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Evidence-based Child Maltreatment Prevention: An Examination of Risk and Novel Approaches

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3-Manuscript Dissertation

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Abstract

Despite considerable declines in physical and sexual abuse over recent decades, child maltreatment remains a public health priority. In 2014, 702,000 children were determined to be victims of maltreatment, 75% of whom experienced neglect (DHHS, 2016). An area in need of further scrutiny is the complex relationship of multiple risk factors and the association of those risk factors with subsequent child welfare involvement. The purpose of this three-manuscript dissertation was to examine evidence-based child maltreatment prevention through an empiric examination of risk and novel prevention efforts.

The first paper, *Getting the Most Juice for the Squeeze: Where SafeCare® and Other Evidence-based Programs Need to Evolve to Better Protect Children*, discusses the dissemination and implementation of evidence-based prevention programs using SafeCare as an applied example. The paper concludes with recommendations for evidence-based practices to improve the outcomes of children and families. Among several recommendations, this paper suggests considering innovative implementation settings, collaboration between systems, and response to the underlying risk factors for maltreatment.

The second paper, *Drug Court as a Potential Point of Intervention to Impact the Well-being of Children and Families of Substance-Using Parents,* responds to the recommendation of collaboration and innovation from the first paper. This descriptive study sought to describe the needs of families of adult drug court populations related to parenting and mental health services. Baseline data indicated a low potential for abuse and the need for mental health services among drug court participants and their children under 18-years old. The findings from this paper indicate a potential intervention and collaboration opportunity between the child welfare and criminal justice systems.

The third paper, *An Examination of Risk Profiles among Mothers Involved with Child Protective Services,* responds to the need to better understand underlying risk factors among child welfare involved families as discussed in the first paper. A latent class analysis was conducted to explore the heterogeneity among women reported to child protective services. In what is typically a homogenously treated and characterized sample, this analysis indicated three classes of risk and examined the classes' association with subsequent referral to child protective services. The findings of this research support the recommendation of the importance of better understanding underlying risk factors to better align services with needs of children and families.

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Chapter 1: Introduction and Statement of Purpose

Child maltreatment (CM), an act on the part of a caregiver that results in the death or serious harm of a child (e.g., physical, sexual, or emotional abuse) or the failure to act that results in the death or imminent harm of a child (e.g., neglect), is a significant public health problem. There are four major types of maltreatment commonly discussed in the U.S.: (1) physical abuse (e.g, hitting, beating, kicking, shaking); (2) sexual abuse (e.g., molestation or rape); (3) psychological abuse (e.g., threatening, belittling, or frightening); and, (4) neglect (e.g., failure to supervise or provide basic physical, developmental, or educational needs) (Black, Heyman, & Slep, 2001a; Black, Heyman, & Slep, 2001b; Black, Slep, & Heyman, 2001; Cyr, Michel, & Dumais, 2013; Leeb, Paulozzi, Melanson, Simon, & Arias, 2008).

In the United States in 2014, 3.2 million referrals were made to child protective services, from which 2.2 million reports were further investigated and of which 702,000 children were determined to be victims of CM (DHHS, 2016). It is likely this number of victims is an underestimate due to a high number of cases never reported to child protective services (Stoltenborgh, Bakermans-Kranenburg, Alink, & Ijzendoorn, 2015). Though still high, rates of maltreatment have declined over the past three decades (1990 – 2013). Finkelhor, Saito, and Jones (2015) documented a 55% and 64% decline in physical and sexual abuse, respectively. These decreasing rates complement the documented declines in 27 forms of violence and victimization between 2003 and 2011 in children and youth 2 to 18 years old identified by Finkelhor, Shattuck, Turner, and Hamby (2014). There is likely no one explanation for the declines, but Lutzker, Guastaferro, and Whitaker (2014) suggest the decline may be a combination of: increased

public awareness; advocacy, legal and policy efforts; and the increased penetration of evidence-based programs. Despite declines in physical and sexual abuse of over 50% from 1990 - 2013, the rate of neglect only declined 13% in the same time period (Finkelhor, Saito, & Jones, 2015). Neglect is the most common form of maltreatment; 75% of the CM experienced by the 702,000 victims in 2014 was attributed to neglect (DHHS, 2016).

Even one case of maltreatment is one too many and, as the 2014 data indicate, it is evident that there is more prevention work to be done. An area in need of further research is the complex relationship between the presence, or absence, of risk factors prior to child welfare involvement and the relationship of those risk factors to subsequent child welfare involvement.

CM as a Public Health Issue

The Centers for Disease Control and Prevention have applied a public health framework to the problem of child maltreatment by supporting research to better understand the etiology and the sequelae of the different types of maltreatment, as well as by encouraging the development and evaluation of intervention and prevention efforts (Whitaker, Lutzker, & Shelley, 2005). The scope of the problem as well as the multiple levels affected by instances of maltreatment have solidified CM as a public health concern and priority.

Victims may experience short-term injury or trauma as a result of maltreatment as well as long-term negative health, social, and economic consequences (Fang, Brown, Florence, & Mercy, 2012). The landmark Adverse Childhood Experiences study retrospectively surveyed 13,494 U.S. middle-aged adults and found that half of the

sample had experienced at least one adverse event in childhood (Anda, Dong, Brown, Felitti, Giles, Perry, Valerie, & Dube, 2009; Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards, Koss, & Marks, 1998). Those who reported experiencing multiple adverse childhood experiences were likely to have poor health outcomes including: risky sexual behavior, poor mental health, increased criminal behavior, and chronic health problems. There is a well-established association between the experience of child maltreatment and negative educational, social behavioral, and developmental (psychological and physical) outcomes in later life (Gilbert, Widom, Browne, Fergusson, Webb, & Janson, 2009) and many have hypothesized that the impact is partly biologic. For example, Widom and colleagues (2015) suggest that child maltreatment is a predictor for an increased allostatic load, an indicator of stress-induced biological effects, with negative effects found over 30 years after maltreatment. Thus, exposure to maltreatment in childhood directly reduces health-related quality of life in subsequent years (Prosser & Corso, 2007).

There is a social cost to CM as well. In the U.S., the average lifetime cost per victim of nonfatal maltreatment is estimated to exceed $210,012; this is estimated to include $32,648 in childhood healthcare expenses, $10,530 in adult medical costs, $144,360 in productivity losses, $7,728 in child welfare service costs, $6,747 in criminal justice costs, and just under $8,000 in special education costs (Fang, Brown, Florence, & Mercy, 2012). The estimated lifetime cost per fatal case of CM exceeds $1.2 million. Together, Fang and colleagues (2012) estimate the lifetime economic burden of fatal and nonfatal CM exceeds $124 billion (Fang, Brown, Florence, & Mercy, 2012).

Risk for CM

There is no single cause of maltreatment (MacKenzie, Kotch, & Lee, 2011). Risk factors for CM are conceptualized at child, parent, and societal levels and are specific to type of maltreatment. Using meta-analytic methods, Stith and colleagues (2009) found large effect sizes between physical abuse and parent anger/hyper-reactivity, family conflict, and family cohesion whereas related to neglect, large effect sizes were noted in the presence of five different risk factors (parent-child relationship, parent perceives child as a problem, parental stress level, parent anger/hyper-reactivity, and parental self-esteem). Risk factors may be difficult to assess and measure accurately and reliably, especially in relation to the high number of cases investigated annually. As a result, parental demographic characteristics (e.g., level of educational attainment, low level of income, family structure, size, and stability, etc.) are commonly used as proxy measures of risk. However, the mere presence of demographic characteristics does not necessarily correlate to an experience of CM (Dubowitz, Kim, Black, Weisbart, Semiatin, & Magder, 2011).

Informed by social-ecological theory, there is a growing movement that conceptualizes risk as a complex interaction of underlying risk factors such as mental health, substance use, and domestic violence (MacKenzie, Kotch, & Lee, 2011; Barth, 2009). Parental substance use is strongly associated with neglect, and in fact is the strongest predictor for neglect compared to depression, social isolation, and other adverse events (Choi, 2012; Ondersma, 2002). Parental substance use interferes with responsibilities of parenting or caregiving and thus qualifying their children as high-risk for maltreatment, specifically neglect (Dube, Anda, Felittli, Croft, Edwards & Giles, 2001; Choi, 2012). An estimated 50-80% of parents involved in child welfare have a

substance use disorder (SUD; Marsh, Smith & Bruni, 2011). Yet, parental substance use is often under-identified in the child welfare system due to a lack of training and education in substance use and addiction among caseworkers and no use of a consistent and reliable assessment tool (Chuang et al., 2013). If the child welfare system is unable to adequately identify and address parental substance use, the strongest risk factor for the most common form of CM, then perhaps further research and identification of possible alternative points of intervention merit consideration.

Statement of Purpose

The purpose of this three-manuscript dissertation was to examine evidence-based CM prevention through the empirical examination of risk and novel prevention efforts. The first paper is a chapter (Guastaferro & Lutzker, in press) included in the forthcoming volume, *Parenting and Family Processes in Child Maltreatment and Intervention* (Teti, in press). The chapter, *Getting the Most Juice for the Squeeze: Where SafeCare and Other Evidence-based Programs Need to Evolve to Better Protect Children,* describes the increasing use of evidence-based practices (EBP) in the prevention of CM with a focus on the home-based parent support approach. The importance of implementation and scale-up are reviewed with an applied example from SafeCare, an EBP that has shown effectiveness with parents referred for neglect by child protective services (CPS) agencies. The chapter concludes with recommendations about the direction the field of CM prevention should embark to provide the best evidence-based practices for families at-risk and adds to the conversation about implementation issues of EBP in the child welfare population.

The second paper, *Drug Court as a Potential Point of Intervention to Impact the Well-being of Children and Families of Substance-Using Parents,* explores parental substance use as a risk factor for CM. It is estimated that up to 80% of parents involved in child welfare have a SUD (Testa & Smith, 2009). Substance use directly affects parents' abilities to meet caregiving responsibilities; substance-using parents are typically unable to provide adequate shelter or economic stability, and have poor mental health and poor parenting skills (Grella, Hser, & Hyang, 2006; Barth, Gibbons, & Guo, 2006; York et al., 2012). In the child welfare system, parental substance use is widely under-identified and, thus, there is a need for alternative intervention points such as the criminal justice system in which families' needs are often overlooked. This paper examined the risk and protective factors for maltreatment among criminal justice-involved, substance use affected caregivers and their families. Using baseline demographic and risk data, this paper described the potential need for family services (e.g., parenting and trauma therapy) in an adult drug court setting and discusses implementation considerations in this setting and with this population. This paper highlights the potential for cross-discipline collaboration as recommended by Paper 1.

The third paper, *An Examination of Risk Profiles among Mothers Involved with Child Protective Services* continues the empirical examination of risk for CM by exploring the contemporary conceptualization of risk as a confluence of underlying characteristics (e.g., substance use, domestic violence, and mental health). This paper characterized risk profiles via latent class analysis (LCA) among women reported to CPS and investigated the association between risk profile membership and subsequent report to CPS. Revealing the underlying heterogeneity in a sample of child welfare involved

families may inform intervention implementation. Thus, this Paper 3 is linked with suggestion of the need for tailored intervention efforts in Paper 1.

Chapter 2: Dissertation Papers

Paper 1

Getting the Most Juice for the Squeeze: Where SafeCare® and Other Evidence-based Programs Need to Evolve to Better Protect Children

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Abstract

Evidence-based practices, particularly home-based parent-support programs, have been effective in preventing child maltreatment. Given the high rate of maltreatment, in particular the relative lack of decline in neglect, the question is what more can evidence-based practices do to maximize effectiveness and responsiveness in the prevention of maltreatment? This chapter describes the movement towards increasing use of evidence-based practices and discusses the challenges for agencies in selecting an appropriate model for the population they serve. SafeCare® is used as an applied example and the content, effectiveness, dissemination, and implementation are highlighted. The chapter reviews challenges in dissemination and implementation of evidence-based practices in the child welfare population and provides recommendations and suggestions for improving the effectiveness and implementation processes effectively and consistently in this population.

Key words: *evidence-based practice, implementation science, SafeCare, child maltreatment, neglect*

A single case of child maltreatment is, of course, unacceptable. However, it is estimated that 1 in 8 children experience a reported instance of child maltreatment by their 18th birthday (Wildeman, Emanuel, Leventhal, Putnam-Hornstein, Waldfogel, & Lee, 2014). In 2013, in the United States there were 678,932 substantiated cases of child maltreatment (U.S. Department of Health and Human Services [DHHS], 2015). That said, there is what can surely be considered good news when taken in context because in the 23 years from 1990 to 2012 physical abuse of children declined by 54% and the decline for sexual abuse declined 62% (Finkelhor, Jones, Shattuck, & Saito, 2013). However, during that 23-year span neglect had only a 14% decline. Beginning in the early 1990s, improvements were made to child welfare practices, policies, and program initiatives (Diaz & Petersen, 2014). However, Finkelhor and his colleagues (2014) have speculated that there is no one explanation for these declines, but rather there are likely a variety of reasons such as public awareness, advocacy, legal and policy efforts, increased penetration of evidence-based programs (EBP), and even prescription selective serotonin uptake inhibitors for many parents (Lutzker, Guastaferro, & Whitaker, 2014).

The serious problem with the smaller decline in neglect is that neglect is the mode reason for referral and substantiation for maltreatment in all U.S. states; nationally, the rate is nearly 80% percent (DHHS, 2015). It is cliché to say that neglect is the neglected type of child maltreatment, but it does appear to be the case. Why? It is again cliché to say that caseworkers in child protective service systems are overworked and underpaid, but that is the case. Further, understandably, the press locks onto dramatic cases of abuse and usually death of children. Thus, limited resources tend to go toward abuse cases over neglect. And, with increased penetration of evidence-based programs (EBP), service agencies and families in child maltreatment prevention, most of the behavioral parenting EBP focus on behavior management and not skill deficits

related to neglect. The less behavioral EBP have more of a focus on neglect issues, such as the conditions of the home and medical issues, but those elements are more subtlety embedded within their curricula than the SafeCare curriculum.

In this chapter we will describe the movement towards the exclusive use of EBP in the prevention of child maltreatment, focusing on home visiting approach. Then, we will describe SafeCare®, an evidence-based program that has shown effectiveness with parents referred for neglect. In doing so, we will provide a brief history of SafeCare and its widespread scale-up. Next, we will review some of the necessary elements of implementation and dissemination of evidence-based programs and some important cautions for providers seeking to choose such programs. Finally, we will suggest that there is more to be done to provide the best possible practices for families at-risk or substantiated for child maltreatment.

Evidence-based Practices

In recent years, the field of child abuse and neglect prevention has shifted toward a public health model. That is, the shift has been towards primary prevention (reducing risk before maltreatment occurs) rather than secondary prevention (reducing risk and recidivism after suspected or confirmed maltreatment) (Klevens & Whitaker, 2007). In addition, funds from the Federal Maternal Infant and Early Childhood Home Visiting (MIECHV) program, administered out of the Health Resources and Services Administration (HRSA), is largely allocated through state health departments. To ensure these primary prevention practices delivered to parents are in-line with the highest quality of evidence available, there has been a move towards the implementation and funding of strictly evidence-based practices (EBP); that is, “practices done within known parameters and with accountability to the consumers and funders of those practices” (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005, p.26). This transition follows the

recognition that social services commonly used were based out of local traditions and not necessarily based on scientific research (Chaffin & Friedrich, 2004; Self-Brown, Whitaker, Berliner, & Kolko, 2012). An EBP has undergone a number of efficacy and effectiveness trials, the most rigorous of which is the randomized controlled trial. Practices without such a rigorous body of evidence (e.g., only quasi-experimental designs) may be determined to be evidence-informed.

Though some definitions have been offered, it is difficult for funders, the public, and raters to determine exactly what constitutes an EBP in child maltreatment prevention. However, despite the ambiguities, in early 2015, MIECHV received an allocation of $386 million to continue to provide voluntary and evidence-based programs to parents of young children. This is in addition to the $1.5 billion allocated through the 2010 Affordable Care Act.

The programs supported by MICHEV were reviewed in the Home Visiting of Effectiveness (HomVEE) by contractors from Mathematica Policy Research who are guided by an interagency work group overseen by the Department of Health and Human Services. The HomVEE review process, initiated in 2009 and is ongoing, follows seven steps (Table 1) in rating EBP (Avellar, Paulsell, Sama-Miller, Del Grosso, Akers, & Kleinman, 2014).

Table 1.
HomVEE Review Procedure

1	Conduct a broad search of the literature
2	Screen publications for relevance
3	Prioritize models for review
4	Rate the quality of impact of programs that used eligible research designs
5	Assess evidence of effectiveness
6	Review implementation information
7	Address conflicts of interest

In addition to federally funded reviews of programs, there are a number of organizations that offer ratings of EBP in child welfare, such as the California Evidence-based Clearinghouse for

Child Welfare (CEBC) (www.cebc4cw.org) and Blue Prints for Healthy Youth Development (www.blueprintsprograms.com). The CEBC is the only peer-reviewed rating system and the site offers a number topic areas: Anger management, Domestic Violence, and Substance Abuse; Behavior Management including Parent Training, Core Child Welfare Services including Placement and Reunification; Engagement and Parent Partnering Programs; Mental Health; Prevention and Early Intervention; and, Support Services for Youth in the Child Welfare System. It is also more expansive than most in that it details age ranges and many other characteristics of families served by each rated program.

Policy-makers at all levels, public and private, will make increased use of rating systems to make funding or adoption decisions. But, how valid are these systems? They are at best narrowly useful. There is still the need for agencies to decide on adoptions of EBP based on their own needs, the kinds of families they serve, how well the EBP may match the organization's culture, and how good any EBP's implementation practices are. Many organizations use more than one EBP. We do not believe there is any research showing whether or not such a practice enhances, diminishes or is neutral in outcomes for families. It is largely not known on what basis programs are chosen and why some are dropped; however, it is quite possible that provider or family testimonials and consumer marketing materials are a factor in these decisions.

The push toward the exclusive use of EBPs by funders and government agencies was met initially with skepticism and resistance (Chaffin & Friedrich, 2004; Self-Brown et al., 2012). A common argument from providers centered upon their perception of the 'evidence', the effect, of the non-EBP that their agency may long have been delivering to families. For the provider it may be perceived as working, because clinicians observe differences in the families' skills, behaviors and/or attitudes, but more importantly, the practice did not exacerbate the issue or risk. Other

practitioners, whom Chaffin and Friedrich (2004) labeled as middle ground practitioners, make the choice to implement a given intervention based on their personal experience and their personal interpretation of the literature base. This approach is flawed in its subjectivity and the influence of the current social or political climate (Chaffin & Friedrich, 2004).

The scientific testing of an EBP through randomized controlled trials ensures internal validity (the researcher can evaluate that the intervention is responsible for the change in behavior) and external validity (the researcher evaluates the generalization of the intervention to the general/larger population). Together, these forms of validity create a rigorous scientific knowledge base from which providers, funders, and clients alike can have some degree of assuredness that the program they are providing, funding, or receiving will actually, and safely, make a positive change. It is not the case that only trials who have met and exceeded the criterion for scientific support should be exclusively implemented. Stated differently, a randomized trial is not the exclusive standard when it comes to an evidence base (Chaffin & Friedrich, 2004). A program that is well tested, but has not undergone a randomized controlled trial, can indeed be evidence-based or evidence-informed. At the most basic level, an EBP means that the approach is supported and validated by a mixture of research trials such as randomized trials or quasi-experimental designs (Chaffin & Friedrich, 2004).

In a time where budgets are constrained and caseworkers have extensive caseloads, but where the need is not by any means lessened, implementing an EBP is all the more critical. Without an effective intervention approach backed by rigorous scientific evaluation, there is no way to operate an efficient and effective child welfare system (Barth, Landsverk, Chamberlain, Reid, Rolls, Hurlburt, et al., 2005). Stated differently, EBP provide some assurance that the

services delivered are safe and effective and the chance of a family's repeat or prolonged involvement with child protective services is reduced (Chaffin & Friedrich, 2004).

Evidence-based Practices and Child Well-being

There are many similarities among EBP. Of the most effective ones, the similarities include: manualized or standardized to varying degrees, role-playing between home visitors and parents in varying degrees, high fidelity of implementation (though defined differently among most programs), focus on aspects of child development, delivered at appropriate developmental levels, positive parenting, delivered in-home, and some requirement of parental mastery performance criteria before the parent is taught another new skill set. Many of the EBP that focus particularly on behavior management come from very similar 'roots' in social learning, behavior therapy, cognitive therapy, and applied behavior analysis. These programs are: Trauma-Focused Cognitive Behavior Therapy (TF-CBT), Parent-Child Interaction therapy (PCIT), Cognitive Processing Therapy, Prolonged Exposure Therapy, SafeCare, Incredible Years, Parent Management Training, Cognitive Behavioral Therapy for Children with Sexual Problems, Functional Family Therapy, Dialectical Behavior Therapy, Multi-dimensional Treatment Foster Care, Multisystemic Therapy, and Triple P – Positive Parenting Program. As with other EBP, each of these programs are for parents of children from differing age groups; some are for victims, others for parents, some to prevent behavioral challenges, others particularly for trauma. Some are brief interventions, others are longer. Some are implemented within child welfare systems with parents already in the system. Some focus primarily on high-risk parents not in the child welfare system.

Other EBP tend to be longer in duration, focus more on prevention, have curricula that tend to be somewhat less structured, and are mostly focused on prevention and delivered through

a variety of systems and organizations. Some of the largest of these programs are: Nurse Family Partnership (NFP), Home Instruction for Parents of Preschool Youngsters (HIPPY), Parents as Teachers, and Early Head Start. The similarities and differences among EBP scope and implementation makes collaborative work across EBP a challenge.

Home Visiting

In the field of child abuse and neglect prevention, home visitation is one of the leading approaches used by numerous EBP. Home visiting is an umbrella term for a method of delivery of child welfare services. As early as 1993, the value of home visiting was recognized nationally: "no other single intervention has the promise for preventing child abuse that home visitation has" (US Advisory Board on Child Abuse and Neglect, as quoted by Chaffin, Bonner, & Hill, 2001). The needs of at-risk families with young children are addressed in home visiting programs because of the removal of accessibility barriers (Peacock, Konrad, Watson, Nickel, & Muhajarine, 2013). Delivery of the intervention in-home eliminates the need for parents to arrange transportation, child care, or time off work (Sweet & Appelbaum, 2004; Peacock et al., 2013), but also increases the potential for skill generalization, personalized sessions, retention in the program, and reduced rates of recidivism (MacMillan, Thomas, Jamieson, Walsh, Boyle, Shannon & Gafni, 2005). Delivery in the individual home allows for personalized and tailored approaches (Peacock, Konrad, Watson, Nickel, & Muhajarine, 2013). The literature also suggests that delivering services in the home may be more cost-effective to child welfare agencies over time (Barth et al., 2005).

Generally, providers focus on teaching the parent to interact with the child rather than interacting with the child directly. Barth and colleagues (2005) explain four core components of parent training: assessment, teaching new skills, practicing the skills, and feedback. These

components are aligned with social learning theory and are considered the gold standard (Sanders, Kirby, Tellegen, & Day, 2014). The focus of assessment and training is on the parent directly (Sweet & Appelbaum, 2004); if the parent improves observable skills it inherently benefits the child, there is no need to train the child. Home visiting programs vary on the type of families served, the duration and frequency of sessions, qualifications of the providers, ages of children in the home, and the types of behaviors targeted (Sweet & Applebaum, 2004). Kaminski and colleagues (2008) used meta-analytic techniques to determine program components consistent with large effect sizes in parent-training programs. These were: increasing communication and positive parent-child interaction, teaching parents the importance of consistency and requiring the parent to practice skills with the child directly during training sessions. That is not to say, however, that EBP not using these components are not capable of producing positive outcomes. Continued effectiveness trials, that is research conducted in applied settings, are essential.

A review of home visiting EBP, writ large, is challenging given the extensive implementation variations discussed above, but also with regard to the diverse populations comprising the evaluations (Lundahl, Risser, & Lovejoy, 2006). However, as a whole it is the case that home visiting is an effective strategy for helping parents and children (Diaz & Petersen, 2014; Peacock et al., 2013; Selph, Bougatsos, Blazina, & Nelson, 2013; Sweet & Appelbaum, 2004). The change in parental attitudes and behavior that occurs in home visiting parent training models benefits the children (Sweet & Appelbaum, 2004). However, the more general effect of home visiting is often most apparent in the follow-up; that is, families who receive models using a home visiting approach have lower recidivism rates (Selph et al., 2013). In a systematic review of paraprofessional home visiting programs, Peacock and colleagues (2013) found that among

high-risk families, effectiveness of the home visiting program is greatest when the intervention is delivered in high dosage, mothers are approached prenatally, and the program focuses on a single issue rather than remedying multiple problems. The extant literature also suggests the benefit of primary prevention; that is, home visiting prevention programs delivered to at-risk families not involved with child protective services (MacMillan et al., 2005; Chaffin, Bonner & Hill, 2001).

We know that home visiting parenting programs are effective in improving family outcomes; for example, home visiting recipient mothers were more likely to go back to school or seek some form of education than comparison groups (Sweet & Applebaum, 2004). However, less is known about how these programs are viewed at the parent level. Kane, Wood, and Barlow (2007) conducted a systematic review of qualitative research with the intent to examine the parents' experience and perceptions of parenting programs. They reported that prior to intervention, parents described feelings of powerlessness and a lack of knowledge related to child behavior, but the intervention aided in the acquisition of skills and knowledge, feelings of support, and ability to cope (Kane, Wood, & Barlow, 2007).

SafeCare is but one of a relative multitude of evidence-based practices used in the prevention of child maltreatment. However, SafeCare is unique in its focus and effect on neglect specifically, the most pervasive form of maltreatment reported in the U.S. today.

SafeCare®

SafeCare is designed for parents at-risk for maltreatment and who have at least one child between birth and five-years old. It is used as a primary prevention tool for families who are at-risk for maltreatment, but is also used as secondary or tertiary prevention in families already involved in the social service system. The curriculum is delivered by a variety of agencies and organizations including, but not limited to: child protective services, universities, community-

based organizations, and prevention agencies (Guastaferro, Lutzker, Graham, Shanley, & Whitaker, 2012). Refined over several iterations since its inception in 1979 and validated three times by content experts, SafeCare trains parents in three core skill areas: parent-child/parent-infant interaction, home safety, and child health (Lutzker & Chaffin, 2012; Guastaferro et al., 2012). The three modules are delivered in situ (that is, in the home) where it is believed generalization is most likely to occur over the course of approximately 18 session of 60-90 minutes.

Program Content

The parent-child/parent-infant interaction modules are determined by child age: parents of infants who are not yet ambulatory and who do not respond to simple verbal commands (usually under 12-months old) receive the parent-infant interaction (PII) module whereas parents of toddlers and children up to age five receive the parent-child interaction (PCI) module. As a child's needs and behaviors vary by these age distinctions, the goals of the interaction modules also vary. The PII module focuses on increasing positive, affective expressions from parent to infant and to improve the child's attachment to the parent. Skills focus on what is called the *LoTTS of Bonding Behaviors* which emphasize the importance of looking, talking, touching and smiling in every daily or play activity while holding, rocking, and imitating should occur only when the activity allows. In contrast, the PCI module, delivered to parents with ambulatory children, trains parents in Planned Activity Training (Biglow & Lutzker, 2000) as a method for preventing challenging behaviors. For example, if children are told bath time will start in five minutes, they will be more prepared for the change in activity and, thus, the potential for challenging behaviors (e.g., temper tantrum) are minimized. Both PII and PCI modules review developmental milestones and provide suggestions for age appropriate play activities.

Home safety has seldom been incorporated into child abuse and neglect home visiting programs in a structured manner. The physical home environment can be an indicator of neglect, but can also pose threats to a child's safety and health. The SafeCare home safety module addresses the physical environment of the home, including hazards and filth. The module teaches the parent to identify and remove 10 categories of hazards from the home: poisons, choking, suffocation, drowning, fire/electrical, fall/activity restriction, sharp objects, firearms, crush, and organic/allergen (Guastaferro et al., 2012). Home visitors meticulously conduct observations with the parent in three rooms in the home, including opening closets and drawers, to make the environment as safe as possible for the child(ren) by making hazards inaccessible or unreachable. Parents must consent to the process and though it may on the surface seem invasive, after completing the module parents, and home visitors alike, express enthusiasm for what the module teaches them.

The child health module was developed to answer young parent's questions and needs related to their children's health (Delgado & Lutzker, 1988), addressing the potential for medical neglect in families at-risk for maltreatment. The module teaches parents how to assess symptoms, the severity of illness, and where to seek appropriate care (Guastaferro et al., 2012). Through a step-by-step approach, parents are trained to use health reference materials when identifying symptoms and to use a checklist in determining whether to care for the child at home, make a medical appointment, or to go to an emergency department. The need for this kind of training is evident: in a national survey of emergency departments in 2011, there were 87.3 visits per 100 persons per year for children under one year and 60.5 visits per 100 persons per year for children one to four (Centers for Disease Control and Prevention, 2011). In addition, the child health module briefly covers topics of shaken baby syndrome, car seat safety, and nutrition.

Each SafeCare module over the years has been validated three times by content experts. The parent-infant/parent-child interaction modules have been validated by experts in early childhood education, child development and child behavior management. The safety module was initially validated by safety experts and subsequently by child protective service caseworkers who rated photos of the physical home environment as acceptable or not. The health module was validated by family practice and pediatric residents.

Effectiveness & Program Outcomes

Throughout the history of SafeCare, the modules have been individually and collectively studied. As the curriculum is rooted in the principles of applied behavior analysis, a number of single-case design studies have been conducted to examine specific behavior change with families in each module. Studies have been described in detail elsewhere (see Guastaferro et al., 2012), however, Table 2 provides references for studies of each module (full citations provided in reference section).

A prior version of SafeCare, called Project 12-Ways, included modules such as marital counseling and budgeting in addition to training in parenting, home safety, and child health. These modules were also tested with a number of single-case research designs and evaluations as depicted in Table 2. These designs of these studies demonstrated the internal validity of the intervention; that is, the data indicated that observed changes in behavior were caused by intervention as opposed to external factors. However, in the dissemination and scale-up of SafeCare, these modules were dropped from the curriculum as we will discuss below.

The single-case design studies for the PCI and PII modules have tested the efficacy of those curricula in teaching the skills to at-risk parents (Lutzker, Megson, Webb, & Dachman, 1985; Lutzker, Lutzker, Braunling-McMorrow, & Eddleman, 1987; Guastaferro, Lutzker,

Jabaley, Shanley, Crimmins, 2013). More recent studies have tested the program with different populations: Morales and colleagues (2015), tested the PII module delivered in Spanish to Latino mothers who had experienced domestic violence. Gaskin and colleagues (2012), evaluated the enhancement of a digital picture frame in the PII module to teach the skills to a mother with intellectual and developmental disabilities by utilizing the principle of self-modeling, whereby the mother was staged and photographed correctly performing behaviors and the photographs were subsequently used in practice of those behaviors and to promote behavior change (Dowrick, 1999 & 2012).

Table 2.
Single-Case Design Studies conducted throughout the development of SafeCare

PCI	PII	Home Safety	Child Health	Additional Interventions
Dachman et al., 1984	Lutzker et al., 1987	Tertinger et al., 1984	Delgado & Lutzker, 1988	Rosenfeld-Schlicter et al., 1983
Lutzker et al., 1985	Gaskin et al., 2012	Barone, Greene, & Lutzker, 1986	Cordon et al., 1998	Campbell et al., 1983
McGimsey, Lutzker, & Greene, 1994	Morales et al., 2015	Watson-Perzcel et al., 1988	Bigelow & Lutzker, 2000	Sarber et al., 1983
McGimsey, Greene, & Lutzker, 1995		Cordon et al., 1998	Strong et al., 2014	Lutzker, Campbell, & Watson-Perczel, 1984
Bigelow & Lutzker, 1998		Mandel, Bigelow & Lutzker, 1998		Stilwell, Lutzker & Greene, 1988
Cordon et al., 1998		Metchikian et al., 1999		
Guastaferro et al., 2013		Jabaley et al., 2011		

Similarly, the designs for home safety started with the practicality of teaching skills to parents (Tertinger, Greene, & Lutzker, 1984) and subsequently tested with technological enhancements. Barone, Greene, and Lutzker (1986) included an audio-slide show package to

illustrate how to remove hazards. Mandel, Bigelow, and Lutzker (1998) similarly used a video component. Jabaley and colleagues (2011) introduced an iPhone™ to evaluate whether face-to-face time of the home visitor in the home could be reduced. Parents were taught to video record rooms and send the videos to the home visitor who would then count the number of hazards in the home and provide feedback without being in the home. Among the three families enrolled, hazards in their homes were reduced in three rooms by 74, 93, and 97 percent, respectively.

Fewer single-case design studies have been conducted with the health module. Delgado and Lutzker (1988) demonstrated that parents were able to follow outlined steps for determining how to best care for their child based on symptoms. Bigelow and Lutzker (2000) streamlined the delivery of the health module, such that only steps that were performed incorrectly, compared to all steps in the 1988 study, were modeled and role-played during training sessions. Collectively, these two studies demonstrated written materials alone did not improve successful demonstration of trained behaviors, but with practice and feedback, the number of correct behaviors observed was 100 percent. Strong and colleagues (2014) examined the health module with mothers in a residential home for substance use treatment. Mothers excelled in identifying when to take the child to the emergency room, though mastering the skills to identify when the child could be cared for at home or when a medical professional should be called necessitated additional training. Given the inclination for this population to take their children to the emergency room for all medical needs, this finding is actually not that surprising and emphasizes the importance of training parents to identify symptoms and decide the best course of treatment for their sick or injured children.

The SafeCare curriculum was translated and provided in Spanish. Cordon, Lutzker, Bigelow, and Doctor (1998) evaluated the Spanish protocols for the parent-infant interaction,

child health, and home safety with one Latina mother. In multiple-baseline studies of the individual modules, the Latina mother's data mirrored prior studies: behaviors improved from preintervention to postintervention and the improvement was maintained over time. The mother highly rated all aspects of the social validation: content and outcome of the training, the usefulness of the training strategies, and the counselor (Cordon, Lutzker, Bigelow, & Doctor, 1998). Delivery of the parent-infant interaction in Spanish was evaluated by Morales and colleagues (2015) and produced similar high ratings.

In addition to the single-case design studies, several larger scale quasi-experimental studies helped establish the evidence base of the effectiveness of SafeCare. A comparison of recidivism in families who received SafeCare to families in standard family preservation services (comparison) revealed that SafeCare families had statistically significant lower reports of maltreatment than the comparison group (Gershater-Molko, Lutzker, & Wesch, 2002). At 36-months postinervention, 85 percent of the SafeCare families had no child maltreatment reports compared to only 54 percent of the comparison families (Wilcoxon= 11.41, $p < .001$). SafeCare was more successful in preventing repeat reports of child maltreatment in this sample and the dissemination of the model ensued. In the statewide randomized trial of nearly 2,200 families comparing SafeCare to enhanced services as usual in Oklahoma, Chaffin and colleagues (2012) found a decrease in re-reports by 26% for families who received the SafeCare curriculum specifically compared to families who received home-based services as usual over 7 years postintervention. It is believed that this represents the largest-ever study with the longest follow-up with families substantiated for child maltreatment.

The National SafeCare Training and Research Center and colleagues external to NSTRC, as a result of the trials discussed above, have focused research on understanding the elements of

the program from which participants' success can be attributed. In an investigation of cultural competency, client satisfaction and engagement, families who received the SafeCare curriculum completed more treatment goals and had higher ratings on cultural competence and satisfaction than services as usual (Damashek, Bard, & Hecht, 2012). A subanalysis of the Oklahoma trial examined the utility of SafeCare among an American Indian subpopulation (Chaffin, Bard, Bigfoot, & Maher, 2012). Recidivism reduction among this subpopulation mirrored what was observed in the overall population; that is, American Indian families who received SafeCare were less likely to have repeat encounters with child protective services. Additionally, SafeCare had higher consumer ratings and cultural sensitivity ratings among the American Indian population than home based services as usual.

Program Implementation

Program implementation, by definition, requires a set of activities to put a program into practice (Fixsen et al., 2005). In 2008, funding from the Doris Duke Charitable Foundation established the National SafeCare Training and Research Center (NSTRC) housed within the Center for Healthy Development in the School of Public Health at Georgia State University. The NSTRC is the hub of SafeCare implementation, as the purpose of the center is to train home visitors, coaches, and trainers to deliver SafeCare nationally and internationally in addition to conducting and supporting research on implementation efforts. Presently, there are implementation efforts in 23 U.S. states, 6 of which are statewide rollouts, and SafeCare is delivered in 6 other countries across several sites (Belarus, United Kingdom, Spain, Australia, Israel, and Canada). Research trials within NSTRC and external to NSTRC are ongoing.

The SafeCare curriculum embodies a train-the-trainer paradigm; NSTRC trains agencies to deliver and sustain SafeCare overtime. Three levels of training are provided by NSTRC: home

visitor, coach, and trainer. Training specialists from NSTRC travel to agencies and train providers to be home visitors. Training of the providers follows the same paradigm as training the parents: explain, model, practice, and feedback. Home Visitor training occurs over the course of four days, one module per day, in addition to an overview of effective communication strategies and structured problem-solving. At the end of each module, trainees complete a content quiz on which they must achieve a minimum of 80 percent. Additionally, the trainees engage in role-modeling sessions which are evaluated by their trainers. The training process continues in early intervention through intensive coaching, or fidelity monitoring. The Home visitor audio records a predetermined number of sessions which are reviewed by the NSTRC training specialist. Once fidelity is achieved in addition to the criteria satisfied during training, the home visitor is certified by NSTRC. The level of coaching is reduced as the home visitor continues to implement SafeCare.

At an organization or agency, one home visitor (or more depending on size) is identified or selected to serve as the coach for their organization. NSTRC training specialists provide an additional day of training for coaches who are then supported as they begin to coach home visitors at their sites. In this arrangement, the NSTRC training specialist is actively monitoring both the home visitor and the coach. With time, the level of coaching provided to the coach is reduced as well. The final level of the train-the-trainer model is the training of trainers. A coach and a trainer may, but are not always, one in the same person. As with other levels, an NSTRC training specialist provides extra training and closely monitors fidelity through observation. Once certified as a trainer, this individual has the capacity to accommodate staff turnover at sites, but also is used by NSTRC to extend the model's reach. This multi-tiered approach to training adds to the strength of the SafeCare approach in implementation, dissemination, and sustainability.

Dissemination and Implementation of EBP

The dissemination of an intervention is more than creating a training manual or providers attending a workshop (Chaffin & Friedrich, 2004); the goal of any implementation effort is to have providers use and deliver the program effectively (Fixsen, Blasé, Naoom, & Wallace, 2009). Implementation science is in its relative infancy in the field of child maltreatment prevention (Self-Brown et al., 2012). Much of it actually imitates what the business world has done. In a singular source, we find the monograph, *Implementation research: A synthesis of the literature* (Fixsen et al., 2005) disseminated by the National Implementation Research Network (NIRN) to be a helpful and reliable tool that serves as a veritable manual for planning and conducting implementations. The NIRN identify six stages critical to the implementation process: (1) exploration/adoption, (2) program installation, (3) initial implementation, (4) full operation, (5) innovation, and (6) sustainability (Fixsen et al., 2005 & 2009; Self-Brown et al., 2012). A special issue of *Child Maltreatment* in 2012 dedicated to research on implementing evidence-based practices in the prevention of child maltreatment framed research efforts in each of the NIRN implementation phases (Self-Brown et al., 2012); though, as is true in the larger literature base, the majority of research is conducted in the initial implementation phase.

NIRN suggests, in addition, seven core implementation elements, also called implementation drivers, which guide the high-fidelity delivery of any intervention (Fixsen et al., 2005 & 2009): recruitment and selection of staff, preservice training, consultation/coaching, staff performance evaluation, decision support/data systems, facilitative administrative support, and large-scale systems intervention. These elements have a cyclical relationship and one driver leads to the next.

Selecting the appropriate staff to deliver the intervention requires a consideration of what provider educational level or background is needed. Fixsen and colleagues (2009) note that the move toward EBP has raised concerns about the availability of a suitable workforce in the event a more advanced education background (inherently more expensive) is required for the delivery of the EBP. Providing preservice training to providers may mediate any discrepancies with past experience or knowledge deficits and, most importantly, provides the opportunity for practice and feedback of newly taught skills. Continued coaching and consultation allows for oversight and monitoring of the providers' implementation skills. It is acknowledged in this phase that training provides basic skills, but the real learning of how to utilize those skills occurs in the field. Related, frequent staff performance assessment provides the opportunity to enhance coaching and provides feedback to the purveyors regarding the implementation process. The provider assessment also directly impacts the benefit to the recipients of a program. Data from every phase of implementation drive decision-making that improve overall implementation. To be effective, an intervention must build in the infrastructure and respond to the data, a process completed in facilitative administration. Collectively, these elements drive systems intervention and, in so doing, provide for the funding, infrastructure support, and resources to support the intervention with external support (e.g., stakeholders, funding, or policies).

There are endless nuances involved in implementation. An EBP may be broadly implemented, but each new agency is organized differently and thus may require minor adaptations by the purveyors in implementing the program. There are regional subcultures in the U.S. as well as other countries. For these, too, adaptations may be needed. International implementations require considerable attention. Oscar Wilde is purported to have said, speaking of English-speaking countries across the world, "we are separated by a common language."

Lutzker experienced this during a speaking tour in Australia when he more than once used American idioms that had very embarrassingly different meanings in Australia! The SafeCare implementation in the United Kingdom required a number of word changes in the curriculum, such as replacing the word diapers with nappies. Many writers and researchers find that there a words and idioms that do not translate well from one language to another. Even some well-respected standardized assessments have items that create an entirely different meaning or contexts when translated.

Barriers to Implementation and Dissemination of EBP

Any EBP is ultimately only as good as its ability to be embraced by providers and families and to be delivered effectively with fidelity to large numbers of families. An EBP that has undergone rigorous evaluation, but is not disseminated and implemented effectively begs the question as to the validity of calling it an EBP. Stated differently, children and families cannot benefit from services they do not receive. No matter the strength of the model, however, there are inherent issues in implementation and dissemination. Chaffin and Friedrich (2004) identified several key barriers in the uptake of an EBP including funding and program goals: limited awareness of EBP models, concerns about funding, lack of interest or willingness to participate in modifying practice, emphasis on program outcomes rather than participant outcomes, and the gap between research and practice.

Today, perhaps the more pressing implementation and dissemination issue for agencies who have decided to use an EBP is the decision of what EBP should be selected in the first place. Though there are an increasing number of website ratings of EBP for child welfare, there are no ratings or evaluations as to how well these EBP implement their programs. Previously, the use of EBP was limited because few providers were aware of the variety of programs that existed

(Chaffin & Friedrich, 2004). Today, a search of the prevention and early intervention topic area of the CEBC, a well-respected peer review system for child welfare programs, yields more than 40 programs from which an agency may select.

Additional implementation barriers occur on the individual provider level. Although an EBP may be effective, it requires the buy-in of the providers. That is, the attitude of providers is one of the key components in the implementation process. To assess a provider's perception of evidence-based practices, Aarons (2004) developed the Evidence-Based Practice Attitude Scale (EBPAS). The scale measures provider's attitudes towards EBP in four categories: appeal, adoption, openness, and perceived divergence of the EBP from an agency's typical intervention. Aarons (2004) demonstrated, among a sample of 322 public sector clinical service workers, that attitudes towards EBP could be assessed and used in predicting implementation successes and barriers. However, of interest, is the variation of answers observed among provider educational level, years of experience, and organization type (level of bureaucracy). The EBPAS and general attitude toward implementing an EBP, at both agency and provider levels, should be considered in the dissemination and implementation process.

SafeCare Research on Dissemination

SafeCare effectively employs the core implementation elements specified by NIRN (Fixsen et al., 2005). Through questionnaires and consultation prior to implementation, NSTRC assesses the organizational readiness and capacity of the agency to be trained. This step is crucial as it maximizes the capacity of the organization. The curriculum is designed to be delivered by a provider of any educational level; most home visitors are bachelor's level. Trainees (home visitors, coaches, and trainers) receive intensive training prior to delivering the curriculum and are coached at a high frequency immediately following training which is reduced with time. Staff

evaluation occurs at the sites where NSTRC has trained providers, however, the certification process overseen by NSTRC is a component of the evaluation. Development of an online portal for real-time data collection is well underway and will be available to providers. This will allow for a comprehensive evaluation of implementation efforts on multiple levels: trainers, providers, and families. Increasingly, SafeCare is participating in systems intervention processes with other parent-training EBPs. In particular, two current projects speak to system intervention: An ongoing cluster randomized trial is examining the effect of braiding SafeCare with Parents as Teachers on parent and child outcomes. This multi-site trial created a braided curriculum called Parents as Teachers and SafeCare at Home, or PATSCH. In addition, NSTRC was awarded a research grant to create a non-model specific engagement framework and to test with small pilot projects. Unique about this engagement research is the non-model specific nature of the research in an attempt to explore a cross-model problem: parent engagement with EBP. These examples of collaborative research have a strong implication for potential systems interventions.

Despite the presence and use of these implementation drivers, SafeCare, not unlike any home visiting program, is effected by a host of implementation barriers. As stated previously, early in dissemination the number of SafeCare modules delivered was reduced from 12 (Project 12-Ways) to 3 as an effort most effectively and efficiently disseminate the model. However, the most commonly and prolifically cited implementation barrier includes engagement, often measured by program rates of attrition and retention. A study of engagement conducted by Damashek and colleagues (2011) sought to reduce high program attrition. Families were randomized to receive services as usual or SafeCare+, a version of SafeCare which includes motivational interviewing. Families who received the SafeCare+ program were 8.5 times more likely to complete services compared to families in services as usual (Damashek, Doughty,

Ware, & Silovsky, 2011). Comparing SafeCare+ to services as usual in a strictly rural population produced similar results (Silovsky, Bard, Chaffin, Hecht, Burris, Owora, Beasley, Doughty, & Lutzker, 2011). Families enrolled in SafeCare+ remained in services for an average of 35-hours compared to only 8 hours in services as usual.

Engagement is also of concern at the provider level. Whitaker and colleagues (2012) described implementation issues in a statewide rollout of SafeCare within a child welfare system. Though the trainees in this sample successfully completed training and appeared to be enthusiastic about and engaged in the model, once in the field they conducted very few SafeCare sessions. The authors describe this as an implementation issue of "high quality, low quantity" (Whitaker, Ryan, Self-Brown, Lutzker, Shanley, Edwards, McFry, Moseley, & Hodges, 2012; p. 99). However, in comparison, in the statewide trial of SafeCare in Oklahoma (Chaffin et al., 2012), Aarons and colleagues (2012) conducted a mixed-methods evaluation of providers' fidelity and turnover rates. The 2x2 design compared four groups: SafeCare coached, SafeCare uncoached, services as usual coached, and services as usual uncoached. Providers who were coached had a higher probability of staying with an agency for more than 12 months compared to uncoached providers, with the highest observed probability in the SafeCare coached group. Additionally, there was a 2.6 times greater likelihood of staff turnover in all conditions relative to the SafeCare coached group (Aarons, Fettes, Sommerfeld, & Palinkas, 2012). Further, among a different group of providers, Aarons and colleagues (2009) concluded that providers of SafeCare had lower levels of burnout, staff turnover, and emotional exhaustion when compared to services as usual. In large part, this is attributable to the structured coaching and fidelity processes inherent to SafeCare implementation. Thus, implementation of an EBP with structured

coaching improved staff retention and satisfaction. This is an example of research and outcome that has important implications that are not specific to a given model.

Future Directions

The use of and support for EBP in the field of child maltreatment prevention will continue to grow. As with program implementation, in the widespread use of EBP purveyors and providers must respond to and reflect on the stages of implementation. That is, as a field, we must be critical of the implementation of EBP, regardless of the program, and adjust or tailor approaches to better achieve implementation goals. Fixsen, Blasé, Metz, and Van Dyke (2013) offer the following equation when contemplating the effective implementation of EBP:

$$Effective\ Interventions\ \times Effective\ Implementation = Improved\ Outcomes$$

By definition, an EBP generally has some degree of scientific evidence that supports its effectiveness, but only when it is implemented effectively using the core implementation elements, can improved outcomes be expected.

Barth and colleagues (2005) suggest that valuable program characteristics: "brevity, low cost per family, not requiring advanced degrees for trainers, applicability to families with children at home and those endeavoring to achieve reunification of their out-of-home children, and concepts that are easy to communicate" (p. 361). There is a concern that the use of EBP requires providers to have an advanced degree (Fixsen et al., 2009), thus developers must not only consider who it is that can deliver their intervention, but also if they can reduce the educational burden on providers. Using Bachelor's level providers, reduces the implementation cost. Additionally, a reexamination of the educational qualifications of providers potentially provides a larger work force body from which providers may be recruited and selected.

The implementation process is dynamic. Therefore, collectively EBP must consider innovations that can enhance the effect of the intervention. Including technological enhancements, such as an iPhone (Jabaley et al., 2011) or a digital picture frame (Gaskin et al., 2011) is but one way in which innovation should be considered. The content of the interventions, and its relationship and effect on the parent and child needs, must be considered as well. Lutzker and colleagues, in 1983, reviewed peer-reviewed and popular literature to suggest that what these sources had to offer, in fact, did not satisfy much of the concerns of parents and the needs of parent-child interactions. The authors offer a call of action to prevent complacency, a call that should be continually revisited in the implementation of EBP.

Is the juice worth the squeeze?

The prevalence of child maltreatment has steeply declined in the past 20+ years. How much of that decline can we attribute that to EBP? Clearly, some at this point as penetration of EBP has expanded. But, that said, there are a host of other explanations for why the trend has continued, discussed earlier. Will increased penetration produce a steeper decline? Only time (and funding) will tell. Even MIECHV is very limited in penetration at this point. Approximately $2 million per state does not go very far in EBP penetration, though use of child welfare funds by states has likely added to the MIECHV impact. Triple P (Positive Parenting Program; Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009) offers a universal approach that would theoretically have greater penetration, though it has not been the case in the U.S. as much as countries that otherwise have more developed universal health systems and thus a culture supporting such efforts. With the exception of the follow-up to the NFP Elmira study (Olds, Kitzman, Knudtson, Anson, Smith & Cole, 2014), we know little about the long-term impact of parenting EBP on child maltreatment, and other child development and academic/social success.

What more could EBP do to help ensure long-term success of families? And, are there resources to support the necessary adaptations to existing EBP or new ones to address these sustainability issues? Some thoughts are delineated below.

Protective Factors

The literature is clear with youth violence prevention, and to some degree dating violence prevention (Dahlberg & Simon, 2006) that engagement is a preventive factor. Youth who participate in athletics and other extracurricular activities in middle school and high school are at lower risk for perpetrating violence. Similarly, in terms of what we might call "family development," are behavior management skills for parents, along with health, safety, and other training offered by EBP sufficient to promote family development, good decision-making by parents and their children, and academic and social success? It is relatively easy to teach the skills offered by most EBP, but can enrichment be taught? And, while some enrichment can be offered across socioeconomic status such as increasing language between parents and their children and reading and storytelling, other enrichment activities such as camp, museums, attending athletic events and concerts, and so forth may be very restricted for families trapped in poverty. Even taking a walk together may be a challenge for a family living in a dangerous neighborhood. In any case, would it be possible to add to EBP curricula enrichment activities that all parents can use? Also, can we learn more about protective factors in families living in abject situations who succeed as parents with healthy successful children?

Praise

There is a 50-year-old literature showing the beneficial effects of praise on improving child behavior management. In natural environments there is an inverse relationship between age and praise (White, 1975). That is, the older the child, the less praise is offered by teachers. And,

praise carries less weight (value) the older the child. For the parent of a preschool child to say, "I like how you are using your fork to eat your potatoes," will likely serve as a reinforcer to maintain spoon use. For a parent to use that kind of descriptive praise to a 12-year-old will likely have little value as a reinforcer, thus parents need to be equipped with other more age-appropriate behavior management skills. It is of concern that over use of praise for all children may cheapen its value. Proposed here is that children may need to hear and "feel' real pride from their parents. That is, rather than hearing too often, "I am proud of you" for this skill or that, they need parents to look them in the eyes and tell them how proud they are for major accomplishments and to hear their parents "bragging on them" to friends and family members.

Language

The seminal work of Hart and Risley (1995; 2003) demonstrated the critical importance of vocabulary developed through parent-child vocalizing. The more parents talk to their children, the more words children hear the better the vocabulary and social and academic outcomes for the children. Projects such as *Providence Talks* (http://www.providencetalks.org/about/) in which parents are taught to talk more to their children by reading books may produce improved outcomes for children. Only more research will determine this. But, the adventage of programs that foster more language between parents and their children is that the talking more to children is cost-free for the parents. That said, it takes funding to support such programs, but technology and public service spots could go a long way in promoting parents' use of talking as a tool to improve child development. It might also naturally produce a generalized bonding phenomenon in that talking to children in positive ways naturally brings parents closer to them.

Beyond What EBP Offer

A perusal of popular press advice books for parents suggests that parents are interested in much more than behavior management advice regarding their children, especially in the child middle years and beyond. Parents appear to want information/advice on how to deal with sex education, drugs, dating, religious and spiritual issues, sibling relationships, and dealing with divorce or death. With the exception of some attention to some of these matters by Triple P, EBP largely ignore them despite their apparent importance to parents. Is it in the realm of extant EBP to explore curricula on these matters for parents? There is next to no evidence base for outcomes from current advice books. Are EBP better equipped to design and test materials to deal with these subjects? Is the current "juice" offered by EBP a little watery in the bigger picture?

If EBP are to remain vital sooner than later, increased collaboration will be essential. As we have noted, there are no panaceas and how could there be? For example, no one antibiotic serves all. EBP are diverse (not unlike antibiotics), serving different populations with different curricula. Can we conduct more research, such as PATSCH, that examines the braiding or blending of EBP to best serve families? Can we create algorithms that help providers determine what program is best for a given family, or let families choose? HRSA and other federal agencies are pushing for more collaboration among EBP and it is happening, though there seems to be more talk than action. If we do, our "juice" will be richer and more satisfying.

Summary

In this chapter we have documented the practicalities and pitfalls of the movement towards EBP in the field of child maltreatment prevention with a particular focus on the implementation of EBP. We identified commonalities in EBP approaches, specifically among those that utilize a home visiting approach. Using SafeCare as an example, we have described the development and dissemination of an EBP focusing in particular on the implementation

considerations as identified by NIRN. Despite the declines in rates of maltreatment, EBP must increase their penetration through effective and continuously adaptive implementation efforts.

Commonalities and differences of EBP target, content, and dissemination aside, we question whether we as a field are doing enough, getting the most juice from the squeeze. In order to continue the reduction of instances of maltreatment, EBP must engage a feedback loop from providers and clients and encourage adaptations to best meet the needs of client families. Our field is a dynamic one and only through constant monitoring of needs can we most effectively and consistently continue to see the decline in rates of maltreatment.

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Paper 2

Drug Court as a Potential Point of Intervention to Impact the Well-being of Children and Families of Substance-Using Parents

Abstract

Parental substance use is a common risk factor for child maltreatment, however, it is considerably under identified and unaddressed in the child welfare system. The criminal justice system is the largest referral source for substance use treatment and a large proportion of justice-involved individuals are parents. The criminal justice system, however, is not well equipped or informed to address the needs of families of criminal justice-involved substance-using individuals. It is possible that a coordinated effort between the child welfare and criminal justice systems focusing on substance-using parents may be an important opportunity for intervention to improve outcomes for children of substance-using parents. The purpose of this research was to describe the needs of families of adult drug court participants related to parenting and mental health services. Moderate to high scores across mental health and parenting related measures support the inclusion of family services in an adult drug court setting. The utility of self-reported parenting focused measures in an adult drug court population are discussed.

Key words: parental substance use, adult drug courts, parenting, mental health, intervention

Parental substance use is a significant public health problem, putting children at-risk for poor outcomes (Choi, 2012). Despite a high proportion of child welfare involved parents having a substance use disorder (SUD), parental substance use is under-identified and not well addressed within the child welfare system (Marsh, Smith & Bruni, 2011; Chuang, Wells, Bellettiere, & Cross, 2013). The criminal justice system is the single largest referral source for community-based substance use treatment. It is estimated up to 70% of criminal justice-involved individuals have a SUD (Caudy, Tang, Wooditch, & Taxman, 2014). According to the 2008 Treatment Episode Data Set data, more than 42% of justice-involved individuals were referred to substance use treatment (Substance Abuse and Mental Health Services Administration, 2011). Many criminal justice-involved individuals are a caregiver for a child under 18-years old; it is estimated 50% of adult drug court participants have at least one child under 18 (Caudy, Tang, Wooditch, & Taxman, 2014; Glaze & Maruschak, 2008). Adult drug courts are an effective community-based intervention in which substance use treatment is mandated and monitored by the court (Guastaferro, Lutgen, & Guastaferro, submitted). Despite success in treating SUD and reducing criminal behavior, the needs of children of criminal justice-involved individuals go unmet in adult drug court settings (Christian, 2009). Introducing interventions related to family needs could serve the criminal justice system by improving the relationships of criminal justice-involved individuals and their families; strong family ties are an important factor in maintaining sobriety (Gruber & Taylor, 2006; Codd, 2007; Mills & Codd, 2008). It is possible that the well-being of children could be addressed through the criminal justice system by introducing interventions responsive to the needs of parents and/or caregivers in addition to the substance use treatment supervised by the court. The purpose of this paper is to describe the needs of children and caregivers in the families of drug court clients.

Literature Review

An estimated 8 million children live in a home with a parent who is dependent upon alcohol or drugs (Green, Rockhill, & Furrer, 2007; Testa & Smith, 2009). Of the 702,000 children determined to be victims of child maltreatment in 2014, case files indicated 9.2% had the parental risk factor of alcohol abuse and 25% had the parental risk factor for drug abuse reported with the (DHHS, 2016). Parental substance use does not necessarily indicate maltreatment, however, it does place the child at an increased risk, especially for neglect and for entering the child welfare system (Dube, Anda, Felittli, Croft, Edwards & Giles, 2001; Choi, 2012). Compared to other risk factors for maltreatment such as depression or social isolation, parental substance use has been shown to be the strongest predictor of neglect (Ondersma, 2002).

Parental Substance Use and Child Well-being

Research estimates between 50-80% of parents involved in child welfare have a SUD (Marsh, Smith, & Bruni, 2011). Parental substance use is associated with parents' inability to provide adequate shelter, poor economic stability, a lower probability of reunification, high levels of mental illness, and poor parenting skills (Grella, Hser, & Hyang, 2006; Barth, Gibbons, & Guo, 2006; York et al., 2012). As a result, compared to children of non-substance using parents, children of substance using parents are likely to experience negative physical, social, educational, and behavioral outcomes (Bountress & Chassin, 2015).

Despite the relatively high prevalence of parental substance use, it is often under-identified in the child welfare system due to lack of caseworker education and experience with SUD, and because there are often not standardized assessment protocols delivered (Chuang et al., 2013). The percentage of 2014 victims of maltreatment with parental risk factors for substance use are well below the research estimates indicative of the magnitude of the problem of under

identification in the child welfare system. Meeting the complex needs of parents with SUD and their children within the available resources of the child welfare system presents challenges. These parents are likely to have co-occurring mental health problems and high rates of trauma exposure which complicate involvement in child welfare or substance use treatment interventions (Cannavo & Nochanjski, 2011). Further, fewer than half of the parents in the child welfare system with substance use problems enter and complete necessary substance use treatment (Lee, Esake, & Greene, 2009). Access and availability of treatment is not sufficient; individual motivation is also necessary (Guastaferro, Lutgen, & Guastaferro, submitted). Parental SUD is a public health problem can only be partly addressed through traditional referral sources such as the child welfare system, therefore, the consideration of alternative points of intervention is warranted. One potential point of intervention is the criminal justice system, and adult drug courts in particular, which have strong mandates and consequences for participation.

Criminal Justice System and Substance Use

Adult drug courts represent a community-based intervention for nonviolent individuals with SUD. The program includes court-mandated and monitored substance use treatment involving regular court hearings, intensive judicial monitoring, drug screenings, and sanctions and rewards depending on program compliance (Guastaferro, Lutgen, & Guastaferro, submitted). Participation in adult drug court programs typically occurs post-adjudication; those who successfully complete the program can avoid criminal prosecution and jail time for criminal behavior related to substance use (Guastaferro et al., submitted; Marlowe, 2011; Brown, 1997). Research indicates that adult drug courts are effective (Guastaferro et al., submitted). Using meta-analytic methods, among 92 evaluations of adult drug courts, Mitchell and colleagues (2012) documented a drop in recidivism from 38% to 50% and effects lasted approximately 3

years postcompletion compared to non-participants of drug court programs. Other evaluations have shown as much as a 20% reduction in recidivism in adult drug court participants compared to a control group who did not receive court-mandated and monitored substance use treatment (Rempel, Green, & Kralstein, 2012; Wilson, Mitchell, & MacKenzie, 2006).

In adult drug courts (and the criminal justice system generally) the needs of the families of criminal justice-involved individuals are not a focus (Christian, 2009)[1]. Yet, data suggest that in the adult drug court population alone, 50% have children under 18-years old and 20% are primary caregivers (Rossman, Roman, Zweig, Rempel, & Lindquist, 2011). Parents enrolled in a drug court program are disproportionately more likely to have mental health problems and to have experienced physical and sexual abuse in their lifetime compared to parents uninvolved in the justice system (Turanovic, Rodriguez, & Pratt, 2012). Adult drug court treatment typically focuses on substance use behavior with minimal attention paid to psychosocial outcomes (e.g., mental health or interpersonal/family relationships) and few evaluations have studied how drug courts impact families, how families impact individual's treatment success in drug courts; this is despite a documented link between substance use and family dysfunction (Green & Rempel, 2012).

Parental Substance Use, Child Well-being, & Adult Drug Courts

Given the large number of caregivers in adult drug courts with SUD and the lack of concern for their families, there is an opportunity for collaborative work across systems to address parental substance use and improve outcomes for the children and families of adult drug court participants. Little is known about the families of adult drug court-involved parents. The

[1] Family Treatment Courts or Family Drug Courts are artifacts of child welfare system where the focus is on the welfare of children and families. This paper focuses on the Criminal Justice System, specifically adult drug courts, and as such discussion of Family Treatment Courts is outside the scope of the current paper.

adult drug court setting presents an opportunity to provide intervention and support for children and families of parents with SUD with the goal of improving family and child outcomes.

The criminal justice system has been successfully used as a point of intervention for other behavioral and health related outcomes in addition to substance use treatment. Criminal justice-involved individuals are at-risk for a number of additional poor health outcomes including mental health and infectious diseases (Binswanger, Redmond, Steiner, & Hicks, 2011). Moderate effectiveness was observed in the introduction of mental health evidence-based practices and services in the criminal justice setting among adults (Wolff et al., 2013). In the juvenile courts, mental health and developmental screening is completed as close to entry as possible with the goal of rehabilitation and long-term change in behaviors (Soulier & McBride, 2016). Behavioral or medication-based mental health interventions are challenged by the co-occurrence of substance use and the varied professional qualifications of providers (Wolff et al., 2013). Among juvenile populations the effect estimates are impacted by developmental trajectories and inadequate time to observe long-term behavior change (Soulier & McBride, 2016). Mental health is another outcome addressed through diversion courts, such as the drug court, in both adult and juvenile populations. HIV is one of the most common infectious diseases among criminal justice populations. In a systematic review of 37 psychosocial, screening, and substance substitution interventions addressing HIV risk behaviors, Underhill and colleagues (2014) reported significant effects in 11 trials reducing sexual risk-taking, in 4 reducing injection drug risk behaviors, and in 4 increasing screening rates. The benefit of introducing psychosocial, behavioral, or medical interventions into the ‘captive’ criminal justice-involved population is the leverage the judicial system has in overseeing intervention efforts with the potential to affect health disparities (Binswanger et al., 2011).

The purpose of this paper is to describe the needs of families of adult drug court-involved parents or caregivers. Using baseline data of an ongoing trial in an adult drug court, this study utilizes self-reports of a family unit (defined as (1) a client enrolled in drug court, (2) their child or a child for whom they are a caregiver, and (3) another caregiver for the child) to better understand the mental health problems and parenting issues of families involved in adult drug courts. Additionally, seldom are data collected on other caregivers or children themselves; thus, this research contributes toward improving the dearth of knowledge about family members of criminal justice-involved individuals and may inform the development of interventions to introduce family services in the adult drug court setting.

Method

Sample

Data were collected at baseline of an ongoing research study at two Metro-Atlanta felony-level adult drug courts from drug court participants' family units. A family unit consisted of up to three participants: a drug court client who was a caregiver (drug court participant), a child, and another adult caregiver of that child (other caregiver). A caregiver was defined as an adult over 18 years old who serves in a caregiving role (self-defined) for a child under 18 and included, but was not limited to: biological parents, stepparents, aunts or uncles, and grandparents. Drug court clients were eligible to participate if they were enrolled in one of two adult drug court programs and functioned as a caregiver for at least one child under 18 years old. The other caregiver was identified by the adult drug court participant at enrollment in the ongoing study and was eligible to participate if they served in a caregiving role for a child under 18-years old. To the knowledge of the research team, other caregivers were not currently enrolled in an adult drug court program. Not all drug court participants were able to identify

another caregiver, and not all other caregivers consented to participate. Children older than 8 and under 18 years old could assent to participate contingent upon parental permission. To be eligible for participation, the child did not need to be the biological child of either the drug court participant or the other caregiver, but rather the drug court client and the other caregiver had to serve a regular caregiving role. In the event of a drug court participant reported multiple children, the child closest to 8 years old was targeted for recruitment so as to make them eligible to complete the computer interview and maximize follow-up time. Not all drug court participants were able to identify and connect the research team with a child. Further, not all drug court participants had legal custody of the child; thus, permission to participate was sometimes contingent upon another caregivers' availability and willingness to consent. Data were collected from at least one member of a family unit, usually the drug court participant, but in one case data of a family unit was only comprised of data from the other caregiver. There were 40 drug court participants with a matched other caregiver (and vice versa), 27 drug court participants with a matched child, and 22 other caregivers with a matched child. There were only 22 complete family units with data from a matched drug court participant, other caregiver, and child. The present analysis did not link family units for matched comparison.

Data Collection

The Georgia State University Institutional Review Board approved all research procedures. Participants completed an audio computer-assisted self-interview overseen by a research assistant. Following participant preference, self-reported data were collected in a private treatment room at the drug court or treatment facility, at a community location (e.g., library or coffee shop), or in participants' homes. All participants were provided headphones to hear the questions read aloud as an accommodation for varying reading levels and to maximize privacy.

Children over eight years old, who assented and had parental permission, completed their own computer assessment. Research assistants were available to clarify the meaning of questions as needed. Fifteen-minute videos of the interactions between caregivers and the child were collected; however, results from those videos were not available for analysis and as such are not presented in this report.

Measures

Data are categorized into themes informed by the literature and related to outcomes of interest in the larger research study: demographics and family characteristics, parenting, adult mental health, and child mental health. All descriptive statistics were computed using SAS 9.4.

Demographics. Individual demographic information (e.g., income, educational attainment, employment status, marital status, etc.) were collected via the computer-assisted interviews for the drug court participant and target adult. Family characteristics (e.g., number of children, family structure, and custody status) were collected in the computer-assisted interview.

Substance Use. In this study, the other caregiver was asked about his/her substance use in the computer based self-interview using a modified version of the *Alcohol, Smoking, and Substance Involvement Screening Test* (ASSIST; WHO ASSIST Working Group, 2002). The ASSIST is designed to detect frequency and severity of substance use. Specific drug use was not relevant to the purposes of this exploratory research, but the frequency of tobacco, alcohol, and illicit drug use was dichotomized to indicate any substance use in the past year. The substance use of drug court participants was not asked for two reasons: (1) to be enrolled in the drug court program the participants met criterion for SUD and (2) while enrolled in the drug court program the participants are routinely screened and are assumed to not be using illicit drugs.

Parenting. Measures related to parenting were asked of drug court participants and other caregivers. The *Brief Child Abuse Potential Inventory* (BCAP; Ondersma, Chaffin, Mullins, & LeBreton, 2005) was used to assess the potential for abuse or neglect. The BCAP, a strongly validated short form of the Child Abuse Potential Inventory (r =.96), is designed to be used in clinical settings, differentiates between abusing and non-abusing parents. The 34-item subscale is comprised of several subscales: lack of happiness (3-items), feelings of persecution (3-items), loneliness (4-items), family conflict (3-items), rigidity (4-items), distress (6-items), and poverty (2-items). A lie scale (6-items) and random responding scale (3-items) were also included in the interview, but not in the calculation of total risk. Respondents endorse whether they agree or disagree with a given statement earning one point for each positive endorsement. A total score of 9 or greater is used to indicate an increased risk for maltreatment, a score of 12 indicates high-risk.

The *Alabama Parenting Questionnaire* (APQ) is a 42-item instrument assesses important parenting practices related to children's externalizing problem behaviors: parental involvement (10-items), positive parenting (6-items), poor monitoring/supervision (10-items), inconsistent discipline practices (6-items), and corporal punishment (3-items) (Shelton, Frick, & Wootton, 1996; Frick, 1991). Seven other discipline practices are also assessed (e.g., yelling, timeout), but do not load onto the other subscales. These discipline practices are summarized in this sample to capture greater detail about the parent-child relationship. The items are rated on a 5-point frequency scale (1 = never to 5=always); high scores indicate a high frequency of behavior.

The *Parent Child Communication* (PCC) scale is a 20-item measure completed by both caregivers and children. The PCC assesses respondents' perceptions of their openness to communication and communication skills. The PCC is an adaptation of the Revised Parent-

Adolescent Communication Form of the Pittsburgh Youth Study completed by the FastTrack project (Conduct Problems Prevention Research Group 1992, 2002). Factor analysis was performed and all items loaded onto a one-factor solution with factor loadings of .77 or greater. To determine PCC overall scores means for each participant who had endorsed ten or more items were computed; 61 of the 71 drug court participants, 33 of the 41 other caregivers, and all 27 children endorsed 10 or more items.

The *Protective Factors Survey* (PFS) was developed to use with caregivers receiving child maltreatment prevention services to assess protective factors within the family (Counts, Buffington, Chang-Rios, Rasmussen, & Preacher, 2010). Respondents are asked about the frequency with which they engage in behaviors grouped into four subscales: family functioning/resiliency (5-items; e.g., perceived skills and strategies to persevere in times of crisis), social emotional support (3-items; e.g., perceived informal support available from family, friends, or the community), concrete support (3-items; e.g., perceived access to goods and services designed to help families in times of stress or crisis), and nurturing and attachment (4-items; e.g., emotional tie between parent and child). Items are rated on a 7-point frequency scale (1 = never to 7 = Always).

Adult Mental Health. The *Brief Symptom Inventory* (BSI) assesses mental health on nine subscales: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism (Derogatis & Melisaratos, 1983). Three global indices are computed from the subscales: General Severity Index (GSI), Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST). The GSI calculates the overall severity based on the combination of symptoms and disruption of activities of daily life. The PST is the number of items endorsed with a positive response and the PSDI

divides the sum of item values by the PST. Raw scores were normed with the non-patient sample provided by the developer (Derogatis, 1993).

Adult participants' trauma was assessed with the *Posttraumatic Diagnostic Scale* (PDS), which provides diagnostic criteria for posttraumatic stress disorder (PTSD) and severity of PTSD symptoms in clinical and research settings (Foa, Cashman, Jaycox, & Perry, 1997). The total number of symptoms reported by adults was averaged and was used to calculate symptom severity (mild, moderate, severe, or none) as outlined by the developers.

Child Mental Health. The *Behavior Assessment System for Children* (BASC) measures adaptive and problem behaviors in children over two-years old (Reynolds & Kamphaus, 2004; Sandoval & Echandia, 1994). Delivery of the BASC assessment includes child self-reports and parent reports (age specific versions of the measure for ages 2 to 5, 6 to 11, or 12+); only the results of the parent report answered by the drug court participants are presented here. Drug court participants answered BASC questions on only one child under 18 regardless of how many children they reported. Raw scores were exported from SAS and T-scores were looked up for each participant using age specific norms from in the manual. Subscales are grouped into clinical (hyperactive, aggression, conduct problems, anxiety, depression, somatization, attention problems, atypicality, and withdrawal) and adaptive (adaptability, social skills, leadership, activities of daily living, and functional communication) categories. Subscales construct composite scales including: externalizing problems, internalizing problems, behavioral symptoms index, and adaptive skills. Scores on subscales and composite scales are presented in two ways: as averages and in categorical indicators of clinical significance. Per the BASC manual (Reynolds & Kamphaus, 2004), clinical significance is coded differently for clinical subscales (e.g., ≥70 = Clinically significant; 60-69 = At-risk; 41-59 = Average; 31-40 = Low;

and ≤30 = Very low) and adaptive scales (e.g., ≥70 = Very high; 60-69 = High; 41-59 = Average; 31-40 = At-risk; and ≤30 = Clinically Significant).

The 48-item *University of California at Los Angeles Posttraumatic Stress Disorder Reaction Index* (UCLA PTSD Reaction Index) was used to assess exposure to traumatic events and PTSD symptoms in children and adolescents who report traumatic events (Steinberg, Brymer, Decker & Pynoos, 2004). Frequencies of children's exposure to traumatic events and the likelihood of full (all diagnostic criterion met) or partial PTSD (two criterion met) were calculated according to the scoring worksheet provided by the developer.

Results

Demographics

Demographic information is presented in Table 1. Data were collected for 71 drug court participants. The majority of drug court participants were male (66%), Black (58%), not married (54%), and employed (89%). Half of the participants had attained least some college education and nearly half (48%) reported an annual household income less than $25,000. The average age was 35 years old, with a range from 19 to 53. Including the drug court participant, 59% of participants lived in a home with at least two adults.

Data were collected from 41 other caregivers (Table 1). The majority of other caregivers were female (78%), White (46%), not married (71%), employed (58%), and had an income over $25,000 (49%). The average age was approximately 34 years old, ranging from 18 to73 years old. Other caregivers included older children of the drug court participant who served in a caregiving role for a younger sibling, aunts or uncles, as well as grandparents. Including themselves in the count, 86% of the other caregivers lived in a home with at least two adults.

Data were also collected for 27 children between 8 and 18 years old. The average age was approximately 11 years old and the majority of participants were male (59%).

Table 1.
Demographic Characteristics of Adult Participants

	Drug Court Participants (N=71)		Other Caregivers (N = 41)	
	M	*Range*	*M*	*Range*
Age	35	19 – 53	34	18 – 73
	n	*%*	*n*	*%*
Gender				
Male	47	66	9	22
Female	24	34	32	78
Race				
White	29	41	19	46
Black	41	58	18	44
Other	1	1	4	10
Marital Status				
Married	33	46	12	29
Not Married	38	54	29	71
Educational Status				
< HS	14	20	6	15
HS Graduate	21	30	16	39
Some College	36	50	19	46
Employment Status				
Unemployed	8	11	17	41
< 30 hrs/ wk	21	30	5	12
+ 30 hrs/ wk	42	59	19	46
Annual Household Income				
< $25,000	34	48	17	41
$25-49,000	18	26	10	24
> $50,000	13	18	14	34
Number of Adults in Home				
1	12	17	6	15
2	27	38	27	66
3+	15	21	8	20

NOTE: Not matched comparison: 40 drug court participants have corresponding other caregiver data

Family Structure

Drug court participants were asked to describe the composition of their families given the heterogeneity of family unit composition noted at enrollment of the larger study (Table 2). The 71 drug court participants reported a total of 130 children under 18 years old; a mean of 1.8 children per drug court participant. The majority of children were between 6 and 18 years old. Drug court participants did not have custody of 42% of the children they reported. Other custody arrangements were described as: 'no legal custody, but live in home,' 'temporary custody with grandparent,' and not married to mother, engaged'. The majority of children did not live with their drug court participants 55% (71). Drug court participants reported seeing the majority (65) of children on a daily basis.

Table 2.
Family Structure Characteristics

	Drug Court Participant (N=71)	
Total # of Children < 18y	130	
	n	*%*
Age		
0 – 2	20	15
3 – 5	14	11
6 – 11	48	37
12 – 18	48	37
Custody Status		
Non-custodial	54	42
Shared or Partial	29	22
Full	33	25
Other	14	11
# Children Living with Drug Court Participant	56	43
Frequency of Seeing Children		
Daily	65	50
Weekly	32	25
Monthly	12	9
Annually	15	12
Never	6	4

NOTE: Not matched comparison: 40 drug court participants have corresponding other caregiver data

Other Caregiver Substance Use

The other caregivers were asked to describe their substance use and frequency of substance use in the prior 12-months. Tobacco use was reported by 22 other caregivers, 17 of whom reported smoking every day. More than half of the other caregivers (51%) reported using alcohol at least once. Nine other caregiver participants reported using any illicit drug at least once. Illicit drugs endorsed by the other caregivers included: cannabis, cocaine, amphetamine type stimulants, sedatives/sleeping pills, and hallucinogens. Drug court participants were not asked questions about their substance use because they met SUD criterion at enrollment into the drug court program and are not questioned about substance use while still enrolled in the program.

Parenting Behaviors

Parenting related behaviors answered by adult participants (drug court participants and other caregivers) are presented in Table 3. Drug court participants had a mean total risk score of 7.3 and the mean total risk score for other caregivers was 6.1 on the BCAP; a positive endorsement of an item corresponding to one point. Twenty-three drug court participants had a BCAP score > 9 indicating risk for abuse, 14 of whom scored in the high-risk range (total score >12). In contrast, 7 other caregivers had a BCAP score > 9, of whom 4 were in the high-risk range (>12). Typically, the lie scale is included in calculation of total risk score to validate responses (an endorsement of > 4 items on the lie scale indicates questionable validity of responses). Given the small sample size and a high endorsement of lie items in both drug court participants and other caregivers (mean lie score was 2.0 for drug court participants and 3.4 for other caregivers out of a maximum score of 5), ‘liars’ were not excluded in the computation of the total risk score.

Table 3.
Mean of Parenting Related Outcomes for Adult Participants

	Drug Court Participant (N=71)		Other Caregiver (N=41)	
	M	*SD*	*M*	*SD*
Brief Child Abuse Potential Inventory				
Total Risk (0-25)	7.3	4.63	6.1	8.43
Score 9 - 11, n (%)	9 (13)		3 (7)	
Score > 12, n (%)	14 (20)		4 (10)	
Distress (0-6)	1.2	1.72	0.68	1.4
Lack of Happiness (0-3)	0.24	0.64	0.59	2.42
Persecution (0-3)	1.1	1.01	0.37	0.66
Loneliness (0-4)	1.4	1.53	1.2	2.91
Family Conflict (0-3)	0.39	0.76	0.27	0.71
Rigidity (0-4)	2.2	1.24	2.4	2.66
Poverty (0-2)	0.77	0.64	0.56	0.67
Lie (0-6)	2	1.66	3.4	1.65
Protective Factors Survey				
Family Functioning (7-35)	26	6.6	29	4.4
Social Support (7-21)	18.2	4.1	17.3	4.3
Concrete Support (7-21)	17	4.6	15.4	5.3
Nurturing and Attachment (7-28)	25.2	3.3	25.8	2.7

NOTE: Not matched comparison: 22 drug court participants had corresponding data for a child and other caregiver; 40 drug court participants have corresponding other caregiver data

The BCAP subscale with the highest mean was rigidity (e.g., 'everything in a home should always be in its place' or 'a child needs very strict rules') for the drug court participants (M= 2.2) and the other caregivers (M=2.4). The maximum score on the rigidity subscale is 4. Overall, the mean scores for the BCAP subscales were low. Drug court participants observed mean scores for the distress (M=1.2), persecution (M=1.1), and loneliness (M=1.4) were comparatively high to the lack of happiness (M=.24), family conflict (M=.39), and poverty (M=.77) subscales. Other caregivers observed mean scores for loneliness (M=1.2) were comparatively higher than the mean scores for distress (M=.68), lack of happiness (M=.59), persecution (M=0.37), family conflict (M=.27), and poverty (M=.56) subscales.

Overall, the drug court participants and other caregivers reported high levels of perceived protective factors (Table 3). Drug court participants and other caregivers reported high levels of nurturing and attachment (M = 25.2 and 25.8, respectively) and moderately high levels of family functioning (M = 26 and 29, respectively). Moderate perceptions of social support and concrete support were observed among drug court participants (18.2 and 17.0) and the other caregivers (17.3 and 15.4).

Parenting related behaviors answered by adult and child participants are presented in Table 4. As indicated by the APQ (Table 3), in which a high score represents a high frequency of behavior, there was a self-reported high level of involvement for the drug court participants (M=37) and other caregivers (M= 40) (max score of 50). Responses from the children indicate a higher level of perceived involvement among the other caregivers (M=31.9) and a slightly lower level of perceived involvement among drug court participants (M=28). A low level of corporal punishment was observed in the adult responses, means of 4.4 and 4.7, respectively, out of a maximum score of 15. Child respondents indicated a mean of 3.2 on the corporal punishment subscale. The drug court participants and other caregivers had high mean scores on the positive parenting subscale, 26.3 and 27 respectively (a mean of 2.6 or 2.7 on a 5-point scale) given the highest attainable score of 30. The child respondent's mean score on the positive parenting scale was 20.9. Despite a low frequency of corporal punishment, the drug court participants and other caregivers had scores slightly below the scale midpoint for the inconsistent discipline subscale (13.0 and 12.5, respectfully; max score 15); indicating a mean of a 1.3 or 1.2 on a 5-point scale. The mean score among child participants was 13.2 on the inconsistent discipline scale. Other discipline practices (e.g., yelling and use of timeout) had a mean frequency of 17.3 and 16.4 in the drug court participants and other caregivers, respectively (max score of 35). Indicating a

mean response of 1.7 or 1.6, respectively, on a 5-point scale among adult respondents. The mean score among child participants was 13.6 on the other discipline practice scale, a mean response of 1.4 on a 5-point scale.

With regard to the quality and ease of communication between parent and child, the mean rating of parent and child communication (PCC) was 3.2 for the drug court participants and 3.0 for the other caregivers on a 5-point scale (Table 3). The mean rating of parent-child communication by child participants was 2.9 on a 5-point scale.

Table 4.
Mean of Parenting Related Outcomes Reported by Adult and Child Participants

	Drug Court Participant (N=71)		Other Caregiver (N=41)		Child (N=27)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Alabama Parenting Questionnaire						
Involvement (10 – 50)	37.0	7.1	40.0	5.51	28.0	15.2
Involvement[1] (10 – 50)	--	--	--	--	31.9	10.8
Positive Parenting (6 -30)	26.3	3.3	27.0	3.02	20.9	5.7
Poor Monitoring/ Supervision (10-50)	14.9	5.0	14.6	5.06	20.1	9.4
Inconsistent Discipline (6-30)	13.0	4.5	12.5	3.46	13.2	5.5
Corporal Punishment (3-15)	4.4	1.7	4.7	1.50	3.2	2.0
Other Discipline Practices (7-35)	17.3	2.8	16.4	3.13	13.6	5.5
Parent Child Communication Scale	3.2	.46	3.0	.46	2.9	.79

[1] Child participants answers to involvement questions specific for other caregivers
NOTE: Not matched comparison: 22 drug court participants had corresponding data for a child and other caregiver; 40 drug court participants have corresponding other caregiver data; 27 drug court participants had corresponding child data; 22 other caregivers had corresponding child data

Adult Mental Health

The majority of adults were within the normal range (standardized score <60) on the General Severity Index of the BSI, which calculates severity based on symptoms and disruption of activities of daily life; 52% of drug court participants and 78% of other caregivers had a score <60 (Table 4). No other caregivers had clinically significant General Severity Index scores whereas 13 (18%) of the drug court participants scored in the clinically significant range (>70).

Table 4.
Adult Mental Health Outcomes: Behavior Symptom Index (BSI) Composite Indices

	Drug Court Participant (N=71)		Other Caregiver (N=41)	
	N	*%*	*n*	*%*
General Severity Index				
Normal (< 60)	37	52	32	78
Elevated (60-70)	21	30	9	22
Clinically Significant (>70)	13	18	0	0
Positive Symptom Distress				
Index	52	73	37	90
Normal (< 60)	15	21	4	10
Elevated (60-70)	4	6	0	0
Clinically Significant (>70)				
Positive Symptom Total				
Normal (< 60)	35	49	31	76
Elevated (60-70)	29	41	9	22
Clinically Significant (>70)	7	10	1	2

NOTE: Not matched comparison: 40 drug court participants have corresponding other caregiver data

The majority of all adult participants had scores within the normal range on the nine subscales. More drug court participants scored within the clinically significant range (>70) for the subscales than the other caregivers. Ten drug court participants (14%) and one other caregiver had clinically significant scores on the depression subscale; the majority of drug court participants (65%) and other caregivers (78%) were within the normal range. Fifteen drug court participants had clinically significant scores for psychoticism whereas only 4 other caregivers scored in the clinically significant range. No other caregivers had clinically significant scores for the somatization, obsessive-compulsive, anxiety, or interpersonally sensitivity subscales. In contrast, three drug court participants were in the clinically significant range for the somatization subscale, eight on the obsessive-compulsive scale, six on the anxiety subscale, and six on the interpersonal sensitivity subscale. Between 21-37% of drug court participants and between 15 and 41% of other caregivers scored in the elevated range (60-70) for all subscales.

Drug court participants reported a mean of 5.2 PTSD symptoms (SD = 5.0; range 0-17) and other caregivers reported an average of 2.9 symptoms (SD = 4.3; range 0-14). The frequency of reported PTSD symptom severity, as assessed by the PDS, for drug court participants and other caregivers is presented in Table 5. Forty-two percent of the drug court participants reported a mild severity of PTSD symptoms, 28% reported having moderate symptom severity, and 1 participant reported a severe severity of PTSD symptoms. Less than one-third (28%) of the drug court participants reported having zero PTSD symptoms. The majority (59%) of other caregivers had no symptoms, 24% reported mild symptoms, and 17% reported moderate symptoms.

Table 5.
Adult Mental Health: Posttraumatic Diagnostic Scale (PDS) Frequencies and Averages

	Drug Court Participant (N=71)		Other Caregiver (N=41)	
Frequency of Symptom Severity	*n*	*%*	*n*	*%*
None	20	28	24	59
Mild	30	42	10	24
Moderate	20	28	7	17
Severe	1	1	0	0

NOTE: Not matched comparison: 40 drug court participants have corresponding other caregiver data

Child Mental Health

Table 6 displays the mean scores and the clinical significance for the composite scales of children for whom drug court participants answered BASC questions (the BASC is valid for children over age 2 which accounts for the drop in participant numbers). Overall, the drug court participants reported adaptive and problem behaviors within a normal distribution for the children about whom they answered questions. Composite T-scores ranged from 46.8 to 51.6. Drug court participants indicated the majority of children fell in the average range (41-59) for the four composite scales. Only 3% of the drug court participants indicated the child was in the clinically significant range for the clinical scales (externalizing problems, internalizing problems,

and behavioral symptom index) and 8% in the clinical significant range for the adaptive scale (adaptive skills).

Table 6.
Child Mental Health: Means and Clinical Significance of Composite Scales on the BASC

	Drug Court Participant (N=61)	
	n	*%*
Externalizing Problems, M (SD)	51.6 (11.1)	
Clinically (≥70)	2	3
At-risk (60-69)	9	15
Internalizing Problems, M (SD)	48.8 (9.1)	
Clinically (≥70)	2	3
At-risk (60-69)	6	10
Behavioral Symptom Index, M (SD)	50.9 (9.8)	
Clinically (≥70)	1	2
At-risk (60-69)	11	18
Adaptive Skills, M(SD)	46.8 (11.2)	
Very High (≥70)	0	0
High (60-69)	11	18

The t-scores for the clinical subscales (e.g., hyperactivity, aggression, conduct problems, anxiety, depression, somatization, attention problems, atypicality, and withdrawal) ranged from 48.6 to 53.1. The frequency of meeting at-risk or clinical significance criteria for the clinical subscales is presented in Table 7. Drug court participants indicated behaviors in the clinically significant range for the all subscales. Across all subscales between 7-24% of children displayed at-risk or clinically significant behaviors according to drug court participants.

Table 7.
Child Mental Health: Means and Frequency of Children Meeting At-Risk or Clinical Significance Criteria for the BASC Clinical Scales

	Drug Court Participant (N=61)	
	n	*%*
Hyperactivity, M (SD)	53.1 (9.9)	
Clinically (≥70)	3	5
At-risk (60-69)	11	18
Aggression, M (SD)	48.8 (11.4)	
Clinically (≥70)	2	3
At-risk (60-69)	6	10
Conduct Problems[1, M (SD)]	53.7 (12.6)	
Clinically (≥70)	2	4
At-risk (60-69)	10	20
Anxiety, M (SD)	49.4 (10.5)	
Clinically (≥70)	2	3
At-risk (60-69)	10	13
Depression, M(SD)	50.9 (10.7)	
Clinically (≥70)	4	7
At-risk (60-69)	7	11
Somatization, M(SD)	46.8 (7.7)	
Clinically (≥70)	1	2
At-risk (60-69)	3	5
Attention Problems, M (SD)	52.1 (9.8)	
Clinically (≥70)	2	3
At-risk (60-69)	12	20
Atypicality, M (SD)	50.7 (8.5)	
Clinically (≥70)	2	3
At-risk (60-69)	8	13
Withdrawal, M (SD)	48.6 (9.5)	
Clinically (≥70)	2	3
At-risk (60-69)	12	20

1 = Sample size for the leadership subscale was 50 for drug court participants

The drug court participant's t-scores for the adaptive subscales (e.g., adaptability, social skills, leadership, activities of daily living, and functional communication) ranged from 46.5 to 48.9. The frequency of meeting at-risk or clinical significance on the adaptive subscales is presented in Table 8. Overall, the drug court participants did not indicate very high adaptive

skills in the children; only one drug court participant indicated a very high functioning on the activities of daily living scale, all other subscales had no participants endorsing a very high level of behaviors. The majority of drug court participants indicated child behavior to be within the average range for all subscales followed by a relatively high proportion of participants indicating behavior within the at-risk range. On the Adaptability subscale, two drug court participants indicated child behavior to be within the clinically significant range. Five drug court participants' scores indicated child behavior to be clinically significant on the social skills subscale. On the leadership subscale, two drug court participants' scores indicated clinically significant behavior. Four drug court participants' scores indicated clinically significant behavior on the activities of daily living subscale. Six drug court participants' indicated clinically significant behavior on the functional communication subscale.

Table 8.
Child Mental Health: Frequency of Children At-Risk or Meeting Clinical Significance Criterion for the Adaptive Scales on the BASC

	Drug Court Participant (N=61)	
	n	*%*
Adaptability, M (SD)	48.1 (9.5)	
Clinically Significant (≤ 30)	2	3
At-risk (31- 40)	11	18
Social Skills, M(SD)	47.8 (11.7)	
Clinically Significant (≤ 30)	3	5
At-risk (31- 40)	15	25
Leadership[1], M (SD)	48.9 (10.9)	
Clinically Significant (≤ 30)	2	4
At-risk (31- 40)	11	22
Activities of Daily Living, M (SD)	44.0 (11.5)	
Clinically Significant (≤ 30)	4	7
At-risk (31- 40)	24	39
Functional Communication, M (SD)	46.5 (11.3)	
Clinically Significant (≤ 30)	6	10
At-risk (31- 40)	12	20

1 = Sample size for the leadership subscale was 50

To contrast drug court participant's reports of child mental health outcomes, child participants self-reported traumatic events and symptoms on the UCLA PTSD Index (Table 9). Twenty-four of the 27 child participants (89%) self-reported exposure to traumatic events such as being in a natural disaster, witnessing a family member being physically injured, or a self-identified dangerous, scary or violent situation. The mean number of traumatic events reported was 3. Four child participants met full criterion for PTSD diagnosis and 20 participants met partial criteria for PTSD.

Table 9.
Child Mental Health: UCLA Posttraumatic Stress Index (N=27)

	n	*%*
Reported Exposure to Trauma	24	89
Full PTSD Likely	4	15
Partial PTSD Likely	20	74

Discussion

The purpose of this research was to describe the parenting behaviors and mental health needs of families in which one caregiver is an adult drug court participant. Given the established negative effect parental substance use has on child and family outcomes, the high proportion of child welfare involved families with untreated SUD, and the unmet family needs of substance using criminal justice-involved individuals, exploration of the adult drug court an alternative intervention source was warranted. This research described the complex family structures, parenting strengths and weakness, and mental health needs of family units of adult drug court participants. Overall, there was a low reported potential for child maltreatment among adult participants, but an apparent need for some parent training, especially related to discipline practices, and mental health services of adult drug court participants.

Complex Family Structure

The adult drug court participants in our sample were parents or caregivers for a sizeable number of children, the majority of whom are between 6 and 18 years old. The findings here are supported by the work of Glaze and Maruschak (2008); it is estimated 1 in 4 criminal justice-involved individuals have three or more children. Though drug court participants most frequently do not have custody of the children, the majority of children are seen on a daily or weekly basis. In contrast, the majority of children do live with the other caregiver. Though there was no effort in the present descriptive study to triangulate, or summarize answers by family units, given the numbers of children reported between drug court participants and other caregivers, there are likely multiple adults that function as other caregivers for each child of drug court participants. There are not common practices with regard to securing care for children at the time of a parents' arrest or throughout other forms of criminal justice involvement, such as incarceration or drug court programs (Christian, 2009), but as evident in this small sample, there appear to be adults in a variety of relationships that care for the children of adult drug court-involved parents.

A relationship, as a co-parent, significant other, or a child, with a criminally-involved, substance-using parent is stressful and disruptive to family functioning (Turanovic, Rodriguez, & Pratt, 2012) and is considered an "adverse-childhood experience" that relates to later poor health outcomes (Felitti, Anda, Nordenberg, Williamson, Spitz…, 1998). The varied composition of family units described here is indicative of the strained or damaged relationships among families of criminal justice-involved substance using parents. Often drug court participants were unable to connect the research team with a willing other caregiver or child. Other times the other caregivers had not been in contact with the drug court participants for many years and were not willing to reestablish a relationship. Additionally, as drug court participants did not have custody of the majority of the children, they could not legally give consent for the child to participate.

Christian (2009) has discussed how strained relationships between justice-involved individuals and another adult caregivers may result in the reluctance to allow children to establish a relationship with a substance using, justice-involved parent upon release.

Despite the strain on family relationships, research indicates the lowered risk of recidivism or relapse in sobriety when there are close of family ties (Codd, 2007; Mills & Codd, 2008). If that other caregiver has a SUD, it could have detrimental effects on recidivism and sobriety. The 41 other caregivers in this sample reported tobacco and alcohol use, but did not meet the criteria for SUD; in fact, minimal drug use was reported. Caution should be used in the interpretation of the frequency of substance use because the questions asked about use over a 12-month period and the potential for recall bias is high. Additionally, these were self-reported data in a study initiated from criminal justice-involvement.

Parenting

Substance-using parents engage in harsher discipline practices placing their children at greater risk for abuse and neglect (Gruber & Taylor, 2006; Grella et al., 2006). In our sample, the majority of drug court participants and other caregivers fell below the at-risk criteria for child maltreatment and had high to moderate involvement, positive discipline practices, and positive communication with their children. The lie scale on the BCAP was highly endorsed for adult participants which, in conjunction with small standard deviations, perhaps calls into question the utility and validity of the BCAP among a non-child welfare involved sample. Ondersma et al. (2005) suggest the lie scale may not be useful in ascertaining levels of risk in an urban, high-risk sample. Though the BCAP and its longer version, CAP, are the most widely used measure of child abuse risk, no items directly assess violence or neglect specifically, the most pervasive form of maltreatment and the most commonly associated with parental substance use (Choi,

2012; Counts et al., 2010; DHHS, 2016). Finally, mean scores on the BCAP should be interpreted with caution given the small number of items per subscale.

High levels of involvement and positive parenting were indicated on the APQ as was a low frequency of corporal punishment practices. Child respondent data painted a similar picture. This is inconsistent with prior research that indicates high levels of harsh discipline practices among substance using parents (Grella et al., 2006). However, the moderate scores on the inconsistent discipline and other discipline practices indicate room for improvement and an opportunity for intervention. All participants indicated moderate levels of positive communication; a mean score of approximately 3 out of 5 on the PCC scale suggests a need for strategies in parent-child communication.

Regarding protective factors, responses from drug court participants and other caregivers indicated a high perception of family functioning and nurturing. Mean scores on the social and concrete support subscales suggest some degree of unawareness of where or how to access informal and formal supports.

Adult Mental Health

There is a strong association between substance use and mental health outcomes, in particular depression. Kelley and colleagues (2015) indicated that self-reported depressive symptoms of substance using parents predicted maltreatment. Derogatis (1983) has noted that the General Severity Index on the BSI is the single best indicator of distress levels. Thus that drug court participants had higher scores on the General Severity Index than the other caregivers was not surprising; no other caregivers scored in the clinically significant range whereas 13 of the 71 drug court participants had clinically significant scores though no matched comparisons were analyzed. The Positive Symptom Distress Index is indicative of the intensity of symptoms,

corrected for the number of positive symptoms. That is, among the participants that had positive symptoms the majority were within the normal range. A high proportion of drug court participants had elevated or clinically significant scores. The scores of the composite and subscales on the BSI and the high proportion of mild or moderate PTSD symptom severity on the PDS support the provision of comprehensive mental health services to drug court participants. Mental health related findings should be interpreted with caution as the duration of drug court program involvement was not available for comparison at this time.

The BSI has similar subscales with the BCAP; overall caregiver mental health is a risk factor for child maltreatment. One would expect similar reports on the BSI depression subscale and the BCAP distress subscale. Ten drug court participants scored in the clinically significant range (<70) of the BSI depression subscale, but the mean distress score on the BCAP was 1.2 (out of a maximum score of 6). Similarly, there is discrepancy in the clinically significant scores on the psychoticism and paranoia BSI subscales and the persecution BCAP subscales. There is less of a discrepancy on the BSI and BCAP subscales for the other caregivers. This raises questions about the utility of these different measures in the drug court sample.

Child Mental Health

Overall, the results of the BASC indicate minimally perceived adaptive and problem behaviors among children of drug court participants and other caregivers. Drug court participants' scores indicated some children displayed clinically significant clinical and adaptive scale behaviors. Given the number of children that do not live with the drug court participants, these findings should be questioned with regard to the accuracy of the drug court participants' perceptions of child behavior. Child self-reported trauma symptoms is the most meaningful in understanding mental health needs of children of criminal justice-involved, substance using

parents. Of the 27 children that completed the self-interview, 24 reported exposure to at least one traumatic event. Twenty participants met the criterion for partial PTSD warranting at least some further screening to determine the appropriateness of trauma therapy.

Limitations

There are several notable limitations of the current study. The small sample size limits the precision and generalizability of the findings. The reliance on self-report measures is another limitation. There is a significant limitation in the lack of triangulation of data among family units. That is, it would be useful to compare scores across members of a family unit to validate or attribute deeper meaning to their results. However, the small sample size prohibited this analysis. There were 22 family units with matched data from a drug court participant, other caregiver, and child. There were 40 drug court participants with matching data from other caregiver participants. A third limitation in the current study is the lack of information about the drug court participants' status in the drug court program at data collection; for example, poorer mental health reports are likely to be more common earlier in drug court involvement. Finally, the validity of the measures used in this of sample should raise concern as none of the parenting, adult mental health, or child mental health outcome measures described here were developed or validated for a criminal justice involved sample. Although the other caregivers are not necessarily justice-involved, the validity of these measures among those participants should also be scrutinized.

Conclusion

Though the observed levels of risk for child maltreatment and clinical significance in mental health needs were not as high as prior research, this study accomplished its goal of describing the mental health and parenting behaviors of families of criminal justice-involved,

substance using parents with regard to mental health and parenting issues. Moderate to high scores across mental health and parenting related measures indicate that there is evidence for including family services in an adult drug court setting. Further research should examine the effect of intervention related to mental health and parenting in an adult drug court setting not only in regard to child and family outcomes but also in relation to recidivism or lapses in sobriety.

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Paper 3

An Examination of Risk Profiles among Mothers Involved with Child Protective Services

Abstract

Risk for child maltreatment is a combination of demographic and situational factors. However, for the sake of simplicity in an overburdened child welfare system, demographics are commonly relied upon solely in arranging appropriate services for families. It is likely underlying risk factors, that are more challenging to assess, create distinct risk profiles among child welfare involved families and different services are needed by the different risk profiles. This research sought to empirically distinguish risk profiles among mothers involved with child protective services (CPS), explore the utility of demographic predictors as proxy measures of risk, and examine the association of risk profiles and subsequent referral to CPS. Latent class analysis was applied to identify risk profiles using underlying risk factors such as depression, social and concrete support, and substance use. Three distinct risk profiles were identified: High-Risk, Moderate Risk, and Low-Risk. Demographic indicators were not strongly associated with subsequent referral and may not be strong proxy indicators for subsequent referral. The risk for referral was high across classes, no significant difference in subsequent referral was observed among classes. Implications for risk assessment and service delivery are discussed.

Key words: risk profile, latent class analysis, child maltreatment

Child maltreatment (CM) is a public health problem for which there is no singular cause that is both necessary and sufficient (MacKenzie, Kotch, & Lee 2011; Putnam-Hornstein, Needell, & Rhodes, 2013; Belsky, 1978). The predominant single-factor theoretical models explain only a marginal component of what a complex phenomenon (Putnam-Hornstein, Needell, & Rhodes, 2013). As such, there is a move away from these single factor causal explanations of CM to a multidimensional conceptualization of risk. This movement, which requires an individualized and comprehensive assessment of risk, is hindered by an overburdened system and the sensitive nature of risk assessment in this population. A common solution is relying on the presence or absence of demographic indicators at the time of involvement with the child welfare system to approximate level of risk and refer to services. Additionally, it is known that the presence of risk factors is related to the efficacy of intervention (Ammerman, Putnam, Bosse, Teeters, & Van Ginkel, 2010). Thus, using a proxy measure of risk, such as demographic characteristics, may miss many of the factors known to be related to efficacy. Evaluating a combination of demographic, situational, and contextual indicators of risk could inform intervention efforts such that interventions may be tailored to target specific risk factors such that risk of subsequent referral to child protective services (CPS) is reduced.

Risk Factors for CM

In practice risk has been identified by the presence of certain parental demographic characteristics such as level of educational attainment, number of dependent children, socio-economic status, among other variables (Duffy, Hughes, Asnes, & Leventhal, 2015). Underlying risk factors demonstrated through research efforts to be associated with CM (e.g., substance use, domestic violence, and mental health) are more difficult to assess in practice due to the training needed for assessors and the personal, or sensitive, nature of assessment questions. These

considerations are exacerbated by an overburdened investigation system; in 2014, more than 2 million reports to CPS received and investigated by caseworkers (DHHS, 2016). As a result, simplistic parental demographic factors are used as proxy measures of risk (Duffy et al., 2015). The presence of demographic factors alone does not guarantee the experience of maltreatment. For example, racial minority status often qualifies as high-risk criteria. By linking vital records to CPS records, Putnam-Hornstein and colleagues (2013) demonstrated that although black children were born with a higher concentration of CM correlates, after adjusting for socioeconomic status (SES), low SES Black children were less likely to have a substantiated case than low SES White children.

In contrast, CM research conceptualizes risk as a combination of demographic and situational factors. Duffy and colleagues (2015) reviewed the case files of 131 families involved with child protective services (CPS) between 2006 and 2008 and analyzed the presence of six risk factors: history of CPS involvement, domestic violence, sexual abuse, substance use disorder, criminal involvement, and number of caregivers. Those with a substantiated first report were more likely to have a high number of paternal risk factors, a history of paternal and maternal domestic violence, and maternal criminal history than those with an unsubstantiated first report (Duffy, Hughes, Asnes, & Leventhal, 2015). In a prospective longitudinal study of low-income families not previously involved with CPS, Dubowitz and colleagues (2011) identified greater odds of report to CPS among families in which there was low performance on child developmental assessments, low levels of maternal educational attainment, maternal depression, and more children in the family. As is evident from these and other research efforts, and as Evans and colleagues (2013) suggest, children and families contend with ‘constellations’ of risk rather than a singular demographic risk factor for CM.

Barth (2009) has noted that commonly co-occurring parental risk factors are substance use, mental illness, and domestic violence. Parents with substance use disorders are at an increased risk for neglecting the needs of their children and endangering their physical, mental and emotional well-being (Niccols et al., 2012; Onigu-Otite & Belcher, 2012). Child welfare caseworkers must often determine if parents who complete substance use treatment should be reunified with their children (Choi, Huang, & Ryan, 2012); however, rarely do these caseworkers have education and training in substance use evaluation and/or treatment. Further, women with substance use disorders are likely to have co-occurring psychological disorders, such as depression (Grant, Huggins, Graham, Ernst, Whitney, & Wilson, 2011). Children of mothers with depression are at-risk for cognitive delays, mental health problems of their own, suboptimal physical growth, and interpersonal and behavioral problems (Ertel, Rich-Edwards, Koenen, 2011; MacCullough & Shaffer, 2014). Mothers with depression are more likely to report experiences of intimate partner violence, sexual assault, and physical abuse as children, and witnessing violence compared to non-depressed mothers (Stevens, Ammerman, Putnam, & Van Ginkel, 2002). Exposed children are 9.58 times more likely to be psychologically and 2.57 times more likely to be physically abused than children without exposure to IPV (Zolotor, Theodore, Coyne-Beasley, & Runyan, 2007). The intersection of IPV and CM create challenges for interventionists; a caseworker must determine if IPV constitutes CM and if this necessitates removal from the home (Postmus & Merritt, 2010; Hartley, 2004; Holden, 2003). These risk factors are critical elements in a conceptualization of risk specific to constellations of risk for CM. It is necessary to understand how underlying risk factors cluster and how groups of risk factors may be defined within a CPS-involved population.

Murry and Lewin (2014) emphasize the importance of viewing risk factors as modifiable antecedents of behavior and arranging secondary prevention services accordingly. Services for the distal 'contributory processes' of CM (e.g., mental health, substance use, or domestic violence) are not generally within the scope of child welfare services and as such a family may be referred to multiple providers (Berliner, Fitzgerald, Dorsey, Chaffin, Ondersma, & Wilson, 2015). Referrals often occur after a failed intervention attempt in one area such as a mother being referred for mental health services after an unsuccessful parenting intervention. Ammerman and colleagues (2010) found the effect of a home-based parent support intervention was mitigated in mothers with depression. The provision of mental health services improved the efficacy of the parenting intervention. If combinations of underlying risk factors for CM at the parent level are better understood, then perhaps parent-focused interventions may be delivered in a targeted manner such that the risk of re-report to child welfare is reduced.

Theoretical Perspectives of CM Risk

The complex nature of CM makes identifying a universal causal theory or framework challenging. Early models focused on a singular risk factor as one would with an acute illness or injury, but did not adequately explain variations in those outcomes (MacKenzie, Kotch, Lee, Ausberger, & Hutto, 2011). The psychiatric model posited that risk factors were inherent to the perpetrator alone. For instance, a role reversal situation may result among caregivers with mental health issues whereby the caregiver believed children should care for them and when this did not occur, and rather the child required the caregivers' care, the potential for maltreatment increased (Belsky, 1978; Black, Heyman, & Slep, 2001a; Macfie, Brumariu, Lyons-Ruth, 2015). The sociological model called attention to the social stresses placed on an adversities experienced by families, rather than individuals, (e.g., social class, poverty, social isolation, lack of family

planning, interpersonal violence). It was families' positions embedded within the larger social system that influenced the risk for maltreatment (Black, Heyman, & Slep, 2001a). The socio-ecological perspective describes transactional relationship between individual (e.g, inherent traits such as age or mental health status), interpersonal (e.g., parent-child or co-parent relationships), and environmental (e.g., community factors, employment status) determinants of behavior that are interdependent (MacKenzie, Kotch, Lee, Ausberger, & Hutto, 2011). Still, the ecological or interactive frameworks did not offer a causal explanation of the CM as a result of individual, interpersonal or social dynamics (Putnam-Hornstein, Needell, & Rhodes, 2013).

Building off of theoretical predecessors, the contemporary risk perspective attempts to encompass the multiple and transacting risk factors in the context of the social environment in which those instances of maltreatment occur (MacKenzie, Kotch, & Lee, 2011; MacKenzie, Kotch, Lee, Ausberger, & Hutto, 2011). The cumulative risk model accounts for the factors identified in the transactional and ecological models, but also asserts that these risk factors accumulate over time in an additive manner (MacKenzie, Kotch, Lee, Ausberger, & Hutto, 2011; Evans, Li, & Whipple, 2013). Moving from a single causal factor, the cumulative risk model posits that when factors accumulate, the level of risk increases. Caution should be used in the application or interpretation of the cumulative risk model as it potentially could serve as a proxy metric of risk (Evans, Li, & Whipple, 2013). Common across theoretical perspectives is the notion of multiple risk factors at multiple levels and agreement that CM is a complex phenomenon unable to be identified or addressed in a one-size-fits all manner.

Risk, Theory, and Intervention

In a holistic conceptualization of risk, to maximize the effect of intervention the underlying constellation of risk factors must be considered in service. Largely, the child welfare

system has adopted the parsimony principle which holds that the smallest number of services should be prescribed that will accomplish the specified goal of reducing risk for maltreatment in primary and secondary approaches (Berliner et al., 2015). The application of this principle is hindered by the unidimensional assessment of risk and subsequent categorization of risk in practice settings. Services targeting underlying risk factors are not mandated in child welfare systems and, thus, go unaddressed in preventive efforts for CM (Berliner et al., 2015). The effect of those interventions is compromised and parents are referred to multiple providers.

This disconnect between theory, research, and practice means it is likely underlying needs go unmet and families have multiple reoccurrences of child welfare involvement. Chaffin and colleagues (2011) examined the change in risk factors over time among a sample of families receiving home-based services and the relationship of these risk trajectories to chronicity of involvement with the child welfare system. A sample of 2,175 families reported to CPS were enrolled in a randomized trial and assessed at three time points (baseline or time of referral, around the end of service completion, and 6-months post-intervention). Mixture modeling and latent difference scores identified five change trajectories. Favorable trajectories, those in which there was sustained improvement or low stable levels of risk, had fewer subsequent reports to CPS. High-risk families who remained at high-risk had more subsequent referrals to CPS. Chaffin et al. (2011) concluded families with chronic CPS involvement were in need of different services than families who were less chronically involved. A limitation of these findings is the use of a unidimensional latent risk factor that did not reflect all relevant change dimensions. In particular, risk was defined only by indicators of depression, potential for abuse, and perceived social and concrete support. The non-additive effects and intersections of risk factors was limited in this unidimensional conceptualization of risk.

Current Study

The reliance on demographic characteristics to approximate risk leads to the application of a "one-size-fits all" dichotomous label of risk resulting in the appropriation of the same package of services for all. This approach relies on a variable-centered approach with the assumption that risk factors relate in the same way for all individuals in a group thereby ignoring the qualitative differences in the constellations of risk. The variable-centered approach justifies treating everyone in a group in the same manner. Instead, by using a person-centered approach, this paper aims to explain the heterogeneity of families involved with CPS by: (1) distinguishing risk profiles using latent class analysis (LCA); (2) exploring the strength of demographic factors as proxy risk indicators; and, (3) examining the association of those risk profiles with subsequent report to CPS. This study builds from the Chaffin et al. (2011) study, but focuses on a the baseline time point and utilizes a multidimensional conceptualization of risk, representative of the constellation of risk factors experienced by families, to construct risk profiles.

Method

Participants

Participants were 1,986 female caregivers extracted from a dataset (N=2,175) of a completed statewide implementation trial evaluating home-based family preservation services (Chaffin, Bard, Silovsky, & Beasley, 2012). The original study enrolled parents of children under five who were reported to child protective services for physical abuse and neglect (parents reported for sexual abuse were excluded due to different risk factors and service needs) between 2003 and 2006. The analytic sample for the present analysis utilizes only baseline data and was limited to only women as they represented the majority (91%) of the original study sample. Assuming risk for perpetrating an instance of child maltreatment could be different between

genders, the sample size of men from the original trial was not sufficient to reasonably inform latent class membership or to conduct multiple group analyses.

Table 1.
Demographic Characteristics of Participants (N=1,986)

	M	*SD*
Age	28.9	7.8
# of Children	2.88	2.74
	n	*%*
Race		
African American	185	9
American Indian/ Native American	333	17
Hispanic American	86	4
White	1323	67
Other	48	2
Marital Status		
Single	465	24
Married/Living Together	936	47
Separated/Widowed/Divorced	577	29
Employment Status		
Full-time Homemaker	554	28
Working Full-time	537	27
Unemployed	527	27
Other	358	18
Location of Residence		
Urban	884	45
Rural	1073	55
Educational Attainment		
< 9^{th} Grade	153	8
<12^{th} Grade	659	33
HS Graduate or Equivalent	660	33
Some post HS Education	510	26
College Graduate	0	0
Living Below Poverty Level		
Yes	1500	83
No	299	17
Prior History of CPS Involvement		
0	170	9
1	546	27
2	381	19
3	272	14
4	215	11
5+	402	20

Complete demographic information is presented in Table 1. Modally, the sample was White (67%), married or living together (47%), living in a rural area (55%), and living below the poverty level (83%). Notably, American Indians/Native Americans represented 17% of the sample. Twenty-eight percent of the sample identified as a full-time homemaker, 27% as working fulltime, and 27% as unemployed (e.g., looking for employment, not looking for employment, or on disability). Eighteen percent of the sample reported 'Other' employment status (e.g., student status, those who were employed part-time, and those who were self-employed). Approximately 40% of the sample had less than a high school diploma and 26% had at least some college education. No participants were college graduates. The mean age of the sample was 28.9 years and the mean number of children was 2.88, but ranged up to 18. The sample is comprised of women reported to child protective services at least once; these reports, however, vary among participants. The mean number of reports to CPS was 2.98, but ranged from no reports up to 30 prior reports. Participants may have had no reports because of a lag in administrative data availability and data collection timeframe in the original study. Not all reports, including the report that made the women eligible for participating study, were substantiated.

Procedures

Data were collected by a research assistant at baseline in the participants' homes using an audio computer assisted self-interview. Participants had the choice to complete the interview with or without audio assistance and were able to request assistance from the research assistant if necessary. Answers were entered on touch screen computers. To minimize distraction, the research assistants supervised the children while parents completed the interview.

Indicators of Risk Profiles

Beck Depression Inventory-2 (BDI). The BDI is a 21-item self-report measure of depressive symptom severity (Beck, Steer, & Brown, 1996). Items are reported on a 4-point scale (0-3) are summed for an overall score (maximum score of 63). A total score < 13 indicates minimal depression symptoms and functions as a dichotomous cut point (Lasa, Ayuso-Mateos, Vázquez-Barquero, Díez-Manriqe, & Dowrick, 2000). An overall score of 14-19 indicates mild depression, 20-28 moderate depression symptoms, and over 29 as severe depression symptoms. The internal consistency of the scale is .93 (Beck, Steer, & Brown, 1996); the observed alpha in the present sample was .94.

Child Abuse Potential Inventory (CAPI). The CAPI is a 160-item assessment of the potential for abuse, specifically physical abuse (Milner, 1986, 1994; Chaffin & Valle, 2003). The scale assesses parents' levels of stress, attitudes, emotional distress, and degree of conflict in interpersonal relationships. The items are loaded onto six subscales: distress (36-items; α=.95), rigidity (14-items; α = .73), unhappiness (11-items; α=.39), problems with parent-child (6-items; α=.41), problems with family (4-items; α=.59), and problems with others (6-items; α=.67). An 18-item lie scale to measure social desirability bias is generally included in calculation of an overall Abuse score. For the purpose of the present analysis, the CAPI was separated into subscales for analysis. Due to a high correlation between the BDI and distress subscale (r=.81) and redundancy in constructs, the distress subscale was excluded from the LCA model. Additionally, as the overall Abuse Score was not utilized, the participants' score on the Lie Scale was not factored into the model.

Family Resource Scale (FRS). The FRS measures the concrete, or basic, needs of children in hierarchical fashion related to the ecological framework (Dunst & Leet, 1987). The 40-item scale assesses basic needs (e.g., food, shelter, water); social needs (e.g., time with family

or friends); health care (e.g., medical or dental), transportation, childcare, and resources for extras, such as entertainment or savings. A total FRS score is an average of all needs. The observed alpha in the sample was .91. To align with the direction of other measures, the FRS was reverse scored such that a higher score indicated more needs.

Social Provisions Survey (SPS). The SPS assesses a respondent's perception of social support (Cutrona & Russell, 1987). The 12-item index captures the accumulation of social functions of interpersonal relationships (e.g., attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturance). To align with the direction of other measures, the SPS was reverse scored such that a higher score indicated a lower level of perceived support.

Adverse Events. Adverse events include any involvement with the criminal justice system (e.g., arrest), experiencing domestic violence, or requiring medical care (e.g., emergency department). Medical contacts ranged from 0-13, but the majority of participants (78%) had no medical contacts. The highest reported number of domestic violence incidents was 4, but 93% of the sample reported no domestic violence incidents. Criminal justice incidents ranged from 0-6, but 87% of the sample had none. As a result of the low frequencies for the three types of adverse events, an accumulation index was created: no adverse events, one adverse event, and two or more adverse events.

Alcohol and Substance Use Disorders. Participants provided a count of lifetime alcohol use disorder (AUD) and substance use disorder (SUD) symptoms. The count of both AUD and SUD was then categorized into three categories in line with DSM criteria: no symptoms, subclinical symptoms (1-5), and clinical symptoms (>6).

Distal Outcome

The outcome of interest was any subsequent referral to CPS within the follow-up period (an average of four-and-a-half years). The variable was dichotomized: no report or at least one report. Subsequent referral were also coded by type (physical, neglect, sexual abuse, or mixed) for descriptive purposes, not for use analytically.

Analysis

As a result of extreme non-normality in distributions of indicators, the scores on continuous psychometric measures (BDI, SPS, FRS, and CAPI subscales) were discretized into seven ordinal categories (1 = lower standardized scores, 7 = highest standardized scores). The intervals of the seven categories are specific to each measure; that is, Category 1 on the discretized BDI did not have the same values as Category 1 on the SPS. The ordinal nature of the categories, however, makes the categories comparable across measures. The adverse event, AUD, and SUD categorical variables retained their three levels. All data management was conducted using SAS® software.

LCA, a subset of finite mixture modeling, was used to identify risk profiles in the sample of mothers reported to CPS. The underlying principle of a LCA is the person-centered approach in which there is an assumption of heterogeneity among individuals in a sample. In contrast, a variable-centered approach describes the relationship of variables and assumes the variables relate in the same way for all subjects. The person-centered approach was appropriate for the purpose of this research and previously has successfully been used to identifying risk in population subgroups (e.g., Cavanaugh, Martins, Petras, & Campbell, 2013; James, McField, & Montgomery, 2013; Lawson, Alameda-Lawson, Downer & Anderson, 2013; Matos, Moleiro, & Dias, 2014).

LCA models were estimated using Mplus 7.0 Software (Muthén & Muthén, 1998-2015). Following procedures outlined by Masyn (2013), the LCA analysis was separated into two steps: (1) specifying the measurement model (e.g., the model relating the observed variables to the unobserved, underlying latent classes); and, (2) specifying the structural model (e.g., the model that characterizes the relationship among the latent classes and observed antecedent (e.g., control) and consequent (e.g., distal outcome) measures.

The number of latent classes is unknown at the outset of the measurement model building process. A one-class model is first specified and classes are added until the models are no longer well identified (e.g., failure to converge and replicate). Relative fit indices (e.g., Bayes Information Criteria [BIC], Consistent Akaike's Information Criterion [CAIC], Approximate Weight of Evidence Criterion [AWE], Likelihood Ratio Test Statistic (LRTS), Bayes Factor [BF], and correct model probability [cmP]) were calculated for identified models and used to compare a model's representation of the data to another model (Masyn, 2013). The smallest values for the BIC, CAIC, AWE, and LRTS indicated the 'best' model. The adjusted Lo-Mendel-Rubin likelihood ratio (Adjusted [Adj.] LMR) test, the Bayes Factor (BF), and the Bootstrapped Likelihood Ratio Test (BLRT) were used to discern the fit between a model with *k*-classes and a model with (*k*-1) classes. A non-significant Adjusted LMR and BLRT indicate the smallest number of classes such that additional classes do not produce a meaningful improvement in fit. The BLRT did not yield a non-significant p-value in which case, the most parsimonious k-class model should be selected. The model with the smallest number of classes with a BF >10 indicates 'best fit'. In contrast to the Adjusted LMR, BF, and BLRT in which two models are compared at a time, the cmP compares all identified models simultaneously; models with a cmP >.10 may be the 'best fit' (Masyn, 2013).

Classification diagnostics (e.g., posterior class probabilities [$\hat{\pi}_k$], modal class assignment proportion [$mcaP_k$], average posterior class probability [$AvePP_k$], and odds of correct classification [OCC_k], and relative entropy) were used to evaluate the precision of the model-based clustering for candidate models (Masyn, 2013). To evaluate the measurement model and because of the large sample size, the sample was split (¾-split) into calibration (¾) and cross-validation (¼) samples of the model fit and enumeration process. The results of (e.g., parameter estimates) and procedures used for the calibration and cross-validation sample were retained and replicated with the full sample.

With a final measurement model selected, the structural model was then examined. The BCH Stepwise Procedure was used for the examination of latent class predictors and distal outcomes; the BCH method was selected because it is believed to be more stable than other stepwise methods (Bakk & Vermunt, 2016). The BCH Stepwise Procedure allows for separate estimation of the measurement and structural models while accounting for error in class assignment. As compared to the hard classify-analyze approach, the BCH Stepwise Procedure performs better in terms of reliability and accuracy. Latent class regression incorporated covariates used as predictors of class membership. Covariates, selected based on available data and theoretical interest, included demographic (e.g., age, race, living environment), economic (e.g., poverty level, level of educational attainment, employment status), family (e.g., marital status, number of dependent children) and prior history of involvement with CPS constructs. The covariates were not included as indicators because, though some characteristics are malleable (e.g., education), they are not targeted by behavioral interventions unlike constructs such as depression or parenting behaviors. The relationship of latent class membership and subsequent referral to CPS was also examined.

Results

Descriptive statistics of the predictors in their continuous form are presented in Table 2. The mean score on the BDI was 13.3 and ranged up to 61. A score >13 indicates depressive symptoms, therefore a portion of the sample reported a clinical level of symptoms of depression and limitations in daily functioning. The reverse scored SPS and FRS mean scores were 2.8 and 2.2, respectively. On a 5-point scale, these scores indicate an average perception of social and concrete resources. The mean scores of CAPI subscales (Rigidity, Unhappiness, Problems with Parent-Child, Problems with Family, and Problems with Others) are well below the specified cutoff for elevated scores. Subscale scores >30 for Rigidity, >23 for Unhappiness, >11 for Problems with Parent-Child, >18 for Problems with Family, and >20 for Problems with Others are considered elevated.

The majority of the sample (68%) reported no adverse events, 23% reported experiencing one adverse event, and 9% reported experiencing two or more. The majority of the sample self-reported having no AUD or SUD symptoms in their lifetime (83% and 71%, respectively). A greater proportion of the sample reported experiencing a subclinical number of SUD symptoms (16%) compared to subclinical AUD symptoms (12%). Similarly, a greater proportion of the sample reported a clinical level of SUD symptoms (13%) than AUD symptoms (5%).

The outcome of interest was any subsequent referral to CPS throughout the follow-up period. Forty percent of the sample experienced at least one subsequent referral to CPS of whom the majority (32%) experienced neglect and only 8% experienced either physical, sexual or mixed-type abuse. The majority (60%) of the sample had no subsequent referral to CPS.

Table 2.
Mean scores and frequencies of Indicators of Class Membership (N=1,986)

	Mean	*SD*	*Range*
BDI	13.3	12.0	0 – 61
SPS (~)	2.8	0.5	2 – 4.75
FRS (~)	2.2	0.6	1 – 4.77
Rigidity	20.4	15.1	0 – 63
Unhappiness	16.3	14.6	0 – 69
Problems with Parent-Child	6.7	7.7	0 – 30
Problems with Family	11.2	11.9	0 – 38
Problems with Others	13.3	8.1	0 – 24
	n	*%*	
Adverse Event			
None	1359	68	
One	452	23	
Two or More	175	9	
AUD Symptoms			
None	1635	83	
Subclinical	241	12	
Clinical	90	5	
SUD Symptoms			
None	1407	71	
Subclinical	316	16	
Clinical	247	13	

NOTE. (~)indicates reverse scored items

Model Fit and Enumeration

The first step for the LCA was to specify the measurement model. Up to 4-Class solutions were adequately identified, but the 5- and 6-class models were not well identified. Fit indices for the full sample are presented in Table 3. The smallest BIC, CAIC, AWE, and LRTS values were attained for the 3-Class model. The Adjusted LMR and BF indicate no better fit with an increase in the number of classes and the highest cmP was for the 3-Class model. Due to the number of indicators and low observed frequency of response patterns, the overall chi-square goodness-of-fit could not be computed. As an alternative indicator of overall fit, the standardized residuals in the 3-Class model were examined to compare expected and observed frequencies; residuals were within expected ranges. A ¾-split sample cross-validation procedure compared 3-

and 4-Class models. Though a 4-Class model was identified, it did not offer different or more meaningful information than the 3-Class model. Additionally, the 3-Class model appeared to best replicate and in holding the principle of parsimony, the 3-Class model was selected as the final model.

Table 3.
Model Fit Indices for LCA of Risk Profiles (Full Sample, n= 1,968)

Model	LL	npar	BIC	CAIC	AWE	LRTS	Adj LMR p-value	BF	cmP(K)
1	-31931.608	54	64273.29	63863.22	64845.35	-3107.86	<.001	<0	<.001
2	-30377.679	109	61583.09	60755.36	62737.82	-612.39	<.001	<0	<.001
3	-30071.484	164	**61388.36**	**60142.97**	**63125.76**	**-298.46**	**0.76**	**>10**	**1**
4	-29922.254	219	61507.57	59844.51	63827.63	-176.342	0.77	**>10**	<.001

As a result of the relative and overall fit indices and adhering to the principle of parsimony, the final unconditional model selected was the 3-Class model. Profile plots for the 3-Class solution are depicted in two forms for descriptive purposes: (1) stacked bar charts (Figure 1) and (2) probability of category endorsement by class (Figure 2). The probabilities for the Adverse Event, AUD, and SUD indicators are only three categories whereas the other indicators are out of seven categories.

Class 1, with an estimated proportion of 22% of the sample, is characterized by higher scores on all indicators (Figure 1.1). On the BDI, FRS, and Problems with Family indicators approximately 40% of the sample is in the 6th or 7th category, whereas the proportion in the highest categories exceeds 50% for the SPS, Unhappiness, and Problems with Others indicators. Approximately 20% are in the highest categories for the Rigidity and Problems with Parent-Child indicators. Indicative of Class 1 is a greater proportion of the sample in the higher categories for the Adverse Event indicator (indicative of experiencing 2 or more adverse events) as well as the AUD and SUD indicators (indicative of the clinical and subclinical symptom

levels). There is a high level of homogeneity; a greater proportion of the sample is in the highest two categories (6^{th} or 7^{th}) of each indicator (Figure 2.3). This class might be labeled the 'High-Risk' Class. Compared to Class 2 (Moderate Risk) and Class 3 (Low-Risk), the High-Risk Class has a lower probability of endorsing Category 1 or 2 across indicators (Figure 2.1). The High-Risk Class is more likely to be in Categories 3-5 on the Problems with Parent-Child and Problems with Family indicators than the Moderate Risk Class, but is well separated from the Low-Risk Class on these categories (Figure 2.2). The Moderate Risk Class has a slightly higher probability of being in Category 6 or 7 for the Rigidity indicator than the High-Risk Class, perhaps a function of the proportion of the sample in these two classes (45% and 22%, respectively).

Class 2, with an estimated proportion of 45% of the sample, is characterized by a large proportion of the class falling between the 5^{th} and 3^{rd} categories (moderate scores) for many of the indicator variables indicating good homogeneity (Figure 1.2). Approximately 70% of the Class is in Categories 3-5 on the FRS and SPS indicators, 50% in the rigidity indicator, 40% on the Unhappiness and Problems with Others indicators, and between 30-35% on the Problems with Parent-Child and Problems with Family indicators. There is also a high proportion of the sample in the lower categories for the related BDI and Unhappiness indicators as well as the Problems with Parent-Child and Problems with Family indicators. Also characteristic of Class 2 is a greater proportion of the sample in the middle categories for the Adverse Event indicator (indicative of at least 1 adverse event) as well as the AUD and SUD indicators (indicative of the subclinical symptom level). Class 2 might be labeled the 'Moderate Risk' class. There is good separation between Moderate Risk Class and Class 3 (Low-Risk) on most indicators, with the exception of AUD and SUD. There is less separation between the High-Risk and Moderate Risk

Classes on the probability of endorsing Categories 3-5 (Figure 2.2). The Moderate Risk Class is well separated from High-Risk and Low-Risk Classes in the probability of endorsing Categories 1-2 (Figure 2.1) and endorsing Categories 6-7 (Figure 2.3) .

Class 3, with an estimated proportion of 33%, is characterized by a greater proportion of the sample in the first two categories (1 or 2). On the BDI, approximately 80% is in Category 1 and approximately 95% are in either Category 1 or 2 (Figure 1.3). On the related Unhappiness indicator 85% are in either Category 1 or 2. Approximately 90% of the sample is in Category 1 or 2 on the Problems with Family indicator, 75% on the Problems with Parent-Child indicator, 70% in the Problems with Others indicator, 60% on the SPS indicator, and 50% on the FRS indicator. Only about 35% of the sample is in either Category 1 or 2 for the FRS; the majority fall into Category 3 or 4. Overall, there is good homogeneity observed across all indicators for Class 3. Also characteristic of Class 3 is a very high proportion of the sample in Category 1 on the Adverse Event (~80%), AUD (~90%), and SUD (~75%) indicators indicating no adverse events or symptoms of AUD or SUD. Between 90-95% of the sample is in Category 1 or 2 of the Adverse Event, AUD, and SUD indicators. Class 3 may be labeled the 'Low-Risk' class. As expected, the Low-Risk Class had the highest probability of endorsing Category 1 or 2 compared to the Moderate and High-Risk Classes (Figure 2.1). The Low Risk Class has the lowest probability of endorsement of Category 3-5 (Figure 2.2) and Category 6-7 (Figure 2.3).

Figure 1. Model Estmated Class Specific Proportions for 3-Class LCA

Figure 1.1. Class 1 'High-Risk' (22%)

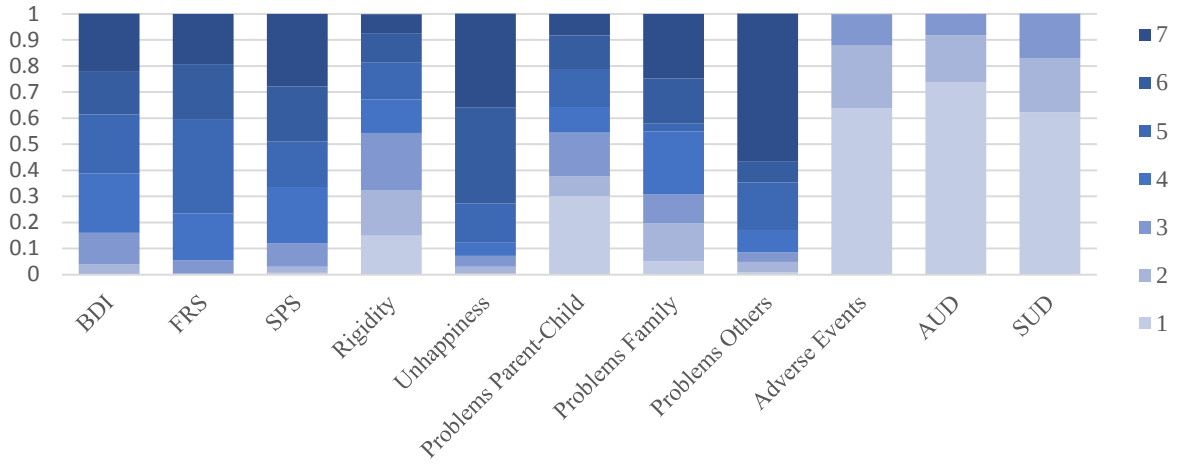


Figure 1.2. Class 2 ' Moderate Risk' (45%)

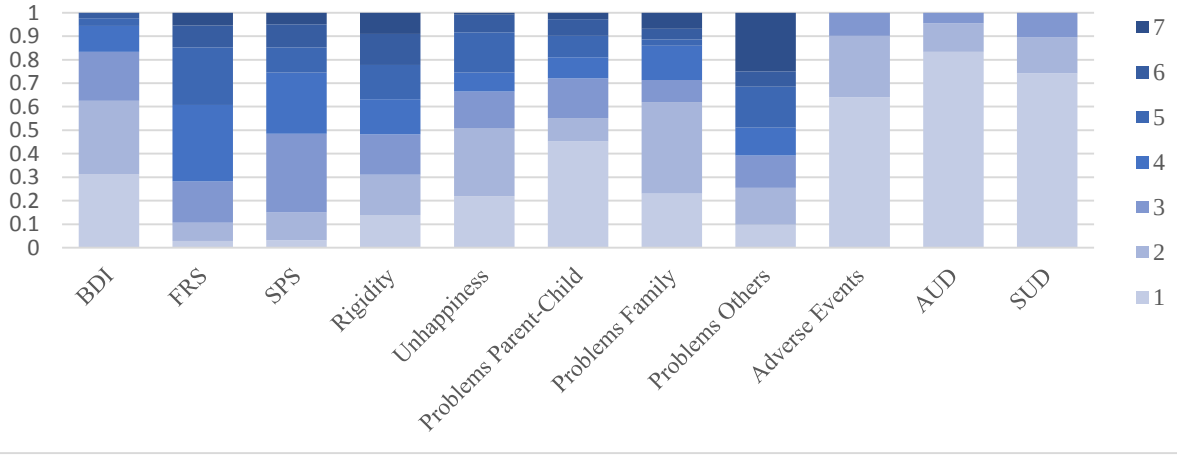


Figure 1.3. Class 3 'Low-Risk' (33%)

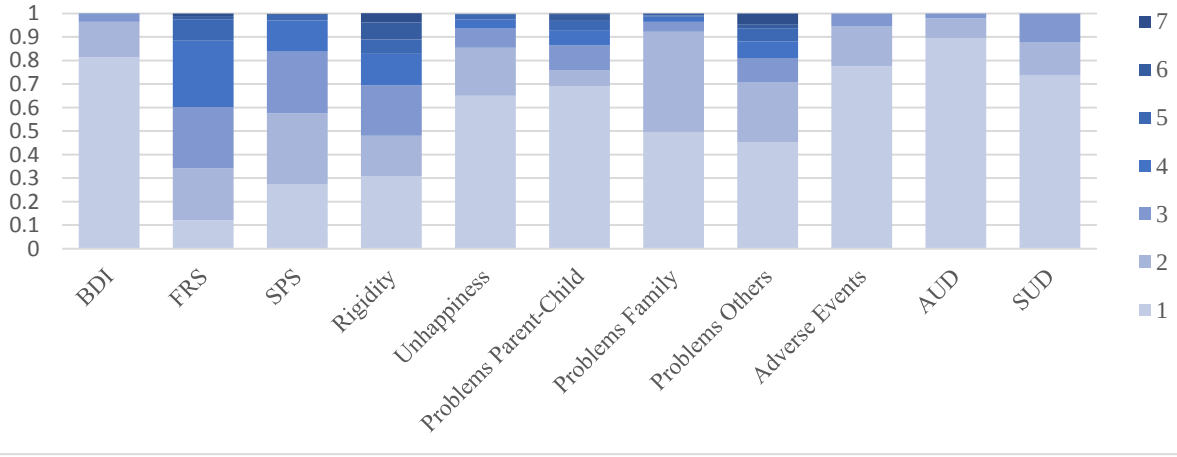
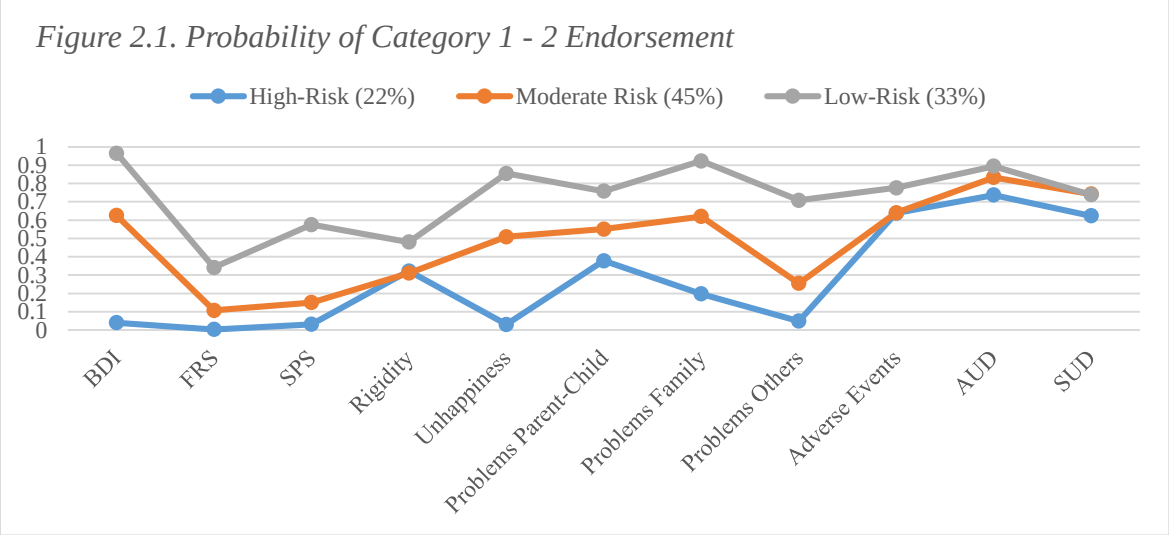
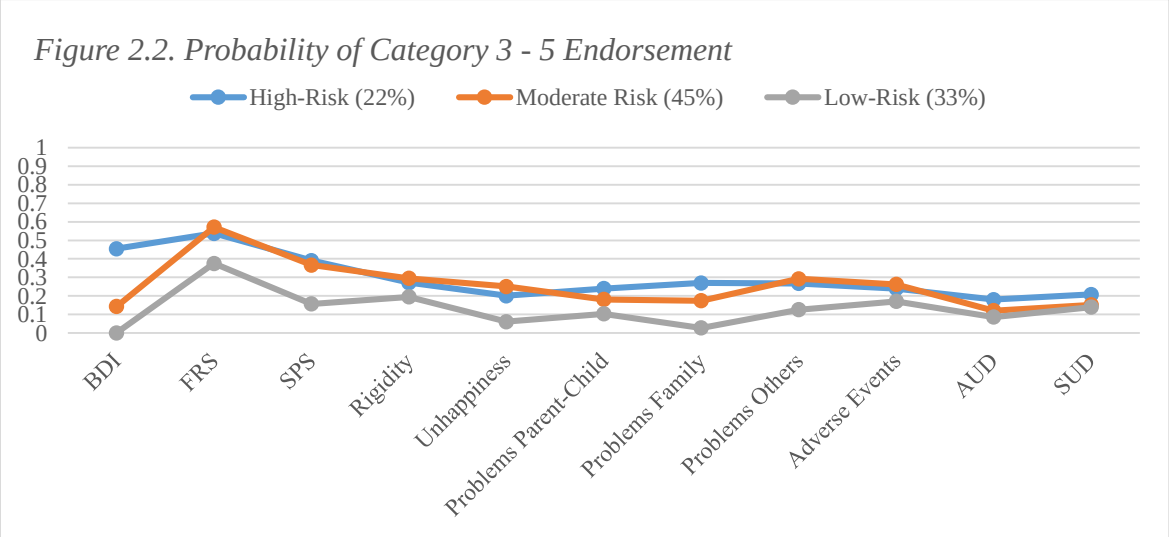
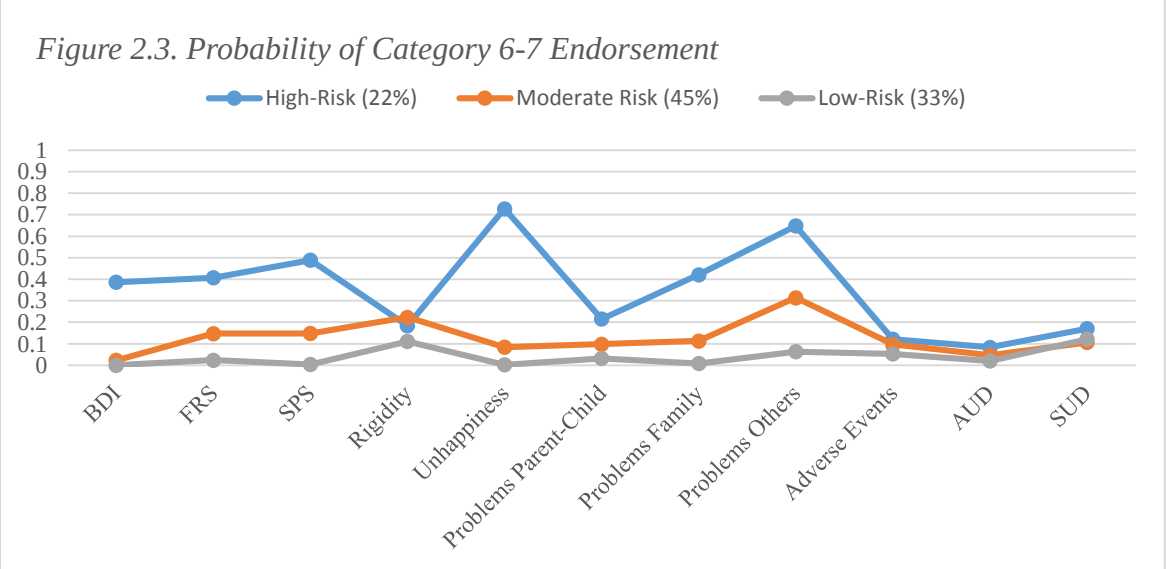


Figure 2. Probability of Category Endorsement by Class for 3-Class LCA.







Collectively, the profile plots for the three classes indicate a high level of homogeneity and separation. Classification diagnostics presented in Table 4 confirm the precision of class assignment. All average posterior class probabilities (AvePP) are above the suggested 0.7 cut off. Additionally, all odds of correct classification ratios (OCCk) are >5 indicating good separation and assignment accuracy. The relative entropy is 0.76 which is suggests adequate posterior classification across the latent classes.

Table 4.
Model Classification Diagnostics for the 3-Class LCA (E= 0.76; N=1,986)

Class	$\hat{\pi}_k$	95% CI	mcaPk	AvePPk	OCCk
High-Risk	0.22287	0.179, 0.268	0.21601	0.93	46.32623
Moderate Risk	0.44953	0.409, 0.5	0.45821	0.866	7.913855
Low-Risk	0.3276	0.256, 0.393	0.32578	0.884	15.64149

Predictors of Class Membership

Tests of overall association by covariate construct is presented in Table 5. Significantly associated with class membership were the covariates race (p = .014), age (p=.022), level of educational attainment (p=.01), employment status (p<.001), marital status (p=.03), and prior history of involvement with CPS (p=.001). Covariates not significantly associated with class membership were living environment, living below the poverty line, and number of dependent children.

The Wald χ^2 results presented in Table 5 offer an alternative, but complementary explanation to the results of the full latent class regression examining the association of covariates between classes presented in Table 6. Generally, covariates were statistically significant in the pairwise comparisons of High-Risk and Low Risk Classes as well in comparison of the Moderate Risk and Low-Risk Classes. There were fewer significant differences between the High-Risk and Moderate Risk Classes.

Table 5.

Overall Test of Association by Covariate Construct for 3-Class LCA

Construct	Variable	Wald χ^2	df	p-value
Demographics				
	Race	16.026	6	0.0136
	Age	5.237	1	0.0221
	Living Environment	1.87	1	0.1715
Economic				
	Poverty	1.77	1	0.1834
	Education	16.858	6	0.0098
	Employment Status	30.812	6	<.001
Family				
	Marital Status	11.018	4	0.0264
	# of Children	0.41	1	0.5219
Prior History		10.182	1	0.0014

Race was significantly different between the High-Risk and Low-Risk Classes, and between the Moderate Risk and Low-Risk Classes, given membership in either class being compared. Race was not statistically different between the High-Risk and Moderate Risk Classes. The odds of being in the High-Risk Class compared to the Low-Risk Class, given membership in either class, is two times the odds for those with less than a 9th grade education compared to those with post high school education (p=.023). The odds of being in the Moderate Risk Class among those with an educational attainment less than 9th grade or less than 12th grade were significantly higher than those with a post high school education, given membership in either the Moderate or Low-Risk classes. The odds of being in the High-Risk Class compared to the Low-Risk class were 60% higher for those who were single and 77% higher for those who were divorced, separated, or widowed compared to those who were married. The odds of being in the Moderate Risk Class were 60% higher for those who were single compared to those who were married, given membership in either the Moderate or Low-Risk classes. The number of children in a home offered no significant differences between any classes. The odds of being in

the High-Risk Class compared to the Low Risk Class were 16% higher for those with a prior history. The odds of being in the Moderate Risk Class compared to the Low-Risk Class were 16% higher for those with a prior history of CPS involvement. There was no significant difference between the High-Risk and Moderate Risk Classes in prior history of CPS involvement.

Table 6.
Three-Class Latent Class Regression Results for the Effects of Covariates on Latent Class Membership (N=1,986)

	Estimate	S.E.	p-value	OR	95% CI
High-Risk (Low-Risk)					
Race[1]					
Black	0.584	0.238	0.014	1.793	(1.124, 2.86)
Hispanic	0.885	0.488	0.07	2.423	(0.931, 6.303)
Other	1.496	0.846	0.077	4.465	(0.85, 23.458)
Age	0.026	0.012	0.022	1.027	(1.004, 1.05)
Living Environment	0.209	0.153	0.171	1.232	(0.914, 1.662)
Poverty	0.262	0.197	0.183	1.3	(0.884, 1.913)
Educational attainment[2]					
< 9th Grade	0.929	0.408	0.023	2.533	(1.138, 5.638)
< 12th Grade	-0.207	0.231	0.369	0.813	(0.517, 1.277)
HS Graduate or Equivalent	-0.093	0.212	0.662	0.912	(0.602, 1.381)
Employment Status[3]					
Full Time Homemaker	0.027	0.261	0.918	1.027	(0.615, 1.715)
Full Time Employed	-0.572	0.266	0.032	0.564	(0.335, 0.951)
Unemployed	0.725	0.264	0.006	2.065	(1.23, 3.467)
Marital Status[4]					
Single	0.471	0.243	0.053	1.601	(0.994, 2.578)
Divorced, separated, widowed	0.572	0.207	0.006	1.772	(1.181, 2.659)
# of Children	0.032	0.05	0.522	1.032	(0.937, 1.137)
Prior History	0.151	0.047	0.001	1.163	(1.05, 1.275)
Intercept	-2.381	0.49	<.001		
Moderate Risk (Low-Risk)					
Race[1]					
Black	0.638	0.236	0.007	1.893	(1.193, 3.004)
Hispanic	1.017	0.465	0.029	2.764	(1.111, 6.88)
Other	1.721	0.854	0.044	5.589	(1.048, 29.791)
Age	0.026	0.012	0.022	1.027	(1.004, 1.05)
Living Environment	0.209	0.153	0.171	1.232	(0.914, 1.662)

Poverty	0.262	0.197	0.183	1.3	(0.884, 1.913)
Educational attainment[2]					
< 9th Grade	1.075	0.425	0.012	2.929	(1.272, 6.743)
< 12th Grade	0.467	0.224	0.037	1.596	(1.028, 2.477)
HS Graduate or Equivalent	0.209	0.213	0.329	1.232	(0.811, 1.872)
Employment Status[3]					
Full Time Homemaker	-0.306	0.247	0.215	0.737	(0.454, 1.195)
Full Time Employed	-0.538	0.244	0.027	0.584	(0.362, 0.942)
Unemployed	0.233	0.264	0.377	1.262	(0.753, 2.117)
Marital Status[4]					
Single	0.474	0.227	0.037	1.607	(1.029, 2.51)
Divorced, separated, widowed	0.258	0.207	0.213	1.295	(0.862, 1.944)
# of Children	0.032	0.05	0.522	1.032	(0.937, 1.137)
Prior History	0.151	0.047	0.001	1.163	(1.06, 1.275)
Intercept	-1.656	0.486	0.001		
High-Risk (Moderate Risk)					
Race[1]					
Black	-0.054	0.212	0.799	0.947432	(0.652, 1.435)
Hispanic	-0.132	0.38	0.729	0.876341	(0.416, 1.846)
Other	-0.224	0.503	0.655	0.799315	(0.298, 2.142)
Age	0	0	1.000	1	--
Living Environment	0	0	1.000	1	--
Poverty	0	0	1.000	1	--
Educational attainment[2]					
< 9th Grade	-0.145	0.314	0.644	0.865022	(0.467, 1.600)
< 12th Grade	-0.674	0.223	0.003	0.509666	(0.329, 0.789)
HS Graduate or Equivalent	-0.301	0.214	0.159	0.740078	(0.487, 1.126)
Employment Status[3]					
Full Time Homemaker	0.333	0.257	0.196	1.395147	(0.843, 2.309)
Full Time Employed	-0.034	0.267	0.898	0.966572	(0.573, 1.631)
Unemployed	0.492	0.241	0.041	1.635584	(1.019, 2.623)
Marital Status[4]					
Single	-0.004	0.226	0.987	0.996008	(0.639, 1.551)
Divorced, separated, widowed	0.314	0.197	0.112	1.36889	(0.930, 2.014)
# of Children	0	0	1.000	1	--
Prior History	0	0	1.000	1	--
Intercept	-0.725	0.259	0.005		

NOTE. 1= White as reference; 2 = Post HS Education as reference; 3 = Other Employment as Reference;4 = Married as reference

Stratified demographic characteristics by modal class assignment are presented in Table 7. As indicated in Table 5, not all covariates were significantly associated with class membership and the same covariates were not consistently significant in the pairwise comparisons presented in Table 6. Covariates commonly used as proxy measures of risk, in particular the number of dependent children, were not significant between High-Risk, Moderate Risk, and Low-Risk Classes.

Table 7.
Demographic Characteristics by Class based on Modal Class Assignment (N=1,986)

	High-Risk Class (22%)	Moderate Risk Class (45%)	Low-Risk Class (33%)
	M (SD)	*M (SD)*	*M (SD)*
Age	29.2 (6.8)	29.0 (8.0)	28.5 (8.0)
# of Children	2.95 (1.7)	2.92 (1.8)	2.79 (1.9)
	n (%)	*n (%)*	*n (%)*
Race			
African American	36 (8)	99 (11)	50 (8)
American Indian/ Native American	78 (18)	161 (18)	94 (15)
Hispanic American	18 (4)	49 (5)	19 (3)
White	285 (66)	567 (62)	471 (73)
Other	12 (3)	27 (3)	9 (1)
Marital Status			
Single	103 (24)	235 (26)	127 (20)
Married/Living Together	175 (41)	404 (44)	357 (55)
Separated/Widowed/Divorced	151 (35)	267 (29)	159 (25)
Employment Status			
Full-time Homemaker	114 (27)	242 (27)	198 (31)
Working Full-time	83 (19)	233 (26)	221 (34)
Unemployed	158 (37)	252 (28)	117 (18)
Other	72 (17)	176 (19)	110 (17)
Location of Residence			
Urban	176 (41)	412 (45)	296 (46)
Rural	243 (57)	485 (53)	345 (53)
Educational Attainment			
< 9^{th} Grade	48 (11)	72 (8)	33 (5)
<12^{th} Grade	124 (29)	323 (35)	212 (33)
HS Graduate or Equivalent	143 (33)	302 (33)	215 (33)
Some post HS Education	113 (26)	211 (23)	186 (29)
Living Below Poverty Level			
Yes	351 (82)	700 (77)	449 (69)
No	47 (11)	124 (14)	128 (20)

Prior History of CPS Involvement			
0	28 (7)	72 (8)	70 (11)
1	101 (24)	241 (26)	204 (32)
2	83 (19)	175 (19)	123 (19)
3	58 (14)	126 (14)	88 (14)
4	57 (13)	103 (11)	55 (9)
5+	102 (24)	193 (21)	107 (17)

Association of Latent Class with Subsequent Referral to CPS

The outcome of interest was the association between latent classes and subsequent referral to CPS. Specifically, this phase of analysis sought to explore what if any differences there were between the latent classes and subsequent referral to CPS during the follow-up period. In an unadjusted model (i.e., not controlling for covariates), of the mothers in the High-Risk Class 43% had a subsequent referral, 40% of the Moderate Risk Class, and 39% of the Low-Risk. The differences between referral or no referral probabilities was not statistically significant for all classes; the overall model was not significant indicating a difference in subsequent referral between classes (Wald χ^2= 1.881; df =2; p= .391). The decrease in probability of report between the High- and Low-Risk Classes was in line with theory and supports the labels of high, moderate, and low Risk. That is, one would expect those in the High-Risk Class to have the highest probability of referral and those in the Low-Risk Class to have the lowest probability of referral. After adjusting for covariates, of the mothers in the High-Risk Class 41% had a subsequent referral, 36% of the Moderate Risk Class, and 41% of the Low-Risk Class. The overall model was not significant indicating no difference in subsequent referral to CPS among the classes controlling for covariates (Wald χ^2 = 1.86; df =2; p=.398). The probability of subsequent referral no longer is in line with theory. Overall the probability of referral is high in this sample.

Unadjusted odds ratios for subsequent referral to CPS between classes are presented in Table 8. The results of the pairwise comparisons support the theoretical notion: those in the High-Risk Class should have the highest odds of subsequent referral and those in the Low-Risk Class should have the lowest odds. Mothers in the High-Risk Class are 1.2 times more likely to have a subsequent referral to CPS than those in the Low-Risk Class and 1.13 times more likely to have a subsequent referral to CPS compared to the Moderate Risk Class. Mothers in the Moderate Risk Class are 1.07 times more likely to have a subsequent referral compared to Low-Risk Class. However, there is no statistically significant difference in subsequent referral between classes.

Table 8.
Unadjusted Model-Estimated Odds Ratios of Subsequent Referral to CPS Class Comparisons on the 3-Class LCA (N=1,986)

	OR	S.E.	P-Value	95% CI
High-Risk v. Low-Risk Referral	1.208	.17	.378	(-.158, .407)
High-Risk v. Moderate Risk Referral	1.132	.16	.175	(-.077, .467)
Moderate Risk v. Low-Risk Referral	1.067	.15	.633	(-.208, .323)

Discussion

This research applied a person-centered approach (LCA) to examine the heterogeneity of families, specifically mothers, involved with CPS by: (1) distinguishing risk profiles, (2) examining the strength of demographic variables as proxy measures of risk, and (3) examining the association of risk profiles with subsequent referral to CPS. The results of this effort support the conceptualization of constellations of risk for CM and the alignment of preventive services aligned with the markedly different needs of risk profile groups. A better understanding of risk profiles among families already involved with the CPS system may identify early intervention

opportunities and/or inform the allocation of appropriate resources contingent upon the needs specific to individual families. It is possible with this information that the parsimony principle, providing the smallest number of services while achieving intervention goals (Berliner et al., 2015), may be maximized in service provision. This paper argues for a multidimensional conceptualization of risk for CM in practice and preventive services aligned with the different needs of risk profile groups.

Three distinct risk profiles were identified using underlying risk factors such as: depression, social and concrete support, potential for abuse, adverse event, and substance use. The High-Risk Class, 22% of the sample, is characterized by high scores on all indicators including a substantial proportion experiencing at least one adverse event and AUD or SUD symptoms. The Moderate Risk Class, representative of the majority (45%) of the sample, is characterized by a high proportion of the sample scoring in the moderate range of all indicators. The Low-Risk Class, approximately 33% of the sample, is characterized by low scores on all indicators, as the class name implies. These results support the hypothesis that risk can be differentiated by underlying risk factors.

Demographic characteristics are frequently used as proxy indicators of risk as a result of caseworker caseload and educational training. The second aim was to examine the strength of demographic characteristics as proxy risk indicators. Covariates were selected based on their availability, but are cited often in the literature as the proxy measures of risk (Duffy et al., 2015). Class membership was significantly associated with race, age, level of educational attainment, employment status, marital status, and prior history of involvement with CPS. It was not significantly associated with the living environment, poverty level, and number of dependent children; all of which are commonly cited risk factors for CM in practice (Duffy et al., 2015).

The difference in significance of covariates on class membership supports the notion that demographic factors alone are not a valid metric of risk. However, none of the demographic indicators have particularly large odds ratios and, thus, none are strong enough to be used as a singular proxy measure of risk. A multidimensional conceptualization of risk that considers the constellation of risk factors experienced by families reported to CPS is supported.

The third aim of this research was to examine the relationship between classes and subsequent referral to CPS. The overall risk of subsequent referral to CPS in this sample is high. In agreement the theoretical framework, the odds of subsequent referral were highest for the High-Risk Class and lowest for the Low-Risk Class. However, there were no significant associations among the classes and subsequent referral to CPS. Thus, it may be inferred that the cumulative risk theory holds in this population and line of inquiry (MacKenzie, Kotch, & Lee, 2011; MacKenzie, Kotch, Lee, Ausberger, & Hutto, 2011).

Built from of the work of Chaffin and colleagues (2011) this research differed in its use of a multidimensional conceptualization of risk and examined women only at one time point. The conclusions from this research and the Chaffin et al. research are similar: families reported to CPS have different underlying risk factors that are related to subsequent referral to CPS. Evaluation of the combination of risk factors may be a mechanism to align service needs and ultimately reduce the number of services to which a family is referred, improving their odds of not having a subsequent referral to CPS (Murry & Lewin, 2014; Berliner et al. 2015). When a family is referred to multiple service providers, the goal of achieving parsimony in service is not possible (Berliner et al., 2015). The use of risk profiles may make it possible to achieve parsimony by aligning services with the underlying risk factors specific to risk profiles.

There are several limitations to this paper. The sample was limited to women already involved in CPS in Oklahoma and therefore the generalizability of these findings is limited. The self-reported AUD and SUD symptoms represent a second limitation. This analysis utilized only self-reported indicators, but incorporating caseworker perceptions of AUD and SUD may be useful given the negative outcomes often experienced by children of substance using parents. The magnitude of association between indicators related to the constellations of risk in this multidimensional framework may have dominated class formation under the local independence model. A higher order latent class model in which the indicators are separated by number of categories may provide additional meaning to the risk profiles of this sample. There was considerable missing on covariates and observations with missing were excluded from the latent class regression models. A multiple imputation process for those covariates may yield different results.

The findings of the present analysis present many opportunities for future analyses. There is the potential to examine the stability in class membership (i.e., changes in risk) over time using a latent transition analysis. Those findings meaningful for research and practice and could then be compared to the Chaffin et al. (2011) examination of risk and chronicity of child welfare involvement. These data were collected as part of a large, statewide cluster randomized trial comparing intervention. A future research direction might be to investigate risk profiles with regard to treatment effect. In particular, it might be possible to suggest what risk profile would be most successful with a given intervention.

Conclusion

This paper distinguished three risk profiles among mothers already involved with CPS and demonstrated the association of those risk profiles with subsequent referral to CPS. Though

this analysis did not solve the challenge of assessment of these underlying risk factors in an overburdened investigation system, it demonstrated the importance of assessment in identifying significant differences in risk of underlying risk factors. If demographic characteristics only are used to appropriate services to families involved with child welfare, the unobserved heterogeneity is missed and families may receive services they do not need, or be unsuccessful in preventing subsequent referrals to CPS. The unobserved heterogeneity depicted in this sample affirms the multidimensional, holistic conceptualization of risk though it does not necessarily imply individualized intervention efforts. Rather, services may be tailored perhaps among the different risk profiles, or classes of a sample with similar characteristics that are different from other classes. Additionally, similar to prior efforts, this research utilized established risk factors for CM among a sample of mothers already involved with CPS. It is likely the risk factors used in prevention efforts (i.e., no prior involvement in CPS) are substantively different from risk factors useful for intervention efforts. Consideration of alternative risk factor measures is warranted. Further examination of these underlying risk factors over time and in relation to intervention may better inform the provisioning of intervention services to those in greatest need.

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Chapter 3: Summary

Child maltreatment is a considerable public health concern made complex by the interaction of risk factors across individual, interpersonal, and social levels. Despite declines in physical and sexual abuse over recent decades, neglect remains largely unaffected (Finkelhor, Saito, & Jones, 2015). When risk for CM is characterized only by demographic factors, underlying risk factors, such as depression or substance use, go unaddressed and may hinder the efficacy of preventive efforts resulting in repeat involvement in the child welfare system. To better inform prevention work, a better understanding of the complex relationship of risk factors and child welfare involvement is greatly needed.

The purpose of this three-manuscript dissertation was to examine risk for CM and novel evidence-based CM preventive intervention efforts. The first paper described the use of EBP in CM prevention, focusing particularly on home-based support programs. The push towards the use of EBP was initially met with skepticism and resistance from providers with a different perception of 'evidence' of effect than an empirically derived evidence base (Chaffin & Friedrich, 2004). The overburdened caseloads and restricted budgets of recent years have shifted the support for EBP. Now providers are left to choose what EBP to select and the similarities and differences between models and programs make it difficult to choose. No EBP is going to meet all of the needs of every family in a given caseload. As such, we suggested the need and opportunity to explore innovative, responsive, and cooperative implementation approaches across EBP so as to maximize positive outcomes for families at-risk.

The second paper discussed parental substance use as a risk factor for CM, specifically neglect, and explored the parenting and mental health needs of families of criminal justice-involved, substance using parents. Focusing on an adult drug court population, this descriptive

research filled a void in the literature by using self-reports of adult drug court participants, their children, and the children's other caregiver related to parenting and mental health needs. Extant literature could lead to a conclusion that parenting is unwaveringly poor among substance using parents. However, among this sample, parenting was not notably poor. Rather, across multiple parenting measures the majority of the sample had at least average scores. The potential for maltreatment, particularly physical abuse was low. The scores did indicate room for improvement related to discipline practices. Mental health outcomes for drug court participants were as expected, however, not as many participants had clinical levels of mental health issues as the literature would suggest though the findings among this sample is not generalizable to all individuals with SUD. A limitation of this descriptive study is the unknown variable of time in the drug court program at time of assessment. Mental health outcomes reported by the children, however, were notable and indicated distinct likely need for services. The efforts of this descriptive work could be useful in designing intervention efforts that incorporate child and family needs into an adult drug court setting.

The third paper continued the empirical examination of risk by examining the 'constellation' of risk experienced by mothers involved with CPS. Using latent class analysis, three distinct risk profiles were identified: High-Risk, Moderate Risk, and Low-Risk. Levels of depression, substance use disorder symptoms, poor perceptions of concrete and social support, as well as the potential for interpersonal conflict were significantly different among the classes. The separation between and homogeneity among classes supports the notion that a one-size-fits all intervention approach leaves some individuals overserved (i.e., receiving unneeded services) and others underserved (i.e., not receiving needed services). This is further supported by an observed difference in subsequent referral between classes. When demographic risk factors are used to

assess risk, homogeneity ensues. The underlying heterogeneity in families, particularly mothers, involved with CPS described in this paper may inform tailored intervention efforts discussed in Paper 1.

Implications for Future Research

Collectively the three manuscripts included in this dissertation have described risk factors for CM that must be considered in intervention implementation efforts. The work, however, is far from complete. The complex nature of child maltreatment means that there is more heterogeneity to explore over time, among different samples, and between different risk factors. In particular, Paper 3 suggested that it may be beneficial to consider alternative risk factors in intervention populations from those used in prevention populations. Risk factors for maltreatment have historically been applied to both prevention and intervention samples. However, as the data of the criminal justice-involved substance-using parent sample from Paper 2 and the CPS involved mothers from Paper 3 indicate this may be doing families already involved with a system a disservice. Risk or involvement with a system that is met with a one-size fits all intervention approach is not answering underlying or observed needs of the individuals or families. Bridging this knowledge acquired through research to action in practice is a challenge that will warrant further consideration. The overburdened child welfare system must rely on research to develop collaborative, responsive, and innovative evidence-based interventions. To do this, researchers must work with the child welfare system to develop efficient and accurate mechanisms for ascertaining levels of risk and needs among those at-risk for involvement and those already involved with the child welfare system.

It is hoped these papers will serve as a catalyst for a research program centering upon the co-occurrence of multiple risk factors experienced by families at-risk for child maltreatment and

the relationship of those risk factors and intervention efforts. The development and testing of new mechanisms to ascertain risk is evident. Until no children experience maltreatment, there is more work to be done and more to understand.

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