluntarily enrolled in an early intervention home visiting program, and thus already possessed some motivation towards completion. We were unable to determine how depression risk, substance abuse, and trauma symptoms affected service enrollment. Last, the current paper examined only one important outcomes of the home visiting program (child abuse potential). Child abuse potential was chosen because child abuse is a common target of home visiting programs. However, the NFP program has been shown to affect a variety of outcomes, and how the selected mental health factors may influence other outcomes was beyond the scope of this paper, but is an important area for future study.

Despite limitations, the current study should serve as a guide to develop future research regarding the contribution of depression risk, substance use, and trauma symptoms to early intervention program utilization. Future research should examine how

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a diagnosis of posttraumatic stress disorder, as compared to trauma exposure, influences service utilization and intervention outcomes. Additionally, future research should extend this study time frame to account for self-report and observational measures of intended program outcomes (i.e., child abuse and actual parenting behavior) to determine how parent mental health impacts intervention benefit. Finally, next steps in this research could also include an examination of protective factors, such as sources of social support, the effects of neighborhood and school programs for mental health, and neighborhood cohesion, to increase the overall understanding of what factors lead to service completion, resilience, and positive parenting behaviors in parents with mental health problems.

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Table 1
Correlation Matrix For Control, Predictor, and Outcome Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Baseline Age	-	.49**	-.04	-.04	.09	-.09	-.06	.13*	-.10	.11	-.16*	-.07	-.07
2. Baseline Education Level		-	-.17**	.02	.15*	.05	-.10	.00	.06	.31**	.05	.06	-.09
3. Intervention Group			-	-.09	.02	-.10	-.20*	-.19**	-.14*	-.03	-.11	-.02	-.03
4. Baseline Depression Risk				-	.05	.72**	-.07	.03	-	-	-	-	-
5. Baseline Substance Use					-	.13	-.08	-.07	-	-	-	-	-
6. Baseline Trauma Symptoms						-	-.10	-.04	-	-	-	-	-
7. Days in NFP Service							-	.84**	-	-	-	-	-
8. Number of NFP Visits								-	-	-	-	-	-
9. Time 2 Depression Risk									-	.25**	.76**	.59**	.13
10. Time 2 Substance use										-	.34**	.32**	-.01
11. Time 2 Trauma Symptoms											-	.56**	.21**
12. Time 3 CAPI												-	-.39**
13. CAPI Change (Time 3-Time 2)													-

Note. * $p < .05$, ** $p < .01$

Intervention group was analyzed as a categorical variable where 1=NFP+ and 0=Control Group

Baseline substance use was analyzed as a categorical variable where 1=Substance User and 0=Abstainer

Higher CAPI Change scores indicate an increase in CAPI score from time 2 to time 3.

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Table 2
Summary of Regression Analyses For Variables Predicting Service Utilization and Change in CAPI

Days In NFP Service		
Baseline Mental Health Variable	B (SE)	P-Value
Model 1: Depression Risk	-.09 (.08)	.28
Model 2: Substance Use	-.64 (1.07)	.55
Model 3: Trauma Symptoms	-.02 (.02)	.20
Number of NFP Visits		
Baseline Mental Health Variable	B (SE)	P-Value
Model 4: Depression Risk	.05 (.19)	.79
Model 5: Substance Use	-2.09 (2.45)	.39
Model 6: Trauma Symptoms	-.01 (.03)	.69
Time 3 CAPI		
Time 2 Mental Health Variable	B (SE)	P-Value
Model 7: Depression Risk	.27 (.09)	.00
Model 8: Substance Use	1.58 (.95)	.10
Model 9: Trauma Symptoms	.02 (.02)	.13

Note. * $p < .05$, ** $p < .01$ All models control for age, race, education, and intervention group.
 The R^2 values for each predictor variable represent the variance accounted for without the demographic and control variables entered into the model.
 Demographic and control variables accounted for approximately 6% of the variance in days in NFP service.
 Demographic and control variables accounted for approximately 6% of the variance in number of NFP visits.
 Demographic and control variables accounted for approximately 49% of the variance in change in CAPI scores.

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Table 3
Mental Health Interactive Effects on Days in NFP Days in Service and NFP Visits

Variables	Days in NFP Service			NFP Visits			Change in CAPI		
	B (SE)	P- Value	R ²	B (SE)	P- Value	R ²	B (SE)	P- Value	R ²
Depression Risk, Substance Use, and Trauma Symptoms									
Depression Risk	-.07 (.16)	.66	.01	.51 (.35)	.15	.00	.49 (.14)	.00	.35
Substance Use	.62 (1.15)	.06	.01	-1.52 (2.87)	.60	.01	.94 (1.05)	.37	.10
Trauma Symptoms	.00 (.02)	.90	.01	-.11 (.07)	.09	.00	-.05 (.03)	.04	.31
Depression Risk* Substance Use	-.13 (.35)	.71	.05	-1.16 (.57)	.04	.01	-.37 (.22)	.09	.22
Depression Risk* Trauma Symptoms	.00 (.00)	.39	.00	.01 (.01)	.43	.00	-.00 (.00)	.41	.13
Substance Use* Trauma Symptoms	-.05 (.05)	.32	.04	.20 (.11)	.07	.00	.09 (.03)	.01	.26
Depression Risk* Substance Use* Trauma Symptoms	-.00 (.01)	.92	.01	-.01 (.01)	.70	.00	.00 (.00)	.52	.18

Note. * $p < .05$, ** $p < .01$

Baseline Depression Risk, Substance Use, and Trauma Symptoms were used in service utilization analyses.

Time 2 Depression Risk, Substance Use, and Trauma Symptoms were used in CAPI change analyses.

Depression risk and trauma symptoms were centered prior to performing regression analyses.

The R² values for each predictor variable represent the variance accounted for without the demographic and control variables entered into the model.

Demographic and control variables accounted for approximately 6% of the variance in days in NFP service.

Demographic and control variables accounted for approximately 6% of the variance in number of NFP visits.

Demographic and control variables accounted for approximately 49% of the variance in change in CAPI.

Manuscript 2

How does caregiver mental health impact parent training use and parenting behaviors in a nationally representative sample of caregivers under the supervision of child protective services?

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Abstract

Parent training is a common tool for the prevention and intervention of child maltreatment. Families involved in the child protective service (CPS) system are often enrolled in parent-focused services to address deficits in parenting behaviors and increase other positive outcomes for their children and families. Research suggests that mental health problems such as depression and substance use disproportionately impact CPS-involved caregivers. Little is known about how those mental health problems impact utilization of parent focused services and subsequent parenting behaviors among families referred to parenting services through CPS. We investigated how depression, drug use, and alcohol use predicted parenting skills training service utilization and parenting behavior changes among a nationally representative sample of CPS-involved caregivers. No relationship was found between caregiver depression, substance use, or alcohol use, and service utilization. There was a significant relationship between caregiver depression and changes in child neglect over time. Caregivers who were depressed had increased odds of child neglect at time two, compared to caregivers who were not depressed. Drug and alcohol use were unrelated to changes in parenting behaviors. Results point to caregiver depression as an important factor in determining key aspects of positive parenting for caregivers involved in child protective services.

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1. Introduction:

1.1. Parent Training Use in Child Welfare Services

There were an estimated 2.1 million reports of child maltreatment made to child protective service (CPS) systems in 2013. Of those child maltreatment reports, approximately two-thirds (63.8%) of victims and one-third (32.6%) of non-victims received a CPS response for services to maintain child safety and well-being in their homes (USDHHS, 2015). Parenting programs are commonly used services in CPS, to intervene directly with caregivers to improve parenting skills and capacities, improve child outcomes, and reduce future risk of maltreatment (e.g., Barth et al., 2005; Hurlburt, Barth, Leslie, Landsverk, & McCrae, 2007). In a large, nationally representative sample of cases, caseworker reports indicated that 55.1% of in-home caregivers and 72.2% of caregivers seeking reunification received parenting skills training while under the supervision on CPS (Dolan, Smith, Casanueva, & Ringeisen, 2012).

Several parenting interventions have been found effective at preventing child maltreatment, reducing child maltreatment recidivism, and increasing positive parenting through improvements in parent interaction patterns and parenting skill development (Chaffin & Friedrich, 2004; Chen, & Chan, 2015). Models that have been implemented among CPS involved caregivers include Parent Child Interaction Therapy (Chaffin et al., 2004; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011), Triple P (Petra & Kohl, 2010), Incredible Years (Webster-Stratton, & Reid, 2010), and SafeCare[®] (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012). The use of evidence-based behavioral parent training models has been shown to reduce two and a half year physical abuse recidivism from more than 50% to 19% (Chaffin et al., 2004); and child neglect by 26% (Chaffin et

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al., 2012). Unfortunately, evidence based parenting programs are underused with families involved in CPS (Barth et al., 2005; Dolan, Casanueva, Smith, Lloyd, & Ringeisen, 2012; Marcynyszyn, Maher, & Corwin, 2011), and results of broad scale programs implemented in child welfare systems fail to show impact on parenting behaviors (Casanueva et al. 2008).

1.2. Caregiver Parent Training Service Utilization

Improving CPS outcomes involves not only using effective intervention models but also delivering a sufficient dose, which is a significant and documented challenge among CPS service providers (Chaffin et al., 2009). Reported dropout rates among caregivers enrolled in parent training have been as high as 80% (Gomby, 2005, Damashek, Doughty, Ware & Silovsky, 2011), but most research has focused on participants of early intervention programs, rather than CPS-referred caregivers. CPS-referred caregivers are contextually different from voluntary service seekers in that participation may be mandated. Even if participation is voluntary, CPS-involved caregivers may not be as self-motivated as early intervention participants. The exact magnitude of parenting program attrition among CPS-involved populations is unclear. There is likely great variability in service utilization across clients and systems, depending on client and system characteristics including the strength of the mandate to engage in service (Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Barth et al., 2005, Lundquist & Hansen, 1998).

Improvement in parenting skills is one of the most important outcomes of CPS parenting interventions and one of the most important goals in child abuse prevention (Barth, 2009). Given that program participation is related to greater service benefit

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(Korfmacher, Kitzman & Olds, 1998; Lyons-Ruth & Melnick, 2004; Raikes et al., 2006), parents who fail to utilize service referrals are less likely to show increased skills (McCurdy & Daro, 2001). Therefore, determining caregiver barriers to parent training service utilization is an important next step towards maximizing a critical benefit of parent training—improvement in parenting.

1.3. Mental Health Barriers to Parent Training Program Service Utilization and Positive Parenting Among CPS Caregivers

Caregivers at risk for child maltreatment often contend with multiple stressors that adversely impact their mental health. For example, in comparison to the general population, at-risk caregivers disproportionately experience poverty, homelessness or inadequate housing (Fowler et al., 2013), interpersonal conflict and violence (English et al., 2009; Lewin & Abdrbo, 2009), and traumatic events (Marcenko, Lyons, & Courtney, 2011). Many at-risk caregivers also lack social support and report feelings of isolation and elevated stress related to parenting (DePanfilis & Zuravin, 1999). According to the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4), perpetrator mental illness was a factor in 7% of child maltreatment cases among children who were investigated by CPS agencies as well as children who were screened out by CPS without investigation (Sedlak et al., 2010). Many CPS systems attempt to address practical obstacles to service participation such as cost to the caregiver, language barriers, and cultural barriers. However, other potential barriers such as caregiver mental health variables (i.e., depression and substance use), are more difficult to address and may act as a barrier to service utilization and positive parenting behavior change.

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Large scale, longitudinal data indicate that depression is one of the most common mental health concerns among caregivers at risk for child maltreatment or already involved in the CPS system (Ayon, 2011; Bunker, Chuang, & McBeath, 2012; Estefan, Coulter, VandeWeerd, Armstrong, & Gorski, 2012; Marcenko, Lyons, & Courtney, 2011). Prevalence rates of depression among caregivers at risk for maltreatment range from 19% to 52% (Marcenko, Lyons, & Courtney, 2011; Mustillo, Dorsey, Conover, & Burns, 2011), which is three to eight times higher than the general population (Mustillo, Dorsey, Conover, & Burns, 2011). National data indicate that approximately one-fifth (19.6%) of CPS-involved caregivers had a score within the clinical range for depression (Dolan, Casanueva, Smith, Lloyd, & Ringeisen, 2012). Analysis of statewide data from Oklahoma reported that 27% of families with CPS reports, receiving in-home family preservation services, reported clinically significant depression (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012).

Much like depression, caregiver substance use is also prevalent among caregivers under the supervision of CPS, with more than eight million children living in a home with at least one substance-using caregiver (USDHHS, 2013). Among families in which caregivers are reported for maltreatment, children of substance users are more likely to be placed in out-of-home care (Barth, Gibbons, & Guo, 2006), and experience delayed family reunification once removed (Carlson, Williams, & Shafer, 2012), compared to children of non-substance using caregivers. In fact, The National Survey of Child and Adolescent Well-Being (NSCAW) estimates that 61% of infants and 41% of older children, in out-of-home care, are from families with active alcohol or drug abuse

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problems (Wulczyn, Ernst, & Fisher, 2011). These data may actually be an underestimate of the true problem (Seay, 2015).

1.5. Study Rationale

There is a small body of literature that addresses the relation between caregiver mental health, parent training service utilization, and parenting behaviors, but it does not include samples of CPS involved caregivers. Findings from those studies are inconsistent, with some studies suggesting that caregiver mental health does not impede service utilization and parenting behaviors (Baydar, Reid, and Webster-Stratton; 2003; Duggan and colleagues, 1999; Girvin et al., 2007), others suggesting it does (Damashek, Doughty, Ware, & Silovsky, 2011; Navaie-Waliser, Martin, Tessaro, Campbell, & Cross, 2000), and others finding no impact (Brand & Jungman, 2014; Lefever, Bigelow, Carta, & Borkowski, 2013).

The motivations and problems of CPS-involved caregivers may be quite different than those of caregivers not involved in CPS. Caregiver depression and substance abuse are highly prevalent in child welfare involved parents, and may play a key role in poor parenting. From a motivational perspective, CPS referred services are often mandated rather than voluntary, so motivation may be more external and less internal. Given this, it is important to examine how mental health problems affect both service utilization and parenting behaviors subsequent to service referral. In this study, we seek to examine how caregiver mental health variables (depression, drug use, and alcohol use) affect service utilization and caregiver parenting behavior change among a nationally representative sample of caregivers involved in CPS. It was hypothesized that as compared to caregivers with no depression, substance use, and alcohol use, caregivers with

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depression, substance use, and alcohol use will report less parenting skills training service utilization, less stimulating home environments, and more child neglect, psychological aggression, and physical assault behaviors over time.

2. Methods

2.1. *Data Source*

This study was completed using data from the NSCAW II. The NSCAW II is the second in a series of national data collection studies of families investigated by CPS for child maltreatment. The total nationally representative sample consists of 5,872 children between the ages of 0 and 17.5 years and their families, who were investigated for child maltreatment between February 2008 and April 2009. Children were located in 81 primary sampling units (PSUs), nested within eight sampling strata at the state level. Seven of the strata are the states with the largest child welfare caseloads in the nation. The remaining stratum consists of all remaining states in the sample. A complex weighting strategy accounting for stratification, clustering, weighting, and oversampling of some subgroups was developed to make the PSUs nationally representative. Only one child per family was included in the NSCAW II. Therefore, children are not nested within caregivers. Additional information about the NSCAW II dataset, study design, and data collection methods can be found elsewhere (NDACAN, 2011).

2.2 *Study Sample*

For this study, only permanent caregivers were included in the analyses because they responded to the measures of interest. The analysis included 4,026 female (n = 3,657; 90.8%) and male (n = 352; 8.7%) permanent caregivers from the original sample

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of 5,872. The majority of caregivers were from urban areas (86.2%). Most were under 35 years old (64.6%), and the remainder were between 35 and 53 (30.8%), or over 54 (3.8%). The study sample was racially and ethnically diverse and included Caucasian (55.3%), African American (28.1%), Native Indian/Alaskan (6.6%), and Asian/Hawaiian/Pacific Islander (2.2%) caregivers. More than one-third of the sample (37.8%) reported less than a high school education and 21.8% completed up to a high school education. Vocational school or some college education was reported by 35% of the study sample. Approximately five percent (5.4%) of caregivers completed four or more years of college. More than one-half of caregivers were unemployed (54.3%). Full-time employed caregivers accounted for 26.9% of the study sample followed by part-time employed caregivers (15.1%). Characteristics of the analyzed sample are summarized in Table 1.

2.3. Measures

2.3.1. Caregiver Mental Health Variables

Depression. Depression was assessed via in-person interview using the *Composite International Diagnostic Interview Short-Form (CIDI-SF)*. The CIDI-SF is a standardized interview that screens for mental health and substance use disorders, based on questions about the previous 12-month period, using the criteria established in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychological Association, 1994; Nelson, Kessler, & Mroczek, 2001). For this analysis, caregivers whose responses indicated the presence of dysphoric (21.1%, $n = 853$) or anhedonic (3.1%, $n = 125$) depression in the past 12 months were coded as having major depressive

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disorder (28.0%, n = 978), and the remainder were coded as not-depressed (72.0%, n = 2,514).

Drug Use. Problem drug use was assessed using the 20-item *Drug Abuse Screening Test (DAST-20)* and was assessed via caregiver self-report using an audio-computer assisted self-interview (ACASI). The DAST-20 is a face valid, self-report measure of problematic substance use that is utilized for clinical screening and treatment/evaluation research (Skinner, 1982). Responses to the DAST-20 are yes/no and each valued at one point. Scores of six or higher on the DAST-20 were coded as problematic drug use (5.3%, n = 196), and scores less than 6 were coded as no drug problems (n = 94.7%, n = 3,491).

Alcohol Use. Problematic alcohol use was assessed using the *Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente & Grant, 1993)*, via self-report using ACASI. The AUDIT is a 10-item self-report questionnaire that yields a minimum score of 0 and a maximum score of 40. The AUDIT was designed to identify individuals whose alcohol use places them at risk for developing an alcohol use disorder, and has been validated for use in community contexts (Lima et al., 2005). For these analyses, problem alcohol use was coded as a dichotomous variable with scores of eight or higher on the DAST-20 operationalized as problematic alcohol use (4.0%, n = 158), and scores of 7 or lower as no problem alcohol use (96.0%, n = 3,781).

2.3.1. Parent Training Use

Caregivers were asked, “*Since (date of last interview), have you received any parenting skills training?*”, and responded yes or no. Caregivers’ responses at Time 2 were used in analyses, as those responses would indicate parent training since the

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baseline. Caregivers reported parent training use indicated that 11.2% (n=452) received and 88.8% (n=3,574) did not receive parenting skills training between baseline and Time 2 data collection. Characteristics of the parenting skills training received by caregivers are described elsewhere (Dolan, Casanueva, Smith, Lloyd, & Ringeisen (2012).

2.3.2 Caregiver Parenting Behaviors

Annual prevalence of neglect, psychological aggression, and physical assault

Aspects of caregiver parenting were measured using the *Conflict Tactics Scale – Parent-Child Version* (PC-CTS). The PC-CTS is a caregiver self-report measure of discipline behaviors, in the past 12 months, including harsh and neglectful parenting (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). Caregivers responded to the PC-CTS using ACASI. Three measures of caregiver parenting behaviors were used in this study: neglect, psychological aggression, and minor physical assault. The four items comprising the very severe assault subscale were omitted from analyses due to concerns regarding abuse reporting, and low rate of endorsement (0.2%) in the 1998 publication sample (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). For the purpose of this study, the annual prevalence of neglect, psychological aggression, and minor physical assault, at baseline and follow up, were computed and used in analyses to examine difference in caregiver parent behavior based on mental health and parenting skills training use. The annual prevalence scores were computed as a binary variable (yes/no) to indicate whether one or more of the acts in the scale were used during the referent period (past 12 months). Caregiver reported parenting behaviors on each of the three PC-CTS subscales indicated that in the previous 12 months, 20.8 % (n=837) of caregivers did and 77.4% (n=3,113) of caregivers did not report child neglect. Psychological aggression was reported by 57.3% (n=2,308) of caregivers, and was not reported by 40.7%

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(n=1,638) of caregivers. Minor physical assault was reported by 38.9% (n= 1,568) of caregivers and 58.9% (n=2,373) of caregivers did not have an occurrence of minor physical assault in the previous 12 months.

Home Environment. The quality and quantity of stimulation and support in the home environment was analyzed as an outcome variable and measured using the scripted, interview and observational items of the *Home Observation for Measurement of the Environment-Short Form (HOME-SF)*. In the NSCAW II, the HOME-SF was administered to caregivers of children ages 10 years and younger (Caldwell & Bradley, 1984). The numbers of items range from 20 to 24, depending on the age of the child. Items address the caregivers' behaviors toward the child and various aspects of the physical environment (e.g., safe play environment, size of living space), asking whether these conditions exist, do not exist, or were not observed. Three versions of the HOME-SF were used in the NSCAW II study: one for children aged birth to two years old, one for children aged three to five years old, and one for children six to ten years old. In the NSCAW II study sample, Cronbach's alphas for HOME-SF scales for children aged 2 years and younger are less than .45. Cronbach's alphas for measures for 3- to 5-year-olds range from .41 for Emotional Support to .71 for Physical Environment. For 6- to 10-year-olds, Cronbach's alphas range from .48 for Cognitive Stimulation and Emotional Support to .74 for Physical Environment (See NSCAW II Combined Waves 1-3 General Release Version Appendix III, NDACAN, 2013). While Chronbach alphas for the HOME-SF are less than the standard level of acceptability, they are consistent with other studies (Mott, 2004; Totsika & Sylva, 2004). For the purpose of this study, the total raw scores for caregivers of children ages 10 years old and under, at Time 2 (n=2,464) were computed

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and used in analyses. Higher total HOME-SF scores indicate a more enriched environment.

2.4. Data analysis

Data analyses were conducted using SAS, version 9.4 using SAS procedures that accounted for the complex sample design (i.e., proc surveyfreq, surveyreg, and surveylogistic). We began with descriptive statistics to examine variable distributions, and conducted regression analyses to address the main study research questions. Regression models focused on regressing the Time 1 mental health variables (depression, drug use, or alcohol use) onto the outcomes (past year prevalence of Time 2 PC-CTS, Time 2 HOME scores, and service utilization,), while controlling for the appropriate baseline variables (Time 1 PC-CTS or Time 1 HOME). Models were conducted with and without demographic controls (Time 1 caregiver age, race, sex, employment status, urban vs. non-urban setting, and federal poverty level). For dichotomous outcomes (PC-CTS prevalence in the past year and service utilization) logistic regression was used and for continuous outcomes (HOME-SF) linear regression was used.

3. Results

3.1. Main effect of caregiver mental health on parent training use

Logistic regression analyses were conducted to analyze Time 1 caregiver mental health as a predictor of parenting skills training service use (Table 2). Neither depression nor alcohol use were predictive of service utilization, when controlling for key demographic variables. Drug use was predictive of greater odds of parenting skills training service utilization (OR= 2.78, $p = .01$) in the simple regression model however,

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the inclusion of demographic covariates weakened the relationship to the point of non-significance.

3.2. Main effect of caregiver mental health on parenting

Table 3 presents the results of the logistic regression analyses that were conducted to examine the effects of caregiver depression, drug use, and alcohol use on the change in annual prevalence of neglect, psychological aggression, and minor physical assault, while controlling for parenting skills training use. Depression was predictive of neglect occurrence in both simple (OR = 1.88, $p < .01$) and multivariate regression models (OR = 1.94, $p = .01$). At Time 2, Caregivers who were depressed had a 94% increase in the odds of having an occurrence of child neglect relative to caregivers who were not depressed, holding parenting skills training use, baseline child neglect occurrence, and demographic variables constant. Neither Time 1 drug use, nor alcohol use were related to Time 2 neglect, psychological aggression, or minor physical assault.

3.3. Main effect of caregiver mental health on the home environment

Linear regression models were conducted to examine the effects of caregiver depression, drug use, and alcohol use on the home environment, while controlling for parenting skills training use (Table 3). Caregiver depression, drug use, and alcohol use were unrelated to Time 2 HOME scores (all $p > .05$).

3.4. Interaction between caregiver mental health and parenting skills training use on parenting and the home environment

We examined whether mental health variables affected parenting outcomes differently for caregivers who were involved in parenting skills training compared to caregivers who were not, by testing a series of interactions between the three mental

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health variables (depression, substance use, alcohol use) and parenting skills training use on each the four parenting outcomes (HOME-SF, neglect, psychological aggression, and minor physical assault). There were 12 interactions tested (parenting skills training use by each of three mental health variables, on each of the four outcomes). All models included the demographic control variables. None of the interactions were significant.

4. Discussion

We examined whether caregiver mental health had an impact on parenting skills training service use among CPS involved caregivers. Caregiver drug use at baseline predicted parenting skills training use in simple regression models, but not in multivariate models. The inclusion of demographic covariates weakened the relationship to the point of non-significance. These data suggest that demographic factors may have accounted for the difference in parenting skills training use among caregivers who did and did not have problematic substance use. Specifically, caregiver age, and work status showed a very strong relationship on caregiver parent training use, though the data are not presented.

Regarding parenting behaviors, caregivers who reported major depression at baseline versus those without, had greater odds of reporting child neglect at Time 2, after controlling for baseline neglect, depression, parenting skills training use, and demographic factors. This suggests that relative to caregivers without major depression, caregivers with major depression have a relative increase in the likelihood of continued child neglect over time. These findings are consistent with existing literature on the impact of caregiver depression on child neglect perpetration, which suggests that depressed parents are more likely than their non-depressed counterparts to engage in

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neglectful behaviors (Egami et al., 1996; Ethier et al., 1995; Tyler et al., 2006).

Importantly, results controlled for whether or not caregivers were enrolled in parenting skills training, thus ruling out the explanation that the lack of parenting skills training accounted for the increased odds of neglect among depressed caregivers, and moderation analyses showed no moderation. No effects were found for the occurrence of psychological aggression, minor physical assault, or change in HOME-SF scores.

It is unclear why no effects were found for the occurrence of psychological aggression, minor physical assault, or change in HOME-SF scores. Although they were not close to significance, the odds ratios for psychological aggression and minor physical assault were in the hypothesized direction (both greater than 1.0). There was one exception. In multivariate analyses, the odds ratio for drug use predicting the occurrence of minor physical assault fell below zero, and thus opposite the hypothesized direction. This may have been due to collinearity between drug use and the demographic covariates including caregiver age, sex, race, and employment status, all of which have been related with physical discipline (Black, Heyman, & Slep, 2001).

There are several limitations of the current study. First, this analysis utilized a self-reported measure for parenting service use. No information was collected about the type of service, treatment dose, or format and thus, this information is unable to be considered in the analyses. Related, because the parenting skills training programs were not standard across caregivers, it is unclear what parenting behaviors were being targeted in the parenting services and whether those services were effective. Third and related, we have no ability to know whether the material covered in each parenting skills training service adequately (or at all) targeted parenting skills that would impact the specific

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parenting behaviors that were measured in this study. Last, the current paper only examined the occurrence of child maltreatment behaviors (neglect, psychological aggression, and minor physical assault) through counts of discrete behaviors assessed on the CTS, and little information was collected about the severity or impact of those behaviors.

Despite limitations, the current study has implications for future research as it provides support for further exploration into the relationship between caregiver mental health, parenting skills training service utilization, and parenting behaviors among caregivers involved in CPS. There are several recommendations for research to better understand this relation that include a number of factors, which were beyond the scope of the current study. Future research should examine how caregiver mental health influences service utilization in *specific types* of parent training services and service delivery formats. Additionally, results of this study also pointed to an interesting relation between caregiver depression and the occurrence of child neglect. Next steps in this research could also include an examination of protective factors that might explain this finding. Possible variables of interest could include sources of social support, the effects of neighborhood and school programs for mental health, and neighborhood cohesion, to increase the overall understanding of what factors lead to service utilization, and positive parenting behaviors in CPS-involved caregivers with mental health problems.

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MENTAL HEALTH CHILD WELFARE OUTCOMES

Table 1

Baseline Descriptive Statistics for Demographic Variables and Covariates For Permanent Caregivers (n=4,026)

Baseline Caregiver Variables	Mean or Percentage	SD	Minimum	Maximum
Sex				
Female	90.8%			
Male	8.7%			
Urban vs. Non-Urban				
Urban	86.2%			
Non-Urban	13.8%			
Age	32.03 Years	10.61 Years	18 Years	87 Years
Race/Ethnicity				
Caucasian	55.3%			
African American	28.1%			
Other	8.8%			
Don't Know/Refused To Answer	7.7%			
Education Level				
< High School	37.8%			
High School	21.8%			
Vocational School or Some College	35.0%			
College Degree or Higher	5.4%			
Employment Status				
Unemployed	54.3%			
Part-Time Employment	15.1%			
Full-Time Employment	26.9%			
Baseline Major Depression				
Yes	26.5%			
No	73.5%			
Baseline Drug Use				
Yes	4.9%			
No	86.7%			
Baseline Alcohol Use				
Yes	3.9%			
No	93.9%			
Parenting Skills Training Between Baseline and Time 2				
Yes (n=452)	11.2%			
No (n=3,574)	88.8%			
Time 1 HOME-SF For Children Under 10 Years Old (n=3,084)	15.72	4.1	3	26
Occurrence of Neglect in The Past 12 Months (PC-CTS Neglect)				
Yes	20.8%			
No	77.3%			
Occurrence of Psychological Aggression in The Past 12 Months (PC-CTS Psychological Aggression)				
Yes	57.3%			
No	40.7%			
Occurrence of Minor Physical Assault in The Past 12 Months (PC-CTS Neglect Minor Physical Assault)				
Yes	38.9%			
No	58.9%			

MENTAL HEALTH CHILD WELFARE OUTCOMES

Table 2

Summary of Logistic Regression Analysis for Mental Health Variables Predicting Parenting Skills Training Service Use

	Parenting Skills Training Use		
	<i>Odds Ratio</i>	<i>CI</i>	<i>P-Value</i>
Baseline Major Depression			
Model 1: Bivariate	1.15	.72, 1.84	.55
Model 2: Multivariate	1.14	.72, 1.80	.59
Baseline Drug Use			
Model 3: Bivariate	2.78*	1.33, 5.79	.01
Model 4: Multivariate	2.35	.97, 5.71	.06
Baseline Alcohol Use			
Model 5: Bivariate	1.03	.37, 2.90	.96
Model 6: Multivariate	1.02	.37, 2.80	.97

Note. All multivariate models control for age, race, sex, education, employment status, urbanicity (urban vs. nonurban), and federal poverty level (omitted from the table). Mental health predictors (depression, drug use, alcohol use) and the parent training use outcome variable were coded as 1 for *yes* and 0 for *no*. Positive response (1 or “yes”) is the reference category for each mental health variable. Probability was modeled for parenting skills training service use positive response (1 or “yes”).

* $p < .05$. ** $p < .01$. *** $p < .001$.

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Table 3

Summary of Regression Analyses for Time 1 Mental Health Variables Predicting the Three Time 2 PC-CTS Subscales (Neglect, Psychological Aggression, and Minor Physical Assault) and Time 2 HOME Follow Up Scores

	Neglect		
	<i>Odds Ratio</i>	<i>CI</i>	<i>P-Value</i>
Baseline Major Depression			
Model 1: Bivariate	1.88**	1.33, 2.66	.00
Model 2: Multivariate	1.94*	1.22, 3.09	.01
Baseline Drug Use			
Model 3: Bivariate	.86	.47, 1.56	.62
Model 4: Multivariate	.87	.44, 1.72	.69
Baseline Alcohol Use			
Model 5: Bivariate	1.83	.74, 4.49	.19
Model 6: Multivariate	1.87	.79, 4.40	.15
	Psychological Aggression		
	<i>Odds Ratio</i>	<i>CI</i>	<i>P-Value</i>
Baseline Major Depression			
Model 1: Bivariate	1.28	.84, 1.95	.25
Model 2: Multivariate	1.33	.84, 2.21	.23
Baseline Drug Use			
Model 3: Bivariate	1.27	.35, 4.63	.72
Model 4: Multivariate	1.07	.25, 4.49	.93
Baseline Alcohol Use			
Model 5: Bivariate	1.68	.68, 4.11	.26
Model 6: Multivariate	2.25	.86, 5.92	.10
	Minor Physical Assault		
	<i>Odds Ratio</i>	<i>CI</i>	<i>P-Value</i>
Baseline Major Depression			
Model 1: Bivariate	1.14	.78, 1.66	.50
Model 2: Multivariate	1.17	.79, 1.75	.43
Baseline Drug Use			
Model 3: Bivariate	1.03	.53, 2.00	.93
Model 4: Multivariate	.93	.48, 1.78	.82
Baseline Alcohol Use			
Model 5: Bivariate	1.51	.78, 2.94	.23
Model 6: Multivariate	1.42	.66, 3.06	.37
	HOME-SF		
	<i>B (SE)</i>	<i>R²</i>	<i>P-Value</i>
Baseline Major Depression			
Model 1: Bivariate	.53 (.29)	.23	.07
Model 2: Multivariate	.59 (.35)	.27	.10
Baseline Drug Use			
Model 3: Bivariate	.77 (.64)	.23	.22
Model 4: Multivariate	.82 (.76)	.25	.29
Baseline Alcohol Use			
Model 5: Bivariate	-.39 (.57)	.22	.49
Model 6: Multivariate	-.60 (.54)	.25	.27

Note. All multivariate models control for age, race, sex, education, employment status, urbanicity (urban vs. nonurban), federal poverty level and parent skills training use (1 for “yes”, 0 for “no”). Time 1 PC-CTS scores were also included in PC-CTS Models as a control variable. Time 1 HOME-SF scores were also included in the HOME-SF model as a control variable (omitted from the table). Mental health predictors (depression, drug use, alcohol use) were coded as 1 for “yes” and 0 for “no”. Positive response (1 or “yes”) is the reference category for each mental health variable.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Manuscript 3

**How does receipt of mental health services impact early intervention child
maltreatment parenting program outcomes?**

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Abstract

Parents enrolled in home visiting, which is a common tool for the prevention/intervention of child maltreatment, often contend with common mental health problems. Those parents may benefit from multiple services: one to address mental health problems, and one to address parenting deficits. Data suggest that active enrollment in fewer services can be a more effective strategy for increasing parenting program effect and possibly keeping parents enrolled in services until completion. Yet, little is known about how parent enrollment in mental health services impacts parent completion and behavior change in child maltreatment home visiting parenting programs. We investigated whether caregiver receipt of two distinct services (mental health services and parenting services) versus parenting services alone was predictive of service completion and behavior change among a sample of 285 parents, at risk for child maltreatment. All parents were enrolled in the SafeCare[®] evidence based, behavioral parenting intervention and were followed longitudinally over 18 months. Data collection included self-reported depressive symptoms and mental health service receipt. Although findings indicated that receipt of mental health services while actively participating in the SafeCare parenting program did not reliably distinguish between completers and non-completers, a significant relationship between multiple service receipt and child abuse potential emerged. Parents who received help for mental health or other problems, while enrolled in SafeCare, perpetrated more psychological aggression and minor physical assault compared to parents who did not receive help for mental health or other problems while enrolled in SafeCare. Results point to multiple service utilization as an important factor in determining home visitation outcomes such as behavior change and skill uptake.

Introduction

1.1. Home Visiting Program Use for Child Maltreatment Prevention

Child maltreatment, by definition, involves some dysfunction of or deficit in the parenting process (Barth et al., 2005; Chaffin & Friedrich, 2004). Families at-risk for child maltreatment are often referred to home visiting (HV) programs that may focus on a variety of outcomes, including improving parenting processes to decrease child maltreatment risk. For example, widely implemented, evidence-supported parenting interventions such as: SafeCare[®] (Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012), Parent-Child Interaction Therapy (PCIT; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Chaffin et al., 2004), and Triple P (Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009) have been found effective at reducing child maltreatment recidivism and preventing maltreating behavior through improvements in parent interaction patterns and parenting skill development. Enrollment in parent training has become widely used among both prevention and intervention samples of parents at risk for child maltreatment. Estimates from 2011/2012, indicate that approximately 2,137,044 U.S. children and parents, engaged in HV services during pregnancy and up to child age of 3 years (Lanier, McGuire-Jack, & Welch, 2015). Although referral to HV parent training programs are a widely used and robust child maltreatment prevention response, barriers such as program attrition and poor skill acquisition reduce overall program impact (Durlak & Dupree, 2008).

1.2. Parent Mental Health and Home Visiting Service Completion

Program attrition is one major challenge for HV programs. It is estimated that HV attrition rates are on average 50%, with 20% to 80% of families leaving before

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services are scheduled to end (Duggan et al., 1999; Gomby, 2005; Gomby, Culross, & Behrman, 1999; McGuigan, Katzev, & Pratt, 2003). Furthermore, nearly 50% of early HV families exit services before the target child is 12 months of age (Duggan et al. 2007; O'Brien et al. 2012). There is a broad literature on individual level predictors of HV service utilization (Booth, Munsell & Doyle, 2014; Brand & Jungman, 2014; Damashek, Doughty, Ware, Silovsky, 2011; Daro, McCurdy, Falconnier, & Stojanovic, 2003; Goyal, et al., 2014; Holland, Christensen, Shone, Kearney & Kitzman, 2014; Lefever, Bigelow, Carta, Borkowski, 2013; Wong, Roubinov, Gonzales, Dumka & Millsap, 2013).

Generally, the data show that, parents referred to HV services may have demographic risk factors (young, single, poorly educated) that negatively impact their service utilization, and may often contend with multiple stressors that may adversely impact their mental health. For example, in comparison to the general population, at-risk parents disproportionately experience poverty, homelessness or inadequate housing (Fowler et al., 2013), interpersonal conflict and violence (Lewin & Abdrbo, 2009), and traumatic events (Chaffin & Bard, 2011; Marcenko, Lyons, & Courtney, 2011). Many at-risk parents also lack social support and report feelings of isolation and elevated stress related to parenting (Chaffin & Bard, 2011). Parents referred to HV services may also have mental health risk factors, such as depression, substance use, and trauma exposure, which may negatively affect program uptake (Damashek, Doughty, Ware, & Silovsky, 2011; Navaie-Waliser, Martin, Tessaro, Campbell, & Cross, 2000).

The data regarding the impact of mental health risk factors on HV service utilization and completion is mixed. For example, data support that caregivers who suffer with depression can and do report both higher levels of program enrollment

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(Damashek, Doughty, Ware, & Silovsky, 2011) and completion (Girvin, DePanfilis, & Daining, 2007) than parents with lower or no reported depression. Similarly, Duggan and colleagues (1999) reported that families with parental substance use were likely to stay in services more than one year longer than other families. However, in a sample of female caregivers with an active substance abuse disorder, Damashek, Doughty, Ware, & Silovsky (2011), found that caregiver alcohol and drug symptoms predicted a reduced likelihood of service completion. Despite evidence to the contrary from other studies, Brand & Jungman (2014) reported that psychological distress was not related to attrition. Similarly, LeFever and colleagues (2013) examined predictors of completion in a randomized trial comparing the effectiveness of the standard Planned Activities Training (PAT) intervention and a cell phone enhanced augmentation of PAT for preventing child maltreatment and promoting positive parenting. Results indicated that the risk score index, which included a measure of depression, was not a significant predictor of intervention completion.

1.3. Parent Mental Health and Child Maltreatment Risk

According to the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4), among children who were investigated by child protective services (CPS) agencies as well as children who were screened out by CPS without investigation, perpetrator mental illness was a factor in 7% of child maltreatment cases (Sedlak et al., 2010). Large scale, longitudinal data indicate that parent depression is a particularly important mental health risk factor for child maltreatment. Depression disproportionately impacts parents at risk for child maltreatment and is one of the most common mental health concerns among them (Ayon, 2011; Bunger, Chuang, & McBeath, 2012; Estefan,

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Coulter, VandeWeerd, Armstrong, & Gorski, 2012; Marcenko et al., 2011; Mustillo, Dorsey, Conover, & Burns, 2011). Prevalence rates of depression among at risk parents range from 19% to 52% (Marcenko, Lyons, & Courtney, 2011; Mustillo, Dorsey, Conover, & Burns, 2011), which is three to eight times higher than estimates of depression within the general adult population (Mustillo, Dorsey, Conover, & Burns, 2011). Data collected from the nationally representative sample of the National Study on Child and Adolescent Well-Being (NSCAW II), revealed that approximately one-fifth (19.6%) of parents scored within the clinical range for depression (Dolan, Casanueva, Smith, Lloyd, & Ringeisen, 2012). Furthermore, in a recent analysis of child welfare reports from one state (Oklahoma), Chaffin and colleagues (Chaffin, Hecht, Bard, Silovsky, and Beasley, 2012) reported that 27% of families with CPS reports receiving in-home family preservation services reported clinically significant depression. In addition to increasing parents' risk for social, economic and work-related difficulties (e.g., reduced productivity, absenteeism), parent depression is also associated with critical, harsh, and punitive parenting practices (Lovejoy, Graczyk, O'Hare, & Neuman, 2000), child abuse and neglect (Bunger et al., 2012; Chaffin & Bard, 2011; Thompson, Tabone, & Cook, 2012), and in severe cases, loss of custody (Park, Solomon, & Mandell, 2006).

1.4. Multiple Service Utilization

Although poor mental health is a pervasive problem among parents at-risk for child maltreatment and HV program dropout, many in-home parenting programs do not directly address parent mental health. Instead, home visitors are encouraged to address significant mental health and other problems through referrals to adjunct mental health

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services and other family services that may overlap with parenting programs (Chaffin & Bard, 2011). In fact, it is a strongly held assumption within the CPS field that providing families with referrals to several distinct services to address the range of issues they experience, will reduce child maltreatment risk (Chuang, Wells, & Aarons, 2014; Chuang, Wells, Bellettiere, & Cross, 2013) and lead to better CPS outcomes (Lundahl & Harris 2006). Some data support this notion. For example, when caregivers enter treatment for mental health problems more quickly and complete at least one treatment session, children who have been removed from the home spend fewer days in out-of-home care and are more likely to be reunified with their parents (Green, Rockhill, & Furrer, 2007; Smith, 2002). Although only a few studies included measures of the mother–child relationship, meta-analytic review of depression specific treatment also suggests that participation in psychological treatment of depression is linked to a small to moderate impact on the patterns of interactions between mothers and their children (Cuijpers, Weitz, Karyotaki, Garber, & Andersson, 2015). Thus, it would seem that parents with mental health problems would benefit from multiple services: one to address mental health problems, and one to address parenting deficits.

However, to our knowledge, no study has specifically examined how enrollment in two or more distinct services impacts HV parent training program completion and the overall evidence regarding how enrollment in two or more distinct services affects intervention skill uptake is unclear. For example, a meta-analytic review of components associated with voluntary HV programs suggests that when home visiting was combined with other services, larger effects sizes were observed for maternal life course outcomes, but smaller effect sizes were observed for child physical health, illness, and injury

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(Filene, Kaminski, Valle, & Cachat, 2013). A different meta-analysis of parenting programs, implemented in a variety of delivery settings, found that studies which coupled parent training with ancillary services had smaller effects than parent training alone on parenting and child behavior outcomes (Kaminski, Valle, Filene, & Boyle, 2008).

1.4. Overview of the Current Study

There is little empirical literature examining how parents' HV parenting service completion and behavior change is affected by their commensurate participation in mental health services. On the one hand, improving mental health outcomes should certainly improve parenting. But on the other hand, involvement in multiple services could dilute the impact of parenting intervention alone. The primary goal of this study is to conduct exploratory analyses to examine how caregiver receipt of two distinct services (mental health services and parenting services) versus parenting services alone impacts service completion and parenting behaviors among an at risk sample of parents enrolled in the SafeCare home visiting parenting intervention.

2. Methods

2.1. Data Source

This study was completed using parent data from a two-group, randomized trial of an augmented SafeCare protocol, compared to services as usual with a sample of families at high risk for child maltreatment. Eligible participants were at least 16 years of age, had at least one child age 5 years or younger, and had at least one of the following risk factors: parental substance abuse, mental health issues, or intimate partner violence. Participants were referred from an array of service agencies (e.g., hospitals, schools, drug courts, family courts, domestic violence shelters, mental health centers, and other

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prevention and social service programs) and could also self-refer. Because this was a prevention trial, parents were excluded if: a) they had a current child welfare case or service involvement due to a recent child welfare case or a history of more than two prior child welfare referrals (regardless of substantiation status), or b) the primary caretaker had a substantiated report of perpetrating child sexual abuse. Parents were also excluded if they had any conditions that would prevent the primary caretaker from providing valid self-report data (e.g., severe psychosis, severe mental delay, etc.).

2.2. Parenting Intervention

SafeCare is an evidence-based behavioral home visiting parenting program for child maltreatment prevention that addresses child maltreatment by utilizing a skills-based approach to changing parenting behaviors. Specifically, the SafeCare curriculum provides in situ parent training, on parent child/infant interaction, child health care, and home safety, using manualized instructions, modeling, and practice (e.g., role plays) with feedback and correction. There is a substantial body of literature that supports the use of SafeCare to address parenting deficits and promote positive parenting skills (Chaffin, Bard, Bigfoot, & Maher, 2012; Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011; Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012). Successful completion of SafeCare requires that all modules be completed by the parent and is designed for completion in approximately 18 weeks. SafeCare can be delivered as a freestanding intervention or as one component of a broader home visiting service. For the purpose of this study, only parents who were randomized to receive augmented SafeCare, which included the addition of both Motivational Interviewing (Miller & Rollnick, 2004) and home visitor

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training to identify and respond to caregiver substance abuse, depression, and intimate partner violence, were included in study analyses.

2.3. Study Sample

For the purpose of this study, only data from parents who were randomized into the SafeCare group were included in analyses ($n=285$); control participants did not receive a parenting intervention. The mean age among the SafeCare subsample was 24.8 ($SD = 6.5$) years (range 16-65 years). Among the study sample, nearly one-third (28.8%) of parents reported less than a high school education, fewer than 40% reported a high school education (36.1%), and the remainder indicated obtaining some college education or college degree (34.7%). African American participants represented the largest racial/ethnic majority (44.2%), followed by Caucasian participants (36.5%), and the remaining participants were Hispanic/Latino, American Indian/Alaska Native, and Asian (19.3%). The sample reported a median monthly income of \$430.50. Almost one-half of the study sample reported having never been married (48.4%) and married participants accounted for 28.1% of the study sample. The remaining participants were separated, divorced, or widowed (22.1%). Approximately 40% (40.4%) of parents sought help for mental health or other problems during the same time period they were also enrolled in SafeCare parent training, and 31.9% of parents did not. Mental health help seeking data were missing for 27.7% of the study sample.

2.3. Measures

Participants completed an audio computer-assisted survey administered at the parents' home or another private location. The survey contained measures on a variety of topics including demographics, violence, relationship variables, mental health variables,

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family resources, and parenting variables. For the purposes of this study, baseline and six month follow up data were analyzed. Only the relevant measures used for the current study are described in detail below.

2.3.1 Independent Variables

Mental Health Service Receipt was the main predictor variable of interest. We measured mental health service receipt using a modified services utilization questionnaire developed by Kessler and colleagues and attached to the Composite International Diagnostic Interview (CIDI), used in the National Comorbidity Survey (see Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). The instrument asks about the number and type of visits across a variety of treatment settings (e.g., hospital emergency room, community mental health center, self-help group, alcohol and drug treatment or support services, domestic violence services, etc.). For the purpose of this study, the question “*In the past six months, have you received any additional help for your own mental health or personal problems?*” was used as the measure of mental health service receipt. Time 2 responses were used in analyses to capture service utilization that overlapped with the SafeCare service utilization time period.

Depression Symptoms were measured using The Beck Depression Inventory-2 (BDI-2; Beck, Steer, & Brown, 1996). The BDI-2 is a 21-item multiple-choice self-report instrument designed to measure symptoms of depression. Internal consistency of the scale is .93, and test-retest stability is .93. The instrument has been found to identify levels of depression ranging from minimal depression to severe depression, and to correlate highly with other measures of depression (Beck, Steer, & Brown, 1996; Steer, Ball, Ranieri, & Beck, 1997). Studies have reported good scale performance with high

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sensitivity (from 72% to 100%). In the current sample, approximately 46% ($n=131$) of parents met the BDI-2 cutoff for depressive symptoms that indicate the possible need for treatment.

Enrollment in other family programs was entered into each of the study analyses as a control variable. Parents were asked about participation in other family services, not including SafeCare. We included this measure of service utilization because parents who are at risk for child maltreatment are often referred to multiple services to address parenting deficits. For the purpose of this study, the question “*Are you currently participating in any other similar or related programs, not including Safe Families?*” was used as a measure of enrollment in other family programs.

2.3.2. *Dependent Variables*

SafeCare service completion was measured using home visitor reports of program completion.

Parenting outcomes were measured using the Conflict Tactics Scale – Parent-Child Version. (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The CTS-PC is a retrospective self-report measure of parenting, including harsh and neglectful parenting in the past 12 months. The measure used in this study included subscales for neglect, psychological aggression, and minor physical assault. The four items comprising the very severe assault subscale were omitted from the measure due to concerns raised regarding abuse reporting, and low rate of endorsement (0.2%) in the 1998 publication sample (Straus et al., 1998). In the current sample, the internal consistencies of the subscales were: neglect (.47), psychological aggression (.78), and minor physical assault (.73).

2.4. Data analysis

Data analyses began with exploring descriptive statistics to examine variable distributions (using SPSS, version 22). Logistic regression were used to predict SafeCare service completion from receipt of mental health services, and negative binomial regression models were used to predict CTS-PC subscale scores (neglect, psychological aggression, minor physical assault), from receipt of mental health services. CTS-PC subscales were zero-inflated count data thus suggesting the use of negative binomial regression models while controlling for baseline CTS-PC subscale scores. In all models, the following control variables were included: baseline parent age, income, employment status, race/ethnicity, marital status, education level, level of depression, and enrollment in other family programs (answers yes/no by participants).

3. Results

3.1. Predicting SafeCare Service Completion

Logistic regression analyses were conducted to predict SafeCare program completion using receipt of mental health services at follow up as the key predictor. Table 1 shows results of both the bivariate and multivariate analyses. Receipt of mental health services was not a significant predictor of program completion in either model. In fact, the multivariate model including demographic variables, depression, and enrollment in other family programs was not significant ($\chi^2 = 12.78, p = .47$ with $df = 13$; *psuedo* $R^2 = .12$).

3.2. Predicting Neglect, Psychological Aggression, and Minor Physical Assault

Table 2 presents results for the six negative binomial regression models of the count of the CTS-PC subscales (neglect, psychological aggression, and minor physical

assault) at Time 2, first in simple bivariate models which only controlled for baseline CTS-PC subscale scores, and then in full multivariate models. For prediction of neglect, mental health service receipt was not predictive in either simple or multivariate models. For prediction of psychological aggression, mental health service receipt was predictive in the simple bivariate model ($IRR = 1.45$), but not in the multivariate model ($IRR = 1.29$, 95% CI = .86, 1.92). Finally, in prediction of minor physical assault, mental health service receipt was predictive of greater physical assault in both the simple bivariate model ($IRR = 1.51$) and in the multivariate model ($IRR = 1.55$). Baseline and Time 2 means and standard deviations for each CTS-PC subscale are presented in Table 3. Figures 1 and 2 show the baseline and Time 2 mean counts of CTS-PC psychological aggression and minor physical assault by service utilization.

4. Discussion

Parents at-risk for child maltreatment perpetration are often referred to multiple, distinct services to address common risk factors believed to reduce child maltreatment risk (Chuang, Wells, & Aarons, 2014; Chuang, Wells, Bellettiere, & Cross, 2013). Two common referrals are mental health services and parent training. It is possible that simultaneous enrollment in multiple services might prove overwhelming to parents who are at risk for child maltreatment or neglect, and the pressure of competing responsibilities could lead to service attrition and poor program outcomes, but little is known about this relation. We examined whether enrollment in parenting and mental health services had an impact on parenting service completion and parenting outcomes. No significant relationship was found between mental health service receipt and SafeCare

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completion. In fact, none of the demographic or control variables included in the analyses were related to completion.

These results were unexpected. Research suggests that competing responsibilities are barriers to parenting program completion (Gomby et al., 1999; Roggman et al, 2002). Therefore, the competing responsibilities of simultaneously maintaining enrollment in services for mental health/other problems and SafeCare were expected to impact SafeCare completion. SafeCare requires parents to participate in home visits as well as complete homework assignments between sessions. For a parent with poor mental health, attending session visits; engaging with home visitors, and ensuring that practice occurs between sessions could require a burdensome amount of time, focus, and energy. Furthermore, depending on the type and structure of mental health services, there could have been additional in- session work and homework for which parents were responsible. However, our findings point to the possibility that the common practice of multi-component service plans for parents at risk for child maltreatment is not predictive of parenting program completion for parents with poor mental health.

Regarding discipline behaviors, parents who reported receiving help for mental health/personal problems reported over 1.5 times the number of instances of psychological aggression (bivariate analyses only) and minor physical assault incidents (both bivariate and multivariate) at follow up compared to parents not seeking such help, after controlling for the number of incidents reported at baseline, baseline levels of depression, and demographic factors. This suggests that parents who were dually enrolled in parenting and mental health services achieved fewer benefits from the parenting program than parents involved in parenting only. Importantly, the results

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controlled for the level of baseline depression, which may be a common reason for seeking mental health treatment, thus ruling out the explanation that depression itself accounted for the increase.

No effects were found for neglect behaviors. It is unclear why no effects were found for neglect behaviors. The bivariate incidence rate ratio for neglect was at least in the same direction as the IRR for psychological aggression and physical assault, although it was not close to significance. However, in multivariate analyses, the incidence rate ratio for neglect behaviors fell below zero. This result was likely due to the correlation between neglect and demographic characteristics including marital status, education level, income, and parent employment (Schumacher, Slep, & Heyman, 2001; Slack et al., 2011), for which we controlled. It is possible that sample related factors and the distribution of responses for the CTS-PC neglect subscale impacted these results. CTS-PC neglect count data were especially zero inflated and had less variance than psychological aggression or physical assault.

For psychological aggression and minor physical assault behaviors, it is possible that there were other mental health risk factors present, which were not accounted for in analyses that may have accounted for why parents who sought mental health services had approximately 50% more incidents of psychological aggression and minor physical assault than parents only enrolled in SafeCare. Though depression was assessed, there is a high comorbidity between depression, and other mental health problems such as substance use and trauma symptoms, which also may be common reasons for seeking mental health treatment. Depression and alcohol use have been found to co-occur among parents at risk for child maltreatment at higher than expected rates in many

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epidemiological studies (Kessler et al., 1994, Lai, Cleary, Sitharthan, & Hunt, 2015; and Merikangas and Gelernter, 1990), with lifetime prevalence rates reported to be as high as 35% to 40% (Hasin, Goodwin, Stinson, & Grant, 2005, & Mericle, Park, Holck, & Arria, 2012). Drug users are approximately four times more likely than non-drug users to develop major depression (OR = 3.803, 95% CI 3.024–4.782), and trauma exposure is highly correlated with the development of major depression (Shalev et al., 2014). Because our analyses did not control for baseline levels of other common mental health problems, we cannot rule out the explanation that other mental health risk factors accounted for the increase.

We had little information about the mental health services that were received and whether they were beneficial. It would seem that parents who were in need of and enrolled in services to address their mental health/other problems would experience reductions in mental health symptoms and increased ability to benefit from parenting services as much as or more than parents who were only enrolled in parent training. However, it is possible that parents with poor mental health did not receive large enough reductions in mental health risk factors from the additional services they received because services were simply ineffective, of low quality, or were inadequately attended. Thus, a lack of therapeutic benefit for parents dually enrolled in parenting/mental health from parenting services alone may have accounted for the relative increase in psychological abuse and physical assault. True experimental design studies that tightly control the type and quality of mental health treatment and accurately model the impact of compliance variations might help resolve this question.

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There are several limitations of the current study. First, this study relied on participant report of mental health service use, without the indication of what the specific service was and what the target behavior was. Understanding the type of treatment and the specific reason for treatment (depression, substance use, trauma, etc.) is vital information in further determining the impact of multiple service utilization on parenting program outcomes. Second, there were several limitations to measurement including a) due to poor participant response rates, our analyses did not include other common mental health problems (substance use, trauma, etc.) and b) clinical diagnosis of depression was not measured. Due to low response rates regarding substance use, we were unable to compare the results of this study by specific mental health problems. Understanding how other common mental health problems, like substance use, trauma symptoms, and posttraumatic stress disorder impacts the service utilization/parent training outcome relationship would shed more light on factors that contribute to program skill uptake barriers.

Despite limitations, the current study provides support for future work regarding the contribution of the use of multiple services to address parent needs on parenting program skill uptake. There were a number of factors, which were beyond the scope of the current study that could be statistically related to the impact of multiple service utilization on child abuse potential and parenting program skill uptake that warrant further study. Future research should examine how a diagnosis of depression, and the various types of mental health services (e.g., clinical, community, in-patient, out-patient, mandated vs. voluntary service enrollment etc.) influences skill uptake. Finally, next steps in this research could also include an examination of protective factors, such as

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sources of social support, the effects of neighborhood and school programs for mental health, and neighborhood cohesion, to increase the overall understanding of what factors lead to positive parenting behaviors in parents with mental health problems.

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Table 1

Summary of Logistic Regression Analysis for Variables Predicting SafeCare Service Completion by Mental Health Service Receipt, Controlling for Demographic Variables

Predictor	Bivariate			Multivariate		
	B	SE B	OR (95% CI)	B	SE B	OR (95% CI)
Mental Health Service Enrollment	.06	.29	1.07 (.61, 1.87)	.34	.39	1.41 (.66, 3.02)
Age				-.03	.04	.97 (.90, 1.05)
Race						
Black (ref)				--	--	--
White				.35	.65	1.42 (.40, 5.12)
Other				.86	.64	2.36 (.68, 8.19)
Monthly Income				.21	.26	1.23 (.74, 2.06)
Marital Status						
Never Married (ref)				--	--	--
Married or Cohabiting				-.21	.55	.81 (.28, 2.38)
Separated, Divorced, Widowed				.09	.58	1.09 (.35, 3.37)
Education Level						
Less than High School (ref)				--	--	--
High School/GED				-.33	.53	.72 (.26, 2.02)
Some College Education or Higher				-.47	.48	.63 (.25, 1.59)
Employment Status						
Unemployed (ref)				--	--	--
Student				-.44	.52	.65 (.23, 1.78)
Employed				.20	.55	1.22 (.42, 3.55)
Depression Symptoms				-.01	.02	.99 (.96, 1.02)
Enrollment in Other Family Program(s)				-.60	.48	.55 (.22, 1.43)
Constant	-.44	.19	.64	.02	1.55	1.02
χ^2		.05			12.78	
<i>df</i>		1			13	
% SafeCare Completion		34%				

Note: Baseline parent age, race/ethnicity, income, marital status, education level, employment status, baseline symptoms of depression, and enrollment in other family programs at follow up were included as control variables. Parent mental health service enrollment was scored as 1 for enrolled and 0 for not enrolled. Parents who were enrolled in mental health services served as the reference category for logistic regression analyses.

p* < .05. *p* < .01. ****p* < .001.

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Table 2

Negative Binomial Regression Models of the Count of the Three CTS-PC Subscales (Neglect, Psychological Aggression, and Minor Physical Assault) By Mental Health Service Receipt

Predictor	Model 1: Count of CTS-PC Neglect		Model 2: Count of CTS-PC Psychological Aggression		Model 3: Count of CTS-PC Minor Physical Assault	
	IRR	95% Confidence Interval	IRR	95% Confidence Interval	IRR	95% Confidence Interval
Simple, Bivariate						
Mental Health Service Enrollment	1.40	0.86, 2.26	1.45*	1.00, 2.10	1.51*	1.03, 2.22
Multivariate						
Mental Health Service Enrollment						
Not Enrolled (ref)	--	--	--	--	--	--
Enrolled	0.78	0.40, 1.53	1.29	0.86, 1.92	1.55*	1.02, 2.36
Baseline CTS-PC Subscale Score	1.08*	1.00, 1.15	1.03***	1.02, 1.05	1.04***	1.02, 1.05
Age	.97	.91, 1.04	.97	.93, 1.01	.97	.93, 1.01
Race						
Black (ref)	--	--	--	--	--	--
White	.50	.20, 1.20	1.35	.77, 2.36	.92	.55, 1.54
Other	.17**	.05, .64	.75	.39, 1.45	.60	.30, 1.20
Monthly Income						
≤ \$254 (ref)	--	--	--	--	--	--
\$292 - \$663	1.27	.45, 3.00	1.30	.76, 2.22	1.31	.72, 2.39
≥ \$674	.51	.19, 1.33	1.19	.65, 2.17	.72	.39, 1.34
Marital Status						
Never Married (ref)	--	--	--	--	--	--
Married or Cohabiting	2.70**	.98, 7.43	1.03	.56, 1.87	1.70	.95, 3.03
Separated, Divorced, Widowed	5.11	1.90, 13.70	.84	.48, 1.49	1.05	.58, 1.87
Education Level						
Less than High School (ref)	--	--	--	--	--	--
High School/GED	3.92**	1.62, 9.46	1.54	.89, 2.68	1.09	.61, 1.96
Some College Education or Higher	.92	.34, 2.53	1.20	.68, 2.10	1.00	.55, 1.83
Employment Status						
Unemployed (ref)	--	--	--	--	--	--
Student	4.11**	1.64, 10.29	.65	.39, 1.09	.88	.51, 1.51
Employed	2.72*	1.05, 7.05	.99	.59, 1.66	1.85*	1.06, 3.22
Depression Symptoms	.99	.96, 1.01	1.01	.99, 1.03	1.00	.98, 1.02
Enrollment in Other Family Program(s)						
Not Enrolled (ref)	--	--	--	--	--	--
Enrolled	2.20	.91, 5.32	1.63	.93, 2.84	1.00	.53, 1.87

Note: Baseline parent age, race/ethnicity, income, marital status, education level, employment status, baseline symptoms of depression, and enrollment in other family programs at follow up were included as control variables. Parent mental health service enrollment was scored as 1 for enrolled and 0 for not enrolled. Parents who were enrolled in mental health services served as the reference category for negative binomial regression analyses.

* $p < .05$. ** $p < .01$. *** $p < .001$.

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Table 3

Summary of Means and Standard Deviations (SD) Of The Three CTS-PC Subscales (Neglect, Psychological Aggression, and Minor Physical Assault) By Mental Health Service Receipt

	Time 1				Time 2			
	SafeCare		SafeCare + Mental Health		SafeCare		SafeCare + Mental Health	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Count of CTS-PC Neglect	2.21	6.79	.97	3.64	.83	3.06	1.35	6.20
Count of CTS-PC Psychological Aggression	12.04	18.20	12.45	19.67	9.40	12.87	15.76	19.50
Count of CTS-PC Minor Physical Assault	7.79	16.10	10.38	18.92	5.81	9.26	11.30	17.72

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Figure 1

Change In the Mean Count of CTS-PC Psychological Aggression Incidents By Mental Health Service Receipt

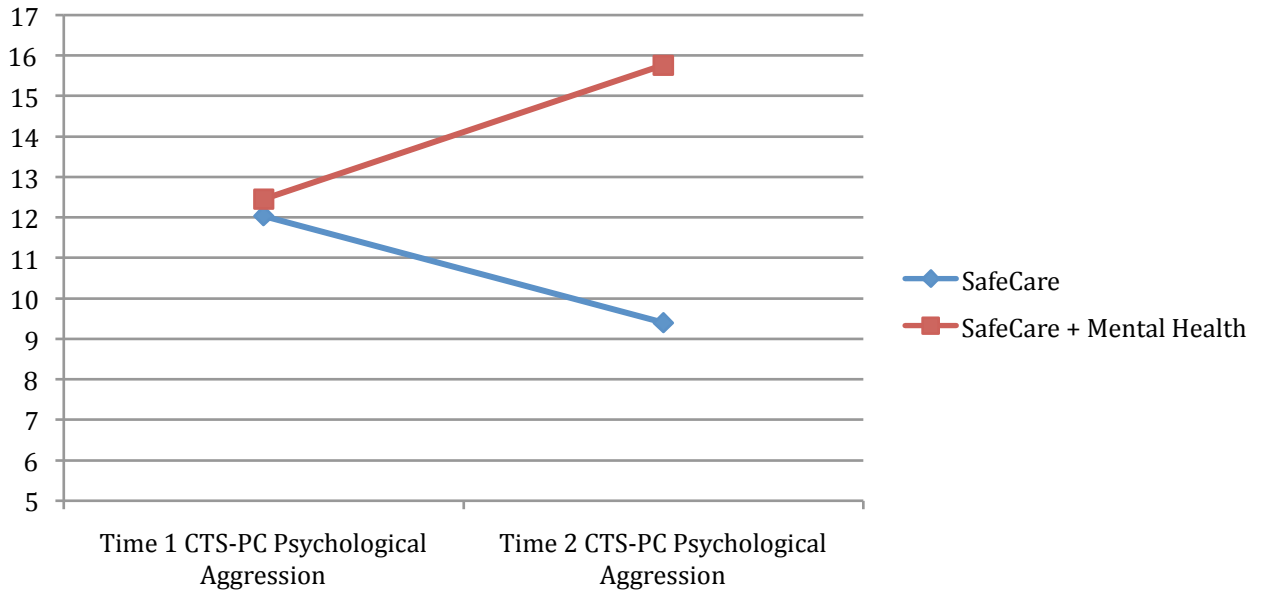
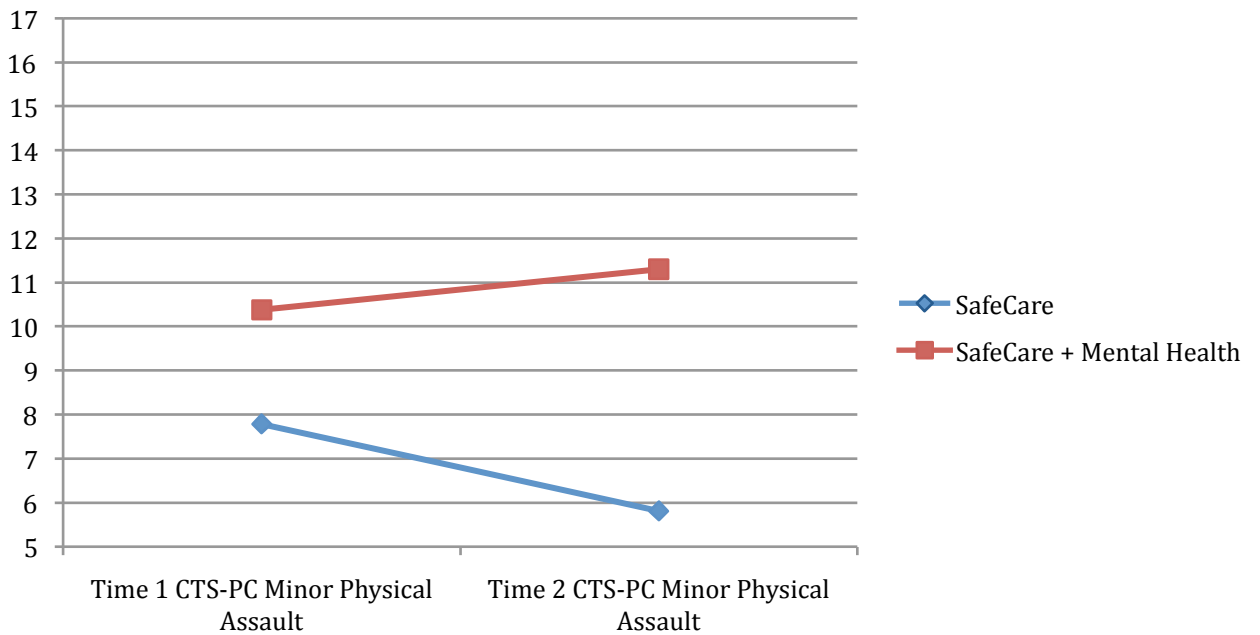


Figure 2

Change In the Mean Count of CTS-PC Minor Physical Assault Incidents By Mental Health Service Receipt



Chapter 3

Global Perspective Summary

Parenting focused interventions to address child maltreatment are a widely used tool for caregivers, and many have shown promising results for reducing child maltreatment risk and recidivism. Parenting focused intervention utilization and changes in parenting behaviors are two important variables that are needed for positive outcomes for caregivers and children. Without service utilization and engagement, caregivers cannot benefit from parenting focused interventions. Likewise, barriers to skill uptake while enrolled in parenting focused intervention, further impede the achievement of reductions in child maltreatment risk and recidivism. As previously discussed in Chapter 1, caregiver depression, substance use, and trauma exposure are established risk factors for the perpetration of child maltreatment. Caregivers with these mental health risk factors are often referred to parenting services and mental health services at the same time. It is not well understood how caregiver mental health risk impacts utilization and effectiveness of parenting interventions, or how simultaneous involvement may affect parenting behaviors.

The manuscripts included in this dissertation focus on how caregiver mental health risk (i.e., depression, substance use, and trauma exposure) impacts use of and benefit from parenting focused interventions. The overarching goal of this dissertation was to examine various facets of this relationship, across three levels of child maltreatment risk. To this end, the goals of each individual manuscript were: (1) to understand how caregiver mental health factors influence service utilization and changes in child abuse potential in a prevention sample of first time mothers enrolled in an early

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intervention home visiting program; (2) to examine how caregiver mental health impacts parenting focused intervention use and parenting behavior change in a nationally representative CPS-involved sample; and (3) to assess how receipt of mental health services impacts child maltreatment parenting program completion and parenting behavior change among a high risk sample of caregivers enrolled in an evidence based behavioral parenting program. In the following sections, the main findings of the three studies are summarized and implications for these findings are further discussed.

Contrary to our hypotheses, results from the first study showed that for first time mothers, the co-occurrence of depression risk and substance use was related to a greater number of home visiting sessions. Depression risk was predictive of greater child abuse potential at follow up, and co-occurring trauma symptoms and substance use were also related to increased child abuse potential, which was consistent with study hypotheses.

The second manuscript explored whether depression and substance use predict parenting focused intervention use and parenting behavior change among CPS-involved caregivers. Consistent with our hypotheses, results indicated that caregivers with major depression at baseline showed an increased risk of neglect 18 months later, even when controlling for initial risk of neglect. Contrary to what was hypothesized, caregiver depression and substance use (drug and alcohol) were not predictive of parenting skills training use.

The third study was an exploratory analysis that focused on how mental health treatment can affect the impact of a parenting program. Findings, indicated that caregivers enrolled in both mental health services and parent training exhibited *more* psychological aggression and minor physical assault than caregivers only enrolled in

parent training, even when controlling for the level of depression. No relationship was found between multiple service utilization and parenting program completion.

When taken as a whole, the findings suggest that when intervening directly with caregivers to address child maltreatment from a prevention or intervention standpoint, it is important to consider caregiver mental health, as it can influence both utilization and changes in parenting behaviors. A summary of findings across studies, recommendations for future research directions, and implications for policy and practice are presented below.

Summary of Findings Across Studies

Review of existing literature examining psychological characteristics as risk factors for child maltreatment reveal that depression is strongly associated with child maltreatment risk and perpetration (Chaffin, Hecht, Bard, Silovsky, and Beasley, 2012; Dolan, Casanueva, Smith, Lloyd, & Ringeisen, 2012; Schumacher, Slep, & Heyman, 2001; Sedlak et al., 2010). Our findings were consistent with the existing literature, as well as theory that support the negative impact of depression on the sufferer's parent-child relationship (Coyne, 1976). However, to our knowledge, no study has examined how the impact of depression on parenting behaviors compared to other common mental health problems. This dissertation also extends the existing literature by examining two levels of severity of depression (depression risk and major depression) among caregivers at risk for child maltreatment or already involved in the CPS system.

Studies one and two examine the impact of caregiver depression on parenting behavior change in two very different samples of caregivers – first time mothers and caregivers involved in CPS systems. The findings across studies regarding the effect of

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depression on parenting behavior change were consistent. Depression was the only mental health risk factor that was independently associated with poor parenting behavior outcomes. For first time mothers, higher depression risk was associated with increased child abuse potential. For CPS-involved caregivers, major depression was associated with increased odds of child neglect, relative to caregivers without major depression. These findings suggest that across level of child maltreatment risk, depression emerges as an important predictor of changes in parenting behavior among caregivers enrolled in intervention.

In addition, studies one and two provide insight into how the level of mental health risk impacts caregiver parenting behavior change. The samples in study one and study two differed in their level of depression risk. In study one, caregivers did not necessarily meet criteria for depression. In study two, caregivers met the clinical cutoff for major depression. These differences introduce an added consideration regarding how caregiver depression impacts parent behavior by illustrating that the impact of caregiver depression on caregiver behavior change is present whether a caregiver is “at risk” for depression or meets the clinical cutoff for major depression.

Although there is a high degree of comorbidity among depression, substance use, and trauma exposure, few studies have examined how combinations of mental health risk factors impact program enrollment, completion, and changes in child abuse potential. Results of studies one and two add to the existing literature by comparing the impact of common mental health risk factors, in an effort to not only examine *if* they impact parent focused intervention outcomes but under what conditions. In study one, first time mothers who were at risk for depression and reported substance use also had an increased

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number of intervention visits. Likewise, exposure to trauma and substance use predicted higher child abuse potential.

Results from study one provide insight into one possible reason why caregiver mental health was not predictive of parenting behavior outcomes among CPS-involved caregivers. It was unexpected to find that for CPS-involved caregivers, neither problematic drug nor alcohol use predicted changes in the odds of perpetrating child neglect, psychological aggression or minor physical assault. However, study one suggests that it might be important to examine interactions, instead of only examining the independent impact of caregiver depression and substance use. Regression models may have fit the data better if the combination of mental health risk (i.e., the interaction of trauma symptoms and substance use) as opposed to the impact of alcohol and drug use individually was examined.

Caregivers at risk for child maltreatment commonly have multiple problems, including poor mental health. However, caregiver mental health is not usually addressed through interventions for child maltreatment. Therefore, it is common for caregivers who contend with mental health problems to enroll in separate services: one to address mental health problems, and one to address parenting deficits. This concept is also known as “comprehensiveness”. Existing data on comprehensiveness comes from the literature on caregivers involved in CPS. In general, the data suggest that more services may not be better but may be counterproductive (Bickman & Mulvaney, 2005; Chaffin et al., 2004).

This dissertation extends the concept of comprehensiveness to caregivers who voluntarily enrolled in services for mental health and parent training. The results of the final study in this dissertation suggest that parents who received help for mental health or

other related problems, while simultaneously enrolled in parent training, reported approximately one and a half times the number of minor physical assault incidents (i.e., spanking, slapping, hitting, shaking) than parents who were only actively receiving parent training. These results took into account baseline levels of physical assault and depression. These data are consistent with literature that suggests that evidence based parenting programs, such as SafeCare are most beneficial when they are not combined with multiple other psychosocial services (Chaffin et al., 2004; Kaminski, Valle, Filene, & Boyle, 2008). Adding insight into the results of study three, Berliner et al. (2015) suggest that for multi-problem caregivers, the threshold for beneficial participation in programs may be low and, comprehensive service utilization can quickly become counterproductive.

Implications for Future Research

Despite limitations, the current dissertation provides support for further exploration into the impact of caregiver mental health on parenting focused intervention service utilization and parenting behavior change. There are several recommendations for research to better understand this relation, which include a number of factors that were beyond the scope of this dissertation.

First, evidence-based interventions are becoming increasingly more popular in CPS (see Landsverk, Garland, Rolls Reutz, & Davis, 2011; <http://www.cebc4cw.org/>). This is a promising transition because the greatest effects for reductions in child maltreatment risk and child maltreatment recidivism have been found for evidence-based interventions. Even so, evidence based interventions vary widely in almost every aspect. The parenting focused interventions used among the CPS caregivers in study two did not

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mirror the evidence based NFP curriculum from study one. Furthermore, although NFP is a well-established parenting focused intervention, it is not specifically a parenting program. This is important as it specifically pertains to the impact of caregiver depression on parenting focused intervention outcomes. Studies have demonstrated that improvements in parental depression can occur after participation in evidence based parenting interventions for child abuse and neglect, even without a specific intervention for depression (Barlow, Coren, & Stewart-Brown, 2009; Chaffin & Bard, 2011). Future research should examine the relationship between caregiver depression, substance use, and trauma exposure using the same evidence based parenting intervention for child abuse and neglect with both prevention and CPS-involved caregivers.

Second, results suggest that among prevention samples of caregivers, the interactive impact of poor mental health is particularly detrimental to intervention completion and parenting behavior change. It is interesting to note that among the same sample of mothers, neither depression nor substance use alone were predictive of intervention service utilization. Similarly, neither trauma exposure nor substance use alone was predictive of child abuse potential. Substance use is the common mental health risk factor in these two relationships. Future research into these findings should explore this relation by examining the link between depression, substance use and trauma. More information is needed to determine what aspects of each risk factor account for the interaction effects. Furthermore, although it was beyond the scope of the proposed dissertation analyses for study two, examination of the combined and interactive effects of caregiver depression, substance use, and trauma exposure among CPS-involved caregivers would have provided the opportunity to see whether these findings were

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consistent across level of child maltreatment and mental health risk. Further research is warranted to explore this possibility.

Third, this dissertation provides support for future work regarding the use of multiple services to address caregiver needs on parenting program skill uptake. Future research should examine how the various types of mental health services (e.g., clinical, community, in-patient, out-patient, mandated vs. voluntary service enrollment etc.) influence skill uptake. With the increased use of evidence based parenting programs in community settings where there is a high likelihood that participants will contend with multiple problems. It is important to understand how to reduce participation burden. Future research might explore whether specific pairings of mental health and parenting intervention are more or less compatible. Chaffin and colleagues have conducted similar work. Results indicated that motivational interviewing and parenting intervention were more effective at promoting engagement, but only when motivational interviewing was paired with behavioral parent training (Chaffin et al., 2009). It could be that the curricula followed by specific mental health interventions are not complimentary to specific parenting program curricula. It may also be the case that participation in either intervention presents a burden to the caregiver and the addition of one to the other is over burdensome. Future research could examine characteristics of mental health and parenting intervention including: duration of services (weeks, years), level of involvement outside of scheduled sessions (i.e., homework requirements, session preparation requirements), and frequency of sessions (weekly, multiple times per week) to understand this relation.

Fourth, future research should also explore how the timing of mental health

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intervention, relative to parenting focused intervention, impacts service utilization and benefit from both services. While we did not examine issues of sequencing mental health and parenting-focused intervention, this line of research should be explored. Research examining the impact of completion, either in part or full, of mental health services prior to beginning parenting focused intervention would extend the findings of this dissertation.

Finally, future research should focus on compensatory factors that promote resilience or positive service utilization and parent behavior outcomes for caregivers with poor mental health. The results of the studies support that idea not all caregivers who experience poor mental health have poor parenting outcomes. However, the protective factors that shield caregivers from poor service utilization and poor skill uptake remain poorly understood. Identifying resiliency factors may provide a more solid basis for prevention and intervention programs designed to help caregivers overcome the negative consequences associated with poor mental health and high-risk parenting.

Implications for Policy and Practice

Findings from this dissertation suggest that enhancements are needed at various levels of parenting focused program implementation to improve caregiver and family outcomes. While two of the studies in this dissertation were conducted in the context of the NFP and SafeCare models, among non-CPS caregivers, the results are broadly applicable to other evidence based and behavioral parent training programs that are being used by child welfare systems. The findings reported are applicable to program developers, service providers, and CPS staff who aim to address child maltreatment through parenting intervention. When taken as a whole, the results suggest that when

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intervening directly with caregivers to address child maltreatment from a prevention *or* intervention standpoint, one must consider caregiver mental health factors (in addition to demographic and contextual risk factors). Data presented across the three dissertation studies suggests that caregiver mental health influences intervention service utilization and parenting behavior change. Therefore, once caregivers' mental health problems have been identified, it is recommended that intervention plans consider mental health problems and closely monitor clients for both difficulties with participation and skill uptake.

The findings reported also suggest that timing of intervention receipt may be a key consideration when addressing poor parenting behavior outcomes among high-risk samples of caregivers with poor mental health. Berliner et al. (2015) recommend a two-step approach to addressing the dangers of multiple service utilization in which caregivers' service needs are first triaged and then services are sequenced to ensure that basic or high-priority services come first. These recommendations can also be extended to caregivers who are at risk for child maltreatment but are not under the supervision of CPS. If the need for parenting focused intervention is urgent, modifications to intervention timing might also be necessary.

Some parenting focused interventions for child maltreatment seek to work in relatively short periods of time (i.e., weeks, months). However, the expectation of engaging in services and reaching a set level of competency in program-measured skills might overwhelm a caregiver with poor mental health. Parents at risk for child maltreatment with poor mental health might benefit from longer or extended durations of intervention that reduce the burden of participation to allow for the salience of other

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necessary services such as mental health treatments and therapy. For example, while caregivers without poor mental health might grasp several parenting concepts in a single parenting intervention session, multi-problem caregivers might benefit from learning the same concepts over several sessions. In sum, although child maltreatment intervention is of critical importance, when imminent danger to the child(ren) has been removed, intervening with caregivers to address child maltreatment would benefit from a marathon approach with extended time periods versus a sprint towards outcome related goals.

Parenting focused interventions have been shown effective at reducing child maltreatment but external and internal barriers have hindered their effectiveness. Although many external barriers to intervention effectiveness have been addressed, there is still a great deal of work to be done regarding potential internal barriers, such as caregiver mental health. Further exploration is needed to determine if current implementation among prevention, high risk, and CPS-involved caregivers would benefit from modification as a whole or based on level of risk.

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