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Risks, Outcomes, and Evidence-based Interventions for Girls in the U.S. Juvenile Justice System

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Abstract

The proportion of the juvenile justice population that is comprised of females is increasing, yet few evidence-based models have been evaluated and implemented with girls in the juvenile justice system. Although much is known about the risk and protective factors for girls who participate in serious delinquency, significant gaps in the research base hamper the development and implementation of theoretically based intervention approaches. In this review, we first summarize the extant empirical work about the predictors and sequelae of juvenile justice involvement for girls. Identified risk and protective factors that correspond to girls' involvement in the juvenile justice system have been shown to largely parallel those of boys, although exposure rates and magnitudes of association sometimes differ by sex. Second, we summarize findings from empirically validated, evidence-based interventions for juvenile justice-involved youths that have been tested with girls. The interventions include Functional Family Therapy, Multisystemic Therapy, Multidimensional Family Therapy, and Treatment Foster Care Oregon (formerly known as Multidimensional Treatment Foster Care). We conclude that existing evidence-based practices appear to be effective for girls. However, few studies have been sufficiently designed to permit conclusions about whether sex-specific interventions would yield any better outcomes for girls than would interventions that already exist for both sexes and that have a strong base of evidence to support them. Third, we propose recommendations for feasible, cost-efficient next steps to advance the research and intervention agendas for this under-researched, under-served population of highly vulnerable youths.

Keywords

juvenile justice; girls; delinquency; intervention; risk factors; review

Delinquent behaviors have historically been associated with boys, with girls more typically considered in terms of internalizing spectrum disorders such as depression and anxiety

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Conflict of Interest

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(Zahn-Waxler, Shirtcliff, & Marceau, 2008). 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, Green, Lahey, Frick, & McBurnett, 2000; Patterson, Reid, & Dishion, 1992); girls' delinquency has received comparatively little scholarly or evidence-led intervention attention. Notable exceptions include the Pathways to Desistance Study (<http://www.pathwaysstudy.pitt.edu/>), the Rochester Youth Development Study (<http://www.albany.edu/hindelang/ryds.php>), and the Philadelphia Birth Cohort Study (<http://www.icpsr.umich.edu/icpsrweb/RCMD/studies/7729>), which include both males and females. The need for research on girls' delinquency is highlighted by the fact that official arrest data show a striking increase in the proportion of youth involved in the juvenile justice (JJ) system who are female (Puzzanchera & Adams, 2011; Snyder, 2008). A decade ago, girls accounted for 20% of all juvenile arrests, whereas the most current data show a nearly 50% increase, with girls accounting for 29% of all juvenile arrests (Puzzanchera, 2013). Girls' rates of simple assault increased by nearly 20% from 1997 to 2006, while boys' rates of simple assault declined during this time period, suggesting that the recent increase in the proportion of girls who have had contact with juvenile justice authorities is not merely the result of increasing rates of misdemeanor offenses (Puzzanchera & Adams, 2011). However, girls with conduct problems receive mental health and social services less frequently than do their male counterparts (Merikangas et al., 2010; Offord, Boyle, & Racine, 1990). Girls' delinquency and involvement in the JJ 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 the JJ system, are currently involved in it, or are exiting the system. We review the research evidence base in this area, identify gaps, and offer recommendations for future research and intervention work with JJ-involved girls.

Our review examines the empirical evidence across four domains: (a) familial, contextual, and individual risk factors that increase the likelihood that a girl will be detained by JJ authorities, and protective factors that have positive effects on at-risk girls' outcomes and compensate for risk exposure (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998); (b) mental health, substance use, and sexual and physical health characteristics of girls in the JJ system; (c) adjustment and relationship outcomes for JJ-involved girls during late adolescence and adulthood after their initial involvement in the JJ system; and (d) evidence-based interventions for JJ-involved girls. We focus on areas in which findings converge across studies rather than describe the full catalog of studies and findings in the existing literature.

How This Review Differs From Existing Reviews

Numerous articles and books have focused on female juvenile offenders (e.g., Cauffman, 2008; Miller, Leve, & Kerig, 2011; Spratt & Doob, 2009; Zahn, 2009; Zahn et al., 2010). In addition, an increasing number of websites offer advice for working with JJ girls (e.g., <https://www.nttac.org/index.cfm?event=gsg.homepage>). Further, there is extant work on sex differences in the risk threshold for adolescent delinquency that has compared boys and girls who vary in the extent to which they exhibit delinquent versus non-delinquent trajectories (e.g., Moffitt & Caspi, 2001; Wong et al., 2013). This review differs from existing work in

several ways. First, we focus exclusively on empirical studies of youths who have had police contact, have been adjudicated, and/or have been otherwise involved in the JJ system in the United States. We do not include the large body of research and intervention work about delinquent behaviors in adolescent community samples, aggressive/delinquent samples, or other high-risk samples of girls unless JJ involvement is specified (e.g., we therefore 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 youths who engage in delinquent or aggressive behavior during adolescence do not significantly harm others and do not enter the JJ system. In contrast, involvement in the JJ system incurs significant system-, individual-, and community-level costs. Further, it may have its own unique, cascading effects on future adjustment outcomes, and different risk and protective factor thresholds for delinquency may exist in samples that eventually end up in the JJ system versus samples that do not (Wong et al., 2013). Because of our emphasis on protective factors that *prevent* youths with known risk factors from JJ involvement, however, we extend our “risk factors” section of the review to include studies conducted during middle childhood with specified populations of girls who are at high risk for JJ involvement later in development (e.g., girls from high-risk neighborhoods, girls with child welfare involvement) to illustrate the protective effects of specific family and individual characteristics that can ameliorate exposure to risk. This is the only place in this review where such populations are included.

A second distinct aspect of this review is that we focus solely on interventions for JJ youths that have an underlying evidence base and have been evaluated using randomized controlled trials (RCTs). The large number of promising programs, quasi-experimental evaluations, and unevaluated programs are excluded from this review. We specify our definition for *evidence-based interventions* later in this review. Third, we draw direct links between the risk and protective factors described in the following section, and the intervention foci described in our review of evidence-based interventions for JJ youths. This approach negates the assumption that “girls have unique needs, and therefore unique interventions are needed.” Rather, the emphasis is on research that examines risk and protective factors and outcomes and the application of that evidence to guide the development of service delivery models. In this way, the matter of male or female sex is not ignored, but the emphasis is placed on identifying individual risk and protective factors that may operate to a greater or lesser (or equal) extent for males and for females (cf., Wong et al., 2013), rather than a “unique needs, unique interventions” model.

Risk and Protective Factors During Early and Middle Childhood

In this section, we review risk factors and risk processes that increase the likelihood of girls’ future involvement in the JJ system. In addition, we discuss protective factors that offset the harmful effects of known risk factors, thereby facilitating resilience. As noted by Wong and colleagues (2013), examining risk factors for delinquency in the absence of protective/promotive factors can lead to biased results. Due to our focus on a population (JJ-involved girls) that has been exposed to early adversity and prior risk factors, our review emphasizes protective factors (rather than promotive factors). We adopt Rutter (2000) and Masten’s

(2001) description of protective factors, which suggests that resiliency can occur through ordinary processes involving the operation of basic human adaptational systems, even in the face of severe adversity. These adaptational systems include individual-level characteristics (e.g., cognitive functioning, sociability, self-efficacy), family-level characteristics (e.g., close relationships with caring adults, authoritative parenting), and extrafamilial characteristics (e.g., social support, effective schooling; Masten & Coatsworth, 1998). Through these adaptational systems, interventions could enhance child resilience in several ways. First, compensatory effects could be attained if enough positive assets are directly added to the child's life to offset the adversity (Garmezy, Masten, & Tellegen, 1984; Masten, 2001). Second, resilience could be attained indirectly, through the targeting of mediating variables that are hypothesized to relate to the desired outcome.

We review the research evidence in three domains: family characteristics (maltreatment, parent criminality, parent-child relationships, caregiver transitions, and placement stability), contextual factors (peer relationships and neighborhoods), and individual characteristics (pubertal timing and early-onset delinquency). Research evidence in this section is drawn from two types of studies: (a) studies of girls involved in the JJ system in cases in which retrospective data or records data exist about risk and protective factors occurring earlier in development, and (b) studies of high-risk girls in cases in which prospective data exist that link early risk and protective factors during middle childhood to delinquency-related outcomes later in development. These two approaches have distinct strengths and weaknesses, and identify somewhat different populations of girls. For example, the first approach may miss girls who have high levels of delinquency, but have averted detection by and entry into the JJ system. In addition, this approach does not allow for a comparison to girls with serious risk factors who never come into contact with the JJ system due to the presence of protective factors. In contrast, the second approach captures a less homogenous population of girls, of whom only a subsample will ultimately end up in the JJ system. Such studies are better suited for identifying protective factors than the former approach, but may also identify a slightly different set of risk factors as a result of the sample composition. As noted in Wong et al. (2013), sample differences (adjudicated versus at-risk) can yield different conclusions about sex differences in risk and protective factors for delinquency. Given the importance of both approaches for informing intervention development related to risk and protective factors we review findings from both types of studies, but caution readers to attend to sampling differences because they may give rise to differential salience of any individual risk or protective factor.

Family Characteristics

Maltreatment—Exposure to maltreatment during childhood is a primary factor associated with involvement in the JJ system. Numerous studies of youths in the JJ system indicate that adolescent female offenders are more likely than their male counterparts to have been victims of sexual and/or physical abuse (e.g., Cauffman, Feldman, Waterman, & Steiner, 1998; Moore, Gaskin, & Indig, 2013; Zahn et al., 2010). Moreover, among adjudicated girls and girls at risk for adjudication, those with a history of sexual abuse tend to have *more extreme* delinquency outcomes than those without a history of sexual abuse (Goodkind, Ng, & Sarri, 2006; Wareham & Dembo, 2007). Further, studies consistently indicate that rates of

childhood sexual and physical abuse are 3.5 to 10 times higher for girls in the JJ system than for boys (Johansson & Kempf-Leonard, 2009; Leve & Chamberlain, 2005a). Prospective longitudinal studies of at-risk samples provide additional confirmation of the association between maltreatment and JJ involvement. In a landmark prospective study of court cases of child abuse and neglect in children younger than age 12, Widom (1989) found that abused and neglected youths had higher rates of criminality and arrests for violent offenses between ages 16 and 32 than did control individuals who were matched on demographic characteristics (age, sex, race, and socioeconomic background of the family) but did not have a official record of abuse or neglect. Overall, girls who are exposed to child abuse or interparental violence are more than 7 times as likely as control girls (selected from an age-matched community sample who had not been exposed to marital violence) to commit a violent act that is referred to JJ (Herrera & McCloskey, 2001).

Parent criminality—Prospective studies of at-risk girls and retrospective studies of girls in the JJ system suggest the relevance of specific parent and parenting qualities other than extreme forms of parenting (i.e., maltreatment) for increasing girls' risk for JJ involvement. For example, several studies indicate that parent criminality increases the likelihood of JJ involvement for daughters. A study of JJ-involved girls reported that 61% of girls had a parent or close family member who was involved with the criminal justice system (Lederman, Dakof, Larrea, & Li, 2004). Although most of the research on the association between parent criminality and youth involvement in the juvenile justice system has been with samples of males (e.g., Farrington et al., 1989; Farrington et al., 2001), there is preliminary evidence that the association between parent criminality and youth involvement in the JJ system may be stronger for girls than for boys: Leve and Chamberlain (2005a) found that 70% of girls in the JJ system had at least one parent who had been convicted of a crime; for JJ boys living in the same county, the rate was significantly lower at 41%. The samples in this study were small, however, and additional research on samples with boys and girls is needed to more rigorously test whether parent criminality is as potent (or more potent) of a risk factor for girls as it is for boys.

The parent-child relationship—Caregiver warmth during middle childhood may be a protective 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 JJ sample of girls (Williams & Steinberg, 2011). Father warmth may also play a protective role; a study of JJ-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 amounts of 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 associated with multiple mental health problems (including disruptive behavior and conduct problems) in at-risk girls, both concurrently and prospectively (Hipwell et al., 2008; Loeber, Hipwell, Battista, Semblower, & Stouthamer-Loeber, 2009; Miller, Loeber, & Hipwell, 2009), but it is also associated with delinquency in samples of JJ girls (Williams & Steinberg, 2011). Finally, effective parental

monitoring has been associated with longitudinal declines in delinquency in samples of JJ-involved 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 because of its potential buffering effects on engagement in delinquent, offending behaviors (Steinberg, Blatt-Eisengart, & Cauffman, 2006). The evidence-based interventions described later in this review further emphasize the importance of contingent, responsive parenting with respect to reducing delinquency in JJ-involved girls.

Caregiver transitions and placement stability—Numerous studies highlight caregiver transitions during early and middle childhood as a key factor associated with girls' involvement in the JJ 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 these changes were associated with a cascade of delinquency-related problems 2 years later, including tobacco and marijuana use and early engagement in sexual activity (Kim, Pears, Leve, Chamberlain, & Smith, 2013). Participation in a parenting- and skill-building focused intervention helped increase placement stability and was associated with 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 likely to be associated with 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 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 boys and for girls, only adolescent females had a higher likelihood of drug use as the number of family disruptions increased, which suggests greater associations between caregiver transitions and delinquency-related outcomes for at-risk girls than for boys. Similarly, retrospective studies of girls in the JJ system have indicated higher than population normative rates of foster care involvement; for example, a large study of consecutive female admissions to a short-term juvenile detention facility found 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 do boys (Johansson & Kempf-Leonard, 2009; Leve & Chamberlain, 2005a). A primary reason for the high runaway rates is the experiences of maltreatment, as described in the maltreatment section above. For example, Lederman et al. (2004) report that maltreatment is associated with an increased likelihood that a girl will run away from home. In addition, having a history of running away increased the odds of serious, violent, and chronic offending in a sample of JJ-referred girls by 4.8 times, as compared with JJ-referred girls without prior runaway referrals (Johansson & Kempf-Leonard, 2009). Thus there is a high degree of co-occurrence in the risk factors of maltreatment, placement changes, and run-away behavior. The importance of targeting

youths who have had caregiver transitions (e.g., youths in foster care) to prevent entry into the JJ system is discussed in the intervention recommendations section later in this review.

Contextual Factors

Peer relationships—Peer relationships are perhaps the most widely studied contextual correlate of adolescent delinquent behavior. Studies of JJ girls suggest two key aspects of peer relationships in this population: whom they choose as friends and how much their friends encourage delinquency. Regarding the first aspect, compared with a matched sample of girls who were not involved in the JJ system, girls involved in the JJ system were more likely to identify males as their closest friends (Solomon, 2006). In that study, 35% of JJ-involved girls identified a male as their closest friend, whereas only 5% of non-JJ-involved girls identified a male. Several studies also indicate that JJ-involved girls tend to have romantic relationships with boys who are several years older than they are. The Solomon study found that, of those JJ girls who reported having a male as their closest friend, 53% of the time this male friend was at least 3 years older than they were. Conversely, girls with females as their closest friend and non-JJ-involved girls' rates of having friends at least 3 years older were 13% and 2%, respectively. Moreover, a study of youths 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 JJ 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 the degree to which the partner encourages them to enlist in antisocial activity (Cauffman et al., 2008). The Solomon study further indicated that most girls in the JJ system reported engaging in delinquent activities with their closest friends; rates were 65% for girls who had males as their closest friends, 56% for girls who had females as their closest friends, and 5% for matched community girls who were not in the JJ 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 preadolescent boys and girls in foster care suggested that social support during middle childhood was associated with reduced risk behavior 6 years later (Taussig, 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- to 8-year-old, at-risk girls (Miller et al., 2009). Third, a study with 5- to 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 was associated with reductions in girls' problem behavior and improvements in parenting 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 section later in this review.

Schools and neighborhoods—School is another context in which positive outcomes for at-risk youths can be promoted. 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 JJ 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 also indicates that neighborhoods with higher rates of poverty have greater numbers of arrests for property and personal crime (Steffensmeier & Haynie, 2000). A prospective study of girls who experienced violent victimization such as being attacked with a weapon, beaten up, chased, shot at, or threatened with serious harm in the past year, as well as reports of past-year sexual assault, indicated that homicides and concentrated poverty in girls' neighborhoods also were associated with aggression by girls (Molnar, Browne, Cerda, & Buka, 2005), suggesting the dual influence of victimization and neighborhood context. The potential benefit of developing and testing school-based interventions to prevent entry into the JJ system is discussed later in our intervention recommendations section.

Individual Characteristics

Pubertal timing—Numerous studies have documented that girls who experience pubertal maturation 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 rates of 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, that have known associations with later involvement in delinquency (as reviewed earlier in this review). 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 (Mezzich et al., 1997); with risky sexual behavior (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 JJ involvement for males (e.g., Graber, Seekey, Brooks-Gunn, & Lewinsohn, 2004). Together, the research on pubertal timing indicates that early-onset puberty may be a risk factor for girls' involvement in the JJ system but not for boys' involvement, 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 JJ system at a younger age is associated with an increased 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 years old (Lederman et al., 2004). Prospective studies of at-risk girls similarly suggest that higher levels of problem behavior early in development are linked to increased behavior problems later in development. For example, in a prospective study of 7- to 12-year-old youths in foster care, initial levels of behavior problems were associated with risk outcomes 6 years later (Taussig, 2002), and in a sample of girls in urban neighborhoods, externalizing symptoms at age 9 predicted increased psychopathology and reduced social competence during the transition to adolescence (Obradović & Hipwell, 2010). Whether early-onset delinquency is simply a marker for people who are endowed with higher risk of serious and sustained criminality, or whether its effects are significant in that youth's life-course trajectories are altered due to lost opportunities and relationships at an earlier age remains debatable (see Nagin & Farrington, 1999, for a discussion of these issues), however, the identification of early-onset delinquency as a risk factor for entry and sustained involvement in the JJ system suggests the potential benefits of applying a preventive intervention approach to reduce initial involvement in the JJ system, as described later in one of our intervention recommendations.

Summary

A large body of research indicates that the following risk factors predict involvement in the JJ system, with factors that are more predictive for girls than for boys shown in *italics*: *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 sex a neutral or protective factor for the other sex. 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 JJ 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 about protective factors that uses longitudinal designs with at-risk populations of girls is needed to provide additional insights about resilience processes and to help guide the development of intervention programs aimed at preventing entry into the JJ system.

Characteristics of Girls in the JJ System

In this section, we turn our attention to characteristics of girls upon entry into the JJ system, with a focus on their mental health problems, substance use and abuse, and sexual and physical health problems. Girls in the JJ system typically have a high degree of co-occurring problems, which is not surprising given the risk factors they likely experienced earlier in development (reviewed in the previous section). 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. To be

successful, interventions must not only target precipitating risk factors, but also consider constellations of co-occurring behavior that might propel or sustain involvement in delinquent activities. In this section, we review three co-occurring problems common to girls in the JJ system: mental health problems, substance use and abuse, and sexual and physical health problems.

Mental Health

There is a clear pattern of elevated occurrence of mental health problems among girls in the JJ system. A study of 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 described in 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, whereas 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 JJ penetration (Wasserman, McReynolds, Schwalbe, Keating, & Jones, 2010). For example, the rate of at least one disorder was 15% at system intake, 37% for youths in detention, and 41% for youths in secure post-adjudication settings.

Studies using alternate mental health measures report prevalence rates and sex differences similar to the DISC study rates, suggesting the robustness of the association between JJ involvement and mental health problems for girls in particular. For example, a study that used the Massachusetts Youth Screening Instrument (MAYSI; Grisso & Barnum, 1998) and 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 (Goldstein et al., 2003). A study of juvenile offenders in California compared the psychiatric profiles for males and females using the MMPI and found that females had more severe externalizing and internalizing profiles than males had (Espelage et al., 2003). Similarly, a large study of youths referred to a JJ 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 JJ-referred youths 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 earlier also revealed higher rates of internalizing disorders and disruptive behavior disorders for girls in the JJ system than for boys in the system. Thus, a significant body of research suggests that mental health problems appear to be more prevalent in female than in male JJ 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 JJ-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 and in our intervention recommendations.

Substance Use

Alcohol, marijuana, and other illicit drug use are some of the most common problems among girls in the JJ system, with 6-month substance abuse disorder prevalence rates hovering around 50% in a sample of females arrested and subsequently detained in a juvenile detention center in Illinois (Teplin et al., 2002). Further, 22% of the 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 involved 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 JJ systems (Dembo, Wareham, 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 JJ system. For example, a study of girls admitted to a "short-term" JJ facility indicated that, compared with 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). These rates are in marked contrast to the prevalence of alcohol and illicit drug use in population-based samples, where 11.9% of 12–17 year old females were identified as current drinkers, 8% were illicit drug users, and only 5.2% met criteria for substance use dependence or abuse (Substance Abuse and Mental Health Services Administration, 2013).

In terms of sex differences in prevalence rates, one study indicated that rates are similar for "any substance use disorder" for males and for females (51% vs. 46%, respectively; Teplin et al., 2002), although a study of juvenile court-referred youths 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 greater for JJ 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 JJ system. As reviewed in detail later in this review, targeting co-occurring substance use and delinquency in JJ-involved girls may be an effective and necessary component of intervention programs with this population.

Risky Sexual Behavior and Other Physical Health Outcomes

Engagement in risky sexual behavior (e.g., intercourse without a condom, serial partnerships, intercourse with partners who inject drugs) is associated with substance use and is prevalent among girls in the JJ system. A study of girls in a short-term JJ 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 sexually-transmitted infections 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 more than half of detained girls in one study reported having three 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 JJ girls report similarly high rates of risky sexual behavior and associations between risky sexual behavior and delinquent activity (Dembo, Childs, Belenko, Schmeidler, & Wareham, 2009; Smith, Leve, & Chamberlain, 2006). In contrast, 48% of a population-based sample of high school girls report ever having had sexual intercourse, and only 13% report having four or more sexual partners in their lifetime (Kann et al., 2013).

JJ-involved 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 had multiple sex partners in the past 3 months, and 59% had had unprotected sex in the past month (Teplin et al., 2005). Compared with JJ-involved boys, girls in the JJ 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 JJ-involved girls are more likely than JJ-involved 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 (diversion or non-secure home detention) 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.

Although not as widely studied as the sexual health outcomes described in this section, the co-occurrence of mental health and physical health problems, particularly among at-risk populations such as JJ-involved youths, is receiving increasing attention. Several studies indicate that girls in the JJ 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 having engaged in injury-risk behaviors, such as having a vehicle accident, driving while drunk, carrying a gun, or having an injury that could have caused death, 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 on the basis of body mass index and more than 30% found to have asthma (Odgers et al., 2010). Some of these health afflictions may be associated with family histories, with 55% of the sample having a family history of diabetes and 25% having a family 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.

Summary

Girls in the JJ system suffer from an array of co-occurring problems that span emotional, behavioral, and physical health realms. Their rates of co-occurring mental health problems (and clinical diagnoses), drug use, risky sexual behavior, contraction of sexually-transmitted

infections, 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 JJ system tend to have higher prevalence rates than those of their male counterparts. It is unknown *why* girls suffer more from co-occurring mental health problems and sexual misconduct, although this sex difference may be connected to the sex difference in relationship-based risk factors described earlier in this review (e.g., maltreatment, and sexual abuse in particular). Although the problem of co-occurrence is increasingly acknowledged by clinicians and service providers, interventions targeting female offenders often do not consider the full spectrum of co-occurring problems or the effects of treating one problem behavior on the rates or symptomatology of another problem behavior. As such, greater consideration of multiple domains of poor outcomes could help inform the development of specific intervention services for JJ-involved girls.

Young Adult Outcomes

In this section, we focus on young adulthood and examine adjustment outcomes for girls who were involved in the JJ 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; Henneberger, Oudekerk, Reppucci, & Odgers, 2014; Odgers et al., 2010). Given their at-risk characteristics described previously, many of these girls are ill prepared to meet the demands and responsibilities of adult roles (Bright & Jonson-Reid, 2010; Cauffman, 2008). We examine 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 about recidivism in female juvenile offenders is very limited, recent evidence suggests that these females are likely to continue to offend in adulthood (Bright & Jonson-Reid, 2010; Cauffman, 2008; Giordano, Cernkovich, & Lowery, 2004; Henneberger et al., 2014; Odgers et al., 2007). For instance, Benda, Corwyn, and Toombs (2001) found that approximately 75% of the girls who were released from Arkansas's serious offender programs had entered the state's adult correctional system within the following 2 years. Similarly, in a prospective study of youths 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 32% were incarcerated as an adult by age 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). In comparison, Colman and colleagues (2010) reported that in a sample of age-matched boys who were discharged from New York state juvenile correctional facilities, 89% of the JJ-involved boys were arrested on adult charges at least once, 83% of the boys who recidivated were arrested more than once ($M=8.97$ arrests), 85% were convicted and 71% were incarcerated by age 28 (Colman

et al., 2010). Although the JJ-involved girls showed statistically lower rates of recidivism than did the JJ-involved boys, the girls' re-entry in the criminal justice system as young adults remains extremely high (Colman et al., 2010). However, growing evidence also suggests that there may be significant heterogeneity in girls' offending patterns during young adulthood (Bright, Kohl, & Jonson-Reid, 2014; Henneberger et al., 2014; Odgers et al., 2007). For instance, Colman and colleagues (2009) found that although 32% of girls in their study were rare/nonoffenders as adults (with 82% of girls in this group being arrest free from age 21 and forward), 14% of the sample had a recidivist trajectory (either a low-rising or high-chronic trajectory). Further, 54% of the sample was low-chronic offenders. Girls on 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, respectively, and those in the low-rising and high-chronic trajectories were responsible for 45% of all adult arrests recorded during the same study period. Bright and colleagues (2014) have also found that there are subgroups of JJ-involved girls with distinctive at-risk profiles (examined based on 10 risk factors such as history of child maltreatment, ethnicity, and history of JJ intervention) and that these subgroups of girls are associated with different young adult outcomes. Of the 5 subgroups identified, the group characterized by no maltreatment history in childhood; high levels of poverty; and entirely African American living in poor urban contexts, was most likely to be involved in the adult criminal justice system (14.7%) and receive TANF (26.7%). Interestingly, another subgroup with similar characteristics except for residing in less poor neighborhoods showed lower levels of adult criminal justice system involvement (8.8%) and TANF receipt (10.5%) than did the subgroup mentioned above. In another study, Odgers et al. (2007) found three subgroups of JJ-involved girls with different profiles characterized by violence and delinquent, delinquent only and low offending patterns. When using a similar approach to group JJ-involved girls into violent and delinquent, delinquent only, and low offending subgroups, Henneberger et al. (2014) found that girls in the violent and delinquent subgroup showed significantly higher rates of recidivism, internalizing psychopathology, and physical discomfort as young adults than the delinquent only subgroup. Taken together, these findings suggest that although a considerable proportion of delinquent girls may desist from criminal activity by early adulthood, the vast majority of the girls involved in the JJ 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. Later in this review we emphasize the need for the development of booster interventions during the transition out of the JJ system and into young adulthood.

Substance Use

Surprisingly very few studies have examined substance use behaviors into adulthood for girls involved in JJ, although substance use is the most common problem among JJ-involved girls as mentioned above. The limited available evidence suggests that these girls are likely to face continued problems with substance use dependence issues. A long-term, follow-up study of JJ-involved girls indicated that approximately 40% were using marijuana and about one-third were using other illicit drugs as a young adult (Leve, Kerr, & Harold, 2013). 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 nine 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 Hawaii and found that a majority were experiencing significant substance use problems: more than two-thirds of the sample experienced disruption of their lives as a result of alcohol use, and more than one-third required alcohol dependence treatment. Family context, particularly intimate relationships, appear to be particularly salient for substance use in female juvenile offenders; both studies suggested that many of the females were introduced to and became involved in illicit substances through significant others in their lives (Bright, Ward, & Negi, 2011; Brown, 2006). All 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 partner's or a family member's drug use. This pattern replicates the associations reviewed in the first section of this review, in that the influence of peers, romantic partners, and parents appear to be key factors associated with girls' initial involvement in the JJ system and their continued engagement in problem behavior (substance use) in adulthood.

Early Pregnancy, Parenting, and Child Welfare System Involvement

Female juvenile offenders tend to have children at a young age, and premature childrearing can be particularly challenging for those with limited social, emotional, and financial support networks (Cauffman, 2008). A combination of socioeconomic disadvantages and a lack of support systems may lead to compromised parenting skills in many females with a history of JJ system involvement (Cauffman, 2008). For instance, Leve and colleagues (2013) found that approximately one-quarter of the JJ-involved girls in the sample were involved in the child welfare system as young parents, for neglectful or maltreating parenting of their own children. In a qualitative study of females with a history of JJ 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 had been released from JJ facilities were investigated by child protective services (CPS) at least once as an alleged perpetrator of abuse and neglect before age 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 during the 12-year study period, with a mean of 3.95 investigations per study female. Similarly, Brown (2006) found that almost 50% of the mothers who were on parole had been involved with CPS, 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 underscore the potential benefit of conducting booster interventions as girls transition out of the JJ system, to prevent some of the negative outcomes described in this review.

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 (Oudekerk & Reppucci, 2010). In a 2-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, attacked with a fist, attacked with a weapon) in adolescence and young adulthood. Furthermore, 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 having been victimized by their romantic partners in young adulthood (Odgers et al., 2010). Further, these young women also perpetrate violence against their partners and others (Cauffman, 2008). The potential relevance of intervening to prevent partner violence is discussed in one of our intervention recommendations.

School, Employment, and Independent Living

Juvenile offenders are at high risk for academic failure and poor academic outcomes compared with their nondelinquent peers (Moffitt, Caspi, Harrington, & Milne, 2002; Siennick & Staff, 2008). Contact with the JJ system may have lasting adverse effects on education and subsequent employment as adults (Chung, Little, & Steinberg, 2005). In general, only 12% of youths who were involved in JJ 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). More recently, Henneberger and colleagues (2014) found that 62% of the incarcerated girls (71 out of 114) had an education level lower than high school. 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 had 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). Because academic achievement and stable employment are closely linked to subsequent adult adjustment, poor adjustment in this domain during young adulthood is likely to perpetuate involvement in multiple public systems among females with a history of JJ involvement, suggesting the need for booster intervention services into young adulthood for JJ-involved girls.

Mental and Physical Health

As described previously, 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 self-injurious behaviors documented during adolescence (e.g., Teplin, Welty, Abram, Dulcan, & Washburn, 2002) are likely to continue to challenge this population into young adulthood (Bright et al., 2014). However, research about the unique needs of this

population is seriously limited. In the only study we were able to identify that examined the mental health of females following juvenile detention, Teplin and colleagues (Teplin et al., 2012) found that, 5 years after baseline, nearly 30% of females had one or more psychiatric disorders with associated impairment. Females had higher rates of depression than did males and lower rates of substance use disorders. In a separate study, the research team followed the youths for as many as 16 years and found that JJ-involved females died violently at nearly 5 times the rate of the general population, and their overall death rates, regardless of cause, were 9 times higher than that of the general population (Teplin et al., 2014). The causes of these evaluated death rates appear to be multifaceted. Odgers and colleagues (2010) found that 40% of the female juvenile offenders engaged in injury-risk behaviors (e.g., vehicle accident, driving while intoxicated, carrying a gun) as young adults and approximately 20% reported attempted suicide. Overall, about one-quarter the sample had been hospitalized for an accident or injury since their release from custody (Odgers et al., 2010).

Summary

In spite of the growing evidence base about risk factors and characteristics of girls in the JJ system, our review of the research on female juvenile offenders' young adult outcomes indicates that very little is known about this vulnerable subpopulation's adjustment during the transition to young adulthood, in young adulthood, and beyond. This period is known to be challenging to individuals in general, with prevalence rates of several health risking behaviors (e.g., substance use and unprotected sex) reaching their peak (Arnett, 2000). In the face of limited social support networks and resources, such difficulties are likely to play a key role in continued offending behaviors and other associated problems among girls with a history of JJ involvement. Accordingly, evidence suggests that the problems 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 mental and physical health problems, including elevated death rates. 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 been 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). Moreover, continued involvement in the justice system, early pregnancy and child rearing, inadequate parenting, violent relationships, chronic health-risking behaviors, and other related mental health problems aggregate to significantly increase odds that their children will follow their vulnerable paths. These findings accentuate the need to better understand and develop more effective support for this vulnerable group in young adulthood, as proposed in one of the intervention recommendations described later in this review.

Evidence-based Interventions for Youths Involved in the Juvenile Justice System

The research reviewed thus far indicates a core set of risk and protective factors associated with entry into the JJ system that generally overlaps 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 of the familial and contextual factors identified in this review nevertheless constitute “risks” for both boys and girls. The key topic for this section of the review is the question of whether sex-specific intervention models are needed, in view of the great overlap in risk factors between boys and girls. Specifically, “what works” for reducing the criminal behavior of girls referred by the JJ 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 RCT that specifically tested (and was adequately powered to test) whether JJ-involved boys and girls have better outcomes when they receive sex-specific services. Because of the dearth of evidence-based practices (EBPs) conducted specifically with JJ-involved girls, we therefore focus our review in this section on EBPs that have been *tested in both male and female JJ samples using RCT designs*. We then synthesize the results of these EBPs to offer our perspective about “what works” for girls.

We use Morris, Day, and Schoenwald’s (2010) definition of EBPs as “... 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). While quasi-experimental designs also provide useful information, we chose to restrict our review to EBPs using RCT designs because the majority of “evidence-based practice” lists now require that interventions have to have been examined using an RCT design. To identify relevant EBPs in this area, we conducted several types of searches, including PsycInfo and ProQuest Social Science Journals database searches (with *delinquency*, *girl*, *female*, *JJ*, 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, <http://www.ojjdp.gov/programs/girlsdelinquency.html>) and key researchers in the field 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 JJ system in the United States 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 United States. This means that the vast majority of youths in U.S. JJ 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 JJ 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 experts

consider developing effective services for girls within these systems, it will be critical 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 have served boys and girls in the JJ system: Functional Family Therapy (FFT), Multisystemic Therapy (MST), and Treatment Foster Care Oregon (TFCO; formerly known as 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 youths referred because of substance use. We included the model because a significant portion of the youths enrolled in the MDFT studies had been referred from the JJ system (consistent with the review of co-occurring problems presented in the Characteristics section of this review) and because both boys and girls are represented in the MDFT studies.

All four intervention models have been evaluated in numerous studies using “gold standard” randomized, controlled designs. FFT, MST, and TFCO 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/>; now called Blueprints for Healthy Youth Development) that reviewed more than 900 programs and designated these three as being effective for treatment of juvenile 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, Coalition for Evidence-Based Policy (www.evidencebasedprograms.org), California Evidence-based Clearing House for Child Welfare (<http://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, Aos, & Miller, 2009; Lipsey, 2009), in journal reviews (Eyberg, Nelson, & Boggs, 2008), and in books about EBPs (Greenwood, 2007; Howell, 2003). Beyond evaluations of immediate effectiveness, numerous follow-up studies have examined the long-term outcomes of these models. All 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 JJ system, girls represent a minority of the participants, averaging about 23% of those enrolled in the RCTs conducted with these models. This proportion is less than the estimated prevalence of females in the U.S. JJ population in general (i.e., 29%), so it is clear that girls have been somewhat underrepresented in intervention research. Of these EBP models, only TFCO has conducted studies with female-only samples; as such, we will describe TFCO 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 youths in JJ. Recent surveys indicate that approximately 9% of youths per year in the United States are served by one of these four EBP models, or about 15,000 of 160,000 JJ-involved youths (Henggeler & Schoenwald, 2011). This speaks not only 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 the section on research and intervention recommendations. Hopefully, new research-based intervention models will 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 later, 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 share several areas of focus and use many similar intervention methods. Clearly, potentially valuable lessons can be learned from previous work that can provide the basis for expanded and improved services in the next generation of effective interventions for girls. Before discussing the common features of these models, we address the issue of their relevance to interventions for girls.

Is the Knowledge Gained From Mixed-Sex Intervention Studies Relevant for Girls?

During the 1980s, the consensus in the field of JJ 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 sex. 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 that enrolled youths referred by JJ systems, including at least some proportion of females.

Table 1 shows information about the mixed-sex studies conducted using the FFT, MST, and MDFT models, the sample sizes, and the proportion of girls they enrolled. Within each intervention, we have ordered the table by publication date. As noted in the table, more than 800 girls have participated in RCT studies testing these interventions. There have been documented reductions in criminal offending by both sexes. Sex-specific treatment effects were not found nor reported across any of these studies, and girls did no better or worse than boys did on outcomes in any single study, with the exception of Asscher et al. (2013) who reported larger effects for boys than girls on hostility outcomes following MST. Does this prove that these three EBPs are generally equally effective for males and for 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 girls as it was for boys. But taken as a body of work and because collectively more than 800 girls have participated in these three 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. This logic is bolstered by findings from the TFCO studies that focused solely on girls, as described later in this section.

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 earlier. 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, three FFT outcome studies, including both RCTs and a quasi-experimental study, have been published with girls with JJ involvement. Participants in these studies have included an estimated 240 girls comprising approximately 22% of their samples. Samples include youths 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 youths 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 youths 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 youths 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 that have examined outcomes 21 years post-intervention. An estimated 440 girls have participated in the MST RCTs and comprised approximately 24% of the study samples.

MST is a family therapy approach informed by Bronfenbrenner's theory of social ecology (1979), in which youths 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 that are considered to be multiply determined. The family is considered to be the most powerful agent of change, and, consistent with the risk and protective factor research reviewed earlier, MST studies have shown that improved family functioning and decreased association with deviant peers are critical processes for producing favorable outcomes for juvenile offenders. Interventionists have small caseloads (from three to five 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 trained and supervised using a well-defined strategy for analyzing the youth and family behavior, including generating testable hypotheses about what drives the behavior,

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 with youths 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 a multiple systems-oriented treatment that is integrative and family-based and was originally developed for adolescent drug abuse and related behavior problems (Liddle, 2002). As reviewed earlier, co-occurring problems with substance use are prevalent in females in JJ samples. MDFT studies have enrolled 122 girls (23% of the study populations). Several versions of the approach are used in various settings, including office-based, in-home, brief, intensive outpatient, day treatment, and residential treatment settings (Liddle, Rodriguez, Dakof, Kanzki, & Marvel, 2005). MDFT is typically delivered from one to three times per week during 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 the first section of this review. 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 by using multiparticipant family sessions. The *extrafamilial domain* fosters family competency and collaborative involvement in the social systems the teen participates in (e.g., school, JJ, 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.

Treatment Foster Care Oregon—Treatment Foster Care Oregon (TFCO) is the only EBP model that has been tested in RCTs that exclusively comprise 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 emphasis was expanded to developing and testing an intervention approach that was specifically tailored for girls. Two consecutive cohorts of TFCO beginning in 1997 and concluding in 2008 were convened

using rolling recruitment of all eligible girls meeting the following criteria: female, 13–17 years old, at least one criminal referral in the previous year, court-mandated placement in out-of-home care, and not currently pregnant. Girls were randomly assigned to group care (GC) or to TFCO. The combined sample included 81 TFCO girls and 85 GC girls. Recruitment procedures for the two cohorts 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 TFCO studies with girls are summarized in Table 2.

Enhancements to TFCO for girls—Five specific enhancements were developed to be responsive to the needs and clinical profiles presented by girls. They were based on the previous research described earlier 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. In addition, pilot work added a trauma-focused intervention component for a subsample of girls and compared outcomes for them with mental health outcomes of TFCO (without trauma focus) and with outcomes for girls randomly assigned to GC (Smith, Chamberlain, & Deblinger, 2012). 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 TFCO are superior to outcomes for those who were randomly assigned to GC in a number of key areas, including recidivism, incarceration time, lower pregnancy rates, increased school engagement, lower illicit drug use, and lower depressive and psychotic symptoms. Results from the trauma-focused pilot study suggested improved outcomes on anxiety and depression with these additional treatment components (Smith et al., 2012).

Common Intervention Targets and Processes in Interventions for Juvenile Justice Girls

To understand *why* these EBPs for JJ girls are effective and to inform future intervention work with JJ girls, it is useful to consider common intervention targets and processes across the set of four EBPs reviewed here. The MST, FFT, MDFT, and TFCO models share five key features, as noted by Henggeler and Schoenwald (2011): (a) they are family-based treatment models; (b) they emphasize risk and protective factors; (c) they use behavioral interventions to target a constellation of problem behaviors, including delinquency, mental health symptoms, and health-risking behaviors; (d) they are implemented within the youth's natural community environment; and (e) they use highly specified and manualized

intervention procedures, and the intervention implementation is closely monitored to achieve model fidelity. Of note, some of the most popular interventions for girls in the JJ system do not include most of these key features, and include additional features that are not evidence-based. For example, group-care treatments typically fail to meet criteria a, d, and e. In addition, research has shown that group-based interventions can have the opposite effect as what was intended, and be harmful for delinquent teens (Dishion, Poulin, McCord, 1999). Similarly, recently popularized wilderness therapy or boot-camp approaches also employ a group-based approach and do not contain any of the aforementioned key features. Based on the review of findings described here, we conclude this section by integrating across the four EBPs to present five intervention facets that appear to be key to producing positive changes for girls in the JJ system and that therefore should serve as cornerstones for future intervention research with girls who are at risk for or who are currently involved in the JJ 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 at the beginning of this review, the family context plays a critical 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 here, have been developed, given the known importance of social-contextual factors for shaping developmental trajectories (Cohen & Siegel, 1991). Family-based treatments targeting the multiple areas of the teen's functioning and social environment are recognized as the most promising interventions for reducing delinquency, substance abuse, and related problems (e.g., Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 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 on girls alone. The emphasis on the family underscores the importance of the girl's parenting and community contexts. Individually-based approaches whose change efforts consist solely of strengthening the girl's internal psychological resources have not produced comparably positive outcomes. Interventions that strengthen parents or other caretaking adults in ways that help them 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 include strong youth involvement components that use modes such as individual therapy for the girl (TFCO), skills coaching (TFCO and MST), inclusion of the girl's perspective in family therapy (all models). However, all RCTs to date that have shown positive effects on outcomes for JJ girls have had a strong emphasis on family treatment, with the exception of one trial that tested a CBT approach with incarcerated youths (Guerra & Slaby, 1990). This 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 protective factors reviewed earlier, each of the EBPs presented in this review emphasize the importance of increasing protective and positive

daily living contexts for girls. This strategy involves increasing the support provided by caretaking adults and the use of methods to improve 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 of participation in risky situations requires increased monitoring and supervision by adults. As noted earlier, parental monitoring has been identified as a protective factor in previous longitudinal work (Steinberg et al., 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 because the same adults who are responsible for such monitoring are the primary mentors for the youth, and mentoring requires a positive relationship. All the EBP models described earlier 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 about risk and protective factors described earlier. Further, this approach also helps promote positive school engagement for youths, which is another protective factor identified earlier in this review. 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 youths 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 previously. 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 youths 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—All the EBP interventions discussed in this review situate the treatment activities in real-world community contexts, thereby minimizing the need for later generalization. This approach contrasts with that of 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 use manualized treatment methods and fidelity monitoring—All four EBPs described earlier are being implemented in community agencies throughout the United States 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. They 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), and measuring fidelity has been shown to be a critical aspect of intervention implementation.

Summary

Four EBPs (FFT, MST, MDFT, TFCO) have been tested in multiple intervention trials with samples that include girls involved in the JJ system, or in the case of TFCO, 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, that they lead to reductions in delinquency and recidivism. In each study, the intervention was effective for the sample as a whole, and with a single exception (Asscher et al., 2013), no differences were identified with respect to outcomes based on sex. However, girls were underrepresented in these trials relative to the population base rates for JJ-involved youths, except for TFCO, 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 sex were indicated, and the studies were generally underpowered to detect sex differences, should any differences exist. Therefore, although we can conclude that these EBPs are effective for girls involved in the JJ system, there is insufficient evidence to identify differential effectiveness by sex or to provide sex-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 protective factors, as described earlier in this review.

Specifically, all four EBPs rely on a family-based treatment model conducted in a community-based context rather than in an institutional setting. In that family and relationship characteristics are particularly salient risk factors for girls, relative to boys, family-based interventions would therefore seem to be 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 levels of parental monitoring, all of which have been shown to be risk/protective factors for girls. Last, all four EBPs 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 JJ system. Despite these theoretical and practice-related commonalities, it is not known if other key treatment components would be beneficial to include in female-focused treatment approaches. In addition, the evidence-based models described are all multifaceted and therefore complex to implement. This makes them difficult and expensive to scale up, even though MST and FFT in particular have been widely scaled in the U.S. and internationally. The question of whether more straightforward, focused approaches could be developed or are being implemented already within community settings remains. In addition, many of the original trials were conducted by the developers of the intervention. Although there have been numerous recent independent RCTs led by individuals not

associated with the intervention development (e.g., Asscher et al., 2013; Westermarck, Hansson, & Olsson, 2010), additional independent trials would make valuable contributions to the conclusions that can be drawn from the evidence. What is clear is that further research is needed that targets this vulnerable growing population of girls and young women who are at high risk for a plethora of negative outcomes. In the final section of this review we offer specific recommendations to help fill these gaps.

Recommendations

It is estimated that only 5%–9% of eligible high-risk juvenile offenders in the United States are given an evidence-based treatment (Greenwood, 2008; Henggeler & Schoenwald, 2011). Despite the EBP evidence provided in this review, the vast majority of JJ youths are given intervention services that have not been proven effective nor been evaluated. In the final section of this review, 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 JJ-involved girls 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: The four EBPs for JJ youths reviewed comprise a combined sample of more than 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 JJ system would provide a significantly more powerful test of whether EBP interventions used with JJ populations are effective for girls, and especially, 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 JJ girls. Analyses could also provide clues about 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 they are related to intervention efficacy. Although existing research does not indicate substantial or widespread disparities by ethnicity in the processing and outcomes for girls in the JJ system (e.g., Crosby et al., 2004; Knight, Little, Losoya, & Mulvey, 2004; Steffensmeier & Demuth, 2006), examination of ethnicity-based differences in intervention outcomes has not been accomplished 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 would 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 JJ system.

b. Analyze system-level outcomes for EBPs being implemented: Wide-scale implementation of the four EBPs is currently occurring in JJ 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 about outcomes (e.g., recidivism, type of offense, length of sentence). This is because most service-level implementation efforts do not have a research component attached to them; they are service delivery programs only. Because several thousand girls have already received one of the EBPs in a service (nonresearch) setting and system-level data already exist, analyses of outcomes would also be a cost-effective research addition that would be a powerful way to (a) examine the efficacy of EBPs for a very large number of girls in the JJ system by comparing system-level outcomes for these girls with outcomes of 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 (nonresearch) mode versus RCT mode of delivery, by comparing effect sizes in implementation settings with those in published RCT studies.

2. Use existing risk assessment tools to individualize services—As reviewed earlier, JJ girls often have wide-ranging and severe mental health problems, and there is a strong call to assess the mental health of girls in JJ 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 used to examine whether outcomes are comparable for boys and for 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 JJ system have similar outcomes? For example, we know that childhood maltreatment is associated with offending behavior and that girls are the victims of sexual abuse more often than boys are. However, if a selected sample of boys and girls had equal rates of exposure to sexual abuse, would JJ outcomes be comparable for boys and girls? In addition, research studies could help bolster the connection between risk assessment tools and the translation to intervention services. What services are most effective for youths 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? First generating an evidence base and then translating a screening tool to effective services would improve outcomes for JJ 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—Established methods and reports have documented 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 to 5.3 million dollars (Cohen & Piquero, 2009). However, in view of the high incidence of comorbid mental and physical health issues described earlier, it is increasingly clear that JJ 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 JJ system costs society and capture the cost benefits of EBPs 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 they place on individuals and on

government systems, such as Medicaid and other costs associated with the Affordable Care Act.

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 are their male counterparts (Merikangas et al., 2010; Offord et al., 1990) and therefore are less likely to receive preventive services shown to be effective at obviating future problems. On the basis of 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 to prevent maltreatment and increase placement stability for girls who are already placed in foster care. Although maltreatment and placement instability are clear risk factors for both boys and girls, girls are especially vulnerable. Providing interventions for girls enrolled in the child welfare system who have not yet entered the JJ system could be an opportune way to prevent entry into JJ for this population.

School: Interventions are needed to identify girls who are at risk for school-related 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. Currently, girls typically are identified later than their male counterparts as having school-related problems, and they receive fewer school-related services (Offord et al., 1990). These circumstances potentially increase their risk for subsequent failure and drop-out. Further, as summarized earlier, 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 systems, we can help prevent entry into the JJ system. A benefit of targeting girls in these systems is that the population is already clearly identified and services can be delivered by individuals who already are in a position to facilitate children's healthy adjustment (e.g., school counselors, case workers, foster parents).

2. Provide booster services as juvenile justice girls transition to young adulthood—JJ girls do not fare well as they transition out of the JJ system and into young adulthood. Further, upon exit from child welfare systems, youths 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, increasing their reliance on multiple public health systems. Research about the transition to adulthood for this population is quite limited, despite the numerous problems associated with this transition. As reviewed previously, peers and partners are key to initiating and maintaining girls' delinquency trajectories. As girls exit adolescence, the family context is significantly diminished as a primary intervention site. The focus of interventions that target the transition to young adulthood necessarily must shift to the proximal context for young women: intimate partner relationship. Interventions that target partner selection and the elimination of violence in

relationships could help ameliorate some of the poor outcomes that JJ girls experience and could have lasting effects in terms of outcomes for the children of JJ-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 JJ system, it may be prudent to expand intervention targets for girls 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 could 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 presented in this review, we recommend building upon existing EBPs that have been previously evaluated in JJ 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). In view of the research support for family-based interventions for JJ youths reviewed here, we recommend maintaining a strong family-based emphasis when modifying interventions that address issues of comorbidity.

4. Increase the research base regarding implementation efforts—Four existing EBPs appear to be effective for improving outcomes for girls in the JJ system, and ongoing implementation efforts with these EBPs are occurring throughout the United States. However, there are known implementation barriers to broad-scale uptake of these EBPs (Proctor et al., 2011), and it is not known how widely these programs are being implemented with girls and how to successfully increase uptake. Meaningful research is needed to answer implementation-related questions in multiple areas, including the following: What are the most effective methods for increasing uptake of EBPs for JJ-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 are the most effective and cost-efficient methods for providing ongoing supervision and staff training for programs serving girls? How can EBPs for girls be sustained over time in the face of high staff turnover and changes in organizational leadership? How effective are EBPs in nonresearch, non-RCT settings for achieving adolescent and family outcomes that are 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 and ultimately increase the number of girls in the JJ system who receive EBPs.

Conclusions

This review focused on the precursors and sequelae of girls' involvement in the JJ system in the United States. We described four EBPs with known efficacy with populations of JJ girls and on the basis of our review of the evidence, we offer recommendations for feasible next steps in research and intervention for this underresearched and underserved population. Although most of the risk and protective factors reviewed here apply to both boys and girls

in or at risk for entering the JJ system, a few are 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 protective factor for girls; a strong risk factor for girls involved in the JJ system is the tendency to choose males as their closest friend or partner, 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 as a protective factor for girls. Those who are involved in JJ 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 concerning girls' individual characteristics has shown that, like their male counterparts, those with elevated levels of externalizing behavior problems as children have poor long-term prognoses as adolescents. In addition, girls in JJ are more vulnerable than their male counterparts to having comorbid mental health disorders. Problems with substance use are severe for youths in JJ of both boys and girls, but for girls, problems with substance abuse appear to go hand in hand with high levels of participation in health-risking sexual behavior. Girls are more likely than boys to participate in risky sexual practices, which puts them at risk for contracting sexually transmitted diseases and for being subjected to sexual exploitation. As such, it is not surprising that girls in JJ tend to become pregnant as teens and face enormous challenges as parents, which in turn commonly leads to involvement in the child welfare system and accompanying high societal costs. Also costly are physical health problems of girls in JJ, including elevated rates of injuries, obesity, and asthma and of cardiovascular and respiratory illness. The occurrence of physical health problems among this population is a particularly under-researched area.

Girls have been somewhat underrepresented in RCTs of youths in the JJ system, relative to estimates of their overall prevalence in the JJ system in the United States. JJ-system girls comprised 23% of the samples in mixed-sex RCTs, and they are estimated to comprise 29% of youths in the JJ system (Puzzanchera, 2013). However, more than 950 girls have been enrolled in mixed-sex or female-only studies of well-established EBP models that treat youths referred by the JJ system, including FFT, MST, MDFT, and TFCO. Results from these studies indicate that there likely are positive short- and long-term effects for girls with respect to an array of outcomes, although sample sizes in the mixed-sex EBPs preclude drawing firm conclusions. An aggregation of data for girls across these studies is recommended. The four EBPs reviewed here are currently being implemented throughout the United States but are reaching less than 10% of the total JJ population (girls and boys; the specific reach for girls alone is unknown). Examination of outcomes for these real-world EBP implementations is recommended. The 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 protective factors as intervention targets, inclusion of behavioral interventions, community-based implementations, and attention to specification of treatment procedures and fidelity monitoring. The commonalities and potentially positive outcomes suggest that future interventions for girls in the JJ 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 are logical next steps for promoting the understanding of girls in the JJ system and improving services and outcomes for them.

Although much is known about JJ-involved girls, several critical questions remain. For example, it is unclear if sex-specific or individualized services are needed. On the basis of current evidence from existing EBPs, existing services appear to be effective for girls. That said, there is insufficient evidence to suggest the *necessity* for sex-specific services. Aggregating data 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. 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 knowledge gap. In addition, work is needed that identifies girls at risk for JJ involvement earlier in development and that provides services to prevent involvement in JJ. A number of well-validated preventive intervention programs that are currently available for at-risk girls could be used and tested among a broader population of girls to increase prevention efforts that target JJ involvement (e.g., Kim & Leve, 2011; Pepler et al., 2010). Because of tragic histories of multigenerational system involvement and the subsequent involvement in the child welfare system of girls' own children, the development of intervention models that address intimate partner choices and subsequent relationship adjustment are clearly indicated for JJ-involved girls. Intervention theory is needed to inform and guide efforts to address the problem of negative relationships that females with delinquency tend to have and to reduce the level of multigenerational involvement in the U.S. child welfare and JJ systems.

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Table 1

Juvenile Justice-Involved Females Treated in Evidence-Based Models

Study	Intervention	Population	Sample N	Girls %	Outcomes
Parsons & Alexander (1973)	FFT	Juvenile offenders	40	55	↑ family interactions
Waldron et al. (2001)	FFT	Substance-abusing adolescents	120	20	↓ substance use
Sexton & Turner (2011)	FFT	Juvenile offenders	917	21	↓ behavioral problems ↓ recidivism
Henggeler et al. (1986)	MST	Juvenile offenders	116	16	↑ family relations ↓ behavioral and emotional problems ↓ association with deviant peers
*Henggeler et al. (1993)	MST	2.5-year follow-up of Henggeler et al. (1986)	84	23	↓ recidivism
Borduin et al. (1995)	MST	Violent and chronic juvenile offenders	200	32.5	↑ family relations ↓ psychiatric symptomatology for parents ↓ recidivism
Henggeler et al. (1997)	MST	Violent juvenile offenders	155	18	↓ youth psychiatric symptomatology ↓ incarceration ↓ recidivism
Henggeler et al. (1999)	MST	Substance-using/abusing delinquents	118	21	↓ drug use post-treatment ↓ days in out-of-home settings ↓ criminal arrests
*Henggeler et al. (2002)	MST	4-year follow-up of Henggeler et al. (1999)	80	17	↓ violent crime ↑ marijuana abstinence
*Schaeffer & Borduin (2005)	MST	4-year follow-up of Henggeler et al. (1999)	176	31	↓ youth behavior problems ↓ re-arrests ↓ days incarcerated
Timmons-Mitchell et al. (2006)	MST	Juvenile justice youths	93	22	↑ youth functioning ↓ substance use problems ↑ school functioning ↓ re-arrests
Borduin et al. (2009)	MST	Juvenile sexual offenders	48	4	↓ problem behaviors and symptoms ↑ family relations, peer relations, academic performance ↓ caregiver stress ↓ sex offender recidivism

Study	Intervention	Population	Sample N	Girls %	Outcomes
					↓ recidivism for other crimes ↓ days incarcerated
Letourneau et al. (2009)	MST	Juvenile sexual offenders	127	2	↓ sexual behavior problems ↓ delinquency, substance use, externalizing symptoms ↓ out-of-home placements
Glisson et al. (2010)	MST	Juvenile justice youths	615	31	↓ out-of-home placement
Butler et al. (2011)	MST	Juvenile Justice youth	108	17.6	↓ nonviolent offending at 18 mos follow-up ↓ youth self-report of delinquency across BL thru 18 mos follow-up ↓ parent reports of aggressive and delinquent behavior across BL thru 18 mos follow-up
Asscher et al. (2013)	MST	Adolescents referred by public agencies	256	26.6	↓ youth externalizing behavior, ODD, CD, and property offences ↓ youth hostility ↓ personal failure ↑ associations with prosocial peers ↑ parental sense of competence ↑ parental report and observer ratings of relationship quality ↑ observer rated inept discipline
Weiss et al. (2013)	MST	Adolescents who were in self-contained behavior intervention classrooms	164	17	↓ parent report and adolescent report of externalizing behavior ↓ the number of absent days in school ↓ permissive parenting behavior ↓ parental internalizing psychology
Liddle et al. (2001)	MDFT	Adolescent drug abusers	182	20	↑ family functioning ↑ prosocial behaviors ↓ drug use
Liddle et al. (2004)	MDFT	Adolescent substance abusers	80	27.5	↓ substance use
Liddle et al. (2008)	MDFT	Adolescent drug abusers	224	19	↓ marijuana use ↓ alcohol use
Liddle et al. (2009)	MDFT	Adolescent substance abusers	83	26	↓ substance abuse ↓ delinquency, internalized distress ↓ risk in family, peer, school domains
Rigter et al. (2013)	MDFT	Adolescents with Cannabis use disorder	450	14	↑ treatment retention ↓ cannabis dependence ↓ the number of cannabis consumption days
Rowe et al. (2013)					↓ substance use frequency ↓ cannabis dependence diagnoses
Schaub et al. (2014)					↓ adolescent self-reported externalizing problems

Study	Intervention	Population	Sample N	Girls %	Outcomes
Dakof et al. (2015)	MDFT	Juvenile Justice youths	112	12	↑ maintenance of treatment gains for externalizing behavior, commission of serious crimes, and felony arrests at 24 mos follow-up

Note.

* Follow-up study

Table 2

Results from TFCO Studies with Girls

Study	Population	Sample N	Outcomes
Leve, Chamberlain, & Reid (2005)	Juvenile justice girls	81	↓ days in locked settings ↓ recidivism and criminal activity
Leve & Chamberlain (2005b)			↓ delinquent peer affiliations ↑ homework completion
Leve & Chamberlain (2007)			↑ school attendance
Chamberlain, Leve, & DeGarmo (2007)	2-year follow-up	81	↓ delinquency ↓ criminal referrals ↓ days in locked settings
Kerr, Leve, & Chamberlain (2009)	2-year follow-up	166*	↓ pregnancies
Leve et al. (2011)			↓ delinquency
Harold et al. (2013)	2-year follow-up	166*	↓ depressive symptoms
Poulton et al. (2014)	2-year follow-up	166*	↓ psychotic symptoms

Note.

* These studies included 81 girls from the original sample (Cohort 1) and 85 new participants from Cohort 2.