

Risks, Outcomes, and Evidenced-Based Interventions for Girls in the U.S. Juvenile Justice System: Recommendations for Next Steps in Research, Intervention, and Implementation

The problem: Female delinquency is increasing, yet few evidence-based models have been tested with girls in the juvenile justice system. Although there is much known about the risk and protective factors for girls who participate in serious delinquency there are significant gaps in the research base that hamper the development of theoretically-based intervention approaches.

Goals of this report: The goals of this report are threefold. First, we summarize the extant empirical work on the causes and consequences of juvenile justice involvement for girls (and the gaps in this knowledge base). Second, we summarize previous work on empirically validated evidence-based interventions for juvenile-justice involved youth and assess the relevance of these interventions for girls. Third, we propose recommendations that we assert are feasible, cost-efficient next steps to advance the research and intervention agendas for this under-researched, underserved population of highly vulnerable youth.

Scope of this report: We summarize empirical studies on risk and protective factors for girls who are involved in juvenile justice. We do not include every individual study in the area, but rather, we focus on areas with converging evidence across multiple studies. We exclude research on community samples of girls with antisocial behavior. Although this research is informative and important, elevated antisocial behavior is common among adolescents. Further, formal involvement in juvenile justice has apparent cascading long term effects on girls' future adjustment that are probably not shared by the majority who avoid system involvement.

Findings on risk factors and co-occurring problems:

Risk factors that are relevant for both genders, but that appear to be more salient for girls (than for boys) in the juvenile justice system:

- Child maltreatment (physical, sexual abuse, neglect)
- Caregiver transitions
- Running away
- Close friends are older males
- Early pubertal onset
- Participation in health-risking sexual behavior
- Co-occurring mental health disorders

Risk factors that appear to be of equal salience for both genders, or potentially greater for boys:

- Parent criminality
- Association with delinquent peers
- Early onset of antisocial behavior and delinquency
- Drug use
- Poor academic performance and low school involvement
- Poor parental monitoring
- Harsh parental discipline
- Neighborhood poverty

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Protective factors: There is significantly less empirical research on specific protective factors for juvenile justice involved youth of either gender. Protective factors that have been identified include:

- Warm, involved, authoritative parenting
- Positive relationships with mentoring adults
- Associations with prosocial peers
- School engagement and achievement

However, this is an area where little is known, and there are few prospective longitudinal studies that begin prior to entry into the juvenile justice system.

Young adult outcomes for girls involved in juvenile justice: There are also only a handful of empirical studies that follow girls who were involved in the juvenile justice system as adolescents into their adulthood years. From this scant research base, some critical young adult outcomes have been identified:

- Continued engagement in criminal behavior
- Substance use
- Early pregnancies and early parenting
- Involvement with the child welfare system
- Victimization by romantic partners
- Low rates of graduation from high school
- Poor employment prospects

This is a second area where additional longitudinal research is needed, in particular to help identify protective factors that promote healthy adaptation after juvenile justice involvement.

Summary of research findings: The review of this literature has led us to conclude that although research with juvenile justice girls has increased and has produced a solid set of findings on risk factors and co-occurring problems, there is insufficient research on protective factors and on long term outcomes. Identified risk and protective factors that correspond to girls' involvement in the juvenile justice system largely parallel those of boys', although exposure rates and magnitudes of association may differ by gender. However, in no instance is a familial or contextual risk factor for one gender a neutral or protective factor for the other gender.

Evidence-based practices (EBPs) for juvenile justice girls: It is estimated that only 9% of the juvenile offenders (of both genders) in the US receive evidence-based interventions. Randomized controlled studies have verified the effectiveness of four intervention models as being evidence-based for reducing delinquency and related outcomes in juvenile justice-referred youth. Three of these intervention models have included boys and girls in their samples, and one model has included girls only, although girls have been underrepresented overall and statistical power to detect intervention effects is low. Nonetheless over 950 girls have been included across the studies that have established the evidence-base for these models: Multisystemic Therapy (MST), Functional Family Therapy (FFT), Multidimensional Family Therapy (MDFT), and Multidimensional Treatment Foster Care (MTFC). These models are reviewed and positive outcomes are noted in several key areas, including reductions in:

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Delinquency
Substance use
Incarceration
Behavioral and mental health problems

Increases in:

Positive school adjustment/engagement
Higher rates of placement stability
Reductions in teen pregnancy rates

These interventions have a set of core common components including: 1) they are family and community based, 2) they focus on known risk and protective factors, 3) they include a behavioral emphasis, and 4) they are implemented using standardized procedures and treatment fidelity is monitored.

Given this evidence base, which includes both boys and girls, we can conclude that existing EBPs appear to be effective for girls. However, we cannot conclude whether gender-specific interventions would yield any better outcomes for girls than interventions that already exist for both genders and have a strong base of evidence to support them. The question of whether gender-specific interventions are needed for girls is currently a hot topic, with advocates on both sides. We offer recommendations to address this question and help fill this knowledge gap.

Research Recommendations

1. Address the question of whether existing EBPs work as well for girls as they do for boys. To do this we propose that two methods of data mining be used: 1) Pooling Data.

Pool data across the EBPs to aggregate outcomes for girls (relative to boys), and, where possible, examine mechanisms of change. **2) Analyzing EBP implementation projects.** The EBPs highlighted in this review are also being implemented across the US. Although research data are not collected as part of these implementations, system data exists that could further inform the extent to which existing EBPs work equally well for both genders.

2. Use existing assessment tools to inform individualized services. Effective screening tools are currently utilized in a large number of detention centers. The data from these tools could be used to determine whether specific constellations of risk factors relate to similar outcomes (regardless of gender) or conversely if gender-specific programming is indicated for all or subsets of the juvenile justice population.

3. Conduct cost analysis models on the costs of mental and physical health outcomes. Given the high rate of co-occurring mental and physical health problems for girls, it is clear that juvenile justice costs represent a small portion of the societal costs of female delinquency. We recommend that economic analyses include the costs of these known co-occurring problems.

Intervention Recommendations

1. Develop and test preventive interventions in child welfare and school settings. These settings present key opportunities for early interventions that could potentially reduce rates of juvenile justice involvement.

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2. Provide booster services as girls involved in juvenile justice transition to young adulthood. Peers and intimate partners are key influences on girls in terms of maintaining delinquency, substance use, and HIV risk behavior trajectories, yet currently there are no theoretically-based interventions focused on this vulnerable sub-population.

3. Consider increasing the emphasis on co-occurring problems for juvenile justice girls. If future research indicates that existing EBPs are not as effective for girls with co-occurring problems, or that specific intervention components are particularly helpful for such girls, modification of existing EBPs to more directly treat co-occurring problems may be warranted.

4. Increase the research base on implementation efforts. Barriers to adoption, implementation, and sustainability of effective services for girls are currently not well specified or measured. Research is needed to identify methods of increasing the uptake of effective interventions by community providers.

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Delinquent behaviors have historically been associated with boys, with girls more typically considered along the internalizing spectrum of disorders (Zahn-Waxler, Shirtcliff, & Marceau, 2008). A product of this dichotomy is that most of the large-scale studies guiding theory and interventions related to delinquency have been based on all-male samples (e.g., Loeber & Farrington, 2001; Loeber et al., 2000; Patterson, Reid, & Dishion, 1992); girls' delinquency has received comparatively little scholarly or evidence-led intervention attention relative to the study of boys' delinquency. However, official arrest data show a striking increase in the proportion of girls in the juvenile justice system (Snyder, 2008; Puzanchera & Adams, 2011). A decade ago girls accounted for 20% of all juvenile arrests, whereas the most current data show a 50% increase, with girls now accounting for 30% of all juvenile arrests. In addition, girls' rates of simple assault increased by nearly 20% from 1997-2006, while boys' rates of simple assault declined during this same time period, suggesting that the recent increase in girls' arrest rates is not merely due to increasing rates of misdemeanor offenses. However, girls with conduct problems receive mental health and social services less frequently than their male counterparts (Offord, Boyle, & Racine, 1990). Girls' delinquency and involvement in the juvenile justice system is therefore of significant public health concern, and increased attention is

needed to develop, test, and implement effective interventions for girls who are at risk for entry into, are currently involved in, or are exiting the juvenile justice system. The primary purpose of this report is to review the research evidence base in this area, identify gaps, and offer concrete research-based recommendations for future work with juvenile justice girls.

Overview

Guided by a review of the research evidence on girls' delinquency and offending behavior, we provide a set of research and intervention recommendations aimed at furthering the understanding of the causes and consequences of girls' involvement in the juvenile justice system, and guiding the development and implementation of evidence-based interventions for this population. Recommendations are based on a review of the empirical evidence on juvenile justice girls across four domains: (I) family, contextual, and individual risk factors that increase the likelihood that a girl will be detained by juvenile justice authorities, and promotive factors that have positive effects on at-risk girls' outcomes and compensate for risk exposure (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998); (II) mental health, substance use, and sexual and physical health characteristics of girls in the juvenile justice system; (III) adjustment and relationship outcomes for juvenile justice girls during later adolescence and adulthood after their initial involvement in the juvenile justice system; and (IV) evidence-based interventions for juvenile justice-involved youth. We focus on areas where there is convergence in findings across studies, rather than describing the full catalog of studies and findings in the existing literature (an endeavor beyond the scope of this review paper).

The research reviewed in Sections I-IV led us to conclude that, although research with juvenile justice girls has increased over the last decade and produced a solid set of findings on risk-factors and co-occurring problems for this population, we do not know much about protective factors, long-term outcomes, and whether gender-specific interventions would yield any better outcomes for girls than interventions that already exist for both genders and that have

a strong foundation of evidence to support them. We therefore conclude this report by highlighting key gaps and offering specific recommendations to help fill these gaps through future research endeavors, to ultimately improve outcomes for girls in the juvenile justice system.

How this Review Differs from Existing Reviews

There are numerous articles and books focused on female juvenile offenders (e.g., Cauffman, 2008; Miller, Leve, & Kerig, 2011; Sprott & Doob, 2009; Zahn, 2009; Zahn et al., 2010). In addition, there is an increasing number of websites that offer advice for working with girls in the juvenile justice system (e.g., <https://www.nttac.org/index.cfm?event=gsg.Homepage>). This review differs from existing work in several ways. First, our review focuses exclusively on empirical studies of youth who have had police contact, have been adjudicated, and/or have been otherwise involved in the juvenile justice system in the United States. We do not include the large body of research and intervention work on delinquent behaviors in adolescent community samples, aggressive/ delinquent samples, or other high-risk samples of girls unless juvenile justice involvement is specified (e.g., we exclude work from Fontaine, Carbonneau, Vitaro, Barker, & Tremblay, 2009; Moffitt & Caspi, 2001; Pepler et al., 2010). Although research with these at-risk delinquent populations is important and informative, elevated delinquency is common during adolescence for both males and females, and most youth who engage in delinquent or aggressive behavior during adolescence do not significantly harm others, and do not enter the juvenile justice system. In contrast, involvement in the juvenile justice system incurs significant system-level, individual, and community-level costs. Further, it may have its own unique, cascading effects on future adjustment outcomes. We therefore limit our review to samples where public health and economic costs have already been incurred through contact with legal authorities and/or placement in detention, and where these costs could be computed using health-economic methods (e.g., Drake, Aos, & Miller, 2009). An exception to this is that in

Section I, because it is not possible to study promotive factors that *prevent* youth from juvenile justice involvement and simultaneously require juvenile justice involvement, we extend our review to include studies conducted during middle childhood with specified populations of girls who are at high risk for juvenile justice involvement later in development (e.g., girls from high-risk neighborhoods or girls with child welfare involvement) to illustrate the promotive effects of specific family and individual characteristics.

A second distinct aspect of this review is that we focus solely on interventions for juvenile justice youth that have an underlying evidence-base and have been evaluated using randomized controlled trials. The large number of promising programs and un-evaluated programs are excluded from this review. We specify our definition for ‘evidence-based interventions’ in Section IV. Third, we draw direct links between the risk factors and characteristics described in Sections I-III with the intervention foci described in Section IV. This approach removes the assumption that ‘girls have unique needs and therefore unique interventions are needed.’ Rather, the emphasis is placed on research that examines risk factors and outcomes, and the application of that evidence to guide the development of service delivery models. In this way, male or female gender is not ignored, but the emphasis is placed on identifying individual risk factors that may operate to a greater or lesser (or equal) extent for males and females, rather than a “unique needs, unique interventions” model. Fourth, we propose a set of research and intervention recommendations (Section V) that are directly based upon the evidence presented in Sections I-IV and the gaps identified therein. We believe that the most effective way to improve the understanding of risk factors and outcomes for female juvenile justice populations, and to increase the number of such youth who receive evidence-based programming, is to base recommendations on a critical review of the evidence base.

In the first three empirical review sections of this report, we focus primarily on research with female samples but add commentary on similarities and differences between males and

females, if such work has been conducted. Due to the dearth of evidence-based interventions for juvenile justice girls, Section IV discusses all evidence-based interventions with juvenile justice-involved youth (males and females).

Section I: Risk and Promotive Factors During Early and Middle Childhood

In this section, we review factors and processes that increase risk for or provide protection against girls' future involvement in the juvenile justice system. We review the research evidence in three domains: family characteristics (maltreatment and the parent-child relationship; caregiver transitions/placement stability), contextual factors (peer relationships; neighborhood/school characteristics), and individual characteristics (pubertal timing; early onset delinquency). Research evidence in this section is drawn from two types of studies: (1) studies of girls involved in the juvenile justice system where there is retrospective data or records data on risk and promotive factors occurring earlier in development, and (2) studies of high-risk girls where there is prospective data linking early risk and promotive factors during middle childhood to delinquency-related outcomes later in development. Many of these risk and promotive factors are noted again in Section IV when we present evidence-based practices connected to specific risk and promotive factors, and in Section V when we present research and intervention recommendations.

Family Characteristics

Maltreatment and the parent-child relationship. A primary factor associated with involvement in the juvenile justice system is exposure to maltreatment during childhood. Numerous studies of youth in the juvenile justice system indicate that adolescent female offenders are more likely to have been victims of sexual and/or physical abuse (e.g., Cauffman, Feldman, Waterman, & Steiner, 1998). In addition, adjudicated girls and girls at-risk for adjudication with a history of sexual abuse tend to have *more extreme* delinquency outcomes (Goodkind, Ng, & Sarri, 2006; Wareham & Dembo, 2007). Further, studies consistently indicate

that rates of childhood sexual and physical abuse are significantly higher for girls in the juvenile justice system than for boys, with rates from 3.5 to 10 times higher for girls than for boys (Johansson & Kempf-Leonard, 2009; Leve & Chamberlain, 2005a). Prospective longitudinal studies provide additional confirmation of the association between maltreatment and juvenile justice involvement. In a landmark prospective study of court cases of child abuse and neglect in children under age 12, Widom (1989) found that abused and neglected youth had higher rates of criminality and arrests for violent offenses between ages 16-32 as compared to nonmaltreated matched control individuals. Overall, girls who are exposed to child abuse or marital violence are more than seven times as likely to commit a violent act that is referred to juvenile justice than are control girls (Herrera & McCloskey, 2001).

In addition to extreme forms of parenting (i.e., maltreatment), both prospective studies of at-risk girls and retrospective studies of girls in the juvenile justice system suggest the relevance of specific parent and parenting qualities in increasing girls' risk for juvenile justice involvement. For example, several studies indicate that parent criminality increases the likelihood of juvenile justice involvement for daughters. A study of juvenile-justice involved girls reported that 61% of girls had a parent or close family member who had problems with the criminal justice system (Lederman, Dakof, Larrea, & Li, 2004). The effect of parent criminality on youth involvement in the juvenile justice system appears to be stronger for girls than for boys: Leve & Chamberlain (2005a) found that 70% of girls in the juvenile justice system had at least one parent convicted of a crime; for juvenile justice boys, the rate was significantly lower at 41%.

Conversely, maternal warmth during middle childhood may be a promotive factor that helps at-risk girls avoid delinquent behaviors. Higher levels of maternal warmth reduced disruptive behavior and conduct problems in a sample of at-risk girls during middle childhood (Hipwell et al., 2008; van der Molen, Hipwell, Vermeiren, & Loeber, 2011). Similar protective associations were found between parental warmth and decreases in delinquency over time in a

juvenile justice sample of girls (Williams & Steinberg, 2011). Father warmth may also play a protective role; a study of juvenile justice-involved girls indicated that the lowest levels of self-reported offending were present in girls who received high levels of paternal warmth combined with low encouragement of antisocial behavior from their romantic partner (Cauffman, Farruggia, & Goldweber, 2008). On the other hand, harsh parenting/punishment is not only a risk factor contributing to multiple mental health problems (including disruptive behavior and conduct problems) in at-risk girls, both concurrently and prospectively (Hipwell et al., 2008; Loeber et al., 2009; Miller, Loeber, & Hipwell, 2009), but it also contributes to delinquency in juvenile justice samples of girls (Williams & Steinberg, 2011). Finally, parental monitoring has been associated with longitudinal declines in delinquency in juvenile-justice samples of girls (Williams & Steinberg, 2011). Taken together, these studies suggest that warm, authoritative parenting may promote healthy adjustment among at-risk girls, making it ripe for consideration as an intervention target due to its buffering effects on engagement in delinquent, offending behaviors (Steinberg, Blatt-Eisengart, & Cauffman, 2006). The evidence-based interventions described in Section IV further emphasize the importance of contingent, responsive parenting on reducing delinquency in juvenile justice youth.

Caregiver transitions and placement stability. One effect of maltreatment is placement of the child into foster care. Numerous studies highlight caregiver transitions during early and middle childhood as a key factor in predicting girls' involvement in the juvenile justice system. For example, a prospective study of girls in foster care examined placement changes (e.g., disruption from one foster home and placement in a new home) between ages 11 and 12, and found that placement changes predicted a cascade of delinquency-related problems two years later, including tobacco and marijuana use, and early engagement in sexual activity (Kim, Pears, Leve, Chamberlain, & Smith, in press). Participation in a parenting- and skill-building focused intervention helped increase placement stability, leading to more positive behavioral

outcomes for these at-risk girls. A second study of children in out-of-home care suggested that placement with non-kin foster parents was more promotive of positive adjustment outcomes than placement in kinship care. In that study, longer length of time living with kin was related to greater involvement in risk behaviors including delinquency, risky sexual risk behavior, substance use, and tickets/arrests (Taussig & Clyman, 2011). In a third study, parenting disruptions were associated with delinquent behavior in a sample of children of substance-abusing parents (Keller, Catalano, Haggerty, & Fleming, 2002). Although this effect was found for both boys and girls, only adolescent females had a higher likelihood of drug use as the number of family disruptions increased, suggesting greater impact of caregiver transitions for at-risk girls, relative to boys. Similarly, retrospective studies of girls in the juvenile justice system have indicated higher than expected rates of foster care involvement, with a large study of consecutive female admissions to a short-term juvenile detention facility finding that 20% of girls were currently in foster care (Lederman et al., 2004).

Another aspect of placement stability is the youth's history of running away from home/their placement. Several retrospective studies of juvenile offenders have found that girls have higher rates of running away than boys (Leve & Chamberlain, 2005a; Johansson & Kempf-Leonard, 2009). Experiences of maltreatment further increase the likelihood that a girl will run away from home (Lederman et al., 2004). In addition, having a history of running away increased the odds of serious, violent, and chronic offending in a sample of juvenile-justice referred girls by 4.8 times, as compared to juvenile-justice referred girls without prior runaway referrals (Johansson & Kempf-Leonard, 2009). The importance of targeting youth who have had caregiver transitions (e.g., youth in foster care) to prevent entry into the juvenile justice system is highlighted in the intervention recommendations in Section V.

Contextual Processes

Peer relationships. Perhaps the most widely studied contextual influence on adolescent delinquent behavior is peer relationships. Studies of juvenile justice girls suggest two key aspects of peer relationships in this population: who they choose as friends, and how much their friends encourage delinquency. First, compared to a matched sample of girls who were not involved in the juvenile justice system, girls involved in the juvenile justice system were more likely to identify males as their closest friends (Solomon, 2006). In that study, 35% of juvenile-justice involved girls identified a male as their closest friend, whereas only 5% of non-juvenile justice involved girls identified a male. Further, several studies indicate that juvenile-justice involved girls tend to have romantic relationships with boys who are several years older than they are. The Solomon study found that 53% of girls who reported having a male as their closest friend had friends who were at least 3 years older than they were. Conversely, girls with females as their closest friend and non-juvenile justice involved girls' rates of having friends at least 3 years older were 13% and 2%, respectively. Similarly, a study of youth adjudicated for serious offenses indicated that girls were more likely than their male counterparts to date partners who were 2 or more years older (Cauffman et al, 2008). A third study indicated that more than one-third of girls in a juvenile justice facility reported being sexually involved with someone more than 5 years their senior (Lederman et al., 2004). However, the precipitating factor related to offending behavior may not be the age of the partner, but rather the degree of encouragement of antisocial activity by the partner (Cauffman et al., 2008). The Solomon study further indicated that most girls in the juvenile justice system report engaging in delinquent activities with their closest friends; rates were 65% for girls who had males as their closest friend, 56% for girls who had females as their closest friend, and 5% for matched community girls who were not in the juvenile justice system.

On the positive spectrum of peer influences, prospective studies conducted with at-risk girls during middle childhood suggest that peers and positive social relationships can also help

promote positive outcomes. One study of pre-adolescent girls in foster care suggested that social support during middle childhood predicted reduced risk behavior 6 years later (Tausig, 2002). A second study of foster girls transitioning to middle school found that prosocial peer relations were associated with later decreased externalizing and internalizing problems, and prosocial peer relations were also increased through a preventive intervention (Kim & Leve, 2011). Conversely, affiliation with problem-prone peers has been shown to be associated with disruptive behaviors in 7-8 year old at-risk girls (Miller et al., 2009). Third, a study with 5 – 11 year old girls with clinical level externalizing problems indicated that an intervention focused on social problem solving, emotion regulation, and skill development for girls and positive relationship development for parents resulted in reductions in girls' problem behavior and improvements in parents skills (Pepler et al., 2010). The centrality of peer and partner influences on girls' proclivity to engage in serious delinquency is highlighted in the intervention recommendations in Section V.

Neighborhoods and schools. School is another context that can serve to promote positive outcomes for at-risk youth. Among a sample of children with substantiated maltreatment reports for neglect, low rates of school behavior problems, good grades, and good attendance were associated with substantially reduced delinquent involvement (Zingraff, Leiter, Johnsen, & Meyers, 1994). Overall, however, girls with juvenile-justice involvement have very poor academic performance, with an average GPA of 1.05, which is in the failing range (Lederman et al., 2004). The Lederman study indicated that for girls who had had more than one prior detention stay, GPAs were even lower at .65. Overall, research indicates that neighborhoods with higher rates of poverty have greater arrests for property and personal crime (Steffensmeier & Haynie, 2000). A prospective study of girls who experienced violent victimization indicated that such girls exhibit more violence than nonvictimized girls living in similar neighborhoods (Molnar, Brownie, Cerda, & Buka, 2005), suggesting the contributing influences of both

victimization as well as neighborhood context. The potential benefit of developing and testing school-based interventions to prevent entry into the juvenile justice system is highlighted in our intervention recommendations in Section V.

Individual Characteristics

Pubertal timing. Numerous studies have documented that girls who experience pubertal timing at an earlier age are at increased risk for a host of psychopathological outcomes during adolescence, including increased delinquency (Ge, Natsuaki, Jin, & Biehl, 2011). The effects of early pubertal maturation on delinquency are particularly pronounced when girls have elevated levels of behavioral problems (Ge, Conger, & Elder, 1996). Early pubertal timing in girls is linked to family risk factors such as maltreatment, which have known associations with later involvement in delinquency (as reviewed earlier in Section I). For example, a study of maltreated girls indicated that sexual abuse was associated with earlier onset of puberty, whereas physical abuse was associated with more rapid tempo of pubertal development during early adolescence (Mendle, Leve, Van Ryzin, Natsuaki, & Ge, 2011). In addition, early pubertal timing is associated with many of the risky peer, neighborhood, and parenting processes described earlier in this section. For example, pubertal timing was correlated with affiliation with an older boyfriend and with risky sexual behavior in a sample of substance using girls (Mezzich et al., 1997), and with conflict with parents (Haynie et al., 2003). Further, high poverty neighborhoods amplified associations between early pubertal timing and delinquency/violent behavior (Obeidallah, Brennan, Brooks-Gunn, & Earls, 2004). In contrast, early pubertal maturation does not appear to be a risk factor for delinquency and juvenile justice involvement for males (e.g., Graber, Seekey, Brooks-Gunn, & Lewinsohn, 2004). Together, the research on pubertal timing indicates that early onset puberty is a risk factor for girls', but not boys', involvement in the juvenile justice system, and its effects may operate through downstream

correlates such as entry into sexual relationships with older boys that can be directly targeted in intervention studies.

Early onset delinquency. In both males and females, involvement in the juvenile justice system at a younger age increases the likelihood of a subsequent criminal referral and return to juvenile detention (Lederman et al., 2004; Leve & Chamberlain, 2004). For example, girls who had been detained previously were 13.8 years old at their first offense; age of first arrest for girls who had not been previously detained was 14.4 (Lederman et al., 2004). Prospective studies of at-risk girls similarly suggest that higher levels of problem behavior early in development predict increased behavior problems later in development. For example, in a prospective study of 7-12 year old youth in foster care, initial levels of behavior problems were associated with risk outcomes 6 years later (Taussig, 2002), and externalizing symptoms at age 9 predicted increased psychopathology and reduced social competence during the transition to adolescence in a sample of girls in urban neighborhoods (Obradović & Hipwell, 2010). The identification of early onset delinquency as a risk factor for entry and sustained involvement in the juvenile justice system (for both boys and girls) suggests the potential benefits of applying a preventive intervention approach to reducing initial involvement in the juvenile justice system, as highlighted in one of our intervention recommendations (Section V).

Summary

There is a large body of research indicating that the following risk factors predict involvement in the juvenile justice system, with factors that are more predictive for girls than for boys listed in bold: **maltreatment**, parent criminality, harsh parenting, poor parental monitoring, **caregiver transitions**, **runaways**, **older male friends and partners**, delinquent peer affiliations, school failure, neighborhood poverty, **early pubertal timing**, and early onset delinquency. The vast majority of risk factors are relevant for both boys and girls, although studies typically do not conduct analyses to compare risk factors for boys versus girls. However,

in no case is a contextual or familial risk factor for one gender a neutral or protective factor for the other gender. A limitation of work in this area is that most studies are retrospective rather than prospective, thus limiting the knowledge base about protective factors that help prevent entry into the juvenile justice system. The few prospective studies with at-risk populations identify parental warmth, prosocial peer affiliation, and school engagement as three protective processes for girls. Additional research on protective factors using longitudinal designs with at risk populations of girls is needed to help guide the development of intervention programs aimed at preventing entry into the juvenile justice system.

Section II. Characteristics

Not surprisingly, given the risk factors that girls in the juvenile justice system have experienced earlier in development, they typically have a high degree of co-occurring problems. Attention to these co-occurring problems is important because successful interventions not only need to target precipitating risk factors, but also need to consider co-occurring constellations of behavior that might propel or sustain involvement in delinquent activities. In this section, we review three common co-occurring problems for girls in the juvenile justice system: mental health problems, substance use and abuse, and sexual and physical health problems.

Mental Health

There is a clear pattern of elevated mental health problems among girls in the juvenile justice system. A study based on consecutive female admissions to a juvenile detention facility indicated that 78% of the study participants met diagnostic criteria for at least one mental health disorder based on the Diagnostic Interview Schedule for Children (DISC), and the sample average was three different disorders (Lederman et al., 2004). These rates are similar to those in an epidemiological study of juvenile detainees that also used the DISC (Abram, Teplin, McClelland, & Dulcan, 2003; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). In the Abram et al. study, 57% of females met criteria for two or more disorders (while 46% of males met

criteria for two or more disorders). A third study using the DISC indicated that prevalence of disorder increased significantly with increasing juvenile justice penetration (Wasserman, McReynolds, Schwalbe, Keating, & Jones, 2010). For example, the rate of at least 1 disorder was 15% at system intake, 37% for youth in detention, and 41% for youth in secure post-adjudication settings.

Studies using alternate mental health measures report prevalence rates and gender differences similar to the DISC study rates described above, suggesting the robustness of the association between juvenile justice involvement and mental health problems for girls in particular. For example, a study that used the Massachusetts Youth Screening Instrument (MAYSI; Grisso & Barnum, 1998), as well as several other screening instruments with adolescent female offenders, indicated that 63% were depressed, 56% were anxious, and 72% reported clinical levels of substance use problems. A study of juvenile offenders in California compared the psychiatric profiles for males and females using the MMPI and found that females had higher externalizing and internalizing profiles than males (Espelage et al., 2003). Similarly, a large study of youth referred to a juvenile justice court in Texas indicated that 30% of females (vs. 15% of males) had some form of mental health problems (Johansson & Kempf-Leonard, 2009), and a large-scale study of juvenile-justice referred youth indicated that girls were more likely than boys to exhibit internalizing as well as externalizing problems (Cauffman, 2004). The Wasserman et al. (2010) study described above also revealed higher rates of internalizing disorders and disruptive behavior disorders for females in the juvenile justice system. Thus, a significant body of research suggests that mental health problems appear to be more prevalent in females versus male juvenile justice populations. Further, mental health problems increased the odds of subsequent serious, violent, and chronic offending in girls by 2.2 times relative to rates for juvenile justice-referred girls without mental health problems (Johansson & Kempf-Leonard, 2009), suggesting the potential value in intervening with this population. The

importance of focusing on co-occurring delinquency and mental health problems is discussed in our research recommendations as well as our intervention recommendations (Section V).

Substance Use

Alcohol, marijuana, and other illicit drug use are some of the most common problems among girls in the juvenile justice system, with 6-month substance abuse disorder prevalence rates hovering around 50% in a sample of females arrested and detained in a juvenile detention center in Illinois (Teplin et al., 2002). Further, 22% of girls in Teplin's sample had two or more substance use disorders (McClelland, Elkington, Teplin, & Abram, 2004), indicating high comorbidity of multiple forms of substance use. The most common substance use disorders in the Teplin sample were marijuana (41%) and alcohol (25%). Another study indicated that older girls, girls with higher levels of delinquency, and girls who use alcohol to get high have a significantly higher probability of marijuana use at entry into juvenile justice systems (Dembo, Warehman, Greenbaum, Childs, & Schmeidler, 2009), suggesting comorbidity between delinquency and substance use, and between alcohol and marijuana use. Substance use disorder rates may increase with deeper penetration into the juvenile justice system. For example, a study of girls admitted to a "short-term" juvenile justice facility indicated that, compared to the Teplin and the Dembo samples, a somewhat smaller percentage (34%) of girls met clinical criteria for current alcohol, marijuana, or other substance abuse or dependence (Lederman et al., 2004).

In terms of sex differences in prevalence rates, one study indicated that rates are similar for "any substance use disorder" for males and females (51 vs. 46%, respectively; Teplin et al., 2002), although a study of juvenile court-referred youth in Texas indicated that "moderate to severe" substance abuse problems were more prevalent for males (Johansson & Kempf-Leonard, 2009). However, comorbidity with mental health problems might be higher for juvenile justice girls who have substance use problems: 29% of females with substance use disorders in

one study also had at least one major mental health disorder. The comorbidity rate was only 21% for males (Abram et al., 2003). Together, the research in this area indicates that substance use is the most significant co-occurring problem for girls in the juvenile justice system. As reviewed in Section IV, targeting co-occurring substance use and delinquency in juvenile justice youth may be an effective and necessary component of effective intervention programs with this population.

Risky Sexual Behavior and Other Physical Health Outcomes

A substance use-associated behavior that is prevalent among girls in the juvenile justice system is engagement in risky sexual behavior (e.g., intercourse without a condom, serial partnerships, intercourse with partners who inject drugs). A study of girls in a short-term juvenile justice facility indicated that 76% were sexually active, with first sexual experiences occurring before age 14 (Lederman et al., 2004). Other studies of detained girls suggest high rates of STD contraction as evaluated during a physical exam, with 20% testing positive in one study (Crosby et al., 2004) and 42% testing positive in a second study (Odgers, Robins, & Russell, 2010). This is not surprising, given that over half of detained girls in one study reported having 3 or more sex partners and 10% reported trading sex for money during adolescence (Odgers et al., 2010). Another study of detained girls indicated that the average number of sex partners in the girl's lifetime was 8.8 (Crosby et al., 2004). Other samples of juvenile justice girls report similarly high rates of risky sexual behavior and associations between risky sexual behavior and delinquent activity (Dembo, Childs, Belenko, Schmeicler, & Wareham, 2009; Smith, Leve, & Chamberlain, 2006). Juvenile justice girls' rates of risky sexual behavior increase significantly when accompanied by co-occurring substance use disorders, with one study indicating that 96% of those with substance use disorders had been sexually active, 62% had multiple sex partners in the past 3 months, and 59% had unprotected sex in the past month (Teplin et al., 2005). Compared to boys, girls in the juvenile justice system tend to have higher rates of STDs, as

documented in at least four separate studies (Biswas & Vaughn, 2011; Canterbury et al., 1995; Dembo, Belenko, Childs, & Wareham, 2009; Kelly, Blair, Baillargeon, & German, 2000). Other studies indicate that juvenile justice girls are more likely than boys to have unprotected sex, sex with high risk partners, and to trade sex for money (Teplin, Mericle, McClelland, & Abram, 2003). Given that one study showed that 66% of girls who tested positive for an STD were released back into the community after arrest (Dembo, Belenko, et al., 2009), girls' engagement in risky sexual behavior constitutes a serious public health concern in need of intervention services; we address this need in one of our intervention recommendations (Section V).

Although not as widely studied as the sexual health outcomes described above, increasing attention is being given to the co-occurrence of mental health and physical health problems, particularly among at-risk populations such as juvenile justice-involved youth. Several studies indicate that girls in the juvenile justice system have poor physical health, including injuries and obesity, possibly as a result of growing up in a risky family context. A study of girls detained in a correctional facility demonstrated very high rates of injuries, with 72% of the sample engaging in injury-risk behaviors such as vehicle accidents or severe illnesses, and 61% having had a serious physical injury (e.g., fracture, head injury, stab wound, blunt trauma) during adolescence (Odgers et al., 2010). The girls were also at elevated risk for cardiovascular and respiratory illnesses, with 57% classified as obese or overweight based on the body mass index, and over 30% suffered from asthma (Odgers et al., 2010). Some of these health afflictions may be due to family histories, with 55% of the sample having a family history of diabetes and 25% having history of heart disease (Odgers et al., 2010). The prevention of co-occurring physical health problems is a relatively neglected area of research that could be targeted in future intervention studies and yield significant public health cost savings (see research recommendations in Section V).

Summary

Girls in the juvenile justice system suffer from an array of co-occurring problems, spanning emotional, behavioral, and physical health realms. Their rates of co-occurring mental health problems (and clinical diagnoses), drug use, risky sexual behavior, STD contraction, and physical health problems exceed population prevalence rates by a substantial margin. In addition, co-occurring mental health problems and risky sexual behaviors among girls in the juvenile justice system tend to be higher than those of their male counterparts. It is unknown *why* girls suffer more from co-occurring mental health problems and sexual misconduct, although this gender difference may be connected to the gender difference in relationship-based risk factors described in Section I (e.g., maltreatment, and sexual abuse in particular). Interventions targeting female offenders could benefit from greater consideration of the multiple domains of poor outcomes for this population, both in terms of specific intervention services, as well as associations with specific risk factors and measurement of co-occurring outcomes.

Section III: Young Adult Outcomes

In this section, we shift the focus to young adulthood, to examine adjustment outcomes for girls who were involved in the juvenile justice system during adolescence. Despite the increasing attention paid to female juvenile offenders in recent years, surprisingly few studies have systematically examined outcomes into young adulthood (Cernkovich, Lanctot, & Giordano, 2008; Odgers et al., 2010). Given their at-risk characteristics described in Sections I-II, many of these girls are ill-prepared to meet the demands and responsibilities of adult roles (Bright & Jonson-Reid, 2010; Cauffman, 2008). A focus on young adult outcomes is important because of the potential public health costs that this population accrues in the decades that follow their exit from the juvenile justice system. We focus on six areas that are directly related to health disparities for girls themselves, as well as for their offspring: delinquency/incarceration, substance use, early pregnancy and associated outcomes, victimization, schooling and associated outcomes, and mental and physical health.

Delinquency/Incarceration

Although systematic research on recidivism in females juvenile offenders is very limited, recent evidence suggests that these females are likely to continue to offend in adulthood (Cauffman, 2008; Giordano, Cernkovich, & Lowery, 2004; Bright & Jonson-Reid, 2010; Odgers et al., 2007). For instance, Benda, Corwyn, and Toombs (2001) found that approximately 75% of the girls who were released from Arkansas' serious offender programs had entered the state's adult correctional system within the following two years. Similarly, in a prospective study of youth released from New York State juvenile correctional facilities, Colman and colleagues (2009) found that 81% of the girls had been arrested on adult charges at least once, 69% were convicted, and 34% were incarcerated as an adult by the age of 28. Further, 69% of these girls were arrested on more than one occasion ($M = 5.95$ arrests). Felony-related charges were most common, with 63% of girls having at least one felony offense in adulthood (Colman, Kim, Mitchell-Herzfeld, & Shady, 2009; Colman, Mitchell-Herzfeld, Kim, & Shady, 2010). However, Colman and colleagues (2009) suggest that there may be significant heterogeneity in girls' offending patterns during young adulthood. While 32% of girls in their study were rare/non-offenders as adults (with 82% of girls in this group being arrest free from age 21 and on), 14% of the sample had a recidivist trajectory (either the low-rising or high chronic trajectory). Further, 54% of the sample was low-chronic offenders. Girls in the low chronic, low-rising, and high chronic trajectories were arrested 4.7, 13.1, and 18.1 times on average during the 12-year study period, with those in the low-rising and high chronic trajectories responsible for 45% of all adult arrests recorded during the same study period. This finding suggests that a considerable proportion of delinquent girls may desist from criminal activity by early adulthood, whereas the vast majority of the girls who were involved in the juvenile justice system are likely to continue to be involved in the adult criminal justice system as young adults (Colman et al., 2009), thereby contributing significantly to correctional system costs. We emphasize the need for the

development of booster interventions during the transition out of the juvenile justice system and into young adulthood in one of our interventions recommendations (Section V).

Substance Use

There is surprisingly little research on substance use outcomes into adulthood for girls involved in juvenile justice, but the few existing studies suggest continued problems and substance use dependence issues. A long-term follow-up study of juvenile justice-involved girls indicated that approximately 40% were using marijuana and about one third were using other illicit drug as a young adult (Leve, Kerr, & Harold, in press). In a qualitative study of female juvenile offenders, Bright and Jonson-Reid (2010) also found that substance use is a contributing factor to criminality in young adulthood: Of the 9 females interviewed in the study, five reported engagement in criminal activities to procure illicit drugs, such as prostitution, theft, and robbery. In a second study, Brown (2006) interviewed females who were on parole in the state of Hawaii and found that a majority experienced significant substance use problems: more than two-thirds of the sample experienced disruption of their lives due to alcohol use and over a third required alcohol dependence treatment. Family context, in particular, intimate relationships, appear to be particularly salient for substance use in female juvenile offenders, as both studies suggested that many of the females were introduced to and become involved in illicit substances through significant others in their lives (Bright, Ward, & Negi, 2011; Brown, 2006). All of the women who were struggling with substance use problems in Bright and colleagues' study (2010) indicated a close link between their substance use and either their intimate partners' or family members' drug use. This pattern replicates the associations reviewed in Section I of this report, in that the influence of peers, romantic partners, and parents appear to be key contributing factors leading to girls' initial involvement in the juvenile justice system, as well as her continued engagement in problem behavior (substance use) in

adulthood. We return to the importance of relationships in Sections IV (interventions) and V (recommendations).

Early Pregnancy, Parenting, and Child Welfare System Involvement

Female juvenile offenders tend to reproduce early, and such premature childrearing can be particularly challenging for those with limited social, emotional, and financial support networks (Cauffman, 2008). Socioeconomic disadvantages and the lack of support systems interact to lead to compromised parenting skills in many females with a history of juvenile justice system involvement (Cauffman, 2008). For instance, Leve and colleagues (in press) found that approximately a quarter of the juvenile justice-involved girls in the sample were involved in the Child Welfare System for their own parenting during young adulthood. In the qualitative study of females with a history of juvenile justice involvement, Bright and Jonson-Reid (2010) also found that 7 of the 9 females interviewed became mothers during adolescence and early adulthood. Furthermore, Colman and colleagues (2010) found that 62% of the girls who were released from juvenile justice facilities were investigated by the child protective services (CPS) at least once as an alleged perpetrator of abuse and neglect before the age of 28. Further, 42% of them had a confirmed case of perpetration of child maltreatment and 68% of those investigated were named in two or more cases over the 12 year study period, with a mean of 3.95 investigations per study female. Brown (2006) also found that almost 50% of the mothers who were on parole had been involved with the child protective services, supporting the argument that many female juvenile offenders are at increased risk for placing their children in vicious cycles of system involvement and health disparities. These cyclical intergenerational effects appear to be more pronounced in girls; a study by Colman et al. (2010) found that girls were approximately 3.5 times more likely than their male counterparts to be identified as a perpetrator of child abuse and neglect during young adulthood. These findings highlight the potential benefit of conducting

booster interventions as girls transition out of the juvenile justice system (see intervention recommendations, Section V) to prevent some of the negative outcomes reviewed above.

Victimization

Many female juvenile offenders appear to continue to experience victimization as young adults, potentially contributing to the mental health and substance use outcomes described elsewhere in this section. In a two year follow-up study of female juvenile offenders who were initially recruited while incarcerated in a correctional facility, Odgers and colleagues (2010) found that more than 90% had experienced at least one form of abuse or exposure to domestic violence during childhood and 80% of the sample continued to experience victimization (e.g., kicked, bit, or attacked with a fist, or attacked with a weapon) in adolescence and young adulthood. Furthermore, Odgers et al. also found that more than 80% of the sample reported exposure to serious forms of violence (e.g., seeing someone get stabbed or shot) in their home, school, or neighborhood. In addition, female juvenile offenders appear to be particularly vulnerable for partner violence in young adulthood (Cauffman, 2008; Odgers et al., 2010). Odgers and colleagues (2010) found that almost two-thirds of a sample of female juvenile offenders reported being victimized by their romantic partners in young adulthood (Odgers et al., 2010). Further, these young women also perpetrate violence (Cauffman, 2008). The potential relevance of intervening to prevent partner violence is highlighted in one of our intervention recommendations (Section V).

School, Employment, and Independent Living

Juvenile offenders are at high risk for academic failure and poor academic outcomes compared to their non-delinquent peers (Moffitt, Caspi, Harrington, & Milne, 2002; Siennick & Staff, 2008). Contact with the juvenile justice system may have lasting adverse effects on education and subsequent employment as adults (Chung, Little, & Steinberg, 2005). In general, only 12% of youth who were involved in juvenile justice systems received their high school

diploma or GED as young adults (National Center for Education Statistics, 2001). Giordano and colleagues (2004) found that only 16.8% of the incarcerated females in one study graduated from high school (Giordano et al., 2004). Such poor academic attainment is linked to a range of problems during adulthood, including low occupational status, more frequent job changes, and heavy reliance on welfare (Cauffman, 2008). Bright and Jonson-Reid (2010) found that 21% (149 out of 700) of the female juvenile offenders in their sample reported having at least one spell of Temporary Assistance for Needy Families (TANF), with the first TANF spell occurring approximately 5 years after the first juvenile petition. Such financial difficulties may be related to continued involvement in criminal activities in young adulthood (Giordano et al., 2004). Given that academic achievement and stable employment are closely linked to subsequent adult adjustment, poor adjustment in this domain during young adulthood is likely to further widen health disparities between female juvenile offenders and their non-offender peers, highlighting the need for booster intervention services into young adulthood for juvenile justice-involved girls (see intervention recommendations, Section V).

Mental and Physical Health

As described above, co-occurring mental health problems are common to female juvenile offenders. Serious mental illness (e.g., schizophrenia), affective disorders (e.g., major depressive disorder), personality disorders (e.g., borderline personality disorder), post-traumatic stress syndrome, substance-dependence disorders, eating disorders, suicide risk, and other self-injurious behaviors documented during adolescence (e.g., Teplin et al., 2002) are likely to continue to challenge this population into young adulthood. However, research on the unique needs of this population is vastly limited. In fact, we were unable to locate a single study that examined mental health outcomes of juvenile offenders into young adulthood. One study has examined their physical health outcomes, however, which not surprisingly are quite poor. Odgers and colleagues (2010) found that 40% of the female juvenile offenders engaged in

injury-risk behaviors (e.g., vehicle accident, driven while intoxicated, carried a gun) as young adults and approximately 20% reported attempted suicide. Overall, about a quarter the sample was hospitalized for an accident or injury since their release from custody (Odgers et al., 2010). The authors also found that over 60% of the sample reported engaging in unprotected sex during young adulthood.

Summary

In contrast to the growing evidence base on risk factors and characteristics of girls in the juvenile justice system, our review of the research on female juvenile offenders' young adult outcomes indicates that we still know very little about this vulnerable subpopulation's adjustment in young adulthood and beyond. What little we do know suggests that the problems evidenced in adolescence tend to persist into young adulthood. Specifically, these young women have high rates of recidivism, substance use, child welfare system involvement, continued victimization, low educational attainment, poverty, and physical health problems. Their rates of involvement in the child welfare system for maltreatment concerns about their parenting are higher than rates for their male counterparts. This evidence, albeit limited, suggests the significance of family context (e.g., intimate partners or other family members) in the continuity and onset of problem behaviors among female juvenile offenders in young adulthood. Contrary to male offenders, for whom adult responsibilities such as marriage and child-rearing have known to serve as a turning point and render desistance from crimes, female offenders' partnering has been linked to increases in drug use and crime (Brown, 2006; Cauffman, 2008). In addition, continued involvement in the justice system, early pregnancy and child rearing, inadequate parenting, violent relationships, chronic health risking behaviors and other related mental problems all appear to interact to significantly increase odds that their children will follow their vulnerable paths. These findings point to the need to better understand and develop more effective support

for this vulnerable group in young adulthood, as proposed in one of our intervention recommendations in Section V.

Section IV: Evidence-based Interventions for Youth Involved in the Juvenile Justice System

The research reviewed in Sections I-III highlights a core set of risk and protective factors related to entry into the juvenile justice system that generally overlap for males and females. Although some risks may be more prevalent for girls than for boys, particularly those that are relationship-oriented (e.g., maltreatment, caregiver transitions, older male friends and partners), all familial and contextual factors identified through this review nevertheless constitute “risks” for both genders. The key topic for this section of the review is to pose the question of whether gender-specific intervention models are needed, given the great overlap in risk factors between the genders. Specifically, “what works” in reducing the criminal behavior of girls referred by the juvenile justice system, and is it different than “what works” for boys?

Unfortunately, no research-based study has been conducted to address this question directly. We could not locate a single randomized trial that specifically tested (and was adequately powered to test) whether juvenile-justice-involved boys and girls have better outcomes when they receive gender-specific services. Due to the dearth of evidence-based practices (EBPs) conducted specifically with juvenile justice girls, we therefore focus our review in this section on EBPs that have used randomized controlled trials with juvenile justice youth of *either gender*. We then synthesize the results of these intervention trials to offer our perspective on “what works” for girls.

We define EBPs using Morris, Day, and Schoenwald’s (2010) definition: EBPs “...are those clinical and administrative practices that have been proven to consistently produce specific intended results. These practices have been studied in both research settings such as controlled, clinical trials, and in real world environments...” (p.15). To identify relevant EBPs in

this area, we conducted several types of searches, including PsycInfo and a Social Sciences database search (with delinquency, girl, female, juvenile justice, or intervention as key words) and internet searches of evidence-based practice websites. We also consulted key source references (e.g., OJJDP Girls Study Group website) and key researchers (Elizabeth Cauffman, Debra Pepler, Scott Henggeler, Jim Alexander, Howard Little) in this area to verify that we were not overlooking key EBPs. We excluded intervention trials conducted in non-U.S. countries, even though some were EBPs, because the juvenile justice system in the U.S. differs in substantial ways from parallel systems in other countries.

Currently, it is estimated that EBP intervention models are being implemented for only a fraction of the eligible population of boys and girls who are juvenile offenders in the U.S. This means that the vast majority of youth in U.S. juvenile justice systems are receiving programs and services that have little empirical support or that have been shown to actually exacerbate antisocial behavior (Greenwood, 2008). These mainstream, commonly implemented approaches include services such as processing by the juvenile justice system (e.g., probation: Petrosino, Turpin-Petrosino, & Guckenburg, 2010), juvenile transfer laws (Redding 2010), surveillance (Howell, 2003), shock incarceration (Greenwood, 2007), boot camps (Szalavitz, 2006), and residential and group home placements (Ryan & Testa, 2005). As we consider developing effective services for girls within these systems, it will be important to consider the current backdrop of community resources, to build on the strongest models and to avoid those that have demonstrated iatrogenic effects.

Our search identified three EBP models that serve youth in the juvenile justice system: Multisystemic Therapy (MST), Functional Family Therapy (FFT), and Multidimensional Treatment Foster Care (MTFC). In addition, we included a fourth model, Multidimensional Family Therapy (MDFT). MDFT is an EBP that was originally developed to treat youth referred because of substance use. We included the model because a significant portion of the youth

enrolled in the MDFT studies have been referred from the juvenile justice system (consistent with the review of co-occurring problems presented in Section II of this report) and because both genders are represented in the MDFT studies.

These four intervention models have all been evaluated in numerous studies using “gold standard” randomized controlled designs. MTFC, MST, and FFT were first identified as meeting criteria for being “evidence-based” by the Blueprints for Violence Prevention initiative (Elliott, 1998; <http://www.colorado.edu/cspv/blueprints/>) that reviewed over 900 programs and designated these three as being effective for treatment of delinquency. They were subsequently included in the U.S. Surgeon General’s report on youth violence (U.S. Department of Health and Human Services, 2000), and on best practices websites including: Social Programs that Work; Evidence-based Policy Coalition (www.evidencebasedprograms.org); California Evidence-based Clearing House for Child Welfare (www.cebc4cw.org); the National Registry of Evidence-Based Programs and Practices (www.NREPP), and others. These models have also been evaluated in several meta-analyses (Drake et al., 2009; Lipsey, 2009), in journal reviews (Eyberg, Nelson, & Boggs, 2008), and in books on evidence-based practices (Greenwood, 2007; Howell, 2003). Beyond evaluations of immediate effectiveness, numerous follow-up studies have examined the long-term outcomes of these models. All of these models have included both boys and girls in their studies. However, as expected because of the lower proportion of females relative to males served by the juvenile justice system, girls represent a minority of the participants, averaging about 23% of those enrolled in the RCTs conducted with these models. This proportion is lower than the estimated prevalence of females in the U.S. juvenile justice population in general (i.e., 30%), so it is clear that girls have been somewhat underrepresented in research. Of these EBP models, only MTFC has conducted studies with female-only samples, therefore we will highlight MTFC in this review separately from the other three EBPs.

During the past decade, these four EBPs have had an increased presence in routine care of youth in juvenile justice. Recent surveys indicate that approximately 9% of youth per year in the U.S. are served by one of these four EBP models, or about 15,000 of 160,000 youth (Henggeler & Schoenwald, 2011). This not only speaks to the feasibility of implementing research-based programs in community settings but also to the need to expand the reach of these effective programs and to develop new implementation models; both of these points are addressed in our research and intervention recommendations (Section V, research recommendation #2b and intervention recommendation #4). New research-based intervention models will hopefully address the gaps in prior studies, including the underrepresentation of females. However, we argue that new models should build upon previous work (rather than start from scratch to develop new interventions for girls). As is reviewed below, there is a wealth of positive outcomes across the four EBPs reviewed here; it would be unwise to ignore the tried-and-true evidence base and start anew to design new programs. A positive sign for future work is that the four evidence-based models reviewed below have several areas of shared focus and use many similar intervention methods. Therefore, we argue that there are potentially valuable lessons to be learned from previous work that can provide the basis for expanded and improved services in the next generation of effective interventions for girls. Prior to discussing the common features of these models, we address the issue of their relevance to interventions for girls.

Is the Knowledge Gained from Mixed-Gender Intervention Studies Relevant for Girls?

During the 1980's, the consensus in the field of juvenile justice treatment was that "nothing worked" (e.g., Lipton, Martinson, & Wilks, 1975). At that time, previous research had not supported the effectiveness of treatments for juvenile offenders of either gender. It is now well accepted that during the ensuing 30 years, effective interventions have been developed and validated, but the conclusions that can be drawn about the effectiveness of these

interventions specifically for females is less clear. Previous reviews have disregarded these studies because the interventions were not designed specifically for girls and girls were the minority of the participants. In this review we take a different approach and include all studies of EBPs enrolling youth referred by juvenile justice systems that include at least some proportion of females.

Table 1 shows information on the mixed gender studies conducted by the MST, FFT, and MDFT models, the sample sizes, and the proportion of girls that they enrolled. As noted in the table, a total of over 800 girls have participated in these studies. There have been documented reductions in criminal offending in both genders. **Gender-specific treatment effects were not found nor reported across any of these studies, and girls did no better or worse than boys on outcomes in any single study.** Does this prove that these three EBPs are equally effective for males and females? No, and considering the lower level of statistical power available to detect intervention effects for females given their minority status in any single study, it is difficult to draw any firm conclusions about the effectiveness of EBPs on key outcomes for girls. Further, these studies were not designed to test the question of whether the intervention was as effective for boys as for girls. But taken as a body of work, and given that collectively over 800 girls have participated in these “gold standard” RCTs, we argue that prior studies from the past 30 years provide valuable insight into the elements needed to develop and implement effective EBPs for girls (see research recommendation 1a for pooling data across studies in Section V). This logic is bolstered by findings from the MTFC studies that focused solely on girls, as described later in this section.

Table 1. *Females Treated in Evidence-Based Models*

Study	Intervention	Population	Sample Size	Girls %	Outcomes
Sexton & Turner (2011)	FFT	Juvenile offenders	N = 917	21%	-Decreased behavioral problems -Decreased recidivism

Waldron et al. (2001)	FFT	Substance-abusing adolescents	N = 120	20%	-Decreased substance use
Parsons & Alexander (1973)	FFT	Juvenile offenders	N = 40	55%	-Improved family interactions
Borduin et al. (1995)	MST	Violent and chronic juvenile offenders	N = 200	32.5%	-Improved family relations -Decreased psychiatric symptomatology for parents -Decreased recidivism
*Schaeffer & Borduin (2005)	MST	4 year follow-up	N = 176	31%	-Decreased youth behavior problems -Fewer re-arrests -Fewer days incarcerated
Henggeler et al. (1986)	MST	Juvenile offenders	N = 116	16%	-Improved family relations -Decreased behavioral and emotional problems -Decreased association with deviant peers
*Henggeler et al. (1993)	MST	2.5 year follow up	N = 84	23%	-Decreased recidivism
Henggeler et al. (1997)	MST	Violent juvenile offenders	N = 155	18%	-Decreased youth psychiatric symptomatology -Decreased incarceration -Decreased recidivism
Timmons-Mitchell et al. (2006)	MST	Juvenile Justice youth	N = 93	22%	-Improved youth functioning -Decreased substance use problems -Improved school functioning -Decreased re-arrests
Glisson et al. (2010)	MST	Juvenile Justice youth	N = 615	31%	-Reduced out of home placement
Henggeler et al. (1999)	MST	Substance using/abusing delinquents	N = 118	21%	-Decreased drug use post-treatment -Fewer days in out of home settings -Fewer criminal arrests
*Henggeler et al. (2002)	MST	4 year follow-up	N = 80	17%	-Decreased violent crime -Increased marijuana abstinence
Borduin et al. (2009)	MST	Juvenile sexual offenders	N = 48	4%	-Decreased problem behaviors and symptoms -Improved family relations, peer relations, academic performance -Decreased caregiver stress -Decreased sex offender recidivism -Decreased recidivism for

					other crimes -Fewer days incarcerated
Letourneau et al. (2009)	MST	Juvenile sexual offenders	N = 127	2%	-Decreased sexual behavior problems -Decreased delinquency, substance use, externalizing symptoms -Fewer out of home placements
Liddle et al. (2009)	MDFT	Adolescent substance abusers	N = 83	26%	-Reduced substance abuse -Decreased delinquency, internalized distress -Reduced risk in family, peer, school domains
Liddle et al. (2001)	MDFT	Adolescent drug abusers	N = 182	20%	-Improved family functioning -Increased prosocial behaviors -Decreased drug use
Liddle et al. (2008)	MDFT	Adolescent drug abusers	N = 224	19%	-Decreased marijuana use -Decreased alcohol use
Liddle et al. (2004)	MDFT	Adolescent substance abusers	N = 80	27.5%	-Decreased substance use

*Follow Up Study

Brief Description of EBP Models and Outcomes

Functional Family Therapy. Functional Family Therapy (FFT; Alexander & Parsons, 1982) is a family-based treatment that emphasizes family engagement and systems interventions. In FFT, the presenting problem of the youth is viewed as a symptom of dysfunctional family relations, consistent with some of the family risk factor research reviewed in Section I. Therefore, interventions are aimed at establishing and maintaining new and more functional patterns of family behavior to replace the dysfunctional ones. In addition, FFT integrates behavioral (e.g., communication training) and cognitive behavioral interventions (e.g., assertiveness training, anger management) into treatment protocols. There is a strong emphasis on family engagement. FFT uses a phase-based model with initial emphases on engaging and motivating family members, followed by extensive efforts at individual- and family-level behavior change, and concluding with interventions to sustain such behavior change. FFT also has intensive training protocols for therapists and a well-developed system for monitoring

model adherence and maintaining program standards.

As shown in Table 1, multiple FFT outcome studies, including both RCTs and quasi-experimental studies, have been published. Participants in these studies have included an estimated 240 girls comprising approximately 22% of their samples. Samples contain youth ranging from those with status offenses to those presenting serious antisocial behavior. Most of the evaluations of the FFT model have demonstrated decreases in antisocial behavior for youth in the FFT conditions. During the past decade, FFT has become one of the most widely transported evidence-based family therapies, with 270 programs worldwide treating more than 17,500 youth and their families annually.

Multisystemic Therapy. Multisystemic Therapy (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009) is a community- and family-based treatment that focuses on youth with serious problems with delinquency who are at-risk for out-of-home placement, including those with violent behavior, sexual offenders, and substance abusing juvenile offenders. MST has been evaluated extensively both in terms of immediate impact and long term results with some published studies examining outcomes 4 years post intervention. An estimated 440 girls have participated in the MST RCTs comprising approximately 24% of the study samples.

MST is a family therapy approach informed by Bronfenbrenner's theory of social ecology (1979), where youth are viewed as being nested within multiple systems (e.g., family, peer, school, neighborhood) that have direct (e.g., parenting practices) and indirect effects (e.g., neighborhoods) on the development and maintenance of conduct problems which are considered to be multiply determined. The family is considered to be the most powerful agent of change and, consistent with the risk and promotive factor research reviewed in Section I, MST studies have shown that improved family functioning and decreased association with deviant peers are critical processes in producing favorable outcomes for juvenile offenders.

Interventionists have small case loads (from 3-5 families) and have multiple contacts with parents and the youth each week. These contacts take place in the family's home and in the community. MST is a home-based intervention model. The motto of MST is "whatever it takes" and this includes providing the family and youth with a range of services and supports including family budgeting, getting neighbors on board to help monitor the youth, and mobilizing diverse community supports. MST therapists are intensively supervised using a well-defined strategy for analyzing the youth and family behavior, including generating testable hypotheses about what drives it, what reinforces it, and what the opportunities are for modifying maladaptive patterns. MST treatment is intensive and short term, averaging 16 weeks.

As seen in Table 1, RCTs of the MST intervention have generated an impressive array of outcomes in multiple key areas, including reduced juvenile offending rates, improved family relations, reduced substance use, reduced out-of-home placements, and reduced mental health problems compared to youth and families in the control condition. Further, multiple long-term follow-up studies show that these changes are enduring and meaningful over time. Therefore, although the MST intervention has not focused exclusively on females, there is substantial evidence to suggest that this intervention is applicable and beneficial to females.

Multidimensional Family Therapy. Multidimensional Family Therapy (MDFT; Liddle, Rowe, Dakof, Ungaro, & Henderson, 2004) is an integrative, family-based, multiple systems oriented treatment originally developed for adolescent drug abuse and related behavior problems (Liddle, 2002). As reviewed in Section II, co-occurring problems with substance use are prevalent in females in juvenile justice samples. One hundred and twenty two girls have been enrolled in MDFT studies (23%). Several versions of the approach are used in various settings including office-based, in-home, brief, intensive outpatient, day treatment, and in residential treatment settings (Liddle, Rodriguez, Dakof, Kanzki, & Marvel, 2005). MDFT is typically delivered from one to three times per week over the course of 3–6 months depending

on the treatment setting and the severity of adolescent problems and family functioning. Regardless of the version, therapists work simultaneously in four interdependent treatment domains according to the particular risk and protection profile of the adolescent and family, consistent with the research reviewed in Section I. The *adolescent domain* helps teens engage in treatment, communicate and relate effectively with parents and other adults, and develop social competence and alternative behaviors to drug use. The *parent domain* engages parents in therapy, increases their behavioral and emotional involvement with the adolescents, and improves parental monitoring and limit setting. The *family interactional domain* focuses on decreasing conflict and improving emotional attachments and patterns of communication and problem-solving using multiparticipant family sessions. The *extrafamilial domain* fosters family competency and collaborative involvement within the social systems in which the teen participates (e.g., school, juvenile justice, recreational). Throughout treatment, therapists meet alone with the adolescent, alone with the parent(s), or together with the adolescent and parent(s), depending on the treatment domain and specific problem being addressed. Results from outcome studies show reductions in rates of substance use and delinquency and improved family functioning and school outcomes.

Multidimensional Treatment Foster Care. Multidimensional Treatment Foster Care (MTFC) is the only EBP model that has been tested in RCTs comprised exclusively of girls. The model was originally developed for and tested with males (Chamberlain & Reid, 1998) but as an increasing number of females were referred for services, the focus was expanded to developing and testing an intervention approach that was specifically tailored for girls. Two consecutive trials of MTFC beginning in 1997 and concluding in 2008 with females were conducted using rolling recruitment of all eligible girls meeting the following criteria: female, 13–17 years old, at least one criminal referral in the prior year, court-mandated placement in out-of-home care, and not currently pregnant. Girls were randomly assigned to Group Care (GC) or to MTFC. The

combined sample included 81 MTFC girls and 85 GC girls. Recruitment procedures for the two trials were identical and continuous. In GC, girls were placed in 1 of 35 programs that had 2–83 youths in residence ($M = 13$) and 1–85 staff members ($Mdn = 9$). The results from the MTFC studies with girls are summarized in Table 2.

Table 2. Results from MTFC Studies With Girls

Study	Population	Sample Size	Outcomes
Leve, Chamberlain, & Reid (2005) Leve & Chamberlain (2005b) Leve & Chamberlain (2007)	Juvenile Justice Girls	$N = 81$	Fewer days in locked settings Decreased recidivism and criminal activity Decreased delinquent peer affiliations Increased homework completion and increased school attendance
Chamberlain, Leve, & DeGarmo (2007)	2-year follow-up	$N = 81$	Decreased delinquency Fewer criminal referrals Fewer days in locked settings
Kerr, Leve, & Chamberlain (2009) Leve et al., (2011)	Juvenile Justice Girls	$N = 166^*$	Fewer pregnancies Decreased delinquency

Note. *This study included 81 girls from the original sample and 85 new participants.

Enhancements to MTFC for girls. Five specific enhancements were developed to be responsive to the needs and clinical profiles presented by girls. These are based on previous research (see Section I and II review, and Leve & Chamberlin, 2004) and on clinical experiences, which resulted in additional training for foster parents and therapists on new strategies and protocols relevant for working with girls. The female-focused intervention components included the following adaptations: (a) providing girls with reinforcement and sanctions for coping with and avoiding social/relational aggression; (b) working with girls to

develop and practice strategies for emotional regulation, such as early recognition of their feelings of distress and problem solving coping mechanisms; (c) helping girls develop peer relationship building skills, such as initiating conversations and modulating their level of self disclosure to fit the situation; (d) teaching girls strategies to avoid and deal with sexually risky and coercive situations; and (e) helping girls understand their personal risks for drug use, including priority setting using motivational interviewing and provision of incentives for abstinence from drug use monitored through random urinalysis. Additionally, pilot work added a trauma focused intervention component for a subsample of girls, and compared outcomes for them to mental health outcomes to MTFC (without trauma focus) and to girls randomly assigned to GC (Smith, Chamberlain, & Deblinger, in press). Additional detail on each of the five enhancements for girls can be found in Leve, Chamberlain, Smith, and Harold (2011).

As shown in Table 2, outcomes for girls participating in MTFC are superior to those who were randomly assigned to GC in a number of key areas including recidivism, incarceration time, lower pregnancy rates, and increased school engagement. Results from the trauma focused pilot study suggested improved outcomes on anxiety and depression with these additional treatment components (Smith, Chamberlain, & Deblinger, in press).

Common Intervention Targets and Processes in Interventions for Juvenile Justice Girls

To understand *why* these EBPs for juvenile justice girls are effective, and to inform future intervention work with juvenile justice girls, it is useful to consider common intervention targets and process across the set of EBPs reviewed above. The MST, FFT, MDFT, and MTFC models all share key features, as noted by Henggeler and Schoenwald (2011). Five key shared features include: they are family-based treatment models; they focus on risk and protective factors; they use behavioral interventions to target a constellation of problem behaviors, including delinquency, mental health symptoms, and health-risking behaviors; they are implemented within the youth's natural community environment; they use highly specified and

manualized intervention procedures and there is close monitoring of the intervention implementation to achieve model fidelity. We conclude this section by integrating across the four EBPs described above to present five intervention facets that we believe are key to producing positive changes for girls in the juvenile justice system, and should serve as cornerstones for future intervention research with girls who are at-risk for or who are currently involved in the juvenile justice system.

Effective interventions are family based. It is widely accepted that adolescent development occurs within a context of nested systems, with the most proximal and critical being the family system. As noted in Section I of this report, the family context plays a key role in determining whether a youth will engage in delinquent behavior. Families serve multiple functions such as nurturing, instrumental support, protection, monitoring, teaching and socialization. Thus it is not surprising that ecological–contextual intervention models such as the ones reviewed above have been developed given the known importance of social contextual factors in shaping developmental trajectories (Cohen & Siegel, 1991). Family-based treatments targeting the multiple areas of the teen’s functioning and social environment are recognized as being the most promising interventions for reducing delinquency, substance abuse and related problems (e.g., Henggeler et al., 1998; Liddle, 2002). Positive outcomes have resulted from studies that focus on working with parents or other caretaking adults, rather than from studies that focus individually with girls alone. The emphasis on the family underscores the importance of focusing on the girl’s parenting and community contexts. Individually-based approaches that focus all change efforts solely on strengthening the girl’s internal psychological resources have not produced comparably positive outcomes. Interventions that strengthen parents or other caretaking adults in order to assist these adults to monitor, set limits, mentor and support girls are most effective. In other words, if you want positive outcomes, work with the adults in the girl’s life. This is not to say that girls are to be excluded from treatment. In fact all four models

reviewed above include strong youth involvement components utilizing modes such as individual therapy for the girl (MTFC), skills coaching (MTFC and MST), inclusion of the girl's perspective in family therapy (all models). However, all RCTs to date showing positive effects on outcomes for juvenile justice girls have had a strong focus on family treatment, with the exception of one trial testing a CBT approach with incarcerated youth (Guerra & Slaby, 1990). The Guerra and Slaby (1990) study suffered from differential attrition in the control and experimental groups at follow-up, so long-term efficacy could not be determined.

Effective interventions focus on enhancing known risk and protective factors.

Consistent with the research on promotive factors reviewed in Section I, each of the EBPs presented above stress the importance of increasing protective and positive daily living contexts for girls. This involves increasing the support that they receive from caretaking adults and focusing on methods that can be used to increase the safety of the girl's daily living environment. In adolescence, peers constitute another key socializing context, and delinquency and substance use are escalated by access to peers who are antisocial (Dodge, Dishion, & Lansford, 2006). Avoidance of antisocial peers and participation in risky situations requires increased monitoring and supervision by adults. As noted in Section I, parental monitoring has been identified as a protective factor in previous longitudinal work (Steinberg, Blatt-Eisengart, & Cauffman, 2006) and in the prevention of child behavioral problems and drug use (Dishion, & McMahon, 1998). The skills required for monitoring an adolescent who is engaged in delinquent and health risking behavior such as drugs/alcohol use and unprotected sex are complex, especially given that the same adults who are responsible for such monitoring are the primary mentors for the youth and mentoring requires a positive relationship. The EBP models described above all include well-specified methods for simultaneously promoting increased parental monitoring and mentorship. This dual emphasis is an important component of the interventions that is solidly based in the research literature on risk and promotive factors (as

described in Section I). Further, this approach also helps to promoting positive school engagement for youth, which is another promotive factor identified in Section I. All four EBP models work directly with parents and in most instances directly with school personnel to assist with and support the youth's educational engagement and academic success.

Effective interventions focus on behavioral interventions. Behavioral interventions that teach caregivers and youth to explicitly identify antecedents or triggers to impending delinquent or health risking behaviors, and to practice skills to avoid the occurrence of those behaviors or teach adults to deliver appropriate consequences when they do occur are mainstay features in the EBP approaches described above. Clinical methods such as role plays or practice of skills and/or enactments of problem and positive interactions are used in intervention sessions to give youth and parents experience with new and constructive ways to deal with difficult or entrenched patterns that have contributed to past problems.

Effective interventions are community based. The EBP interventions discussed above all situate the treatment activities in real world community contexts, thereby minimizing the need for later generalization. This is in contrast to interventions that occur in residential or group care where the youth's daily living environment bears little resemblance to the community contexts to which they will eventually be discharged.

Effective interventions implement manualized treatment methods and fidelity monitoring. The four EBPS described above are all being implemented in community agencies throughout the U.S. and in Europe. All have well-specified training protocols and have manuals that detail treatment components and phases of treatment. In addition, each of the models has strategies for monitoring intervention fidelity. These include computer-based management information systems that track treatment goals and progress, daily reports from parents of the occurrence/nonoccurrence of youth problems and parental reactions, questionnaires from parents and therapists about what takes place in treatment sessions, and coding of video/audio

recordings of sessions. Numerous studies have documented the link between fidelity and outcomes (Schoenwald, Henggeler, Brondino, & Rowland, 2004), emphasizing the importance of measuring fidelity as an important aspect of intervention implementation.

Summary

Four EBPs (FFT, MST, MDFT, MTFC) have been tested in multiple intervention trials with samples that include girls involved in the juvenile justice system (or in the case of MTFC, in samples of girls only). The results of these trials indicate that the interventions are associated with improved outcomes across a host of domains, and in particular, they lead to reductions in delinquency and recidivism. In each study, the intervention was effective for the sample as a whole, and no differences were identified on outcomes based on gender. However, girls were under-represented in these trials relative to the population base rates for juvenile justice-involved youth (except for MTFC, in which the trials included only girls). In addition, none of the trials was designed to test whether the EBP worked as well for girls as it did for boys (or whether different intervention components by gender were indicated), and the studies were generally underpowered to detect gender differences (should any differences exist). Therefore, although we can conclude that the EBPs described above are effective for girls involved in the juvenile justice system, there is insufficient evidence to identify differential effectiveness by gender, or to provide gender-specific recommendations for future research. However, we can conclude that all four EBPs share a common set of principles that are highly relevant to girls' characteristics and to girls' risk and promotive factors (as described in Section I-II).

Specifically, all four EBPs rely on a family-based treatment model conducted within a community-based context (rather than in an institutional setting). Given that family and relationship characteristics are particularly salient risk factors for girls (relative to boys) as reviewed in Section I, family-based interventions would therefore seem an ideally-suited platform for service delivery for girls. In addition, all four EBPs share a focus on targeting

identified risk and protective factors, such as avoidance of delinquent peer associations, avoidance of drug use and risky sexual behavior, and high parental monitoring, all of which have been shown to be risk/protective factors for girls (as described in Section I-II). Last, the four EBPS described above all have a behavioral orientation and include manualized protocols with fidelity monitoring, factors known to improve effectiveness across a range of interventions. However, despite these common components, clear gaps remain in our understanding of “what works” for girls involved in the juvenile justice system and we offer specific recommendations below to help fill these gaps.

Section V: Recommendations

It is estimated that only 5-9% of eligible high-risk juvenile offenders in the U.S. are given an evidence-based treatment (Greenwood, 2008; Henggeler & Schoenwald, 2011). Despite the EBP evidence reviewed in Section IV of this report, the vast majority of juvenile justice youth are given intervention services that have not been proven effective, nor have been evaluated. In the final section of this report, we propose a set of research recommendations and a set of intervention recommendations that connect the existing knowledge about risk factors, outcomes, and EBPs for juvenile justice girls as described in Sections I-IV with areas of opportunity.

Research recommendations

1. Address the question of whether existing EBPs work as well for girls as they do for boys.

a. Pool data across samples of girls within existing EBPs. In Section IV, we show that across the four EBPs for juvenile justice youth reviewed, there is a combined sample of over 950 girls. In contrast to examining any single study alone, pooling data across these studies to examine outcomes and mechanisms of change for girls in the juvenile justice system would provide a significantly more powerful test of whether EBP interventions used with

juvenile justice populations are effective for girls, and importantly, whether these interventions are as effective for girls as they are for boys. The enhanced statistical power provided by aggregating across data sets would allow a much more robust test of the effectiveness of existing EBPs for juvenile justice girls. Analyses could also provide clues as to which aspects of the programs appear to drive the effects, which could lead to refinements in existing EBPs. In addition, this aggregate approach would provide sufficient power to examine subgroup factors such as ethnicity or early risk exposure, to test whether there are relations with intervention efficacy. Although existing research does not indicate substantial or widespread disparities by ethnicity in the processing and outcomes for girls in the juvenile justice system (e.g., Crosby et al., 2004; Steffensmeier & Demuth, 2006; Knight, Little, Losoya, & Mulvey, 2004), examination of ethnic differences in intervention outcomes has not been examined in these EBPs for girls. Similarly, very little is known about differential effectiveness of these EBPs for girls with specific constellations of risk factors (e.g., maltreatment). A future research endeavor that sought to aggregate existing data could be a cost-effective means of capitalizing on the strengths of existing data to make significantly stronger conclusions about the efficacy of existing EBPs for girls in the juvenile justice system.

b. Analyze system-level outcomes for EBPs being implemented. Wide-scale implementation of the four EBPs identified in Section IV is currently occurring in juvenile justice populations throughout the United States and internationally. However, the outcomes of these implementation efforts are not being measured, despite the fact that existing system data could provide very informative data on outcomes (e.g., recidivism, type of offense, length of sentence). This is due to the fact that most service-level implementation efforts do not have a research component attached to them; they are service delivery programs only. Given that several thousand girls have received one of the EBPs in a service (non-research) setting already, and system-level data already exist, this would also be a cost effective research

addition that would be a powerful way to: (1) examine the efficacy of EBPs for a very large number of girls in the juvenile justice system by comparing system-level outcomes for these girls to a sample of matched girls who received non-EBP services; (2) compare outcomes for boys versus girls; and (3) test whether the efficacy of these EBPs remains high when service delivery is in implementation (non-research) mode versus RCT model of delivery by comparing effect sizes in implementation settings to those in published RCT studies.

2. Use existing risk assessment tools to individualize services. As noted in Sections II and III, juvenile justice girls often have wide-ranging and severe mental health problems, and there is a strong call for the need to assess the mental health of girls in juvenile justice facilities (Desai et al., 2006). Effective screening tools for mental health and other problems (e.g., the MAYSI-2; Cauffman, 2004) are currently being administered in detention centers in many states. Such existing tools could be more effectively utilized in order to examine whether outcomes are comparable for boys and girls, given specific constellations of risk factors identified on the screening tool. That is, given similar risk profiles on screening tools, do girls and boys in the juvenile justice system have similar outcomes? For example, we know (see Section I) that childhood maltreatment is associated with offending behavior, and that girls are the victims of sexual abuse more often than boys. However, if a sample of boys and girls were selected that had equal rates of exposure to sexual abuse, would juvenile justice outcomes be comparable for boys and girls? Second, research studies could help bolster the connection between risk assessment tools and the translation to intervention services. What services are most effective for youth with specific sets of risks identified on the screener? What are the protocols for translating information from the screening tool to inform and tailor intervention services at the individual level? Generating an evidence base behind the translation of a screening tool to effective services would both improve outcomes for juvenile justice girls, and help further implementation efforts with validated screening tools.

3. Conduct cost analyses to measure the costs of poor mental and physical health outcomes. There are established methods and reports documenting the costs of juvenile delinquency to society and to victims (e.g., Drake et al., 2009). For example, the value of saving a 14-year old high risk juvenile from a life of crime ranges from 2.6–5.3 million (Cohen & Piquero, 2009). However, given the high comorbid mental and physical health issues described in Sections II and III, it is increasingly clear that juvenile justice costs are only a small portion of the societal costs of delinquency. Extending economic analysis studies to include mental health and physical health variables would be a logical extension of current models, and would more accurately capture the multiple realms in which involvement in the juvenile justice system costs society, and the cost-benefits of EBPs to reduce costs in multiple realms. In addition, a focus on health outcomes is particularly timely, given the recent dramatic increases in U.S. health care costs and the burden this places on individuals as well as government systems such as Medicaid.

Intervention recommendations

1. Develop preventive interventions in child welfare and school settings to prevent entry into the juvenile justice system. Girls are less likely to receive educational or other supportive services than their male counterparts (Offord et al., 1990) and therefore are less likely to receive preventive services shown to be effective at obviating future problems. Based on this review, preventive services in two areas appear to be most critical: services in child welfare and services in schools. **Child Welfare:** Interventions are needed for prevention of maltreatment and increasing placement stability for girls who are already placed in foster care. Although maltreatment and placement instability are clear risk factors for both genders, as reviewed in Section I, girls are especially vulnerable. Providing interventions for girls in the child welfare system who have not yet entered the juvenile justice system could be an opportune way to prevent entry into juvenile justice for this population. **School:** Interventions are needed to

identify girls who are at-risk for school problems, including those who have low attendance or display other risk factors such as child welfare involvement or having parents who are involved in the criminal justice system (see Section I review). Currently, girls typically are identified later than their male counterparts as having school related problems and they receive fewer school related services (Offord, Boyle, & Racine, 1990). This potentially increases their risk for subsequent failure and drop-out. Further, as summarized in Sections I and IV, engagement in school is a protective factor for at-risk girls. By focusing on additional development, testing, and implementation of interventions for girls in child welfare and school system, we can help prevent entry into the juvenile justice system. A benefit of targeting girls in these systems is that the population is already clearly identified and there are methods for delivering services from individuals who already have the role of facilitating children's healthy adjustment (e.g., school counselors, case workers, foster parents).

2. Provide booster services as juvenile justice girls transition to young adulthood. As reviewed in Section III, juvenile justice girls do not fare well as they transition out of the juvenile justice system and into young adulthood. Further, upon exit from child welfare systems, youth lose access to a host of services, including mental health and medical services. In young adulthood, they often continue to have serious problems with substance use, make poor intimate partner choices, and become pregnant during their teenage years (see Section III), increasing their reliance on multiple public health systems. There is very limited research on the transition to adulthood for this population, despite the high level of problems associated with this transition. As noted in Sections I-III, peers and partners are key factors in initiating and maintaining girls' delinquency trajectories. In contrast to adolescence, and the family-focused EBPs described in Section IV, as girls exit adolescence, the family context is significantly less central as a primary intervention site. Interventions targeting the transition to young adulthood need to shift their focus to the proximal context for young women: the partner context.

Interventions that target partner selection and the elimination of violence in relationships could help ameliorate some of the poor outcomes that juvenile justice girls experience, and could have lasting effects into the second generation in terms of outcomes for the children of juvenile justice-involved girls.

3. Consider increasing the emphasis on co-occurring problems in interventions for girls. Given the documented mental health problems, victimization, and risky sexual behavior histories of girls in the juvenile justice system reviewed in Sections I-III, intervention targets for girls may need to be expanded to include a broader array of treatment components (pending the results of research recommendations 1a and 1b, to help determine whether such modifications are needed for girls). In addition, studies need to be designed to expand the measurement of outcomes to address a more comprehensive array of factors than has been done in previous intervention studies. We do not recommend the development of new interventions however; rather, given the EBP evidence base reviewed in Section IV, we recommend building upon existing EBPs that have been previously evaluated in juvenile justice settings and modifying them to simultaneously address issues related to trauma, substance use, risky sexual behavior, and/or other mental health problems (some of these co-occurring components are already targeted by one of more of the four EBPs reviewed here). Given the research support for family-based interventions for juvenile justice youth reviewed in Section IV, we recommend maintaining a strong family-based emphasis when modifying interventions addressing issues of comorbidity.

4. Increase the research base regarding implementation efforts. As noted in Section IV, there are four existing EBPs that appear to be effective for improving outcomes for girls in the juvenile justice system. There are ongoing implementation efforts with these EBPs occurring throughout the United States. However, there are known implementation barriers in take an EBP and moving to wide-scale implementation (Proctor et al., 2011), and it is not known

how widely these programs are being implemented with girls and what the best methods of increasing the uptake of these EBPs are for girls. Meaningful implementation research is needed to focus in multiple areas such as: What are the most effective methods for increasing uptake of EBPs for juvenile justice-referred girls? Are community providers less likely to implement EBPs with girls and if so, what supports and/or incentives could be used to increase their willingness? How can intervention fidelity be feasibly measured and improved in real world contexts? What methods for providing ongoing supervision and staff training for programs serving girls are effective and cost efficient? How can EBPs for girls be sustained over time given high staff turnover and changes in organizational leadership? How effective are EBPs in non-research, non-RCT settings in achieving adolescent and family outcomes comparable to those in RCT studies? Studies that compare alternative methods of implementing EBPs in real-world settings could yield new information to improve implementation success, ultimately increasing the number of girls in the juvenile justice system who receive EBPs.

VI. Conclusions

In this report, we have reviewed research on the causes and consequences of girl's involvement in the juvenile justice system in the United States, presented four EBPs with known efficacy with juvenile justice populations of girls, and developed recommendations for feasible next steps in research and intervention for this under-researched and under-served population based on the our review of the evidence base. Although most of the risk and promotive factors reviewed in this report apply to both boys and girls in or at risk for entering the juvenile justice system, a few were particularly relevant for girls' vulnerability. Specifically, the results from published studies underscore the importance of the family context for girls, including maltreatment and exposure to caregiver transitions, as well as positive facets of the family context such as parental warmth. In addition, the peer context is a salient risk and promotive factor for girls; an important risk factor for girls involved in the juvenile justice system is that they

tend to choose males as their closest friend or partners (unlike girls who are not in the system). Conversely, the development of prosocial peer relationships earlier in development is a protective factor for girls.

Research also points to the importance of school involvement for girls as a promotive factor, although girls involved in juvenile justice tend to have disrupted school involvement and low academic achievement which speaks to the need to develop strategies to increase stability in educational settings. Research on girl's individual characteristics also is informative. Like their male counterparts, girls with elevated levels of externalizing behavior problems as children have poor long-term prognoses as adolescents. In addition, girls in juvenile justice are more vulnerable than their male counterparts to having comorbid mental health disorders. Problems with substance use are severe for youth in juvenile justice of both genders, but for girls, problems with substance abuse appear to go hand in hand with high levels of participation in health risking sexual behavior. Studies show that girls are more likely than boys to participate in risky sexual practices putting them at risk for contracting sexually transmitted diseases and for being subjected to sexual exploitation. Given this set of circumstances, it is not surprising that girls in juvenile justice tend to reproduce early and face enormous challenges as parents leading to involvement in the child welfare system, which carries high societal costs. Also costly are physical health problems of girls in juvenile justice including elevated rates of injuries, obesity, asthma, cardiovascular, and respiratory illness. The occurrence of physical health problems is a particularly under-researched area.

We also reviewed the participation of juvenile justice-involved girls in RCTs and found that girls were somewhat under-represented in these studies relative to estimates of their overall prevalence in the U.S. juvenile justice system: girls comprised 23% of the samples in mixed gender RCTs and they are estimated to comprise 30% of youth in the juvenile justice system. However, over 800 girls have been enrolled in mixed gender studies of three well-established

EBP models treating youth referred by the juvenile justice system including MST, FFT, and MDFT. Results from these studies indicate that there are likely positive short and long-term effects for girls on an array of outcomes, although sample sizes in the mixed gender EBPs preclude drawing firm conclusions. An aggregation of data for girls across these studies is recommended. A fourth EBP model, MTFC, has been conducted with female-only populations. Results from MTFC studies show positive outcomes in a number of areas including recidivism, violence, school involvement, early pregnancy, and peer relations. The four EBPs reviewed here are currently being implemented throughout the US but are reaching less than 10% of the total juvenile justice population (girls and boys; the specific reach for girls alone is unknown). Examination of outcomes for these real-world implementations of the EBPs reviewed here is recommended. These four EBPs share key features that are relevant to girls' risk and protective factors, including a focus on family-based interventions, attention to risk and promotive factors as intervention targets, inclusion of behavioral interventions, attention to specification of treatment procedures and fidelity monitoring, and community-based implementations. The commonalities and potentially positive outcomes suggest that future interventions for girls in the juvenile justice system should build upon this ongoing work. Recommendations for next steps stem from the studies described in this review. They focus on specific and potentially actionable areas that believe to be logical next steps for promoting the understanding of and improving services and outcomes for girls in the juvenile justice system. Our recommendations are enumerated in Section V and include a focus on both research and intervention opportunities.

Although much is known about juvenile justice-involved girls, several critical questions remain. For example, it is unclear if gender-specific or individualized services are needed. Based on the current evidence from existing EBPs, existing services appear to be effective for girls. There is therefore insufficient evidence to suggest the *necessity* for gender-specific services. Aggregating across existing research studies and existing implementations of EBPs

will help further address this question (as would new studies sufficiently powered with sufficient numbers of male and female participants). Similarly, we do not know whether individualized services tailored to specific risk factors would be more effective than the current EBP models. Use of screening instruments to address individual needs and connecting this information to intervention development would help address this gap. In addition, work is needed that identifies and girls at-risk for juvenile justice involvement earlier in development, and provides services to prevent entry into juvenile justice. There are currently a number of well-validated preventive intervention programs available for at-risk girls that could be utilized and tested more broadly with girls to increase prevention efforts targeting juvenile justice involvement (e.g., Pepler et al., 2010; Kim & Leve, 2011). In addition, because of tragic histories of multi-generational system involvement, and the subsequent involvement in the child welfare system of girls' own children, the development of new intervention models that address intimate partner choices and subsequent relationship adjustment are clearly indicated for juvenile justice-involved girls. Currently, there is not adequate intervention theory that can be used to guide or inform the problem of stemming the tide of negative relationships that females with delinquency tend to have, and that produce high levels of multigenerational involvement in the US child welfare and juvenile justice systems.

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