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EDITORIAL INTRODUCTION

DISPOSITION MATRIX FOR COURT RECOMMENDATIONS

Disposition Matrix Effectiveness

Kelly Dedel

One in 37 Research, Inc.

Context for the Current Research

Although the phrase “evidence-based practice” has become commonplace in the field of juvenile justice, research on strategies to ensure that decision makers rely on the growing body of research about what works to change youth’s behavior are far more uncommon. Objective risk-assessment instruments are perhaps the most well-known tools for adhering to the risk–needs–responsivity approach (Andrews and Bonta, 2010; Dowden and Andrews, 2000), but additional strategies are needed to complete the picture. Baglivio, Greenwald, and Russell (2015, this issue) use the Community Positive Achievement Change Tool (C-PACT), a validated risk-assessment instrument that measures a youth’s likelihood of reoffending and rank orders the youth’s most significant criminogenic needs. Many jurisdictions have adopted objective risk-assessment instruments, but once the risk level is computed, often they do not know how to use the information to improve youth outcomes. The real challenge lies in *how to manage that risk*—in what setting (e.g., field supervision, residential placement, etc.) should services that address the underlying causes of the youth’s behavior be delivered?

The first step in managing offenders’ risk is to identify the appropriate level of restrictiveness within which services and supervision will be delivered. Baglivio et al. (2015) present a structured decision-making tool—the disposition matrix—designed to guide decisions about the appropriate level of restrictiveness for service delivery based on the C-PACT risk level and the severity of the youth’s current offense. The matrix embraces the concept of graduated sanctions: Low-risk youth remain in the community with minimal supervision, moderate-risk youth are placed in more structured community programs with more intensive supervision and service enhancements for higher risk youth, and residential placements (both secure and nonsecure) are reserved for the highest risk offenders and used only after less restrictive alternatives have been exhausted. Each cell of the matrix offers a range of

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dispositional options to permit staff to exercise professional judgment to account for the myriad individual circumstances that cannot possibly be captured by the risk score.

Key Findings

Baglivio et al. (2015) demonstrate that adherence to the matrix produced more positive outcomes among youth of all risk levels than dispositions outside the suggested options. More specifically:

- Youth whose dispositions fell within the suggested ranges of the appropriate cell in the matrix had an average recidivism rate of 19%, compared with an average recidivism rate of 39% for youth whose dispositions fell outside of the suggested options.
- Dispositions that reflected the least restrictive setting within the suggested range options for each cell of the matrix performed the best.
- Conforming to the *risk principle*, dispositions that were more restrictive than the options suggested within each cell (e.g., intensive supervision for low-risk youth) performed poorly, with a 34% average recidivism rate. Similarly, dispositions that were less restrictive than the options suggested within each cell (e.g., diversion for high-risk youth) performed poorly, with a 54% average recidivism rate.

Baglivio et al.'s (2015) article is the first published study of the usefulness of a structured disposition matrix in the effort to produce positive outcomes among youth in the juvenile justice system. Their positive findings provide a solid foundation for the application of similarly structured risk-management tools to ensure that, within each level of restrictiveness, youth's criminogenic needs are addressed by effective services and programming.

Policy Implications

To maximize the usefulness of any structured decision-making tool, the tool must be credible to both internal and external stakeholders. The most salient credibility issue is whether the effectiveness of the tool has been demonstrated through published research. Baglivio et al.'s (2015) study is a stellar contribution to the field for this reason. As administrators of the largest probation department in the country, Cotton and Owen (2015, this issue) are attuned to the steps required to "sell" new ways of contemplating the business of juvenile justice and highlight the various tasks required for quality implementation. Their discussion reflects many of the concepts discussed by Vincent, Paiva-Salisbury, Cook, Guy, and Perrault (2012), who detailed the training and policy revision undertakings that underlie the fidelity with which risk and needs assessments are used to inform decision making.

Furthermore, given the long history of offense-based dispositions in juvenile justice, shifting toward risk-based dispositions can be difficult. Without the buy-in of key stakeholders (e.g., judges, prosecutors, and line staff), the successful implementation of new tools for dispositional decision making is unlikely. The severity of a youth's current offense

does not have a particularly strong relationship to the risk of future offending (Grattet, Lin, and Petersilia, 2011; Langan and Levin, 2002; Mulvey et al., 2010—in addition to Baglivio et al.'s [2015] results), but its inclusion in the dispositional “formula” helps to build credibility for the new tools and increases the likelihood of their acceptance among stakeholders. As Baglivio et al. demonstrate, it is possible to temper the influence of offense severity in the choice among dispositional option by including a broad range of dispositional options within each cell of the matrix and requiring staff to use less restrictive options first. Although this solves some of the problems associated with offense-driven dispositions, it creates others, as discussed by Vincent and Lovins (2015, this issue).

Baglivio et al. (2015) set the stage for a focus on the importance of a similar strategy for assessing the youth's needs and matching them with appropriate services that embrace what we know about effective programs for changing youth behavior. In their policy essays, both Vincent and Lovins (2015) and Cotton and Owen (2015) identify need-service matching as an important next step.

Finally, although Baglivio et al. (2015) describe the current process for monitoring the implementation of the matrix, youth outcomes should also be monitored on an ongoing basis. Knowing the success rate for youth who are assigned to the various options within each cell of the matrix, particularly when combined with information on successful need-service matching as mentioned previously, will be useful in contemplating the task of refining or limiting the options available within each cell to maximize positive youth outcomes.

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Kelly Dedel, Ph.D., is the director of One in 37 Research, Inc. Now a consultant based in Cody, Wyoming, Dr. Dedel was one of the founders of The Institute on Crime, Justice and Corrections at George Washington University and has worked as a senior research associate for the National Council on Crime and Delinquency. With Garth Davies, she conducted several validations of risk-assessment instruments used in both the juvenile and adult justice systems. She frequently serves as a court-appointed monitor of conditions of confinement cases in juvenile correctional facilities throughout the country.

Assessing the Implications of a Structured Decision-Making Tool for Recidivism in a Statewide Analysis

Disposition Matrix for Court Recommendations Made by Juvenile Probation Officers

Michael T. Baglivio

Mark A. Greenwald

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Florida Department of Juvenile Justice

Research Summary

The Florida Department of Juvenile Justice has implemented a disposition matrix to guide recommendations made by juvenile probation officers to the court. This study examines whether recidivism rates for dispositions/placements made within the suggested range of this matrix differ from those outside of the suggested range. Using a sample of 38,117 juvenile offenders, we found that the dispositions/placements within the suggested range had an average recidivism rate of 19.4%, whereas those whose dispositions were outside the range had an average recidivism rate twice as high (38.7%). Furthermore, dispositions/placements that were the least restrictive option within the suggested range performed best. Dispositions above the suggested range (more restrictive) performed poorly, although those below the suggested range (less restrictive than suggested) performed the worst. These results held for males and females, across race/ethnicity, and across risk to reoffend levels.

The views expressed in this article are those of the authors and not necessarily those of the Florida Department of Juvenile Justice. Direct correspondence to Michael T. Baglivio, Florida Department of Juvenile Justice, 2737 Centerview Drive, Tallahassee, FL, 32399 (e-mail: Michael.Baglivio@djj.state.fl.us).

Policy Implications

Implementation of structured decision-making tools leads to questions from stakeholders and front-line staff charged with using those tools regarding their effectiveness. Research and theory-based justifications do not hold the weight actual data from the implementation population provide. These tools help control costs, facilitate planning, and can improve outcomes. Monthly monitoring of adherence rates, development of override and management oversight protocols, and regular feedback to front-line staff are critical components of success.

Keywords

structured decision making, juvenile justice, graduated sanctions, recidivism

According to the Office of Juvenile Justice and Delinquency Prevention (OJJDP), there were 1,642,600 arrests of juvenile youth during 2010 (Puzzanchera, 2013). Most of these youth participated in some type of sanction as the result of a plea agreement or other judicial action (Baltic, 2011). A core component of the juvenile justice system is the notion that children are malleable and interventions should be motivated by an overall desire to address the issues that are driving the delinquent behavior. Therefore, matching youth with the appropriate intervention is critical to provide the best opportunity to abate future delinquent activity.

Although the use of actuarial risk-assessment instruments is becoming more commonplace in juvenile justice settings, less has been done to provide practitioners with an empirically tested set of guidelines to direct the courts' decision-making process. In many cases, the court may follow a set of generic sentencing guidelines to match the offense with the sanction. In some areas, staff in the juvenile justice system will provide a report to the court that outlines key risk and protective factors and will provide a formal sentencing recommendation to the court. However, we are not aware of research that has systematically evaluated the effectiveness of juvenile sentencing guidelines or structured decision practices that feeds the aforementioned recommendation process.

We address this gap in the literature through a systemic review of the structured decision-making process used by the Florida Department of Juvenile Justice. Specifically, we assess the extent to which adherence to a set of recommendation guidelines that matches youth to the right services within the continuum provides the best outcomes in terms of subsequent reoffending. To that end, the article is structured as follows. First, we describe the principles of the Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders, as well as the theoretical foundations for a series of progressively graduated sanctions. Second, we outline the structured decision-making process that has been deployed in several jurisdictions in Florida. Third, the current study is discussed including a review of subsequent recidivism outcomes. We close with a discussion of implications for theory, research, and practice.

Comprehensive Strategy and Graduated Sanctions

The Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders is a major initiative promoted to assist with juvenile justice system resource allocation efforts and matching youth to appropriate services (Howell, 2003, 2009, 2012; Wilson and Howell, 1993). The Comprehensive Strategy can be considered a two-tiered approach. The first tier calls for delinquency prevention to keep at-risk youth from entering the juvenile justice system and stem criminal career development. The second tier requires proactive graduated intervention with youth who have not responded to initial efforts and have penetrated into the system, with emphasis on those at risk of becoming serious, violent, and chronic (SVC) offenders (Howell, 2009). The Comprehensive Strategy might be summarized with the following critical elements:

- Continuum of services from universal prevention through residential placement and aftercare
- Appropriate resources allocated to each level of services along the continuum
- Youth matched to level of services based on assessed risk and needs
- Prevention by targeting programming to at-risk youth
- Intervention and graduated sanctions including improving the juvenile justice system response to delinquent offenders within a continuum of treatment and service options and systems of graduated sanctions

Graduated sanctions refer to the continuum of disposition options that juvenile court judges have at their disposal (Juvenile Sanctions Center, 2003). “Graduated sanctions” is a term also applied to the official responses to noncompliant behavior of offenders who violate the conditions of their community supervision (Taxman, Soule, and Gelb, 1999). Graduated sanctions in that context provide increasingly severe responses as rule-violating behaviors continue (Guastaferrro and Daigle, 2012; Petersilia, 1998). The receipt of federal Juvenile Accountability Incentive Block Grant funding is contingent on states adopting graduated sanctions for juvenile offenders (Cooley, 2011; Twenty-first Century Justice Appropriations Act of 2002). However, as noted by Howell and Lipsey (2004), the term “sanctions” in the instance of disposition options for judges refers only to the context of the service delivery (e.g., community supervision and residential placement). The programs, interventions, and services within those contexts and structures address the underlying risk and protective factors of the youth served.

Four types of structured decision-making (SDM) tools are necessary to optimize attempts at achieving a comprehensive strategy and improving the juvenile justice system response in a graduated sanctions framework: (a) a valid risk assessment, (b) a needs/strength assessment, (c) a disposition matrix, and (d) a program evaluation protocol (Howell and Lipsey, 2004). The Florida Department of Juvenile Justice (FDJJ) implemented statewide in 2006 the Community Positive Achievement Change Tool (C-PACT), a fourth-generation risk/needs assessment. Of note, the C-PACT is synonymous with the “PACT” risk

assessment. Since the creation of the PACT in 2006, the FDJJ and the proprietary vendor of the PACT have created a tool to measure risk and need reduction progress during residential commitment placement named the Residential PACT (R-PACT). The “C” was added to the PACT title to designate “community.” All prior published research on the “PACT” is the same as the C-PACT unless explicitly labeled “R-PACT.” The two versions of the C-PACT are the prescreen, with 46 items, and the full assessment consisting of 126 items. Both versions produce identical overall risk to reoffend classifications (low, moderate, moderate-to-high, and high) for any given youth. The overall risk to reoffend score is based on a matrix of the criminal history and social history subscores (see Baglivio, 2009, for further explanation of C-PACT domains and scoring). The C-PACT assesses static, dynamic, and protective factors; rank orders criminogenic needs that are automated into a case plan; and requires reassessments to gauge rehabilitative progress.

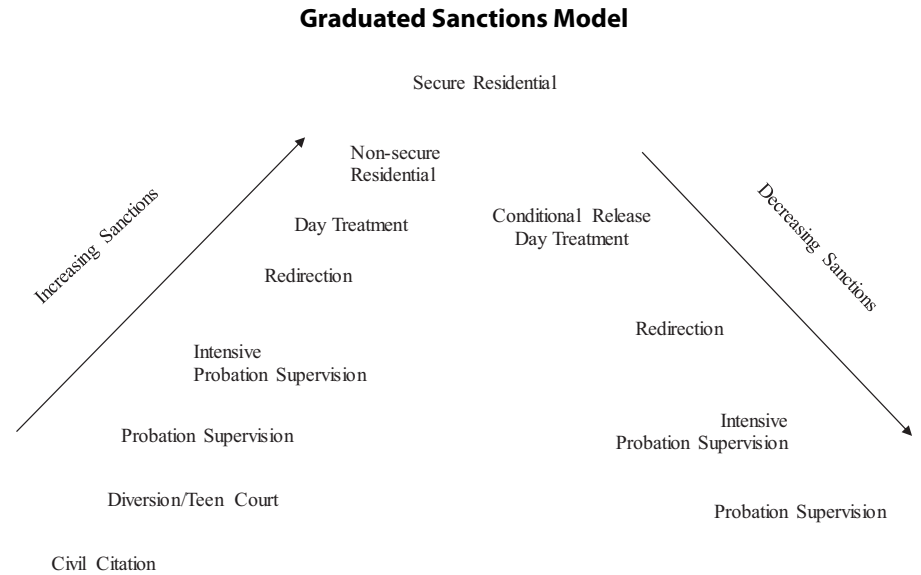
The prescreen and full assessment both produce a criminal history subscore (extent and seriousness of prior offending and justice system placements) and a social history subscore (individual, family, and environmental risk factors). The overall risk score and the criminal and social history subscores for an individual youth are always identical for both the prescreen and the full assessment, as only the questions in the prescreen used for scoring are used in the full assessment for scoring (e.g., if the same youth were administered a prescreen and a full assessment, then the overall risk score, the criminal history, and the social history scores would be identical). The C-PACT full assessment consists of 12 domains, 11 containing questions composing the social history score and 1 that is used to produce the criminal history score. Each of the 12 domains has a risk score, and most have a protective score. The C-PACT contains domains reflective of the “central eight” risk factors espoused by Andrews and Bonta (2003).

The C-PACT instrument combines the risk and the need concepts of a comprehensive SDM framework providing both an overall risk to reoffend as well as a rank ordering of individualized needs. Multiple evaluations have examined the predictive validity and reliability of the C-PACT for all juvenile offenders in Florida, including across gender, race/ethnicity, and dispositions/placements (such as diversion, probation supervision, and day-treatment centers) (Baglivio, 2009; Baglivio and Jackowski, 2013a; Baird et al., 2013; Winokur-Early, Hand, and Blankenship, 2012).

In July 2013, the FDJJ began implementation, first for all residential facilities, of the fourth tool needed for the SDM repertoire: the Standardized Program Evaluation Protocol (SPEP) developed by Dr. Mark Lipsey (Howell and Lipsey, 2012; Lipsey and Howell, 2012; Lipsey, Howell, Kelly, Chapman, and Carver, 2010). This tool will allow comparison of current FDJJ services, as provided, with the best practices shown to improve outcomes for youth. The purpose of the current study is to evaluate the effectiveness of the third structured decision-making tool, the FDJJ’s disposition matrix.

An ideal graduated sanctions system should slowly step offenders up from the least to most restrictive sanctions, culminating in secure residential commitment for SVC offenders,

FIGURE 1



then stepping youth down to a less restrictive option in reentry/aftercare (Wilson and Howell, 1993). These levels of sanctions are the array of disposition options available to the court (see Figure 1 for an example of graduated sanction levels available in Florida). The continuum of services should be arranged in increasing, and then decreasing, levels of restrictiveness and services (Juvenile Sanctions Center, 2005). As delinquency increases, both restrictiveness and services increase, and conversely, as delinquency decreases, both restrictiveness and services become less intense. A disposition matrix can enhance the capacity of the court and the juvenile justice system to manage youth offenders effectively and efficiently in a graduated sanctions format (Howell and Lipsey, 2004). A disposition matrix is a tool designed to structure decisions about supervision/sanction restrictiveness level at the time of case disposition (Howell, 2009; Wiebush, 2002). These matrices can serve as dispositional guidelines for the judiciary or can be used to structure recommendations made by juvenile justice professionals to the court (Juvenile Sanctions Center, 2005). SDM tools increase the consistency of sanctioning decisions, ensuring youth with similar characteristics receive similar sanctions (Juvenile Sanctions Center, 2005). Essentially, a disposition matrix assists in the decision of which youth should be placed into each level of a system's graduated sanctions continuum.

An effective disposition matrix matches youth to the most appropriate level of sanction to ensure public safety (lower likelihood of recidivism) and is useful for improving program matching. Commonly, matrices organize sanctions and programs by risk level (hence the importance of a risk assessment validated on the population for which it is

being applied) and the most serious presenting offense. The effectiveness of each sanction level at promoting public safety actually depends in large part on the effectiveness of the programming/interventions provided within that sanction level (highlighting the need for evaluations of services, such as the SPEP).

The risk principle dictates the intensity and duration of services provided should mimic the risk level of the youth, with higher risk youth receiving more intense services for a longer period of time (Andrews and Bonta, 2003). Research shows intensive services provided to low-risk youth are often iatrogenic, having the unintended consequence of increasing recidivism likelihood (Andrews and Bonta, 2003; Andrews and Kiessling, 1980; Andrews et al., 1990; Bonta, Wallace-Capretta, and Rooney, 2000; Lipsey, 2009; Lipsey et al., 2010; Lowenkamp, Latessa, and Holsinger, 2006). Graduated sanctions follow the risk principle mantra with the extent of structure and intensity of services becoming more advanced as offenders persist in delinquency, with secure residential commitment being reserved for a small number of serious, violent, and chronic offenders (Howell, 2009).

We argue that risk should dictate restrictiveness level, whereas a youth's needs should be addressed regardless of sanction level. For example, a youth assessed by a validated tool to be low risk to reoffend having substance abuse as a need should be afforded the opportunity to remain in the community and still have that need addressed (such as receiving outpatient substance abuse treatment). In contrast, a youth assessed as high risk with substance abuse could be placed in a more restrictive setting such as residential commitment but should still have the substance abuse issue addressed. In essence, needs should transcend restrictiveness levels, whereas risk dictates those levels. Although we realize that many risk factors are also needs (such as the substance abuse example we have provided), most actuarial risk assessment tools, such as the C-PACT, are so heavily influenced by criminal history items that a youth could have substantial needs in an area (e.g., substance abuse) but still be classified by the tool as "low" risk based on a lack of prior arrests/system placements.

According to Lipsey et al. (2010), San Diego County was the first site to implement the entire Comprehensive Strategy. The prevention and graduated sanctions tiers were linked together in a program called Breaking Cycles (Burke and Pennell, 2001). Burke and Pennell's (2001) outcome evaluation found prevention component youth less likely to be referred to probation, less likely to use substances after program participation, and more likely to perform better in school than other at-risk juveniles. For the graduated sanctions component, they found youth committed to Breaking Cycles, despite being more at-risk at program admission, less likely to have a referral for a felony offense, and less likely to receive a commitment to the California Youth Authority at 18-month follow-up than comparison youth (Burke and Pennell, 2001). Another evaluation of the graduated sanctions tier of the Comprehensive Strategy, Orange County's 8% Solution, found that 8% of youth had fewer new law violations, with 80% having either none or one new petition compared

with 60% of the comparison youth (Schumacher and Kurz, 2000). Although these studies have shown the effectiveness of implementing the Comprehensive Strategy, there is still a dearth of research on whether matrices suggesting particular dispositions/placements result in lower recidivism if adhered to.

Additional research has examined whether graduated sanctions are effective in addressing noncompliant behavior. This has been an especially fruitful endeavor in the realm of drug courts and progressively implementing sanctions (or the threat of doing so) for participants as violations continue (Guastaferrero and Daigle, 2012; Hepburn and Harvey, 2007; Marlowe and Kirby, 1999). Limited research exists on how sanctions relate to desired outcomes (for exceptions, see Goldkamp, White, and Robinson, 2002; Guastaferrero and Daigle, 2012; McRee and Drapela, 2009). However, this line of research has examined whether progressive sanctions affect an individual's behavior, not whether the initial disposition/placement decision was the best option in terms of the least likelihood of recidivism or violation. The current study aims to fill that gap.

Current Study

The FDJJ developed and implemented a disposition matrix to guide juvenile probation officers in their recommendations to the court in 2013. This study is the first assessment as to whether dispositions/placements made according to the disposition matrix suggestions have more successful outcomes than those made that deviate from the disposition matrix recommendations. The data for this study are from 2 years prior to the disposition matrix implementation, giving credibility to the findings and discounting notions that perhaps there were some unmeasured differences between youth that are recommended for one disposition over another when staff use the matrix (as no staff were using the matrix at the time of the data). The dispositions/placements that occurred during the time period of the study were retroactively matched up to the disposition matrix to examine whether they would have adhered to the matrix suggestions or deviated from those suggestions. The disposition matrix was not actually in use at the time of the dispositions/placements examined in this study. We used archived data and fitted that data to the matrix to examine whether statewide rollout of the disposition matrix would affect public safety and reduce recidivism.

Although many juvenile justice systems or agencies might have a disposition matrix, we can find no published accounts of recidivism rate differences for those falling within those suggestions versus outside the suggested ranges. Rather, we find theoretical and research-based arguments as to why using a given disposition matrix should result in better outcomes (for example, Howell, 2009) or evaluations regarding the extent to which those tools were adhered to and the community-level factors hampering implementation (see Cooley, 2011, for a wonderful discussion of implementation), or juvenile justice professionals' perceptions of the usefulness of SDM tools (Shook and Sarri, 2007). Others have focused

FIGURE 2

FDJJ Disposition Matrix

Florida Department of Juvenile Justice Disposition Recommendation Matrix (Staff must always begin with the least restrictive setting within a particular disposition category. See SDM guidelines.)				
Most Serious Presenting Offense	PACT Risk Level to Reoffend			
	Low Risk to Reoffend	Moderate Risk to Reoffend	Moderate-to-High Risk to Reoffend	High Risk to Reoffend
First-time misdemeanor ¹	Level 1 Alternatives to arrest	Level 1 Alternatives to arrest	N/A	N/A
Minor ²	Level 2 or 3a Diversion, probation supervision	Level 2 or 3a Diversion, probation supervision	Level 2 or 3a-c Diversion, probation supervision, probation enhancement services, day treatment/redirections	Level 3a-c or 4 Probation supervision, probation enhancement, day treatment/redirections, nonsecure residential
Serious ³	Level 2 or 3a Diversion, probation supervision	Level 2, 3a, or 3b Diversion, probation supervision, probation enhancement services	Level 3a-c or 4 Probation supervision, probation enhancement, day treatment/redirections, nonsecure residential	Level 3a-c or 4 Probation supervision, probation enhancement, day treatment/redirections, nonsecure residential
Violent ⁴	Level 2 or 3a-b Diversion, probation supervision, probation enhancement services	Level 2, 3a-c, or 4 Diversion, probation supervision, probation enhancement, day treatment/redirections, nonsecure residential	Level 3a-c, 4, or 5 Probation supervision, probation enhancement, day treatment/redirections, nonsecure residential, secure residential	Level 3a-c, 4, or 5 Probation supervision, probation enhancement, day treatment/redirections, nonsecure residential, secure residential

Note. ¹First-time misdemeanor offenders with no history of participation in alternatives to arrest. Under § 985.12, F.S., all first-time misdemeanants are eligible for civil citation. Youth deemed ineligible for civil citation (based on community standards) should be reviewed under the “Misdemeanor” category, based on the PACT Risk Level to Reoffend.

²All misdemeanor offenses.

³Felony offenses that do not include violence.

⁴Violent felony offenses. The FDJJ disposition matrix is available at [djj.state.fl.us/research/latest-initiatives/juvenile-justice-system-improvement-project-\(jjsip\)/disposition-matrix](http://djj.state.fl.us/research/latest-initiatives/juvenile-justice-system-improvement-project-(jjsip)/disposition-matrix)

on the predictors of receiving one disposition versus another (Holsinger and Latessa, 1999). Although it is informative, we recognize the lack of “validation” of these matrices as an important gap in empirical research—a gap that has proven difficult to overcome in gaining buy-in for adoption of the FDJJ tool, as the subsequent question to introducing any tools in our experience is always, “Has it been proven to work?”

FDJJ Disposition Matrix

The FDJJ disposition matrix (shown in Figure 2) is arranged such that the risk level of the youth is indicated across the top horizontal row (including low, moderate, moderate-to-high, and high risk to reoffend according to the C-PACT). The most serious presenting offense is arranged on the left-hand vertical axis (first-time misdemeanor to violent offense). Based on the youth’s assessed risk and the presenting offense, the disposition matrix indicates the range of options appropriate (the “cell” the risk and the presenting offense converges on).

This range of graduated sanctions goes from a low of Level 1 “alternatives to arrest” to a high of Level 5 “secure residential commitment.” The Level 1 indication is not actually used by juvenile probation officers, as civil citation occurs at “arrest” (and is therefore not a recommendation to a court). However, Level 1 is included on the disposition matrix to illustrate the FDJJ focus on the importance of civil citation and the belief all first-time misdemeanants should be afforded civil citation/alternatives to arrest. Civil citation essentially allows for a true “second bite at the apple” in that, if civil citation conditions are successfully completed, the youth will have no official referral history. Civil citation youth are kept from any court processing provided they complete the conditions. Civil citation providers oversee youth who are required to receive an assessment of needs, perform community service hours, and complete various sanctions that may include reparations and treatment services (Florida Department of Juvenile Justice, 2013).

Level 2 includes diversion and non-FDJJ probation (a small number of judicial circuits have court-monitored probation, which usually includes predominately the collection of restitution funds). Diversion services are nonjudicial alternatives used to keep less serious offenders from being processed through the traditional juvenile justice system. Diversion services can range from programs such as teen courts and mediation services, to slightly more intensive services.

Level 3a is traditional probation supervision. Level 3b includes probation enhancement services in the form of probation officers facilitating evidence-based delinquency interventions (such as Botvin’s LifeSkills Training or Aggression Replacement Training). Youth receiving Level 3b sanctions are under probation supervision and reside in the community (this is not a residential placement), whereas they receive additional interventions, usually in the evenings. The only difference between Level 3b “probation enhancement services” and Level 3a “probation supervision” is the addition of a sanction to attend a delinquency intervention group up to three nights per week. During the time period of the current study, data regarding receipt of these services were not tracked on a statewide level per youth (intensity, duration, or contact hours of each intervention per youth). Therefore, Level 3b is combined with Level 3a for the purposes of this study.

Level 3c includes both day-treatment programs as well as FDJJ’s redirection program. Day-treatment programs are facility-based programs in which youth participate in counseling, vocational training, and on-site educational programs during the day as well as evenings, and sometimes on weekends. Day-treatment staff monitors progress of the youth at home, school, and work (if applicable) as well as the youth’s compliance with court sanctions. All day-treatment programs are operated by contracted providers. The redirection program is intended to provide intensive family therapies to youth who otherwise would receive residential commitment. A visual examination of a prior offense “seriousness” measure in FDJJ annual reports reveals that youth receiving redirection services look as if to suffer from systemwide “net widening” as these youth seem strikingly dissimilar from youth placed in

residential commitment (Florida Department of Juvenile Justice, 2013). Redirection services primarily include multisystemic therapy (MST) or functional family therapy (FFT), although brief strategic family therapy (BSFT) was provided in a few judicial circuits to 120 youth during the year examined in the current study (Florida Department of Juvenile Justice, 2013). As these day-treatment and redirection services are all combined into Level 3c of the disposition matrix, we analyze them as one group for the purposes of this study. Level 4 is residential commitment, termed “nonsecure,” and it includes low- and moderate-risk facilities. Level 5 is secure residential commitment, and it includes high- and maximum-risk facilities.

Notably absent from the disposition matrix is mention of transfer to adult court. There are no risk and presenting offense combinations for which the range of appropriate options according to the disposition matrix includes adult transfer. Transfer, predominately in the form of direct file, occurs in Florida, to the tune of 3,210 offenses (2,391 youth) transferred during FY 2010–2011, the same period analyzed in the current study, which has been reduced to 2,090 offenses (1,535 youth) in FY 2012–2013 (Florida Department of Juvenile Justice, 2014a). However, research shows the practice is largely iatrogenic (Bishop and Frazier, 2000; Fagan, 1995, 2007; Howell, 1996; McGowan et al., 2007; Podkopacz and Feld, 1995, 1996) and runs counter to what is now known regarding neurological development (Loeber, Farrington, Howell, and Hoeve, 2012; Prior et al., 2011). Furthermore, in meta-analyses of quality studies of interventions provided to juvenile offenders, Lipsey and colleagues stated, “[T]here was no indication that there were juveniles whose risk level was so high that they did not respond to effective interventions” (Lipsey et al., 2010: 23). Therefore, transfer is not included in the disposition matrix and is not a recommendation made by any FDJJ juvenile probation officer to the court.

Key points of the dispositional matrix include the following:

- (1) Low-risk offenders remain in the community with minimal supervision.
- (2) Moderate-risk offenders are typically placed in more structured community programs, with intensive probation supervision for higher risk youth.
- (3) Residential placement reserved for the highest risk offenders *after community-based alternatives have been exhausted.*

The disposition matrix is to be implemented according to (a) specific guidelines regarding structured decision making, notably choosing the least restrictive alternative in the given cell not previously attempted with a given youth and (b) requirements related to approval of deviation (overrides) (Florida Department of Juvenile Justice, 2014b). The override conditions stipulate that staff cannot deviate from the recommended cell without expressed written approval of their chief probation officer or designee and that a case must be made that clearly and specifically supports why the recommendation should deviate

(Florida Department of Juvenile Justice, 2014b). All given dispositions can be grouped into four categories according to the disposition matrix. A disposition could be one of the following:

- Below guidelines: The disposition is less restrictive than the disposition matrix would suggest. For example, if the disposition matrix suggests probation through nonsecure residential placement and the youth was placed in diversion, then the placement is less restrictive than the disposition matrix calls for, and therefore, it is below guidelines.
- Optimum placement: The disposition is the least restrictive option suggested within the given cell of the disposition matrix that has not previously been attempted with that youth. For example, if the disposition matrix suggests diversion through day treatment/redirection and the youth has never been placed on diversion before, then receiving diversion would be an optimum placement. In the same example, if the youth has received diversion, then probation supervision would be the least restrictive not previously attempted, and therefore it is classified as an optimum placement.
- Appropriate placement: The disposition/placement is within the suggested range of the given cell of the disposition matrix. For example, if the disposition matrix suggests probation supervision through day treatment/redirection, and the youth actually received any of those options, the placement would be appropriate.
- Above guidelines: The disposition is more restrictive than the disposition matrix would suggest. For example, if the disposition matrix suggests diversion through nonsecure residential placement and the youth receives secure residential placement, then the placement was above guidelines.

Given the preceding definitions, both below guidelines and above guidelines are outside of the disposition matrix suggestions. Optimum placements and appropriate placements are both within the disposition matrix suggestions.

The current study addresses four research questions:

- (1) Do dispositions within the suggested range of the disposition matrix evidence better outcomes (lower recidivism rates)?
- (2) Does this relationship hold for males and females, across race/ethnicity, and across risk to reoffend levels of youth?
- (3) Does knowing whether a youth received a disposition/placement within the suggested range assist in predicting success or failure (recidivism)?
- (4) For youth under FDJJ community supervision, do offenses during service/violations of probation differ between disposition/placement options (specifically probation supervision and day treatment/redirection)?

Methodology and Sample

We examined all discharges from supervision/placement that were the first disposition of a given referral (equivalent of an adult arrest) between July 1, 2010 and June 30, 2011 (FY 2010–2011). The youth released must have been assessed using the FDJJ risk/need assessment (the C-PACT) to be included. As stated, multiple evaluations have examined the predictive validity and reliability of the C-PACT for all juvenile offenders in Florida, including across gender, race/ethnicity, and dispositions/placements with a cumulative “*N*” in excess of 130,000 youth (Baglivio, 2009; Baglivio and Jackowski, 2013a; Baird et al., 2013; Winokur-Early et al., 2012).

Data were taken from the closest C-PACT risk assessment to the date of the disposition administered to each juvenile. Both prescreen and full assessments were used, whichever was closest to the disposition for a particular case, as both the C-PACT prescreen and the full assessment produce identical risk to reoffend scores (the same items and the same scoring is used to arrive at the overall risk to reoffend score, the difference being that the full screen provides domain scores as well, which were not used in the disposition matrix decision-making process). This process resulted in 38,117 releases (both successful and unsuccessful) that were from the first disposition of a referral and for which a C-PACT was available.

The releases from FY 2010–2011 that were not included in this analysis were diversion placements for which there was no C-PACT assessment (less than 2,000 of 22,059 diversion releases) and from commitment placements that were not the original disposition of a given referral. Diversion cases may not receive a C-PACT if a state attorney directs the youth to a diversion program before FDJJ ever meets with the youth. Furthermore, aftercare placements are not included; they are not part of the disposition matrix because they are not the first placement of a given disposition (a youth must first be released from residential commitment to go to aftercare; the residential commitment is included, not the aftercare placement). As this study examines only the original disposition of an arrest, each release is a unique youth for a unique arrest. The final sample of 38,117 youth was 71.1% male, 41.4% White, 42.5% Black, 15.5% Hispanic, and 0.7% classified as “other” race/ethnicity. Most (68.5%) were classified as low risk to reoffend according to the C-PACT, with 11.9% moderate risk, 11.3% moderate-to-high risk, and 8.2% high risk. Table 1 presents the number of youth that fell into each cell of the disposition matrix (such as low risk to reoffend presenting with a serious offense).

We classified each of the 38,117 releases as to whether the placement into that sanction was below guidelines, optimum, appropriate, or above guidelines according to the disposition matrix. This was prescribed according to the youth’s risk to reoffend at the time of the arrest leading to that disposition, the presenting offense being disposed, and the youth’s placement history (used in determining optimum placements that require knowledge of whether a given placement had been attempted previously with that youth). We now turn

T A B L E 1

Distribution of Sample Across Risk and Presenting Offense Categories

Most Serious Presenting Offense		Low Risk to Reoffend	Moderate Risk to Reoffend	Moderate-to-High Risk to Reoffend	High Risk to Reoffend
Minor	<i>N</i>	19,143	2,476	2,084	1,282
	% Male	61.6	74.1	77.7	75.8
Serious	% White	44.3	40.9	33.3	36.5
	<i>N</i>	5,438	1,437	1,484	1,134
Violent	% Male	80.3	87.8	91.5	90.3
	% White	46.4	40.1	35.6	35.5
Violent	<i>N</i>	1,535	629	758	717
	% Male	76.5	79.8	82.6	82.4
	% White	34.1	30.7	23.5	25.4

Notes. *N* = number of youth overall risk to reoffend level from the C-PACT.

to the analysis examining the 38,117 releases and the dispositions/placements into the sanctions for which those youth were released.

Analysis

The first step of the analysis examined the prevalence rates of dispositions falling within and outside the suggested range of the disposition matrix. Next, we examined whether youth receiving placements/dispositions within the disposition matrix suggestions (and therefore optimum or appropriate) had lower recidivism rates than youth receiving placements/dispositions outside of the disposition matrix suggestions (and therefore below or above guidelines). Recidivism was measured as adjudication/adjudication withheld or adult conviction of a subsequent new law violation committed within 12 months of release from the placement. The release could have been either a successful completion or an unsuccessful release. Both successful and unsuccessful releases are included as we are attempting to examine whether the disposition matrix is a useful tool to use when placing/disposing youth. We are not examining the performance of only youth who are successful within a placement. Both juvenile and adult records were used as some youth turned 18 years of age during the course of the 12-month follow-up.

To address our second research question, we examined whether the findings for the full sample hold true for males and females, across race/ethnicity (White, Black, and Hispanic), and for each overall risk to reoffend level of the youth. For the full sample and each subgroup (by sex, race, and overall risk to reoffend), we examined the recidivism rates for dispositions falling within or outside the disposition matrix suggested ranges, as well as for each of the four levels of adherence (below guidelines, optimum, appropriate, and above guidelines) to assess these nuances.

Addressing our third research question, we present results of logistic regression models examining whether adhering to the disposition matrix suggested range enhances predictive models of recidivism likelihood. As the dependent measure (recidivism) is binary, logistic regression is an appropriate strategy. One model assesses receiving a disposition/placement within or outside of the suggested range for the full sample, whereas the second through fifth models assess whether receiving such dispositions/placements matters for each overall risk level of youth individually (low, moderate, moderate-to-high, and high). Each model contains several pertinent covariates related to demographics, risk level, and prior and presenting offenses (described next). Additional models assess whether receiving dispositions/placements within the suggested range is predictive, even after controlling for a comprehensive array of demographics, risk factors and criminogenic needs, as well as abuse and trauma histories.

Finally, to address our fourth question, for youth disposed to probation supervision and day treatment/redirection (Levels 3a–3c of the disposition matrix), we examined a separate outcome measure: offenses/violations of probation during service. Although recidivism differences across the disposition matrix adherence levels is an essential examination, another

goal of a disposition matrix is to optimize the rate at which youth are successful *while* they are receiving services within a disposition/placement. Examining recidivism determines whether the youth reoffended after release (successful or not) from the placement, offenses during service, and violations of probation determine whether the youth was successful within the disposition/placement he or she received. We examined adjudications for any offense (new law offense or non-law violations) that occurred during placement, as well as just new law offenses that occurred during placement. This shows whether the various adherence levels of the disposition matrix (below guidelines, optimum, appropriate, and above guidelines) differ in how successful they were at keeping youth crime and violation free during placement. We provide two separate measures (one including violations of supervision and one just new law offenses) to address concerns of discretion and local practices with respect to violating youth. We examined offenses during service, as we now will call these adjudications, for both probation supervision and for day treatment/redirection separately for each risk level of youth.

Results

Recidivism Results

Ninety-two percent of the 38,117 releases were from placements/dispositions that were within the suggested range of the disposition matrix (either optimum or appropriate); the remaining 8% were categorized as outside of the suggested range. This remarkably high adherence rate shows that either the disposition matrix ranges may be too broad or that most youth are indeed receiving dispositions according to what the professionals who created the tool would deem to be an acceptable placement. The dispositions/placements within the suggested range had an average recidivism rate of 19.4%, whereas those whose dispositions were outside the range had an average recidivism rate that was twice as high (38.7%). This doubling of recidivism for those placed outside of the suggested range was a significant difference ($p < .001$ using independent samples t test) with an effect size approaching large (Cohen's $d = 0.73$). This finding gives immediate credence to adhering to the ranges of the disposition matrix.

The next step examined whether this finding in support of the disposition matrix ranges held true regardless of the overall risk to reoffend level (as per the C-PACT) of the youth. Of note, the adherence rates (the percentage of each risk level receiving dispositions/placements within the suggestions) were highest for low-risk youth (96.6%), followed by moderate-to-high (85%), then moderate (84.4%), with high-risk youth having the lowest adherence to the disposition matrix suggestions (79.6%). This finding suggests that either staff or the courts may be more reluctant to follow what the disposition matrix would deem appropriate when presented with a high-risk youth. Although the disposition matrix was not implemented at the time of the data (as stated previously, archival data were classified based on the disposition matrix developed to examine potential policy implications prior to

T A B L E 2

Twelve-Month Recidivism Rates by Disposition Matrix Adherence

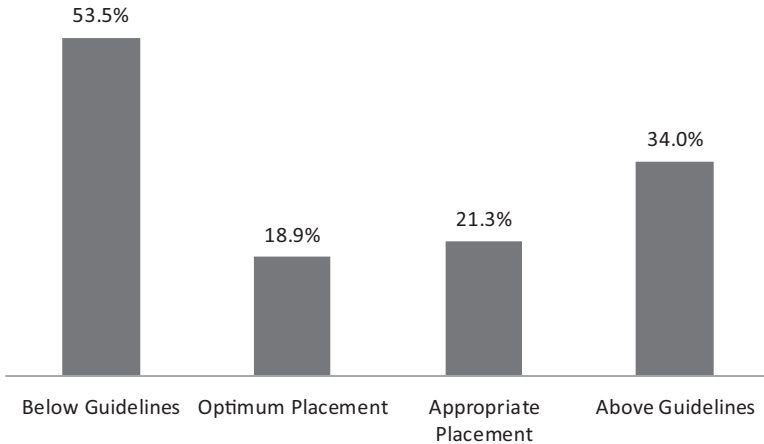
Subgroup	Within Disposition Matrix Range	Outside Disposition Matrix Range	Cohen's <i>d</i>	<i>N</i>
Full sample	19.4%	38.7%	.73	35,238/2,879
Low risk	13.2%	28.3%	.65	25,238/878
Moderate risk	29.4%	33.8%	.15	3,832/710
Moderate-to-high risk	37.5%	41.9%	.14	3,675/651
High risk	39.7%	55.3%	.45	2,493/640

Notes. Column *N* indicates the number of youth for the subgroup within the disposition matrix range separated by a “/” from the number of youth outside of the range. For example, for the full sample, 35,238 youth were within the range and 2,879 youth were outside of the range. All differences were significant at $p < .05$.

implementation), these findings indicate that high-risk youth were more likely to fall into the extremes of dispositions.

In all risk-level instances, youth placed within the suggestions had lower recidivism rates than those youth of identical risk level receiving dispositions/placements outside of the suggestions (all statistically significant at $p < .05$; Table 2). The effect size, which is more meaningful than significance values for samples as large as the current study, for low-risk youth was the largest (Cohen's $d = 0.65$), followed by high-risk youth (Cohen's $d = 0.45$), whereas the effect sizes for moderate and moderate-high-risk youth were smaller (Cohen's $d = 0.15$ and 0.14 , respectively). These results indicate that the disposition matrix suggestions are the best option for all risk levels of youth in terms of lower recidivism rates, and the difference in recidivism rates between those placed within the suggestions versus those placed outside of the suggestions are the most pronounced for low- and for high-risk youth. The fact that high-risk youth received the lowest adherence to the disposition matrix suggestions is undeniably to their detriment and to the detriment of public safety as evidenced by the 55.3% recidivism rate for high-risk youth disposed/placed outside of the suggestions. The recidivism rate for high-risk youth placed outside of the suggestions is 39% higher than that of high-risk youth placed within suggestions (the 55.3% recidivism rate is 39% greater than 39.7%), suggesting whatever override decisions are occurring are not benefitting public safety or the youth. Similarly, the recidivism rate more than doubled for low-risk youth disposed/placed outside of the suggestions versus those disposed/placed within suggestions (28% recidivism rate compared with 13%).

Knowing that dispositions/placements within the suggested range of the disposition matrix have lower recidivism rates has policy implications in its own right. However, the implementation guidelines and the training for probation officers on the disposition matrix call for choosing the optimum placement (the least restrictive option in the suggested range not previously attempted with the youth). Therefore, we next examined how recidivism differed for below guidelines, optimum, appropriate, and above guidelines dispositions/placements.

FIGURE 3**Full Sample Twelve-Month Recidivism Rates by Level of Adherence to the Disposition Matrix**

As mentioned previously, 92% of the dispositions were within the suggested range. When expanded into the four possibilities, we found 73% were optimum, 19% were appropriate, 2% were below guidelines, and 6% were above guidelines. This finding was certainly encouraging with respect to how close actual dispositions/placements are being made to the disposition matrix suggestions (almost three quarters being the optimum placement that FDJJ administrators would desire).

Few cases exceeded the restrictiveness of the disposition matrix suggestions, being classified as above guidelines (5.7% of the 38,117). However, that percentage represented more than 2,000 youth in the 1 year examined. Only 691 (1.8%) youth of the 38,117 youth received a disposition/placement that was below the suggested range of the disposition matrix. Examining the disposition matrix (Figure 2) shows the only cases that can be classified as below the guidelines are moderate-to-high risk to reoffend youth with either a serious or a violent presenting offense that receive diversion, or high risk to reoffend youth with any presenting offense that receive diversion. Therefore, examining below guidelines dispositions/placements always involves moderate-to-high-risk or a high-risk youth and always involves a placement in diversion (this is because probation supervision is always within the disposition matrix range for any youth and any offense, except civil citation, Level 1, which is not included in actual disposition recommendations). The 12-month recidivism rate for youth across each level of adherence to the disposition matrix suggested range is illustrated in Figure 3.

TABLE 3

Twelve-Month Recidivism Rates by Level of Adherence to the Disposition Matrix

Subgroup	Below Guidelines	Optimum Placement	Appropriate Placement	Above Guidelines	ANOVA F
Full sample	53.5%	18.9%	21.3%	34%	253.2***
Low risk	N/A	13.2%	13.1%	28.2%	81.6***
Moderate risk	N/A	31%	24.4%	33.8%	10.1***
Moderate-to-high risk	46.1%	38.2%	35.4%	39.3%	3.3*
High risk	57.9%	37.1%	44.1%	49.8%	22.4***
Males	54.7%	22.1%	23.6%	36.8%	164.6***
Females	49.3%	12.2%	12.4%	17.5%	64.7***
White	56.1%	16.2%	18.0%	28.2%	108.1***
Black	51.4%	22.6%	25.3%	39.4%	99.4***
Hispanic	56.3%	16.7%	18.6%	27.4%	38.7***

Notes. N/A for low- and moderate-risk youth placed below guidelines as diversion is always appropriate for those youth regardless of presenting offense, meaning no dispositions/placements can be below guidelines for those youth. Cells with less than 250 youth include high risk above guidelines ($N = 203$), female below guidelines ($N = 152$), White below guidelines ($N = 237$), and Hispanic below ($N = 96$) and above guidelines ($N = 234$).

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

An examination of adherence rates for males and females finds 70% optimum placements for males compared with 82% for females. Only 2% of males and 1% of females were placed below guidelines, and 7% of males and 3% of females were placed above guidelines. Examining race/ethnicity differences shows similar rates for Whites and Hispanics; 1.5 times more Black youth (2.2%) received below-guidelines placements. More Black youth also received excessive/above-guidelines placements (7% of Black youth compared with 5% for Whites and 4% for Hispanics). More than 70% of each race/ethnicity received optimum dispositions/placements.

Table 3 illustrates the 12-month recidivism rates by level of adherence to the disposition matrix. Of note, for low- and moderate-risk youth, below-guidelines placements are not possible according to the disposition matrix, indicated by an “N/A” in Table 2 (diversion is within range for each of these risk levels, regardless of presenting offense; see Figure 2). As shown in Table 3, for the full sample, youth receiving optimum placements have the lowest recidivism rates (19%), followed by appropriate placements (21%), whereas those above and below guidelines perform the worst (34% and 54%, respectively). Interestingly, those disposed/placed below guidelines perform worst of all. Again, these below-guideline cases are all moderate-to-high and high-risk youth receiving diversion, so it makes intuitive sense they would have higher rates (as no low- or moderate-risk youth are included in that group to drive down the average rate). However, it is telling that there is some level of restrictiveness that should be met when working with these higher risk cases. The recidivism rate for above-guideline cases was 1.8 times that of optimum placements, whereas

below-guidelines youth had recidivism rates 2.8 times higher than optimum placements. Statistically (based on an analysis of variance [ANOVA] comparison of means), optimum placement performed better (19% recidivism) than all other levels ($p < .001$). Appropriate placement performed better (21% recidivism) than above (34% recidivism) and below (54% recidivism) placements ($p < .001$). Above-guidelines placements performed better than below-guidelines placements ($p < .001$), and below-guidelines placements performed worse than all other levels ($p < .001$). The effect size was small ($\eta^2 = 0.02$), although we suspect that partly because of how close optimum and appropriate placement recidivism rates are to one another. These results show that, for the full sample, within guidelines, optimum placements are the most effective, followed closely by appropriate placements. Above-guidelines dispositions/placements as well as below-guidelines placements are done at a detriment to public safety.

The story is similar for all risk levels of youth, as well as for males, females, and across race/ethnicity as was presented for the full sample. Optimum placements outperformed appropriate placements for the male, female, White, Black, and Hispanic subsamples. With regard to risk level, optimum placements outperformed appropriate placements for high-risk youth. For low-risk, moderate-risk, and moderate-high-risk youth, appropriate placements performed better than optimum placements (although the difference was not significant for low-risk youth). Furthermore, low-risk youth disposed/placed within guidelines evidenced a 13% recidivism rate compared with 28% for low-risk youth disposed/placed above guidelines. Perhaps most glaring from Table 3 is the finding of the extremely high recidivism rates for below-guidelines placement at roughly 50%, regardless of the subsample examined. Female youth evidenced a 12% recidivism rate for optimal placements, compared with 22% recidivism for males. Yet, even female youth who receive below-guidelines placements show 49.3% recidivism rates. This finding is informative as it shows that some level of juvenile justice system involvement is necessary to optimize success (and increase public safety), and this observation is true across subgroups.

Additionally, dispositions/placements made above guidelines always performed worse than optimum and appropriate placements, indicating excessively restrictive placements above those suggested by the disposition matrix are iatrogenic. Although all ANOVA tests were significant, the η^2 effect sizes (sum of squares between/sum of squares total) ranged from a low of 0.002 for moderate-to-high-risk youth and 0.004 for moderate-risk youth, to a high of 0.02 for all other subsamples examined. Again, we suspect these low values are in part a result of how closely optimum and appropriate placements performed to one another. This observation is supported by the larger effect sizes when optimum and appropriate were grouped together as “within guidelines” and compared with dispositions/placements outside of the guidelines (as examined previously). Recidivism rates for each disposition/placement level for each presenting offense type (such as probation supervision for low-risk serious offenders) are reported in Appendices A–E.

Predictive Models Results

The next step in our analysis was to conduct logistic regression models examining whether the disposition matrix can assist in the prediction of 12-month reoffending. The preceding analyses demonstrated how the outcomes (offending) differed between groups of youth and levels of adherence to the disposition matrix. This analysis shows that knowing whether youth received a disposition /placement within or outside of the matrix suggested range can be helpful to predict whether the youth will fail, even after controlling for individual propensities for offending of those youth.

In the first model, age at admission to the placement, most serious charge of any prior arrest, overall risk to reoffend from the C-PACT, presenting offense seriousness, race, sex, and whether the disposition/placement was within the disposition matrix guidelines were used to predict a dichotomous recidivism measure. Age at admission to the placement ranged from 1 to 5, representing “7 and younger,” “8–11,” “12–14,” “15–17,” and “18 and older.” Age was categorized to avoid finding “significant” differences in a continuous variable that were not substantive (for example, 16.1 appearing significantly different statistically from 16.9). The most serious charge of any prior arrest was coded 1–5 for “other delinquency,” “misdemeanor,” “felony other,” felony property,” and “violent felony.” The overall risk to reoffend ranged from 1 to 4 (low to high risk). Presenting offense seriousness was coded 1–3 (minor, serious, violent), using the definitions of the disposition matrix (see Figure 2). Race and sex were dichotomous (0 = “White,” 1 = “non-white” for race; 0 = “female,” and 1 = “male” for sex). Receiving a disposition within the disposition matrix guidelines was also dichotomous (0 “no” and 1 “yes”), as was the dependent measure recidivism (0 = “no” and 1 = “yes”). The results from the model are presented in Table 4.

As shown, for the full sample, the age at which the youth was admitted to the placement did not contribute significantly to the model. The severity of the current offense was also not significant, meaning that youth with serious offenses were no more likely to recidivate than youth with minor offenses. Minority youth and males were more likely to reoffend, with sex being the strongest predictor. The odds of a male reoffending were 85% higher than the odds for a female. The overall risk to reoffend as per the C-PACT was the next strongest predictor with the odds of reoffending increasing by 72% for each additional risk level (such as moving from moderate to moderate-to-high). The most serious charge in any prior offense was significant in that the less severe the most serious prior charge the more likely the youth was to reoffend (although the odds ratio is very close to 1). Most important to this study, having a disposition/placement within the disposition matrix guidelines decreased the odds of recidivism by 41% (odds ratio = 0.590).

The second through fifth models repeated the same procedure, only separately for each overall risk to reoffend level (therefore, overall risk to reoffend was not included in the model; all other covariates and the dependent measure were identical). Table 4 shows, for

T A B L E 4

Logistic Regression Models Predicting Subsequent Recidivism

Covariates	Model 1 Full Sample			Model 2 Low-Risk Youth			Model 3 Moderate-Risk Youth			Model 4 Moderate-to-High-Risk Youth			Model 5 High-Risk Youth		
	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)
Sex	0.616 **	0.033	1.85	0.639 **	0.043	1.90	0.427 **	0.086	1.532	0.532 **	0.090	1.70	0.638 **	0.103	1.89
Race	0.224 **	0.027	1.25	0.274 **	0.037	1.32	0.251 **	0.068	1.29	0.214 **	0.069	1.24	0.006	0.078	1.01
Admission age	-0.036	0.023	0.97	0.108 **	0.033	1.11	-0.115 *	0.057	0.89	-0.143 *	0.056	0.87	-0.164 *	0.071	0.85
Present offense	-0.118	0.025	0.89	-0.239 **	0.042	0.79	-0.059	0.056	0.94	-0.078	0.049	0.925	-0.027	0.052	0.97
Most serious prior	-0.032 *	0.014	0.97	0.060 **	0.020	1.06	-0.135 **	0.033	0.87	-0.204 **	0.033	0.82	-0.059	0.045	0.94
C-PACT risk	0.542 **	0.014	1.72												
Within matrix	-0.527 **	0.044	0.59	-0.874 **	0.079	0.42	-0.240 **	0.089	0.79	-0.248 **	0.088	0.78	-0.552 **	0.099	0.58
Constant	-1.99**	0.107	0.11	-1.89**	0.165	0.15	-0.119	0.300	0.89	0.622*	0.241	1.86	0.546	0.296	1.73
R ²		0.12			0.03			0.02			0.04			0.04	
N		38,117			26,116			4,542			4,326			3,133	

Notes. SE = standard error. R² = Nagelkerke R². Significant predictors are in bold.
p* < .05. *p* < .01.

low risk to reoffend youth, older youth at admission, males, minority youth, those with less serious presenting offenses, and those with more severe most serious prior offenses are more likely to reoffend. A low-risk youth receiving a disposition/placement within the disposition matrix suggested range was associated with a 58% lower odds of reoffending (odds ratio = 0.417).

For moderate risk to reoffend youth, younger youth at admission, males, minority youth, and those with less serious prior offenses were more likely to reoffend. The seriousness of the presenting offense was not predictive for moderate risk to reoffend youth. Receiving dispositions/placements within the suggested range of the disposition matrix for moderate-risk youth decreased the odds of reoffending by 21% (odds ratio = 0.787). For moderate-to-high-risk youth, younger youth at age of admission, minority youth, males, and those whose most serious prior offense was not as severe were more likely to reoffend. The seriousness of the presenting offense was not predictive for moderate-to-high-risk youth. Similar to moderate-risk youth, receiving dispositions/placements within the suggested range of the disposition matrix for moderate-to-high-risk youth decreased the odds of reoffending by 22% (odds ratio = 0.78). For high-risk youth (model 5), younger youth at age of admission and males were more likely to reoffend. Whether the youth was a minority, the seriousness of the presenting offense, and the seriousness of the most serious prior offense were not significantly related to reoffending. Receiving a disposition/placement within the suggested range of the disposition matrix reduced the odds of recidivism for high-risk youth by 42% (odds ratio = 0.576), which is the second greatest amount for any risk level of youth (with low-risk youth having the greatest reduction by receiving dispositions/placements within range).

For the final step of the predictive analyses, we examined a comprehensive model inclusive of reasons why an FDJJ staff member, a prosecutor, or a judge may deviate (more or less restrictive) from the disposition matrix. Essentially, we wanted to confirm that having a disposition/placement within the range suggested by the disposition matrix was still predictive of a better outcome (lower recidivism), even after controlling for as many possible aggravating or mitigating circumstances as we could assess. This logistic regression model (Table 5) was used separately for the full sample, males, females, Black youth, and non-Black youth. The overall risk to reoffend score from the C-PACT was not used in the model, as many of the individual indicators in our model are included in that comprehensive risk score. The model did include sex, whether the youth was Black, whether the youth was Hispanic, age at admission to the placement, presenting offense seriousness, most serious charge of any prior arrest, age at first offense, history of running away, current alcohol use, current drug use, history of physical abuse, history of sexual abuse, mental health history, school problems, antisocial peer association, family members with a jail or prison history, and judicial circuit, as well as whether the disposition/placement was within the disposition matrix guidelines to predict a dichotomous recidivism measure. Arguably, staff members, prosecutors, or judges can make different decisions regarding placement based on

T A B L E 5

Logistic Regression Comprehensive Models Predicting Subsequent Recidivism Across Gender and Race

Covariates	Model 1 Full Sample			Model 2 Black Youth			Model 3 Non-Black Youth			Model 4 Male Youth			Model 5 Female Youth		
	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)	<i>b</i>	SE	Exp(<i>B</i>)
Sex	0.660**	0.034	1.94	0.714**	0.049	2.04	0.603**	0.048	1.83	0.439**	0.033	1.55	0.240**	0.063	1.27
Black	0.392**	0.029	1.48										-0.222*	0.102	0.801
Hispanic	0.020	0.041	1.02	-0.017	0.035	.983	-0.014	0.036	0.986	0.029	0.045	1.08	-0.229**	0.057	0.795
Admission age	-0.079**	0.024	0.924	-0.066*	0.033	.936	-0.091*	0.036	0.913	-0.082**	0.028	1.03	-0.070	0.062	0.933
Present offense	0.080**	0.014	1.08	0.062**	0.019	1.06	0.100**	0.020	1.11	0.084**	0.015	1.09	0.056	0.031	1.06
Most serious prior	-0.277**	0.027	0.758	-0.275**	0.038	0.759	-0.280**	0.038	0.756	-0.258**	0.030	.773	-0.339**	0.061	0.713
Age at 1 st	0.201**	0.013	1.22	0.170**	0.020	1.19	0.224**	0.018	1.25	.203**	0.016	1.23	0.200**	0.025	1.22
Run away	0.007	0.040	1.01	-0.086	0.065	.917	0.059	0.050	1.06	.056	0.044	1.06	-0.192	0.098	0.825
Alcohol use	0.278**	0.034	1.32	0.296**	0.052	1.34	0.274**	0.045	1.32	.280**	0.038	1.32	0.289**	0.085	1.36
Drug use	-0.109*	0.046	0.897	-0.176*	0.073	.839	-0.071	0.059	0.931	-0.032	0.054	0.968	-0.219*	0.089	0.803
Physical abuse	-0.443**	0.056	0.642	-0.293**	0.089	.746	-0.539**	0.072	0.584	-0.622**	0.070	0.537	-0.089	0.092	0.915
Sexual abuse	0.059	0.037	1.06	0.079	0.057	1.08	0.047	0.047	1.05	.096*	0.042	1.10	0.031	.077	1.03
Mental health	0.104*	0.040	1.11	0.084	0.060	1.09	0.118*	0.054	1.13	.078	0.045	1.08	0.211*	0.089	1.24
School problems	0.224**	0.045	1.25	0.215**	0.066	1.24	0.227**	0.062	1.26	.217**	0.050	1.24	0.159	.115	1.17
Delinquent peers	0.179**	0.028	1.20	.176**	0.039	1.19	0.180**	0.039	1.20	.205**	0.031	1.23	0.036	0.061	1.04
Family jail/prison	-0.005**	0.001	0.995	-0.002	0.002	0.998	-0.007**	0.002	0.994	-0.005**	0.002	0.995	-0.003	0.003	0.997
Judicial circuit	-0.685**	0.042	0.504	-0.659**	0.058	0.52	-0.721**	0.062	0.486	-0.669**	0.046	0.512	-0.744**	0.112	0.475
Within matrix	-1.175**	0.1110	0.309	-0.806**	0.149	0.447	-1.16**	0.157	0.314	-0.802**	0.120	0.449	-0.022	0.242	0.978
Constant		0.087			0.077			0.078			0.070			0.052	

Notes. SE = standard error. R^2 = Nagelkerke R^2 . Significant predictors are in bold.

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

the age of the youth (younger youth may be less likely to penetrate deeper), the presenting offense seriousness or seriousness of prior offenses, age at first arrest (youth who started offending earlier may be more likely to penetrate deeper), whether the youth had some abuse history (more likely to remove youth from negative surroundings), or whether the youth had substance use, delinquent peer associations, or problems in school (more likely to remove youth from the community).

For these logistic models, sex, "Black," and "Hispanic" were dichotomous (1 = "male," 1 = "Black," 1 = "Hispanic," respectively). Age at admission to the placement ranged from 1 to 5 representing "7 and younger," "8–11," "12–14," "15–17," and "18 and older." The most serious charge of any prior arrest was coded 1–5 for "other delinquency," "misdemeanor," "felony other," felony property," and "violent felony." Presenting offense seriousness was coded 1–3 (minor, serious, and violent), using the definitions of the disposition matrix (see Figure 2). Current alcohol use, current drug use, physical abuse history, sexual abuse history, and mental health problem history were dichotomous (1 = an affirmative that the youth had that issue for each measure). Having a mental health problem history, it should be noted, indicates the youth has a confirmed diagnosis such as schizophrenia, bipolar disorder, mood disorder, thought disorder, personality disorder, or adjustment disorder. Conduct disorder, oppositional defiant disorder, substance use disorder, attention-deficit disorder, and attention-deficit/hyperactivity disorder are not included. History of running away was classified by the extent of episodes of running away for more than 24 hours into no history, 1 instance, 2 or 3 instances, 4 or 5 instances, and more than 5 instances (coded 0–4, respectively, in accordance with how the C-PACT classifies that indicator). School status was dichotomously classified as youth who were enrolled (coded as 0) versus those who were (at the time of the C-PACT assessment) suspended, expelled, or dropped out (coded as 1). Peer associations were dichotomized with youth who had exclusively antisocial or gang-affiliated friends (coded as 1) versus all other youth (coded as 0). Family jail or prison history was dichotomized into whether the youth did not have any household family members with a jail or prison history (coded as 0) versus those who did (coded as 1). Judicial circuit represented which of the 20 judicial circuits the youth lived in to examine whether recidivism differed by the location in the state in which the youth resided. Receiving a disposition within the disposition matrix guidelines was also dichotomous (0 "no" and 1 "yes") as was the dependent measure recidivism (0 = "no" and 1 = "yes").

As shown in Table 5, for each sample examined, the indication of whether the disposition/placement was within the suggested range of the disposition matrix remained a significant predictor of reoffending, even after controlling for the demographic measures and common risk factors/criminogenic needs. Youth who receive dispositions/placements within the suggested range are less likely to recidivate. The odds of those youth receiving placements within range reoffending were 48% to 52% lower than those youth placed outside of the matrix range, after controlling for all other measures in the model. Although many of the other risk factors, abuse/trauma history measures, and demographic indicators

were significant in the models (some inversely related to recidivism from expectations), finding the indicator of disposition matrix adherence predictive is essential to the current study and demonstrates whether the matrix is a useful tool for FDJJ.

With regard to the additional covariates, males and Black youth were always more likely to reoffend in the models (when entered), and being Hispanic did not matter, except for Hispanic females who were less likely to recidivate. When significant, the seriousness of the presenting offense and the severity of the most serious prior offense were both inversely related to reoffending such that the more serious the offense, the less likely the youth was to reoffend. Age at first offense was significant in all models; those who were first arrested at younger ages were more likely to reoffend. The more extensive the history of running away and whether the youth used drugs indicated that the youth was more likely to reoffend for every group examined. Alcohol use did not matter for any group examined. Physical and sexual abuses were always related inversely to recidivism when significant such that those who were abused were less likely to reoffend. Mental health problems only mattered for male youth, making them more likely to reoffend. Having delinquent peers and family members with a jail or prison history increased the odds of recidivism for all groups except females for whom those measures were not significant.

Offenses During Service Results

To this point, we have examined recidivism differences across disposition matrix adherence levels. However, another goal of a disposition matrix is to optimize the rate at which youth are successful *while they are receiving services* within a disposition/placement. Examining recidivism determined whether the youth reoffend after release (successful or not) from the placement, we now turn to offenses during service and violations of probation. This portion of the analysis examined adjudications for any new law offense or non-law violation, as well as just adjudications for new law offenses (does not include non-law/technical violations) that occurred during placement. This shows whether the various adherence levels of the disposition matrix (below guidelines, optimum, appropriate, and above guidelines) differ in how successful they are at helping youth remain crime and violation free during placement. We examine offenses during service for both probation supervision and for day treatment/redirection, as these youth remained in the community under FDJJ supervision.

Table 6 shows rates for any offenses during service (new law or non-law) for both probation supervision and day treatment/redirection services. It is important to remember optimum placements are the least restrictive option not previously attempted. Therefore, for probation to be optimum, diversion must have been previously attempted as diversion is within the guidelines for any low-risk youth. For day treatment/redirection to be optimum, the youth must have received a disposition/placement to probation supervision previously. Probation supervision and day treatment/redirection are compared (using independent samples *t* tests) only for each risk level total, not for each risk level and presenting offense category because of the small sample sizes in some categories. Low-risk (on the

T A B L E 6

Non-Law/Technical Violations and New-Law Offenses During Service for Probation Supervision and Day Treatment/Redirection

Risk Level/Presenting Offense/Matrix Level	Probation Supervision	Day Treatment/Redirection
Low-risk minor optimum	19.6%	N/A
Low-risk minor appropriate	20.2%	N/A
Low-risk minor above guidelines	N/A	23.1%
Low-risk serious optimum	18.1%	N/A
Low-risk serious appropriate	19.3%	N/A
Low-risk serious above guidelines	N/A	29.1%
Low-risk violent optimum	20.2%	N/A
Low-risk violent appropriate	13.4%	N/A
Low-risk violent above guidelines	N/A	15.2%
Low-risk youth total (N = 7,788 and 520)	19.1%	24.4%*
Moderate-risk minor optimum	38.7%	N/A
Moderate-risk minor appropriate	54.5%	N/A
Moderate-risk minor above guidelines	N/A	37.9%
Moderate-risk serious optimum	42.0%	N/A
Moderate-risk serious appropriate	44.5%	N/A
Moderate-risk serious above guidelines	N/A	34.7%
Moderate-risk violent optimum	30.6%	33.3%
Moderate-risk violent appropriate	37.9%	24.3%
Moderate-risk youth total (N = 2,205 and 293)	42.0%	34.8%*
Moderate-to-high-risk minor optimum	46.2%	41.3%
Moderate-to-high-risk minor appropriate	59.8%	54.0%
Moderate-to-high-risk serious optimum	56.8%	42.4%
Moderate-to-high-risk serious appropriate	N/A	32.8%
Moderate-to-high violent optimum	48.4%	28.6%
Moderate-to-high violent appropriate	N/A	27.7%
Moderate-to-high-risk youth total (N = 1,990 and 250)	51.9%	40.0%*
High-risk minor optimum	50.7%	28.9%
High-risk minor appropriate	N/A	47.8%
High-risk serious optimum	55.4%	22.7%
High-risk serious appropriate	N/A	51.7%
High violent optimum	50.0%	47.6%
High violent appropriate	N/A	29.4%
High-risk youth total (N = 955 and 150)	51.9%	38.0%*

Notes. Independent *t* test performed for each risk level total. Cohen's *d* = 0.23 for low-risk youth, 0.25 for moderate-risk youth, 0.40 for moderate-to-high-risk youth, and 0.46 for high-risk youth differences.

**p* < .05.

C-PACT) youth had significantly lower combined non-law/new-law rates during service under probation supervision than on day treatment/redirection (19% vs. 24%, Cohen's *d* = 0.23), meaning low risk to reoffend youth did "better" on probation than in day treatment/redirection. All other risk levels of youth (moderate, moderate-to-high, and high

on the C-PACT) performed better (by as much as 14% recidivism rate difference) when receiving dispositions/placements to the more restrictive day treatment/redirection (each difference significant; Cohen's $d = 0.25$ for moderate risk, 0.40 for moderate-to-high risk, and 0.46 for high risk). Of note are the high non-law/new-law rates for moderate-to-high and high risk (on the C-PACT) probation supervision youth, exceeding 50% for both groups.

We then examined just new-law offenses during service for probation supervision and day treatment/redirection dispositions/placements (see Table 7). This assessment assisted with determining whether the performance differences between the two placements are the result of FDJJ probation officers filing more violations of supervision than contracted day-treatment and redirection providers. Table 7 provides rates of just the new-law offenses during service. As shown, these rates are all lower than those reported in Table 6 simply because non-law/technical violations of supervision have been removed from the calculations. Again, independent samples t tests compared each risk (on the C-PACT) with the reoffend level total. Low-risk youth performed better under probation supervision (11% recidivism vs. 13% for day treatment/redirection) than they had performed for the combined new-law/non-law rate, although the difference is no longer significant. The new-law offense rate is lower for day treatment/redirection for moderate-risk youth, although that difference is not significant. However, the better performance of day treatment/redirection for moderate-to-high and high-risk youth is statistically significant with small effect sizes (Cohen's $d = 0.30$ for moderate-to-high-risk and 0.31 for high-risk youth). Although there are differences between the two placements, approximately one third of all moderate-to-high and high risk to reoffend youth are adjudicated for a new-law offense committed during service.

Discussion and Policy Implications

The FDJJ has developed and implemented a disposition matrix to guide recommendations from juvenile probation officers to the court. Knowledge of the prevalence of SVC offenders (less than 9% of all youth referred to FDJJ) and low-risk through high-risk youth helped organize the creation of the FDJJ disposition matrix by examining proportions of matrix cells in which various restrictiveness levels might be appropriate (Baglivio, Jackowski, Greenwald, and Howell, 2014). Adherence to the matrix guidelines is tracked on a monthly basis across the entire state and is posted in an interactive format on the FDJJ website, which is available to staff, the public, and all interested stakeholders. Monthly monitoring allows for an examination of whether the percentage of cases disposed according to acceptable ranges of the matrix is increasing across time and whether that figure increases as reforms are implemented in each county. Dispositions above the guidelines (more restrictive than the guidelines suggest), below the guidelines, appropriate within the guidelines, and optimal within the guidelines (the least restrictive option in a given cell of the matrix) are included to

T A B L E 7

New-Law Offenses During Service for Probation Supervision and Day Treatment/Redirection

Risk Level/Presenting Offense/Matrix Level	Probation Supervision	Day Treatment/Redirection
Low-risk minor optimum	12.0%	N/A
Low-risk minor appropriate	11.6%	N/A
Low-risk minor above guidelines	N/A	11.5%
Low-risk serious optimum	10.3%	N/A
Low-risk serious appropriate	11.4%	N/A
Low-risk serious above guidelines	N/A	17.3%
Low-risk violent optimum	9.2%	N/A
Low-risk violent appropriate	8.3%	N/A
Low-risk violent above guidelines	N/A	6.5%
Low-risk youth total (N = 7,788 and 520)	11.3%	13.1%
Moderate-risk minor optimum	25.1%	N/A
Moderate-risk minor appropriate	33.2%	N/A
Moderate-risk minor above guidelines	N/A	22.0%
Moderate-risk serious optimum	29.4%	N/A
Moderate-risk serious appropriate	29.2%	N/A
Moderate-risk serious above guidelines	N/A	26.3%
Moderate-risk violent optimum	20.1%	16.7%
Moderate-risk violent appropriate	29.5%	18.9%
Moderate-risk youth total (N = 2,205 and 293)	27.3%	23.2%
Moderate-to-high-risk minor optimum	34.9%	34.8%
Moderate-to-high-risk minor appropriate	42.6%	39.7%
Moderate-to-high-risk serious optimum	41.9%	27.3%
Moderate-to-high-risk serious appropriate	N/A	21.3%
Moderate-to-high violent optimum	35.0%	28.6%
Moderate-to-high violent appropriate	N/A	24.2%
Moderate-to-high-risk youth total (N = 1,990 and 250)	38.2%	31.2%*
High-risk minor optimum	35.6%	10.5%
High-risk minor appropriate	N/A	43.5%
High-risk serious optimum	40.0%	22.7%
High-risk serious appropriate	N/A	31.0%
High violent optimum	31.5%	42.9%
High violent appropriate	N/A	23.5%
High-risk youth total (N = 955 and 150)	36.1%	27.3%*

Notes. Independent *t* test performed for each risk level total as sample sizes may be small for individual risk/offense combinations. Cohen's *d* = 0.30 for moderate-to-high-risk youth and 0.31 for high-risk youth differences.

**p* < .05.

provide a snapshot each month for each county. These data illuminate those who perform well and those who perform poorly.

This information, including the exact cases that were classified as below and above guidelines, is sent monthly to the chief probation officer in each judicial circuit. Providing

the case allows the chiefs to examine whether the recommendation to the court from the juvenile probation officer was within the range and the court deviated from the recommendation, or whether the officer presented a recommendation deviating from the disposition matrix to the court. Knowledge of this information necessitates meetings with stakeholders (such as judges, public defenders, and prosecutors) and/or training for frontline probation officers responsible for the recommendations and the supervisors who monitor those decisions.

Although 92% of the dispositions/placements were within the recommended range of the disposition matrix, 73% were “optimal,” meaning the youth received the least restrictive alternative that had not been attempted previously. Although this figure is high, it certainly leaves room for improvement. The 8% outside of the suggested range is arguably acceptable because of professional judgment and the use of overrides. However, the goal is to optimize the percentage of optimal dispositions/placements, and it seems that issue can be addressed without necessarily narrowing the options within the range through revising the matrix (although some revisions may be warranted as discussed next). The FDJJ disposition matrix could reduce residential placements if a high proportion of dispositions/placements remains optimal. However, it could actually increase residential placements if a lower proportion becomes optimal, even if they remain in the appropriate range. Tonry (1996) cautioned that fixed sentencing practices could increase incarceration by shifting the focus to the offense and not to the offenders. We feel that the C-PACT overall risk to reoffend score takes into account many individual risks and needs, but we still caution that the FDJJ must continue to monitor the extent to which dispositions/placements remain in the optimal range.

This study is not without its limitations. A major drawback is that data did not permit determining the intensity and duration of the actual treatment and intervention services received within each placement. We examined primarily whether a placement was more or less effective if that placement adhered to the ranges of the disposition matrix. The process can be strengthened by inclusion of information related to the duration and total contact hours of each treatment type (such as individual counseling, cognitive behavioral therapy, or skill building). Essentially, we did not have the data required in a comprehensive evaluation of services, such as Lipsey’s SPEP assessment (one of the four SDM tools as explained previously). Data were not available on the exact services a youth received within a placement, how much of each service, or how well staff were trained to provide that service.

The FDJJ has since implemented protocols to obtain this required information to complete an SPEP assessment, including the development of a module within its statewide database where staff are required to enter the duration and contact hours of each primary service. FDJJ annual quality improvement reviews have been enhanced with an SPEP component to assess treatment and intervention quality (predominately facilitator training, treatment manuals, and fidelity monitoring measures). These policy and management

information systems (MIS) infrastructure changes have been implemented for residential commitment programs, with day-treatment programs to follow by the end of calendar year 2014. These changes will allow FDJJ to examine previously considered “black box” concepts (Lipsey, 1993), which truly drive whether a youth will be successful. The critical need for management information systems for tracking, managing, evaluating, and future planning of reform efforts cannot be overstated and has been heralded in prior work (Juvenile Sanctions Center, 2005).

Another factor to consider is the average length of stay or service for each disposition or placement type. The average length of stay for probation supervision in the current study was 324 days, compared with an average of 163 days for day-treatment/redirection services. This surely plays a role in the higher offense during service rates observed for probation supervision youth, especially moderate-to-high and high risk, relative to day-treatment/redirection youth. Having to remain crime as well as violation free for twice as long arguably contributed to the differences found. Youth who commit offenses during a placement might or might not remain on that disposition status. Depending on the severity of the offense and prior system involvement, youth under probation supervision might (or might not) be moved up the graduated sanctions continuum to day treatment, redirection, or residential commitment. Youth placed in day treatment and redirection youth can move up to residential commitment as well with new offending or violations. Therefore, sometimes the length of stay is a product of the program model, other times it is a function of the youth’s continued offending or violating conditions of supervision, and still other times simply based on the judge’s decision of how long to keep the youth under supervision. Although redirections placements have a length of stay dictated by the evidence-based model (MST, FFT, and BSFT) of roughly 3–6 months, a youth may be placed on probation supervision until his or her 22nd birthday, although typically until 19 years of age (even though the age of majority in Florida is 18), regardless of the youth’s age when the offense was committed. For these reasons, we could not simply “control for” length of stay.

In light of our argument regarding risk determining sanction level and needs being addressed regardless of sanction level, we contend it is not necessary to include length of stay ranges on a disposition matrix as the needs that must be addressed to reduce reoffending help dictate the length that services must be provided. Using the SPEP as an evaluation tool includes an assessment of how closely the services provided match the duration and total contact hours found necessary for various service types (as different service types such as individual counseling versus cognitive behavioral therapy have different dosage standards to meet) from hundreds of high-quality studies with juvenile offenders (Lipsey, 2009; Lipsey et al., 2010). Program improvements are intended to optimize matching service lengths to Lipsey’s meta-analytic findings under the SPEP implementation protocols. Therefore, completion of a placement should be dictated by the accomplishment of individualized case and treatment plan goals rather than by an arbitrary “length of stay” (in reality, we realize

statutes may dictate minimums or ranges for various sanction levels). This approach makes length of stay more individualized and closely tied to treatment outcomes. Although Lipsey's SPEP dosage targets are unique for each service "type," such as cognitive behavior therapy, family therapy, or social skills training, we do not yet know whether different dosages are tied to different common issues presented by juveniles (e.g., impulsivity and aggression). Future work should examine the criminogenic need, dosage, and outcome matrix in conjunction with adherence to the disposition matrix.

We also argue against having the most serious prior offense or number of prior offenses as part of a disposition matrix, provided the risk assessment includes a criminal history component (which all risk assessments we know of include). Including both a risk to reoffend (if based in any part on criminal history) and the most serious prior offense would essentially be "double dipping" and moves more youth higher along the continuum of sanctions. As the C-PACT includes a criminal history component (based on the number and seriousness of prior offenses and the extent of prior system placements) that is roughly 60% of the total possible risk points, the FDJJ disposition matrix does not include a "most serious prior offense" or "number of prior violent felonies" component separate from the overall risk to reoffend from the C-PACT.

This line of reasoning is in keeping with prior research indicating the severity of a presenting offense has no, or even an inverse, significant association with reoffending (Grattet, Lin, and Petersilia, 2011; Langan and Levin, 2002). Based on this research, no disposition matrix based exclusively on a presenting offense has scientific backing. However, the FDJJ disposition matrix does include the presenting offense. In all models presented in this study, when significant, the presenting offense was always inversely related to reoffending. Our findings, coupled with prior research finding the same inverse relationship between presenting offense and recidivism, leads to the conclusion that the disposition matrix is not an entirely research-based tool. However, it attends to policy, politics, and a desire for multistakeholder buy-in (including law enforcement, judiciary, public defenders, and state attorneys).

It should be noted that for three of the four overall risk to reoffend levels (the exception being moderate-to-high risk to reoffend), the least restrictive point at which a youth can be disposed/placed according to the matrix is identical, regardless of presenting offense. The moderate-to-high exception excludes diversion for serious and violent offenses. However, this study has shown poor outcomes for diversion for moderate-to-high risk to reoffend youth. Inclusion of the presenting offense in the disposition matrix, therefore, does not increase the least restrictive sanction. The inclusion of presenting offense does increase the most restrictive sanction "allowable" (according to the matrix), but business rules and monthly monitoring help ensure those upper-end sanctions are only used after less restrictive options are exhausted. These nuances attribute to the seemingly broad range of allowable sanctions within some cells of the disposition matrix. Although several cells appear wide ranging, the policies requiring the least restrictive

alternative be chosen help guide the focus and narrow the influence of the presenting offense.

The results of the current study continue to assist the FDJJ with resource allocation efforts by demonstrating the most effective placements based on the risk level and presenting offenses of the youth served. Examining trends can indicate approximate capacity needed in the coming years for each placement and service type. These results clearly show the importance of adhering to the disposition matrix guidelines and the need to make optimum dispositions/placements to maximize effectiveness. Regardless of the outcome measure examined (recidivism, offenses during service, or a combined metric of both that was examined but not shown for brevity), dispositions/placements within the disposition matrix performed significantly better than those outside of the suggested range. Perhaps the largest hazard to the lives of the youth served and to public safety uncovered in the current study is the doubling of recidivism rates for low-risk youth placed above guidelines compared with those disposed/placed within guidelines (28% compared with 13%).

The results indicate some fine tuning or additional analysis of the disposition matrix suggested ranges is warranted, particularly with respect to diversion placements of moderate-risk and moderate-to-high-risk youth. The finding that below-guidelines placements consistently performed the worst indicates the importance of revisiting policies allowing diversion placements for moderate-to-high and high risk to reoffend youth. An in-depth examination of when day treatment/redirection is more desirable than probation supervision by itself is warranted (especially for moderate-to-high and high risk to reoffend youth presenting with more serious charges). Adherence to the disposition matrix is ideal if the goals are to maximize public safety, ensure accountability to taxpayers of providing the most effective service for their tax dollar, and enhance the likelihood of success for youth throughout the graduated continuum of FDJJ services. Resource allocation and appropriate capacity building is critical in light of prior research from four northern states finding override levels as high as 50% for residential placements when the recommendation was for an alternative community placement, "largely due to a lack of suitable placements in the community," especially for females (Shook and Sarri, 2007: 1344). Alternative community-based placements must be made available, at appropriate capacities, and must be perceived by juvenile justice and court stakeholders as viable and capable of providing appropriate services.

The results also highlight the importance of the services provided by the FDJJ. Youth receiving dispositions/placements below the disposition matrix suggested range had the worst outcomes. This finding indicates that different subgroups of youth should receive some level of service to ensure public safety. That level of service depends on the youth's overall risk to reoffend level, presenting offense, and the services attempted with that youth previously. However, it shows clearly that FDJJ services are beneficial for many youth and certainly for the higher risk youth (as evidenced by the failure rates of moderate-to-high and high-risk diversion placements). Furthermore, dispositions/placements made above

guidelines, on average, always performed worse than optimum and appropriate placements, indicating excessively restrictive placements above those suggested by the disposition matrix are iatrogenic. These findings confirm the risk principle (Andrews and Bonta, 2003) that the intensity and duration of services provided should mimic the risk level of the youth served, with higher risk youth receiving more intense services for longer periods of time. Again, low-risk youth that received sanctions above guidelines evidenced a doubling of recidivism. The implementation of the disposition matrix enables staff to identify readily and recommend dispositions/placements that will optimize youth success, thereby enhancing public safety.

One of the most glaring findings was the extremely high recidivism rates for below-guidelines dispositions/placements at approximately 50% regardless of subsample examined, even for female youth. Below-guidelines placements were given to moderate-to-high-risk youth with serious and violent presenting offenses and to high-risk youth with any presenting offense who received diversion. Had below-guidelines placements performed the best, or even similarly to other placements, the argument could have been made simply to keep youth out of the justice system altogether for fear of it making them worse. This is clearly not the case. These results are in stark contrast to recent meta-analytic findings comparing diversion to formal processing that formal processing increases subsequent offending, even *more so* for youth with prior official records (Petrosino, Turpin-Petrosino, and Guckenburg, 2014). It seems, quite vividly from our results, that there are indeed some juvenile offenders for which formal processing is appropriate. One suspected difference from our results to the prior studies analyzed in the meta-analysis is that the prior studies did not have a standardized assessment to evaluate risk, using only the percentage of the sample that had at least one prior offense as a proxy. This again points to the importance of having all four component SDM tools available within a system.

Some troubling findings for the FDJJ emerged from the current study. Approximately one third of all moderate-to-high-risk and high-risk youth are adjudicated for a new-law offense committed during service for both probation supervision and day treatment/redirection. The figure climbs to approximately 40% for day treatment/redirection and more than 50% for probation supervision when technical/non-law violations are included. These findings were masked in prior FDJJ annual reports (such as Florida Department of Juvenile Justice, 2013) that neglected to examine recidivism and offense during service rates by risk level, thus allowing the large percentage of low-risk youth to conceal the shortcomings of community-based work with higher risk youth. The current study highlights the difficulty of working with these higher risk youth. Future analyses should examine whether specific services and delinquency interventions are more able to affect change in higher risk youth when delivered in appropriate dosages by trained staff. The implementation of the SPEP process will allow for this examination and evaluation of services as actually implemented.

Day treatment/redirection outperformed probation supervision for moderate-to-high-risk and high-risk youth. Redirection is composed of brand-name “model” programs including the famed MST, FFT, and BSFT models. It makes sense that these intensive multisystem therapies that require family member participation would perform better for higher risk youth. Day-treatment contracts required evidence-based delinquency interventions such as aggression replacement training (ART), the National Institute of Correction’s Thinking for a Change, or the FDJJ Impact of Crime victim impact intervention, which has been shown to reduce risk factors in FDJJ youth (Baglivio and Jackowski, 2013b). We have no ability to examine the proportion of youth placed in these services that actually received such interventions or how much of the intervention they received. However, prior meta-analytic work leads us to conclude these options are certainly more promising than the surveillance-oriented services of probation supervision. According to Lipsey (2009), surveillance approaches are associated with an average 6% reduction in recidivism, compared with a 13% reduction for family counseling and a 26% reduction for cognitive behavioral programs. Had dosage data been available, we could have included an analysis of Level 3b of the disposition matrix (probation enhancement services in the form of probation officers facilitating evidence-based delinquency interventions). Perhaps recidivism rates of Level 3b are more similar to those of the day treatment/redirection Level 3c, although that remains an empirical question.

In light of the recidivism and offense during service discrepancies uncovered, future analyses could employ advanced matching techniques, such as propensity score matching or coarsened exact matching, to examine whether probation supervision, day-treatment, or redirection services are more or less effective for different subgroups of offenders. The aim of the current study, however, was to examine a statewide application of the effectiveness of the disposition matrix, which does not use matching algorithms but simply accounts for the presenting offense, prior placements, and the validated C-PACT risk to reoffend level.

The goal is to provide the right services to youth in appropriate dosages by matching youth based on assessed needs to therapeutic service types and using a system of graduated sanctions within a comprehensive strategy. As FDJJ continues to move in this direction, the perception of that reform should be assessed. Prior research, although it was conducted with adult offenders who were predominately White, revealed that offenders view treatment-oriented sanctions as more punitive than other graduated sanctions (Wodahl, Ogle, Kadleck, and Gerow, 2013; see also Petersilia and Deschenes, 1994; Wood and Grasmick, 1999). However, younger and more educated offenders viewed alternative sanctions, including treatment, less harshly, with high-school graduates willing to endure almost twice as many days of inpatient treatment to avoid a 1-day extension of the jail sanction (Wodahl et al., 2013). Future research should examine juvenile offender perceptions of the graduated sanctions options in Florida’s disposition matrix and how these perceptions vary based on individual characteristics. A study such as that would be especially telling in light of the

high offense during service and violation rates of the community-based supervision samples in the current study.

Another policy implication of a study such as this is the ability to affect real change based on the results. It is one thing to discover that a disposition matrix is indeed useful in determining dispositions/placements that optimize public safety, thus validating its design and intent. It is quite another to move frontline staff toward using that tool with fidelity across the state (although there is a 92% adherence rate overall, some counties are better than others). Reform efforts have called for the drafting of disposition matrix review protocols for each of Florida's 20 judicial circuits. These protocols set up the process by which management review occurs for cases in which a juvenile probation officer is intending to recommend to the court a disposition/placement outside of the suggested range (override either above or below range). Having the ability to override the suggested range is always needed and is appropriate in a small percentage of cases. However, appropriate vetting of those decisions through some level of management oversight helps ensure the decisions are indeed exceptions and not the norm.

FDJJ is unique in that it is one of only a few centralized systems where the entire state is under the same agency, which covers prevention through probation, residential commitment, and aftercare. In stark contrast are bifurcated systems in which probation can be county based, whereas residential commitment is state run (for example); each fall under different agencies with different risk assessments, some of which might or might not have been examined for validity. Our point is that centralized systems, such as FDJJ, may lend themselves to systematic reform more readily than bifurcated ones. Initiatives can be implemented more easily, and decision making can occur more quickly. Training efforts can be uniformly applied and data more assured to compare "apples to apples" rather than be based on methodological or measurement differences or decisions. Structured decision-making tools enhance consistency across the state of youth with similar offending trajectories receiving access to similar services, provided those services are made readily available. These tools control costs, facilitate planning, and can improve outcomes, as shown in the current study. The implementation of a disposition matrix and the systematic collection of data to track adherence with regular feedback to frontline staff and supervisors has been instrumental in FDJJ's movement toward system reform of ensuring the right service to the right youth, in the right dosage, and at the right time. Only by incorporating structured decision-making tools, and careful evaluation of those tools both in terms of implementation but also ultimately of the outcome desired, can system reform be optimized.

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Appendix A: Twelve-Month Recidivism Rates for Diversion Dispositions/Placements

Risk Level/Presenting Offense	Below Guidelines	Optimum Placement	Appropriate Placement	Above Guidelines
Low risk/minor offense	N/A 0	12.9% 14,016	N/A 0	N/A 0
Low risk/serious offense	N/A 0	12.3% 2,733	N/A 0	N/A 0
Low risk/violent offense	N/A 0	10.4% 701	N/A 0	N/A 0
Moderate risk/minor offense	N/A 0	37.5% 1,058	N/A 0	N/A 0
Moderate risk/serious offense	N/A 0	33.7% 297	N/A 0	N/A 0
Moderate risk/violent offense	N/A 0	22.6% 155	N/A 0	N/A 0
Moderate-to-high risk/minor offense	N/A 0	55.2% 706	N/A 0	N/A 0
Moderate-to-high risk/serious offense	48.7% 158	N/A 0	N/A 0	N/A 0
Moderate-to-high risk/violent offense	41.7% 96	N/A 0	N/A 0	N/A 0
High risk/minor offense	58.9% 326	N/A 0	N/A 0	N/A 0
High risk/serious offense	57.1% 63	N/A 0	N/A 0	N/A 0
High risk/violent offense	52.1% 48	N/A 0	N/A 0	N/A 0
All Diversion Youth By Risk Level				
All low-risk offenders	N/A 0	12.7% 17,450	N/A 0	N/A 0
All moderate-risk offenders	N/A 0	35.2% 1,510	N/A 0	N/A 0
All moderate-to-high-risk offenders	46.1% 254	55.2% 706	N/A 0	N/A 0
All high-risk offenders	57.9% 437	N/A 0	N/A 0	N/A 0

Notes: Recidivism rate reported with number of youth in each cell below the percentage. N/A indicates there could not possibly be youth in that cell as per the disposition matrix.

Appendix B: Twelve-Month Recidivism Rates for Probation Supervision Dispositions/Placements

Risk Level/Presenting Offense	Below Guidelines	Optimum Placement	Appropriate Placement	Above Guidelines
Low risk/minor offense	N/A 0	16.0% 2,475	13.3% 2,259	N/A 0
Low risk/serious offense	N/A 0	16.9% 668	14.1% 1,687	N/A 0
Low risk/violent offense	N/A 0	13.8% 109	9.3% 590	N/A 0
Moderate risk/minor offense	N/A 0	25.3% 802	25.7% 319	N/A 0
Moderate risk/serious offense	N/A 0	27.5% 429	23.6% 339	N/A 0
Moderate risk/violent offense	N/A 0	27.6% 134	23.1% 182	N/A 0
Moderate-to-high risk/minor offense	N/A 0	34.0% 733	26.6% 256	N/A 0
Moderate-to-high risk/serious offense	N/A 0	30.7% 664	N/A 0	N/A 0
Moderate-to-high risk/violent offense	26.4% 337	N/A 0	N/A 0	N/A 0
High risk/minor offense	N/A 0	32.8% 497	N/A 0	N/A 0
High risk/serious offense	N/A 0	36.1% 280	N/A 0	N/A 0
High risk/violent offense	N/A 0	28.7% 178	N/A 0	N/A 0
All Probation Supervision Youth by Risk Level				
All low-risk offenders	N/A 0	16.1% 3,252	13.1% 4,536	N/A 0
All moderate-risk offenders	N/A 0	26.2% 1,365	24.3% 840	N/A 0
All moderate-to-high-risk offenders	N/A 0	31.3% 1,734	26.6% 256	N/A 0
All high-risk offenders	N/A 0	33.0% 955	N/A 0	N/A 0

Notes. Recidivism rate reported with number of youth in each cell below the percentage. N/A indicates there could not possibly be youth in that cell as per the disposition matrix.

Appendix C: Twelve-Month Recidivism Rates for Day Treatment/Redirections Dispositions/Placements

Risk Level/Presenting Offense	Below Guidelines	Optimum Placement	Appropriate Placement	Above Guidelines
Low risk/minor offense	N/A 0	N/A 0	N/A 0	25.1% 295
Low risk/serious offense	N/A 0	N/A 0	N/A 0	32.4% 179
Low risk/violent offense	N/A 0	N/A 0	N/A 0	26.1% 46
Moderate risk/minor offense	N/A 0	N/A 0	N/A 0	32.6% 132
Moderate risk/serious offense	N/A 0	N/A 0	N/A 0	34.7% 118
Moderate risk/violent offense	N/A 0	16.7% 6	32.4% 37	N/A 0
Moderate-to-high risk/minor offense	N/A 0	39.1% 46	38.1% 63	N/A 0
Moderate-to-high risk/serious offense	N/A 0	42.4% 33	50.8% 61	N/A 0
Moderate-to-high risk/violent offense	N/A 0	35.7% 14	45.5% 33	N/A 0
High risk/minor offense	N/A 0	34.2% 38	34.8% 23	N/A 0
High risk/serious offense	N/A 0	50.0% 22	41.4% 29	N/A 0
High risk/violent offense	N/A 0	23.8% 21	23.5% 17	N/A 0
All Day Treatment/Redirection Youth by Risk Level				
All low-risk offenders	N/A 0	N/A 0	N/A 0	27.7% 520
All moderate-risk offenders	N/A 0	16.7% 6	32.4% 37	33.6% 250
All moderate-to-high-risk offenders	N/A 0	39.8% 93	44.6% 157	N/A 0
All high-risk offenders	N/A 0	35.8% 81	34.8% 69	N/A 0

Notes: Recidivism rate reported with number of youth in each cell below the percentage. N/A indicates there could not possibly be youth in that cell as per the disposition matrix.

Appendix D: Twelve-Month Recidivism Rates for Nonsecure Residential Commitment Dispositions/Placements

Risk Level/Presenting Offense	Below Guidelines	Optimum Placement	Appropriate Placement	Above Guidelines
Low risk/minor offense	N/A 0	N/A 0	N/A 0	34.7% 98
Low risk/serious offense	N/A 0	N/A 0	N/A 0	42.4% 139
Low risk/violent offense	N/A 0	N/A 0	N/A 0	7.9% 38
Moderate risk/minor offense	N/A 0	N/A 0	N/A 0	32.7% 162
Moderate risk/serious offense	N/A 0	N/A 0	N/A 0	38.1% 223
Moderate risk/violent offense	N/A 0	44.4% 93	21.5% 65	N/A 0
Moderate-to-high risk/minor offense	N/A 0	N/A 0	N/A 0	40.7% 268
Moderate-to-high risk/serious offense	N/A 0	40.3% 141	38.1% 310	N/A 0
Moderate-to-high risk/violent offense	N/A 0	31.1% 61	31.5% 124	N/A 0
High risk/minor offense	N/A 0	42.1% 159	48.1% 216	N/A 0
High risk/serious offense	N/A 0	49.1% 234	45.7% 326	N/A 0
High risk/violent offense	N/A 0	40.9% 88	41.0% 212	N/A 0
All Nonsecure Youths by Risk Level				
All low-risk offenders	N/A 0	N/A 0	N/A 0	34.9% 275
All moderate-risk offenders	N/A 0	44.4% 93	21.5% 65	35.8% 385
All moderate-to-high-risk offenders	N/A 0	37.6% 202	37.8% 434	40.7% 268
All high-risk offenders	N/A 0	45.3% 481	45.1% 754	N/A 0

Notes. Recidivism rate reported with number of youth in each cell below the percentage. N/A indicates there could not possibly be youth in that cell as per the disposition matrix.

Appendix E: Twelve-Month Recidivism Rates for Secure Residential Commitment Dispositions/Placements

Risk Level/Presenting Offense	Below Guidelines	Optimum Placement	Appropriate Placement	Above Guidelines
Low risk/minor offense	N/A 0	N/A 0	N/A 0	No Youth 0
Low risk/serious offense	N/A 0	N/A 0	N/A 0	18.8% 32
Low risk/violent offense	N/A 0	N/A 0	N/A 0	3.9% 51
Moderate risk/minor offense	N/A 0	N/A 0	N/A 0	33.3% 3
Moderate risk/serious offense	N/A 0	N/A 0	N/A 0	32.3% 31
Moderate risk/violent offense	N/A 0	N/A 0	N/A 0	17.1% 41
Moderate-to-high risk/minor offense	N/A 0	N/A 0	N/A 0	33.3% 12
Moderate-to-high risk/serious offense	N/A 0	N/A 0	N/A 0	36.8% 117
Moderate-to-high risk/violent offense	N/A 0	42.1% 19	32.4% 74	N/A 0
High risk/minor offense	N/A 0	N/A 0	N/A 0	39.1% 23
High risk/serious offense	N/A 0	N/A 0	N/A 0	51.1% 180
High risk/violent offense	N/A 0	39.6% 53	43.0% 100	N/A 0
All Secure Youth by Risk Level				
All low-risk offenders	N/A 0	N/A 0	N/A 0	9.6% 83
All moderate-risk offenders	N/A 0	N/A 0	N/A 0	24.0% 75
All moderate-to-high-risk offenders	N/A 0	42.1% 19	32.4% 74	36.4% 129
All high-risk offenders	N/A 0	39.6% 53	43.0% 100	49.8% 203

Notes. Recidivism rate reported with number of youth in each cell below the percentage. N/A indicates there could not possibly be youth in that cell as per the disposition matrix.

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POLICY ESSAY

DISPOSITION MATRIX FOR COURT RECOMMENDATIONS

Using a Decision Matrix to Guide Juvenile Dispositions

Where Do We Go Next?

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Baglivo, Greenwald, and Russell's (2015, this issue) research is strongly needed for the justice field to design and test a structured decision-making (SDM) method for dispositional decisions. The idea of a disposition matrix is not a novel concept, but this is the first to be examined statistically for its association with later offending. Many state juvenile justice agencies have adopted untested disposition grids (for example, Massachusetts) or guidelines (for example, Washington) for sentencing in the interest of increasing objectivity and fairness. These grids tend to be based entirely on the type of offense for which the youth was adjudicated. Although these tools are a step in the right direction for ensuring objectivity and reliability, they often lack validity. Evidence shows that the severity of the offense for which one was convicted does not have a significant association with whether that youth will be adjudicated for a serious offense in the future (Mulvey et al., 2010). Indeed, Baglivo et al. (2015) report that 42% of their violent offenders were actually assessed as low risk for reoffending, whereas less than 20% of the violent offenders were high risk to reoffend (see Table 1 in Baglivo et al., 2015).

We believe the Florida Department of Juvenile Justice's (FDJJ's) disposition matrix is the first step in the right direction to promoting disposition practices that are both objective and valid while maintaining some level of judicial discretion by permitting a fairly wide range of dispositions within each cell. We consider this as the "first step" because a disposition matrix can only go so far in ensuring youth receive the interventions necessary to protect public safety while reducing their future risk. Furthermore, as Baglivo et al.

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(2015) acknowledge, there are some limits to the conclusions that can be drawn about the association between the FDJJ disposition matrix and later offending because of the study design. These considerations led to recommendations for current use of the disposition matrix in practice and suggestions for future research.

Benefits to the FDJJ Disposition Matrix

For the past 20 years, juvenile justice agencies have adopted risk assessments because they are told that doing so will help align them with evidence-based standards. Although these jurisdictions have technically met the standard by adopting a valid risk assessment, few have found a way to integrate the results of the assessment into the disposition process. More often, jurisdictions use the results of the assessment after the youth is placed on probation or in a residential program to help sort youth into differential risk groups. Anecdotally, courts do not integrate assessment results into decisions for two primary reasons. The first is a pragmatic one—most youth are not assessed using a risk-assessment instrument until they are placed on probation. Second, even if the youth were assessed prior to disposition, most courtroom work groups are not trained on how to use the information in a structured way to inform decisions. Although a disposition matrix will not solve the first issue, it could definitely help jurisdictions incorporate the results of a valid risk assessment into the decision-making process.

In this sense, one benefit of the FDJJ disposition matrix designed and studied by Baglivio et al. (2015) is that it integrates science (concepts of risk factors and risk for reoffending) with justice principles to assist with disposition decisions. Even though the severity of the offense does not predict future behavior well, it is highly unlikely that the justice system will ever steer away from giving dispositions that are at least somewhat commensurate with the actual crime, although the idea of risk-only based sentencing has merit (see Slobogin and Fondacaro, 2011). Another benefit of the FDJJ matrix is that it promotes a more research-based practice while ensuring young people can be provided with the least restrictive intervention necessary to protect public safety and satisfy the youth's intervention needs.

Additional “off-label” benefits of the FDJJ disposition matrix could be realized if a state were to implement it properly. The disposition matrix provides a method for ongoing data monitoring of court practices. If an agency were to maintain disposition, offense, and risk-assessment data, then the agency could frequently generate statistics comparing reoffense rates for youth falling within or outside of the guidelines. Likewise, the matrix and data reporting could become a tool for providing feedback to the courts about the way they are handling their dispositions. Routine data reporting is a powerful mechanism for maintaining buy-in from personnel, monitoring the success or need for improvement to a procedure, and promoting the sustainability of a practice (see Vincent, Guy, and Grisso, 2012). Last, the matrix can be considered a “teaching tool” that reminds court and juvenile justice personnel about the importance of risk level when determining the restrictiveness of sanctions.

The ultimate purpose of the disposition matrix is to help judges and juvenile justice officials place youth in settings that will increase the likelihood of the youth being successful in reducing future offending. In developing the disposition matrix, Baglivio et al. (2015) have created a range of appropriate placements deemed either optimal or acceptable based on the intersection of risk and severity. It is intriguing to think through the implications of providing more specific information to judges about placement, while providing some flexibility with the distinction between optimal and acceptable. Although Baglivio et al. selected risk and severity as the guiding factors, the matrix could be expanded to incorporate other variables of interest where appropriate. For example, the disposition matrix could be split into separate grids by age and gender where appropriate. This method would be sensitive to differential risk levels based on some youth characteristics so as not to miss developmental stages or overclassify females.

Additional Considerations

Despite the wonderful benefits to be realized by use of a tested disposition matrix in juvenile justice, there are limitations to what these matrices can do. We boil these down to two considerations, one pertaining to the necessity of considering a youth's needs and the other pertaining specifically to the research behind the FDJJ matrix.

The Importance of Needs

Baglivio et al. (2015) do not get into much detail about the importance of service-to-need matching in the article, and this issue is oversimplified in the disposition matrix. It is important to consider the most widely researched framework in corrections for using risk assessment in case planning: the risk–needs–responsivity (RNR) approach (Andrews and Bonta, 2010; Dowden and Andrews, 2000). As noted by Baglivio et al., the *risk principle* suggests the highest risk offenders should receive the most intensive monitoring and services to reduce their risk of continued offending, whereas low-risk cases have a much lower chance of reoffending even in the absence of services (Andrews and Bonta, 2010; Andrews and Dowden, 2006; Lipsey, 2009). Our focus here, however, is on the *need principle*, which suggests that only those factors associated with reductions in reoffending should be targeted in interventions. In this model, “needs” are defined as dynamic risk factors because they elevate the likelihood that one will reoffend but are theoretically amenable to treatment (e.g., parenting/familial factors, substance abuse, and deviant peer groups). The dynamic risk factors specific to a particular youth are often referred to as *criminogenic needs* or *criminogenic risk*. The *responsivity principle* suggests that interventions need to consider the offenders' specific characteristics that could affect their response to treatment (e.g., learning style, mental health, and gender).

A few studies with young offenders have examined the risk and/or need principles at the individual level. Vieira, Skilling, and Peterson-Badali (2009) found that youth probationers who received services directly aligned with their criminogenic needs (as identified by the

Youth Level of Service/Case Management Inventory; Hoge and Andrews, 2006) reoffended at a rate of 25% versus 75% for youth who received services that did not match their needs. This match between an individual's criminogenic needs and service programming was more important than risk level or the sheer number of services received. Similarly, in an archival study of youth probationers in two departments using the Saskatchewan Youth Edition of the LSI (Andrews, Bonta, and Wormith, 2001), Luong and Wormith (2011) reported that recidivism significantly increased as the number of untreated needs increased ($r = .28$). For high-risk offenders, the match between an assessed need and an identified intervention was associated with a 38% reduction in reconviction.

It is important to note that one would not expect services to be adequately addressed in a disposition matrix, especially when used in conjunction with a brief risk-assessment instrument like the Community Positive Achievement Change Tool. The FDJJ matrix does dictate a service array for Level 3b, probation enhancement services, and particularly for Level 3c, probation with day treatment and the redirection program. However, this approach does not quite meet the objectives of the need principle, which calls for a more detailed matching process based on the youth's criminogenic needs. A more optimal scenario would be for a probation officer or case manager to determine the services selected for a particular youth as part of his or her case planning procedures *after* the disposition is made. Baglivio et al. (2015) note that the matrix is more about "risk" than it is about "need," so the disposition matrix could benefit from a complementary mechanism for service matching.

Alternative Explanations for the Association Between Disposition and Reoffending

Baglivio et al. (2015) conclude that youth who received dispositions outside of the guidelines of the FDJJ matrix had higher rates of readjudications. Their analyses do not rule out the possibility that factors besides the disposition better predicted whether youth reoffended. First, all of the youth who were given dispositions *below guidelines* (the highest recidivators) were moderate-to-high-risk or high-risk youth who were diverted. The conclusion to be drawn here is not surprising—do not divert higher risk youth away from formal processing.

Second, youth who received dispositions *above guidelines* (the second highest recidivators with 34% receiving another adjudication) could have been different from the youth who received dispositions that adhered to the matrix in some important ways that influenced their higher recidivism rates. It stands to reason that because only 6% of youth received dispositions above guidelines—there was simply something different about those youth, which compelled judges to give them harsher sentences and led to higher recidivism rates. Baglivio et al. (2015) tried to address this by using logistic regression to determine whether adherence to the disposition guidelines could account for the association with readjudication above and beyond other characteristics of the youth (see Table 4 in Baglivio et al.). The types of variables included in these analyses (demographic and criminal history variables), however, do not go far enough. It would be interesting to know whether the youth with significant substance abuse problems, gang involvement, or a significantly poor

home environment, for example, were given harsher dispositions. These are all examples of characteristics that judges can incorporate into their disposition decisions, which also elevate the likelihood that one will reoffend (as demonstrated in Table 5 in Baglivio et al.) and can vary in severity within risk levels. Until one can conduct analyses indicating that youth who received dispositions above guidelines were equivalent in these ways to youth who received dispositions within guidelines, the conclusion that differences in recidivism rates were a result of the dispositions received is only tentative.

Recommended Use in Practice and Future Directions

In light of the considerations reviewed, we end this discussion with a few suggestions for use of the disposition matrix in current practice and areas in which the matrix may continue to be refined. A reasonable next step would be to implement the matrix and conduct a prospective study designed to address many outstanding questions.

Use in Conjunction With a Service Matrix After Disposition

The FDJJ disposition matrix is a step in the right direction, but it is not the whole picture. Disposition matrices are extremely beneficial for addressing the risk principle (providing restrictions that are commensurate with one's risk to reoffend). Addressing the need principle is more complex and requires a more comprehensive risk assessment that includes criminogenic needs. Such assessments may be more feasible to complete postdisposition than predisposition.

We recommend jurisdictions implement a *service matrix* to be used by probation officers or residential and correctional staff to promote matching of services to the youth's specific needs while matching the intensity of the services to the youth's risk level. The manual authored by Vincent et al. (2012) included one example of a service matrix template. It organized services available within a jurisdiction according to the intensity of the service to match risk level (low, moderate, or high intensity) and the specific need area the service addresses (e.g., substance abuse, personality or disruptive behavior problems, family, and education). Research is still needed to determine the association between the service matrix and recidivism, but this is incredibly challenging given the outcomes are strongly tied to the quality of the services within a jurisdiction.

Refine the Cells of the Matrix

As Baglivio et al. (2015) suggest, the range within each cell of the matrix is broad depending on the placement history of the youth. For example, in the Moderate Risk/Serious Offense cell, three levels of interventions are suggested: diversion, probation, and probation enhancement services. Furthermore, probation supervision is a suggested level of intervention for 12 of the 16 cells, limiting the true utility of the matrix to the extreme cases. In contrast, the breadth of options within each cell maintains a healthy level of judicial discretion and

may enhance generalizability across youth. Not every youth will fit into a box well. This is always the challenge with using group data to make decisions about individuals.

Baglivio et al. (2015) suggest that the optimal placement is the least restrictive setting that the youth had not been placed in on a prior disposition. Although this makes sense theoretically, it is not clear from the findings that what Baglivio et al. have deemed “optimal” actually provides the best intervention. For example, the findings for moderate risk/serious youth placed on probation suggest that the classification of “appropriate” is more effective than being placed in the “optimal” setting. So perhaps it would be better to change the label from “optimal” to, simply, “least restrictive.”

Although the purpose of the matrix is to guide decisions, the utility of the tool is limited as a result of the broad range of options. It is recommended that jurisdictions that implement the disposition matrix trim the number of appropriate and optimal placements down within each cell and across the matrix so as to provide more specific recommendations for decision makers. One means to accomplish this is to consider building in length-of-stay recommendations into the matrix. For example, lower risk/less serious offenses would be recommended for shorter placements, whereas those that are high risk/serious offenses would be recommended for longer length of stays.

Exercise Caution in the Interpretation of Racial Differences

Although it was not a primary feature of Baglivio et al.'s (2015) article, it is important to address their findings pertaining to racial differences. Baglivio et al. indicated that Blacks were more likely to be “readjudicated”—not more likely to “reoffend.” When the dependent variable in recidivism studies is based on official records, the potential for biased court and police practices must be acknowledged. Any inclusion of race in risk-assessment instruments or other prediction or classification methods would be a biased and unfair practice for this reason. The only way to determine whether certain racial groups are higher risk than others is to obtain self-reported delinquent activities and compare this across racial groups. This is not a criticism of Baglivio et al. because they do not oversell or address these findings in their implications. Instead, we raise the issue because it is critical that policy makers recognize that a disposition matrix or risk tools should not be applied differently to adjudicated youth on the basis of race.

Study the Matrix Prospectively

As noted, a future study could use a more comprehensive risk-assessment tool that includes potential criminogenic need areas to examine whether these factors (e.g., disruptive behavioral problems and inconsistent parental discipline) account for the reoffending of youth who receive dispositions outside of the matrix. A comprehensive implementation study could also include other factors that can play into whether youth receiving certain dispositions reoffend. These factors are not controlled by the disposition matrix now but could be incorporated in a future iteration. For example, the youth who were readjudicated

could have been those least likely to have their needs addressed by services. The quality of the programming youth receive is also a factor because some programs do not incorporate evidence-based treatments, and some evidence-based services are not implemented well. In addition, as Baglivio et al. (2015) acknowledge in their discussion, variations in length of stay and intensity of treatment within the nonsecure and secure placements for youth could have been a factor that influenced reoffending and could be captured in a future study.

In sum, the FDJJ disposition matrix is a step in the right direction toward integrating research-based SDM methods into juvenile justice. Many benefits could be realized by jurisdictions that implemented such a practice as long as some judicial discretion is maintained. It is crucial, however, that systems recognize the importance of criminogenic needs when it comes to case planning and not oversell disposition matrices as the only necessary step in the process. This requires use of a more comprehensive risk-assessment tool that incorporates essential dynamic risk factors and a system that enables the probation officers or case managers to develop these plans.

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Brian Lovins, Ph.D., is the assistant director for Harris County Community Supervision and Corrections Department. He earned his Ph.D. in criminology from the University of Cincinnati, School of Criminal Justice. Prior to Houston, his work at the School of Criminal Justice has included developing a statewide juvenile risk assessment (Ohio Youth Assessment System) and adult risk assessment (Ohio Risk Assessment System), as well as redesigning juvenile and adult correctional programs to meet evidence-based standards. Prof. Lovins has been invited to present to more than 150 agencies and routinely trains agencies in the principles of effective intervention, risk assessment, and the delivery of cognitive-behavioral interventions. He recently received Ohio's Dr. Simon Dinitz Award for his work and dedication in helping correctional agencies adopt evidence-based programs. In addition, Prof. Lovins has published articles on risk assessment, sexual offenders, effective interventions, and cognitive-behavioral interventions.

POLICY ESSAY

DISPOSITION MATRIX FOR COURT RECOMMENDATIONS

Structured Dispositional Matrix for Court Recommendations Made by Juvenile Probation Officers

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Historically, community corrections suffered from a lack of research that identified proven methods of improving public safety. Recent research efforts based on meta-analysis (syntheses of data from many research studies) (Andrews and Dowden, 2006; Burke, Arkowitz, and Menchola, 2003; Landenberger and Lipsey, 2005; McGuire, 2002; Sherman et al., 1998) have broken through this barrier and are now providing the field with guidance on how to reduce reoffending and support offenders on the path to productive citizenship.

One of the most impactful reforms to the juvenile justice system was the incorporation of evidence-based practices (EBPs) for the treatment and rehabilitation of juvenile offenders. EBPs moved probation case management from a monitoring and control model, toward a behavioral change and treatment approach. EBP refers to approaches and interventions that have been proven effective at reducing offender risk to reoffend. When replicated with fidelity and matched to the offender's risk and needs profile, using EBPs provides more assurance for improved outcomes and reduced recidivism for juvenile offenders.

A core component of the juvenile justice system is the notion that children are malleable and interventions should be motivated by an overall desire to address issues driving behavior. Therefore, matching youth with the appropriate intervention is critical to provide the best opportunity to abate future delinquent activity (Baglivio, Greenwald, and Russell, 2015, this issue). As a prerequisite for matching youth with the appropriate intervention and level of supervision, a validated risk assessment is required. A validated offender risk assessment

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is the most reliable tool for determining risk factors and ultimately matching offenders with the appropriate treatment interventions.

Although EBP and the usage of actuarial risk assessment tools are becoming commonplace for the juvenile justice professional, less has been done to provide practitioners with an empirically tested set of guidelines to direct the court's decision-making process and guide the recommendations of juvenile probation officers. In fact, there had not been a systematic evaluation of the effectiveness of juvenile sentencing guidelines or structured decision practices that inform the probation recommendation process until the current review of the Florida Department of Juvenile Justice's (FDJJ's) Dispositional Matrix. Specifically, Baglivio et al. (2015) conducted the first assessment of the extent to which adherence to a set of recommendation guidelines that matches youth to the right services within the continuum will provide the best outcomes in terms of subsequent reoffending. As a natural evolution of the EBP movement in juvenile justice, structured decision making is the next logical area for review, research, and reform.

The purpose of this policy essay is to summarize what we have learned from the study of the FDJJ's structured decision-making tool and to identify and discuss the specific and actionable next policy and research steps.

Key Points of the Dispositional Matrix

The FDJJ developed and implemented a structured decision-making matrix to guide juvenile probation officers in their recommendations to the court. The matrix contains a range of graduated sanctions from a low-level (level 1) "alternatives to arrest" to a high-level (level 5) "secure residential commitment." The four disposition categories are below guidelines, optimum placement, appropriate placement, and above guidelines. The matrix was implemented with strict guidelines, notably to choose the least restrictive alternative not previously attempted with a given youth.

Key Findings

- Ninety-two percent of the releases were from dispositions/placements that were within the disposition matrix's suggested range (either optimum or appropriate), leaving the remaining 8% outside the suggested range.
- Dispositions or placements within the suggested range had an average recidivism rate of 19.4%; those outside the suggested range had an average recidivism rate of 38.7%.
- Staff and/or court officials were reluctant to follow what the matrix deemed appropriate for high-risk youth as they were more likely to fall into the extremes of dispositions.
- High-risk youth placed below guidelines performed the worst, although low-risk youth placed above guidelines were more than twice as likely to reoffend as those placed in optimal or appropriate placements.
- Of the 38,117 releases included in the study, males and Black youth were always more likely to reoffend. Hispanic females were less likely to recidivate.

- Age at first arrest was significant as those arrested at younger ages were more likely to reoffend.
- Some level of justice system involvement is needed for higher risk youth to improve outcomes.
- When placed within the indicated range of the disposition matrix, recidivism rates for moderate-risk and moderate-to-high-risk offenders are 29.4% and 37.5% versus 13.2% for low-risk offenders.
- Recidivism rates for high-risk offenders placed within the range of appropriate or optimum dispositions is 39.7% and 55.3% when placed outside the range.

Key Policy Implications

The key policy implication for the FDJJ is the need to monitor the effectiveness of the implementation of the disposition matrix to ensure that juvenile probation officers use the tool in making recommendations to the court and that education and outreach occurs where courts are determined to deviate from the recommendations. To move forward with any policy shift and to determine its efficacy in the real world of juvenile justice system outcomes, the tool must be fully implemented and used with fidelity by staff.

Given that the adherence rates were lowest for high-risk youth, with a significant rise in recidivism as a result, it is important to educate staff on the implications of these deviations for public safety. Baglivio et al.'s (2015) study fills an important gap for juvenile probation officers, clearly answering the question, "why use this tool with fidelity?" The increased emphasis on EBP and research in this field has sometimes been viewed by veteran officers as an invalidation of their work and negation of their expertise in dealing with offenders. Prior to the current spotlight on juvenile probation work, these front-line staff worked diligently to improve outcomes and public safety with often limited resources and little feedback on what actually worked. Translating research into effective policy requires buy-in from line staff to make the changes in practice that are described in the research. Training is crucial: Staff must understand what the research does and does not say about their work and the best ways to work to improve outcomes using practical terminology that makes a clear linkage to practices and the specific expectations for the work of probation officers.

Training and public information dissemination about this study should begin with a clear emphasis on the finding that 92% of the youth in the study sample were placed within the disposition matrix's suggested range, either at the optimum or appropriate level, prior to the introduction of the tool. The opportunity to show probation officers that their own expertise has been demonstrated by research should not be missed. The training can then highlight the fact that this research is an opportunity to help the justice system fine-tune services and placements for the remaining 8%. The sample of actual cases provides the strongest message possible for staff that we are really talking about their cases—Baglivio et al.'s (2015) study is not a meta-analysis or a theoretical assessment—these cases are really their youth and we have a way to serve them better.

Baglivio et al. (2015) also highlight the need for well-targeted probation services, an idea that has been questioned by some. Dispositions below the matrix had the worst outcomes. This point provides strong evidence for line staff of what they have always intuitively known; that is, probation officers provide crucial public safety services. Training needs to include a thoughtful discussion of Baglivio et al.'s findings and its implications for both low- and high-risk youth, particularly to prevent staff from attempting any override decisions out of fear of doing the wrong thing or misconceptions about what works.

After training in using the tool and monitoring that the recommendations follow the tool, supervisors and managers must analyze where overrides are used to place youth beyond the disposition matrix suggestions. Overrides are a key area of education for staff, and the guidelines provided to staff are crucial to ensure that this option is not used inappropriately. The study shows that following the disposition matrix was a significant predictor of better outcomes for youth, regardless of variables such as mental health, drug use, and physical abuse. It is necessary to identify those factors that drive overrides, describe what factors justify an override decision, and monitor their use.

Baglivio et al. (2015) provide a stark message about where trying to use professional expertise can fail—in going above suggestions for low-risk youth and below suggestions for high-risk youth. These data give us an opportunity to focus education and monitoring resources particularly where there is the greatest risk to do harm, both to youth and to public safety. The inclusion of the severity of the current offense in the disposition matrix raises the level of the most restrictive sanction “allowable” (according to the matrix), so it is also important to ensure that requirements to use less restrictive options first are followed.

To maintain credibility of the tool and its continued use by staff once it is fully implemented, the tool must be monitored closely to ensure that it is meeting the goals for which it is intended—improving outcomes for youth. An analysis of the quality and effectiveness of the placement options dictated by the tool will be of great benefit to systems across the country. Not only will youth be placed in the least restrictive option based on a validated risk and needs profile, but also information about specific interventions and dosages for each specific profile of youth will take this analysis to the next level to improve outcomes for youth in the justice system. The addition of the Standardized Program Evaluation Protocol will allow for review and assessment of the effectiveness of probation supervision alone, supervision with EBP programming, more intensive day treatment options, and residential placements.

Recommendations Moving Forward

1. Assess the effectiveness of all programming to ensure services are aligned with best practices that have been demonstrated to improve outcomes for youth. Once data have been collected on all programs, develop a service matrix that aligns youth needs with available program services. Monitor both internal and external stakeholders for adherence to program fidelity. Include procedures that require periodic reassessment of

the youth to identify and accommodate any program changes based on youth needs and behavior. Given the high levels of recidivism for moderate-, moderate-to-high-, and high-risk youth, develop a process to continue only those programs that maintain a high level of program fidelity and can meet the needs of the youth. This study highlighted the difficulties of working with higher risk youth and the need to continue only with those services able to affect behavior change.

2. Determine whether diversion is ever an appropriate recommendation for moderate- or moderate-to-high-risk youth and prohibit high-risk youth from receiving a diversion disposition. All but low-risk youth reflect high recidivism rates in diversion disposition/placement, which would suggest that this option is only appropriate for low-risk offenders.
3. Ensure that policies have clearly defined procedures for moving youth up a level for nonlaw/technical violations and new law offenses. Develop a theoretical framework that reaffirms the basic priorities of the disposition matrix and captures new policies and practices that will have to be implemented to support the enhanced strategy around violations. Similar to FDJJ's disposition matrix, the violation framework should draw from the graduated sanctions model and research that combines accountability and sanctions with treatment and intervention services. The sanctions must be designed to fit the violation and include the possibility of both treatment interventions and secure confinement options. The sanctions together with the appropriate treatment services constitute an integrated treatment approach to handling violations. The family or caregiver should be integrally involved in the treatment and intervention efforts as strengthening the family to care for and support the youth should be top priority. Last, provide mandatory training for all contracted providers in conjunction with probation staff that reflects the department's strategic approach and the roles and responsibilities of each entity moving forward.
4. Ensure a broad array of evidence- or research-based programming with a multiple-intervention approach that address criminogenic needs across multiple domains, and develop policy that ensures length of stay is predicated on the treatment plan goals and the treatment intervention. Youth and families that come to the attention of probation normally have multiple risks and needs that cross multiple domains; hence, no singular approach, agency, or intervention will be effective in addressing the needs that will ultimately reduce recidivism. Capacity-building efforts that include EBP training for contractors funded by FDJJ would be an investment with great returns and would unify and merge the service delivery and treatment approach to support efforts to improve outcomes for probation youth. This way, intervention efforts will be reinforced and the approach will be consistently applied throughout by those providing juvenile probation services.
5. Develop forecasting reports to ensure available beds in the most effective services to avoid overrides for capacity purposes. As pointed out by Baglivio et al. (2015), resource

allocation and effective capacity building are critical to maximize public safety and ensure strict adherence to the disposition matrix.

6. Identify the barriers for minority youth and ensure that the system has responsive services and practices to address them. Youth of color are represented disproportionately at every decision-making point in the juvenile justice system, and this disadvantage accumulates as they move through the system (National Council on Crime and Delinquency, 2007). The FDJJ should revisit its policy and conduct a thorough review to ensure that its practices, policies, and strategic efforts do not contribute to the failures for children of color. Consult with professional agencies able to assist with identifying the causes and factors that contribute to failure while identifying possible culturally competent alternatives for youth of color.

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EDITORIAL INTRODUCTION

CRIMINOGENIC NEEDS AND CORRECTIONAL PROGRAMMING

Taking Risk Assessment to the Next Step

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In 1923, Hornell Hart (1923: 405) proposed that by “applying accurate statistical tests” to readily available factors the prediction of parolee failure could be more accurately achieved. He went on to argue that the principle of a “prognostic score” could be applied not only to make parole decisions but also to determine probation, sentence, and even sentence length. Thus, the seeds of risk prediction were planted. Although Hart did not actually create such tools, it was only a few years later when Bruce, Harno, Burgess, and Landesco (1928) actually developed what is considered the first actuarial risk-assessment tool for the Illinois Parole Board. From these early beginnings, we have progressed from risk-assessment instruments that relied primarily on static indicators to those that are referred to as “fourth-generation assessments,” which include static and dynamic factors, case plans, and even protective factors. Over the years, a great deal has been written about assessment tools and practices; however, recently there has been renewed attention to this topic as the widespread use of such tools has proliferated. Indeed, it is rare today to find a correctional agency or program that does not use some type of risk-assessment instrument.

The debates and studies surrounding offender assessment are varied and include the search for improving prediction, separation of risk and need factors, application of risk factors to females and different racial and ethnic groups, inclusion of protective factors, use in different settings, value of reassessment, reliability, and others. Although there are clearly limitations to how much we can improve the prediction of human behavior, it has not stopped us from trying. So why is there the renewed interest in risk assessment? There are probably many reasons, but the widespread adoption of the risk–need–responsivity (RNR) framework in corrections is probably the best explanation as to why so many now require risk assessment.

The major theme of Taxman and Caudy’s (2015, this issue) study is that the identification of classes of dynamic needs can improve our identification of related clusters and the

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targeting of these areas. Perhaps more important than the findings are the responses it invoked from Hannah-Moffat (2015, this issue) and Ward (2015, this issue). On the one hand, we have the argument made by Hannah-Moffat that conventional risk–need assessments are based on “White male correctional populations,” which brings into question the use and validity of the entire actuarial assessment process. Although one can challenge this assertion by pointing to the considerable empirical evidence that these groups have not been ignored in application, development, and validation studies (Brusman, Lowenkamp, Latessa, and Smith, 2007; Holsinger, Lowenkamp, and Latessa, 2006; Latessa, Smith, Lemke, Makarios, and Lowenkamp, 2010; Salisbury, Van Voorhis, and Spiropoulis, 2009; Smith, Cullen, and Latessa, 2009; Van Voorhis, Wright, Salisbury, and Bauman, 2010), that debate is beyond the scope of this introduction. Ward (2015), on the other hand, believes that there are only risk factors, some dynamic and some static, and that attempting to separate risk/need and destabilizing categories misses the mark. I agree with this argument, but again this editorial introduction is not the place to elaborate. Ward’s (2015) main argument is that although assessment is an important step, it is also insufficient for the development of individual-level treatment and interventions, and he seems to doubt that Taxman and Caudy (2015) have hit the mark.

These interesting arguments raise some important policy implications, especially because so many agencies rely on these tools in a wide range of decision-making events (i.e., pretrial release, sentencing, treatment placement, supervision levels, prison classification, release, and others). The widespread use of these tools and the potential impact on public safety dictate that we need to examine and address the limitations and potential biases of any assessment process and tools and how they are used. Hopefully, Taxman and Caudy (2015) have begun a new line of research into better understanding how assessment processes can be used to hone in on targets for change and improve correctional practices.

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Risk Tells Us Who, But Not What or How

Empirical Assessment of the Complexity of Criminogenic Needs to Inform Correctional Programming

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Research Summary

The current study used latent class analysis (LCA) to identify profiles of criminogenic needs in a sample of 17,252 community-supervised individuals from one state's probation system. The purpose of this research was to illustrate the complexity of offender need profiles to inform the development and implementation of correctional interventions. The LCA analyses revealed four classes of dynamic needs. Conditional item probabilities were examined to label the four classes based on their likelihood of presenting with static risk, criminogenic needs, and destabilizing factors (i.e., factors that indirectly relate to recidivism). The four classes were characterized by the following: a low probability of both risks and destabilizers (LN-LD), a moderate probability of risk and criminogenic needs with a high probability of multiple destabilizers (MN-HD), a high probability of risk and needs with moderate probabilities of destabilizers (HN-MD), and a high probability of static and criminogenic needs and destabilizers (HN-HD). Finally, the relationship between latent class membership and three separate recidivism outcomes was assessed. Consistent with study hypotheses, individuals in latent classes characterized by a greater probability of criminogenic needs and lifestyle destabilizers were more likely to experience subsequent criminal justice involvement, regardless of risk level.

This study was funded by the Bureau of Justice Assistance–2009-DG-BX-K026. All opinions are those of the researchers and not the government agencies. Direct correspondence to Faye S. Taxman, Department of Criminology, Law & Society, George Mason University, 4087 University Drive, Suite 4100, MS 6D3, Fairfax, VA 22030 (e-mail: ftaxman@gmu.edu).

Policy Implications

Simplifying the complexity of offender risk and need profiles through empirical classification has direct implications for policy and practice. First, it clarifies whether dynamic needs and/or risk should drive decision making. Second, the integration of dynamic risk factors into the case management process can inform strategies to mitigate static risk and inform the development of new and improved interventions. The current study findings provide insight into the clustering of dynamic risk factors within individuals. This classification structure has the potential to increase the precision of case management decisions by identifying targets for programming that are likely to co-occur for many offenders. Specifically, programs can be developed to tailor components to specific static risk and need profiles.

Keywords

risk and need assessment, differential interventions, destabilizers, offender treatment, evidence-based practices

“One of the few facts agreed upon in the field of corrections is that offenders are not all alike.” (Warren, 1971: 239)

Offender heterogeneity is a considerable barrier to the delivery of effective correctional interventions. Throughout the past several decades, research and policy initiatives have been devoted to reducing recidivism by matching individuals to correctional management strategies and rehabilitative programming. Although considerable progress has been made in terms of classifying offenders and developing interventions to foster individual-level change, as a field, we still have a ways to go.

Perhaps the most significant improvement in the field of corrections over the last several decades has been the advancement and routinization of risk and risk–need assessment instruments within justice agencies (Andrews, Bonta, and Wormith, 2006; Bonta, 2002). Actuarial risk-prediction instruments can tell us which offenders are most likely to reoffend as well as whom among the offender population we might want to target for more intensive rehabilitative programming.¹ Adhering to the risk principle by targeting higher risk offenders and matching the intensity of controls and services to risk levels has been found to improve the effectiveness of correctional interventions (Andrews and Bonta, 2010; Dowden and Andrews, 1999a, 1999b; Landenberger and Lipsey, 2005; Lowenkamp and Latessa, 2005; Lowenkamp, Latessa, and Holsinger, 2006).

1. In this article, the term “risk” is used to refer to public safety risk and risk for recidivism (see Gottfredson and Moriarty, 2006). Although the term “risk” can refer to both static and dynamic factors, in this article, static risk and dynamic risk factors (needs) are distinguished as separate constructs. The term “needs” is used to refer to dynamic risk factors throughout the article.

Despite the demonstrated utility of static risk for prediction and classification, the concept of static risk cannot tell us what specific factors should be targeted during correctional interventions or how those factors can best be addressed. Risk alone, even when it includes both static and dynamic indicators, often lacks the precision to inform treatment targets or specific program content.² Accordingly, when agencies rely solely on static risk to inform offender management decisions, they are greatly oversimplifying the complexity of the criminal justice client population and the factors that affect client outcomes. Effectively informing treatment placements requires assessment and consideration of dynamic risk factors (Bonta, 2002; Taxman, 2006). The need principle of the risk–need–responsivity (RNR) framework stresses the importance of targeting dynamic risk factors (needs) that are both malleable and directly related to recidivism outcomes during correctional programming. The factors that meet these two criteria are referred to as criminogenic needs.

Although Andrews and Bonta’s (2010) hierarchy of dynamic needs provides considerable guidance for practitioners, the complexity (i.e., number of, interactions between, and differential salience) of offender needs has emerged as a significant barrier to the application of the risk–need principles in practice. This complexity might also play a role in limiting the effectiveness of rehabilitation correctional programming. Essentially, research is needed that aids in clarifying this complexity to facilitate knowledge translation and the development of more effective interventions. The call for a better understanding of the comorbidity of criminogenic needs is consistent with the observation that “scientific progress in the field of corrections depends on reducing the infinite variety of problems through conceptualization” (Warren, 1971: 239).

Despite consistent empirical support for the importance of risk, surprisingly little research has been published on how different criminogenic needs cluster together. The current study bridges a gap in the empirical literature using latent class analysis (LCA) to identify profiles of dynamic needs in a large sample of community-supervised offenders. The study explores the interplay between risk classification and the prevalence of various criminogenic needs. Through this empirical classification, several practical implications and intriguing avenues for future research emerge.

Study Background

Risk and Need Factors

In the RNR framework, Andrews and his colleagues (Andrews, Bonta, and Hoge, 1990; Andrews and Bonta, 2010) specified eight dynamic risk factors that are associated with criminal behavior. These eight factors, labeled as the “central eight” criminogenic needs,

2. Many third- and fourth-generation risk and need assessment instruments include indicators of dynamic risk factors that make them useful for informing case management and treatment placement decisions. However, when static and dynamic factors are combined to create a global risk score, the utility of these assessments (particularly needs assessment) for informing programming is limited.

are distinguished based on the strength of their statistical association with recidivism. The four factors reported to have the strongest association with recidivism (antisocial values, antisocial personality, antisocial peer associations, and a history of antisocial behavior) are labeled as the “big four” criminogenic needs. In the RNR framework, these big four needs are prioritized as targets for recidivism reduction interventions (see also Andrews et al., 1990). Secondary dynamic needs, those that are less robust predictors of recidivism but still relevant to criminal behavior and correctional interventions, include substance abuse, family issues, employment and educational deficits, and the lack of prosocial leisure activities (Andrews et al., 2006).

Although Andrews and Bonta (2010) provided meta-analytic support for their stated hierarchy of needs, a recent review of the literature concerning the relative importance of these eight factors and their relationship to recidivism raised questions about the hierarchy. Wooditch, Tang, and Taxman (2014) found limited support for some criminogenic needs factors in more recent studies and noted that the measurement of each need often affects its correlation with recidivism. Their literature review revealed that there is little empirical support for antisocial cognition (criminal thinking), antisocial peers (too few studies conducted on adult populations), employment and education, and leisure time activities as independent dynamic risk factors. This review illustrated that there is variation in the impact of these known dynamic risk factors across studies, samples, and measurement strategies, and that very few studies (less than 12 studies) simultaneously assessed a combination of static risk and dynamic need factors on recidivism. Assessing the impact of each risk and need factors independently limits our knowledge about the possible interactions between these factors as predictors of recidivism.

Improving What Works

Cognitive behavioral therapy (CBT) and therapeutic communities are recognized as evidence-based treatments for individuals involved in the justice system. This evidence-based distinction gives preference for the use of these treatments because, when implemented with fidelity, these strategies have been shown to generate reduced recidivism relatively consistently across primary studies and meta-analyses (Aos, Phipps, Barnoski, and Lieb, 2001; Illescas, Sanchez-Meca, and Genoves, 2001; Landenberger and Lipsey, 2005; Lipsey, Landenberger, and Wilson, 2007; MacKenzie, 2006; Pearson, Lipton, Cleland, and Yee, 2002; Tong and Farrington, 2006; Wilson, Bouffard, and MacKenzie, 2005). The research literature overall supports the use of these evidence-based treatments for all justice-involved clients and makes little distinction regarding the type of client who would benefit most from these treatment programs (Polaschek, 2011; Traver, Mann, and Hollin, 2014). Considerable empirical evidence supports the use of these treatments especially for higher risk clients (Landenberger and Lipsey, 2005; Lipsey, 2009; Lowenkamp et al., 2006), although the definition of high-risk varies widely across studies and settings, which is largely a result of different measurement strategies and assessment tools.

Two meta-analyses that examined the interaction of program features and client characteristics found that better outcomes occur in cognitive-based programs (regardless of curriculum) that target higher risk clients and are implemented with fidelity (Landenberger and Lipsey, 2005; Lipsey, 2009). The extant body of literature on the interaction between client and program characteristics has not addressed the specific components of treatment programs that contribute to better outcomes and what type of clients fare better in such treatment programs (Michie, Fixsen, Grimshaw, and Eccles, 2009; Polaschek, 2011). Stated simply, the question of “what works for whom” remains unresolved.

Because many correctional programs do not clearly specify eligibility criteria or target a specific type of client, research on how individual-level client characteristics might moderate the effectiveness of correctional interventions has been limited. Instead, it often is assumed that a generic offender behavior pattern will respond to a generic intervention such as CBT. Limited empirical research has tested the efficacy of providing differential treatments that are responsive to both individual risk and dynamic need patterns. In some studies, client characteristics are beginning to be tested as moderators, but thus far this has not filled the knowledge gap about which clients will be most likely to benefit from specific types of treatment. Scientists have been using this gap in knowledge to foster new implementation work that has examined whether interventions are transportable for various target populations (Schoenwald and Hoagwood, 2001; Schoenwald et al., 2011; Taxman and Belenko, 2012).

As previously discussed, the importance of treating higher risk clients (i.e., the risk principle) is fairly well acknowledged in the research literature on program outcomes (Landenberger and Lipsey, 2005; Lipsey, 2009; Lowenkamp et al., 2006). However, this approach is limited because it does not consider what specific dynamic need factors contribute to an individual’s criminal history and risk level. A more informative approach would identify specific groupings of dynamic need factors that commonly occur within the offender population. These categorical need profiles could then be used to inform the development and evaluation of integrated correctional interventions that are capable of addressing comorbid criminogenic needs. This approach stresses the importance of moving beyond dimensional risk to consider specific categories of offenders who can be matched to specific intervention programs based on the constellation of risk and need factors with which they present. Currently, few research studies have explored individual-level risk–need configurations, although it is generally recognized that risk and need factors can affect both the type and level of problem behaviors that are tied to criminal behavior (Childs, Sullivan, and Gullledge, 2010; Sullivan, Childs, and O’Connell, 2010).

Differential Intervention Frameworks

Andrews and Bonta’s RNR framework supports the placement of offenders into certain programs based on their combination of risk and need factors. The framework considers both CBT and a social learning environment to be the most efficacious approach for

most treatment programs. With few exceptions, most correctional programs are generic instead of attending to any specific criminogenic factors or tailoring CBT services to risk levels (Polaschek, 2011). In fact, in many program evaluations, the exact target population is undefined and the key components of the behavioral intervention are ambiguous or unspecified (Michie and Abraham, 2008; Michie et al., 2009).

The differential intervention framework, advanced by the RNR model, has recently resulted in several different conceptual models that outline some priorities for assigning offenders to specific programming. Marlowe (2011) offered a substance use disorder diagnosis (dependence or abuse) by criminal risk (high-moderate and low) placement matching framework. In this framework, high- and moderate-risk offenders with substance dependence are targets for highly structured drug treatment courts, status hearings, restrictive consequences, and positive reinforcements. High- and moderate-risk offenders with low levels of substance use disorders are targeted for status calendars, psychosocial treatments, and restrictive consequences. Low-risk offenders with high or moderate substance abuse treatment needs are targeted for treatment, habilitation services, and positive reinforcement. Finally, low-risk offenders with low levels of substance abuse disorders are recommended for secondary prevention and individual counseling.

Another differential intervention framework has been developed by the Council of State Governments (CSG) Justice Center (Osher, D'Amora, Plotkin, Jarrett, and Eggleston, 2012). This framework uses risk level, substance abuse, and mental health status as components in a matrix that recommends clients for placement into one of nine groups of programming. Neither the Marlowe nor the CSG framework define specific programming but suggest that jurisdictions should categorize their programs along the key dimensions of structure, restrictiveness, and use of direct treatment programming.

Taxman and colleagues have defined a set of program categories that are based on the primary criminogenic need targeted within each intervention (Crites and Taxman, 2013; Taxman, Caudy, and Pattavina, 2013; Taxman, Pattavina, and Caudy, 2014). In this framework, five levels of differentiation occur:

- 1) Offenders who are substance dependent for opioid, cocaine, crack, and methamphetamine, regardless of risk level, should be targeted for intensive drug treatment programming.
- 2) Offenders who present with three or more criminogenic needs (other than substance dependence) or high levels of criminal thinking, regardless of risk level, should be targeted for interventions that address criminal cognitions.
- 3) Offenders who have two or fewer criminogenic needs but abuse drugs or alcohol or have a co-occurring disorder should be targeted for self-management and/or skill building interventions.
- 4) Offenders who are moderate risk and have one criminogenic need should be targeted for interpersonal skills development.

- 5) Offenders with one criminogenic need and low-to-moderate risk should be targeted for life skills that include financial management, housing stability, stress management, or other efforts to manage daily pressures.

The available heuristic frameworks are not based on empirical findings about the configuration of offender needs or even on how well offenders perform in specific types of programs. Instead, these frameworks provide a basic rationale for differential interventions. For example, even though Marlowe (2009) recommended high- to moderate-risk, substance-dependent offenders for drug treatment court, the most recent meta-analysis that examined moderators that impacted the effectiveness of drug courts found that the drug treatment court was more likely to be effective for offenders with less serious criminal history (Mitchell, Wilson, Eggers, and MacKenzie, 2012). As we move forward, it is important to align these frameworks with the empirical literature to develop taxonomies of both treatment programs and offender needs. To do this, we must begin with a better understanding of the constellation of static risk and dynamic need factors and the development of interventions that are designed to address these risk–need profiles.

Current Study of Risk–Need Profiles

The complexity and comorbid existence of various risk factors among offenders requires a more deliberative effort to develop programs that are geared to address common individual-level profiles. Considering this complexity is essential for improving the design and implementation of interventions, and increasing their effectiveness. Differential intervention frameworks like the ones discussed previously suggest that the impact of interventions can be maximized if offenders are matched to specific types of services that are most likely to reduce their risk for recidivism. Given the increasing reliance on broad evidence-based treatment practices such as CBT and therapeutic communities as risk-reduction strategies in the corrections system, it is essential that research give more careful consideration to the reality that the same generic program might not be appropriate for all offenders.

To understand more clearly the complexity of offender need profiles, the current study examined whether latent classes, or profiles, of dynamic needs can be identified. LCA was used to identify need profiles because it allows for the empirical identification of individuals who are similar on a categorical latent variable when class membership cannot be directly observed. The primary research questions addressed in the current study are as follows: (a) How many latent classes of dynamic needs can be identified? (b) What needs cluster together? Additional research questions addressed include the following: (c) Do demographic covariates and risk levels vary across need classes? (d) Do recidivism outcomes vary across need classes?

Regarding the number of latent classes of dynamic offender needs, the current study hypothesized that at least three classes would emerge. This hypothesis was based on the assumption that some offenders have a complex array of needs, whereas others likely have few

or no dynamic needs. Additionally, the current study predicted a third class of offenders that would present with noncriminogenic or destabilizing factors (e.g., employment problems, housing problems, and educational deficits) but would not have a high probability of presenting with any of the big four criminogenic needs. Regarding the relationship between latent class membership and recidivism outcomes, the current study hypothesized that individuals classified in latent classes characterized by a greater number of needs would have higher rates of recidivism measured at 2 years postcommencement of supervision. This is based on the assumption that offenders with more complex problem behaviors (i.e., heterogeneity of needs) will be more likely to reoffend and more difficult to engage in treatment.

Methods

Data

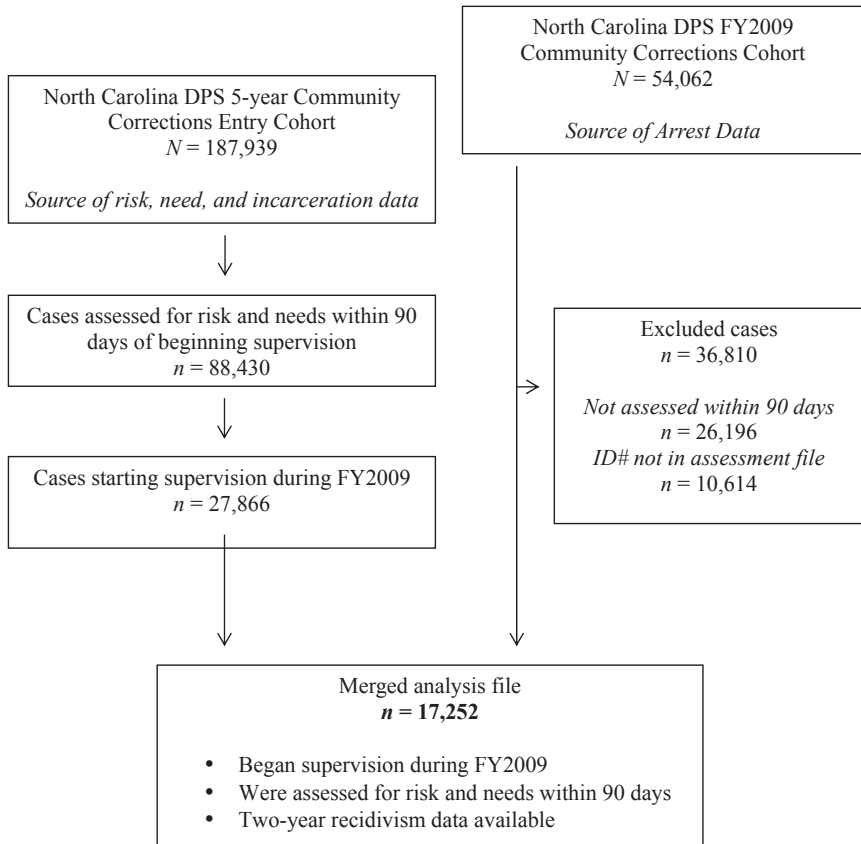
Data for this study came from the North Carolina Department of Public Safety's (NCDPS) Section of Community Corrections (SCC). Figure 1 provides a consort chart to illustrate how the final sample for this study was derived from two administrative data sets provided by the SCC. The data are restricted to offenders on probation supervision in the state. The initial data file contained a cohort of all entries onto community supervision during fiscal year 2009 ($N = 54,062$). These data were part of a recidivism study conducted by the state that tracked arrest and conviction outcomes for this cohort over 2 years. These data were then merged with an existing database of entrees for supervision across a 5-year period that also included assessment information from the SCC's risk- and need-assessment instruments and new incarceration data. The two data sources were merged using a common identifier resulting in an analysis sample of 17,252 unique individuals, who began supervision during fiscal year 2009, were assessed for risk and needs within 90 days of beginning supervision, had a valid state identifier in both data sets, and were on supervision for at least 24 months. Having 2 full years of supervision provided ample time for any positive or negative outcomes such as arrest, conviction, and incarceration to be observed. The remaining members of the 5-year entry cohort who initiated supervision in 2009 were not included in the data set because their risk and needs assessment occurred outside of the 90-day period, they did not have 24 months of supervision, or no match could be made with the assessment data set.

Sample

Sample descriptive statistics are presented in Table 1. The study sample was predominantly male (73.3%), almost equally Caucasian (49.0%) and African American (46.1%), and predominantly younger than 28 years of age (52.3%). The average age of the sample was 30.1 years at the beginning of the supervision term. Based on the state's validated risk assessment, 27% of the sample were classified as high risk, 33.4% were classified as moderate risk, 28% were classified as low risk, and 11.6% were classified as minimal risk.

FIGURE 1

Study Flow CONSORT Diagram

**Measures**

The Division of Research and Planning at NCDPS developed their own internal risk- and need-assessment tools to predict the likelihood of recidivism and guide case management decisions in the SCC. Throughout the last two decades, staff from NCDPS have worked with researchers from the University of North Carolina to validate and update these tools (Cuddeback and Lambert, 2012). The SCC's risk- and need-assessment protocol consists of two tools: the Offender Traits Inventory (OTI) and the Offender Needs Assessment (ONA). The OTI is used primarily to predict risk for recidivism, whereas the ONA is used to identify specific intervention needs that can be targeted during supervision. The OTI combines static and dynamic risk information including type of conviction, age, gender, history of substance abuse, employment, attitude, financial stability, and educational

T A B L E 1

Sample Characteristics—Community Corrections Sample (*n* = 17,252)

Variable	Prevalence in the Analysis Sample (<i>n</i> = 17,252)
Gender	
% Male	73.3
% Female	26.7
Race	
% White	49.0
% Black	46.1
% Native American	1.2
% Asian	0.2
% Unknown	0.1
% Other	2.9
Age Group	
% Younger than 28 years	52.3
% 28–35 years	17.7
% 36–42 years	12.3
% Older than 43 years	17.7
Risk Level	
High	27.0
Moderate	33.4
Low	28.0
Minimal	11.6

Note. All table values reflect percentages.

attainment. The OTI has been assessed for internal consistency and validated as a sound predictor of recidivism (Cuddeback and Lambert, 2012). In the current study sample, the OTI total score was significantly correlated with arrest ($r = 0.286, p < .000$), conviction ($r = 0.226, p < .000$), and incarceration ($r = 0.251, p < .000$) within 2 years of supervision.

The ONA tool was initially validated on a probationer sample in 2010 (Craddock et al., 2012; North Carolina Department of Public Safety, 2010). The ONA includes validated scales measuring substance abuse, antisocial personality, antisocial values, self-control, dysfunctional family history, and general mental health functioning. Additional scales are included that assess the overall functioning of the individual in domains such as financial situation, current family support, criminal peers, employment, academic/vocational functioning, transportation, housing/living situation, physical health, and legal issues. North Carolina recently reviewed the scales of the ONA, and the tool was endorsed as a valid assessment of criminogenic needs and lifestyle stabilizing factors (Cuddeback and Lambert, 2012).

The inter-rater reliability of the OTI and ONA has not been formally assessed; however, the state trains all officers on the use of the OTI and ONA in basic training. NCDPS also maintains an internal resource page on its computer network to provide information about the assessment tools to probation officers. The probation officer can ask questions about an item or how to use it when he or she has an issue. A series of quality assurance processes exist such as random case reviews where supervisors review the last ONA that was completed by each officer and provide feedback to the officer. Finally, technical assistance on any issues can be delivered by an internal unit of research and planning staff.

Given the focus on the relationship among risk, dynamic needs, and recidivism and the complexity of offender problem behaviors, measures of each construct were needed. The study relied on the jurisdiction's definitions and measures of these constructs. Reliance on the agency's definitions of key study constructs was essential because these operational definitions reflect the information that agency staff have available to inform decision making in everyday practice.

Recidivism. The primary outcome in the study analyses is recidivism. Recidivism was measured using three indicators. Data were available on arrests, convictions, and incarcerations for a 2-year follow-up period for all individuals in the analysis sample. Dates of the recidivism events were used to create indicators of whether each type of recidivism occurred within 24 months of the individual beginning community supervision. If an individual was arrested, convicted, or incarcerated for any type of offense within 24 months of beginning supervision, then he or she was flagged. The arrest and conviction measures required a new offense, whereas the incarceration measure captured both incarcerations for new offenses as well as probation revocations and technical violations that resulted in probationers being incarcerated. All three types of recidivism were measured using official reports. No self-reported data on recidivism were collected. Separate indicators of arrests, convictions, and incarcerations were created. For each measure, recidivism was coded as "1" and no recidivism was coded "0."

Risk. Risk for recidivism was measured using the Offender Traits Inventory (OTI); the OTI is a 10-item validated risk-assessment instrument that the SCC uses for informing offender management and treatment referrals. The purpose of the OTI is to assess the offender's risk of further criminal involvement and not dangerousness or propensity toward violence. The OTI combines static (e.g., variety of prior convictions, age, and gender) and dynamic risk factors (e.g., substance abuse, education, employment, and financial difficulties) to calculate a total risk score. Possible scores on the OTI range from -11 to 64. Negative risk scores are possible for individuals older than 46 years of age as points are subtracted for individuals who are older than 45 when they begin their supervision term. The state classifies community-supervised offenders as minimal (-11 to 15), low (16 to 25), moderate (26 to 35), or high (36 to 64) risk for recidivism.

Dynamic needs. Offender needs were measured using the state's ONA. The ONA is used to identify life areas in which offenders might require intervention during their

community supervision. Offenders are flagged for various dynamic needs based on their scores in each assessed domain. For each need scale, scores reflect a combination of items from offender self-reports and officer impressions. Cutoff scores were validated using a validation sample of community-supervised offenders who were assessed between December 1, 2006 and February 28, 2007 (North Carolina Department of Public Safety, 2010). Cutoff scores for clinical need indicators (i.e., substance abuse, antisocial personality, and general mental health) were established by employing a Bayes rule. This process allocates cases to the intervention (or need) group when the estimated probability of being placed in the intervention group is greater than the ratio of the costs associated with correctly or incorrectly placing the individual in one or the other groups. The remainder of the need indicators were created using percentile scores and validated in the validation sample (North Carolina Department of Public Safety, 2010). Specific need measures included in the current study include substance abuse, antisocial personality, antisocial values, low self-control, criminal peers, mental health, employment, academic/vocational, housing, financial, and family support.

Substance abuse. The presence of a substance abuse treatment need was determined based on two measures collected by the agency. The first was the seven-item substance-abuse scale from the ONA. The scale combined items measuring frequency of use of alcohol and drugs, life disruption caused by substance use, desire to stop using substances, and involvement of substance use in current offense. Using an internally validated cutoff score, the agency flagged individuals who might be appropriate for a referral to community-based substance abuse treatment. To approximate the presence of a clinical substance abuse treatment need, this measure was combined with an indicator from the OTI risk assessment. The OTI measure was endorsed when screening officers determined that the individual offender had a history of drug addiction characterized by “major abuse or addiction” or “current need for treatment for heroin, cocaine, barbiturate or other drug dependence.” Combining the two flags available in the SCC data sets created the measure of need for substance abuse treatment used in the current study. Nearly 34% of the offenders in the current study sample were considered substance abusers based on this definition.

Antisocial values. The ONA indicator of antisocial values was created by the agency based on a 10-item scale that combined six self-report and four officer-impression items. Self-report scale items were measured on a five-category Likert-type scale, and the scores were summed to create a total need score. Four dichotomous officer-reported items were also included in the scale. Possible scores on the scale ranged from 0 to 28. Individuals scoring greater than 7 on the scale were flagged for antisocial values. Approximately 37% of the individuals in the current study were flagged for antisocial values.

Low self-control. An indicator of low self-control was created by the agency based on a seven-item scale that combined offender self-report and officer-impression items. Self-reported scale items included “I think about what could happen before acting” and “people would describe me as impulsive.” Self-report scale items were measured on a five-category

Likert-type scale, and the scores were summed to create a total need score. A dichotomous officer-reported impulsivity item was also included in the scale. Possible scores on the scale ranged from 0 to 25. Individuals scoring greater than 9 were flagged for low self-control. Approximately 38% of the individuals in the current study were flagged for low self-control.

Antisocial personality. An indicator of antisocial personality need was created by the jurisdiction to identify offenders who might need mental health services related to antisocial personality or temperament. To measure this construct, the department created a scale that combined ten historical indicators of antisocial behavior with five contemporary self-reported attitudinal measures. A single-item officer-impression indicator was also included in the scale. The Bayesian approach described previously was used to create a cutoff value for this scale. Only 3% of the current study sample was flagged for antisocial personality.

Criminal peers. An indicator of criminal peers was created by the agency based on the self-reported proportion of the offenders' friends who were involved in antisocial behavior. Offenders reported how many friends they had; how many were on probation, parole, or postrelease; how many were gang members; how many had committed a crime; and how many sell or use drugs. A reverse-coded item of prosocial friends was also included in the scale. The proportion of antisocial friends was averaged, and individuals were flagged if their average proportion of antisocial friends was greater than or equal to 0.217. This cutoff value was established during the initial validation of the needs assessment. Two officer overrides were also included in the creation of this indicator. Officers could flag the individual for criminal peers if they had gang markings or tattoos, or committed their most recent offense with another person. Approximately 49% of the study sample was flagged for criminal peers.

Mental health. An indicator of need for referral to mental health assessment was created using a combination of eight offender self-report and officer-impression items. In the current study, individuals who either self-reported suicidal ideation or were flagged for possible serious mental illness based on their scores on the scale were counted as having a mental health need. Approximately 17% of the sample was flagged for having a mental health need.

Employment. An indicator of an employment need was created by the agency based on a four-item scale that combined two self-reported and two officer-endorsed items. Self-reported items were scored on a four-point Likert-type scale. Wording of items consisted of "I am okay with my current work or school situation" and "I have the skills I need to get a job." Officers flagged individuals who were currently unemployed or had a history of employment instability. Possible scores on the scale ranged from 0 to 10. Individuals who scored less than 8 were flagged for an employment need. Approximately 59% of the study sample was flagged for an employment need.

Education/vocational need. An indicator of academic or vocational need was created based on a nine-item scale that combined self-report and officer-impression items. The seven self-report items included four items scored on a Likert-type scale (e.g., "When I

buy something with cash, I can figure out how much change I should get back” and “I find it difficult to read”) and three dichotomous items (e.g., “Do you have a high-school diploma/GED?”). The assessment officer also reported whether the offender needed assistance reading the materials related to supervision. Possible scores on the scale ranged from 0 to 21. Individuals scoring less than 15 on the scale were flagged for an educational/vocational need. This variable was also flagged when the offender reported not having a high-school diploma/GED or when the officer reported that the individual needed assistance reading the supervision materials. Overall, 55.9% of the study sample was flagged for an education need.

Housing. An indicator of unstable housing was created based on a four-item scale that combined three self-report items and one officer-impression item. Offenders self-reported how frequently they had a permanent place to live (measured on a Likert-type scale), whether they had been homeless at any point during that last year, and the number of times they changed residences in the past year. The officer reported whether the offender’s current residence was suitable based on a home visit. The four items were summed, and scale values greater than two were flagged for a housing need. The officer could also endorse a housing need if he or she deemed the offender’s living situation to be unsuitable. Approximately 28% of the sample was flagged for a housing need.

Financial. Offenders were flagged for financial instability based on a five-item self-report scale. Four items were measured on a Likert-type scale, and one item was dichotomous. Self-report items included, for example, “I run out of money right before payday” and “It’s hard for me to pay for my medical needs.” The dichotomous scale item asked offenders if they currently depended on public assistance. Possible scores on the scale ranged from 0 to 17. Individuals scoring greater than nine on the scale were flagged for a financial need. Approximately 24% of the sample was flagged for a financial need.

Family support. An indicator of low family support was created based on a six-item scale that combined four self-report items with two officer-impression items. Two self-reported items were measured on a Likert-type scale (e.g., “my family understands my situation and problems”) and two items were dichotomous (e.g., “are any other members of your family currently under supervision?”). The officer-endorsed items indicated whether the individual was involved in positive family activities and whether the current family environment was positive. Both officer-endorsed items were dichotomous. Possible scores on the scale ranged from 0 to 12. Any value less than 9 was flagged for a lack of family support. Approximately 26% of the current study sample was flagged for a family support need.

These data were particularly well suited for the current study purposes. Specific strengths of the data include the large sample size, the inclusion of multiple indicators of recidivism outcomes, and the identification of specific need factors. The measurement of needs was particularly important given the current study aims. Risk- and need-assessment instruments in many jurisdictions do not provide specific indicators of dynamic needs; instead, they combine needs as part of a global risk score. The presence of dichotomous indicators of

dynamic needs allowed the current study to assess the comorbidity of needs without having to create new measures. Relying on the jurisdictions' own definitions of risk and needs was important given the applied nature of the study hypotheses. The four risk categories and 11 need/destabilizing factors included in the current study are currently used by the agency to determine supervision levels, inform case plans, and guide recommendations to community-based treatment services.

Analytic Procedure

Given the primary study goal of examining how different needs cluster together, the current study relied on a multistage analytic process. The first stage of the study analysis involved identifying the prevalence of each dynamic need within the study sample of community-supervised individuals. After identifying the frequency of each dynamic need factor within the study sample, bivariate cross-tabulations were conducted to assess the degree to which the prevalence of dynamic needs (a) varied across assessed risk level and (b) was related to three dichotomous indicators of recidivism. These bivariate descriptive analyses were conducted to establish the extent of needs within the study sample and to explore the distribution of recidivism outcomes across each assessed need factor. Similar analyses were conducted to explore the distribution of assessed risk and the nature of the association between risk and recidivism outcomes.

The primary analytic step in the current study involved an LCA of dynamic needs. LCA describes how the probabilities of a set of observed indicators vary across classes of individuals for whom class membership cannot be directly observed. The primary purpose of LCA is to find groups of individuals who are similar on a categorical latent variable (i.e., complexity of dynamic needs) (Muthén and Muthén, 2000). In the current study, LCA was employed to identify classes of offenders with similar clusters of dynamic needs. The LCA method is designed to identify the smallest number of latent classes that can account for the associations between observed variables (Muthén and Muthén, 2000). Various model fit indices are available for determining the best-fitting model solution. The current study relied on the Bayesian information criterion (BIC), the Lo-Mendell-Rubin test (Asparouhov and Muthén, 2012; Lo, Mendell, and Rubin, 2001), and mean posterior probabilities to determine the best-fitting latent class model. The model fit strategy employed in the current study favored parsimony (fewer classes) over complexity. LCA analyses were conducted using MPlus version 5 statistical software (Muthén & Muthén, Los Angeles, CA).

After fitting the LCA model, the next stage in the analytic procedure involved comparing the distribution of dynamic needs and other relevant covariates across the latent classes that emerged. The distribution of categorical covariates and mean differences of continuous measures were compared across latent classes using cross-tabulations and analyses of variance (ANOVAs) with post hoc analyses. This process allowed the current study to establish profiles of individuals with different patterns of dynamic needs and to identify potential

T A B L E 2

**OTI Assessed Risk Level and 2-Year Recidivism in Community Corrections
Sample (n = 17,252)**

Risk Level	Prevalence (n = 17,252)	New Arrest	New Conviction	New Incarceration
High	27.0	50.1	26.9	40.4
Moderate	33.4	33.6	16.3	28.0
Low	28.0	20.9	8.2	16.6
Minimal	11.6	12.7	4.8	9.2
Total	100.0	32.1	15.6	25.9
χ^2		1322.4***	832.6***	1032.4***

Note. All table values reflect percentages.

*** $p < .000$.

risk factors for predicting class membership. Finally, the nature of the relationship between class membership and three recidivism outcomes was explored descriptively by examining the prevalence of recidivism events across each class. This step allowed the current study to test the hypothesis that individuals with a greater number of dynamic needs and lifestyle destabilizers would be more likely to experience a recidivism event than individuals in classes characterized by fewer or less complex needs.

Results

Table 2 displays the distribution of assessed risk level measured using the agency’s OTI risk assessment and the reported recidivism rate for each risk category. In the full study sample, 32.1% of individuals were arrested for a new offense within 2 years, 15.6% were convicted of a new offense, and 25.9% were incarcerated either for a new offense or for violation of their probation conditions. All three recidivism rates varied significantly across OTI risk levels.

Using cutoff scores validated by the jurisdiction, the prevalence of dynamic needs in the full study sample was also assessed. Table 3 displays the distribution of dynamic needs within the sample and compares recidivism rates for individuals flagged for each need with the rest of the sample that was not flagged. The most commonly flagged needs in the study sample were employment (58.8%), academic/vocational (55.9%), antisocial peers (48.9%), low self-control (38.2%), and antisocial values (37.1%). Antisocial personality (3.0%) was the least prevalent need, followed by mental health (16.9%) and financial problems (23.7%). With the exception of antisocial personality and mental health, offenders flagged for each dynamic need were more likely to be arrested, convicted, and incarcerated than offenders who were not flagged. Antisocial values, low self-control, and employment needs evinced the largest differences in recidivism rates between flagged and not flagged offenders. The correlation between the OTI score (risk) and the ONA score is 0.369, which is expected

TABLE 3

Two-Year Recidivism Rates by Assessed Dynamic Needs

Dynamic Need	Prevalence (n = 17,252)	New Arrest	New Conviction	New Incarceration
Referred to TASC				
Yes	65.3	34.9	17.5	29.1
No	34.7	26.7	12.0	20.1
Substance Abuse ^a				
Yes	33.9	39.3	19.8	33.0
No	66.1	28.4	13.4	22.3
Criminal Peers				
Yes	48.9	34.9	18.2	29.1
No	51.1	29.4	13.0	22.9
Antisocial Personality				
Yes	3.0	32.4	15.9	29.5
No	97.0	32.1	15.5	25.8
Antisocial Values				
Yes	37.1	39.6	19.9	32.8
No	62.9	27.5	12.9	21.8
Low Self-Control				
Yes	38.2	38.0	19.2	32.4
No	61.8	28.3	13.2	21.9
Mental Health Need				
Yes	16.9	31.4	14.9	26.3
No	83.1	32.1	15.6	25.8
Employment Issues				
Yes	58.8	36.1	17.9	29.1
No	41.2	26.3	12.3	21.4
Academic/Vocational Need				
Yes	55.9	35.8	18.0	29.5
No	44.1	27.3	12.4	21.3
Housing Need				
Yes	28.4	37.8	18.6	29.6
No	71.6	29.8	14.3	24.5
Financial Problems				
Yes	23.7	33.4	16.2	27.5
No	76.3	31.7	15.4	25.5
Family Support Need				
Yes	25.9	38.2	18.4	33.0
No	74.1	29.9	14.6	22.3

Note. All table values reflect percentages.

^aSubstance abuse was flagged if an individual was referred for TASC (Treatment Accountability for Safer Communities) and flagged for history of drug addiction.

T A B L E 4

**Distribution of Dynamic Needs across Assessed Risk Level in NC DPS
Community Corrections Sample (n = 17,252)**

Dynamic Need	Risk Level				
	Full Sample (n = 17,252)	Minimal (n = 2,002)	Low (n = 4,839)	Moderate (n = 5,759)	High (n = 4,652)
Substance Abuse					
Referred to TASC	65.3	45.5	58.2	69.1	76.4
History of drug addition	42.1	9.7	22.6	45.5	72.2
Referred + history	33.9	6.7	17.4	36.9	59.2
Antisocial Peers	48.9	27.1	42.5	52.6	60.3
Antisocial Personality	3.0	2.3	2.3	2.7	4.3
Antisocial Values	37.1	18.6	26.9	39.0	53.6
Low Self-Control	38.2	24.1	30.0	39.1	51.7
Mental Health	16.9	18.2	17.1	16.0	17.2
Employment	58.8	36.3	45.3	62.4	78.1
Education	55.9	33.6	43.7	59.3	74.1
Housing	28.4	16.8	22.8	28.6	38.9
Financial	23.7	23.0	20.9	23.1	27.7
Family Support	25.9	17.6	19.8	25.5	36.5
Three or More Needs	48.9	22.4	34.2	51.8	71.8

Note. All table values reflect proportion of offenders flagged for each need within each risk level. TASC refers to Treatment Accountability for Safer Communities (an assessment group).

given the similarity among several items in both instruments. Studies have found that static risk factors explain more of the variance in recidivism outcomes and need factors have incremental validity (Austin, 2006).

To understand more completely the complex interplay between risk for recidivism and dynamic offender needs, the distribution of needs across risk levels was assessed. The results presented in Table 4 depict the prevalence rate of each dynamic need within each of the four risk levels used by the SCC for classification. As expected, especially because several dynamic risk factors were included in the risk score calculation, the prevalence of dynamic needs increased as the risk level increased.³ In other words, higher risk clients also tended to have a higher probability of being flagged for dynamic needs. For instance, although 37.1% of the overall sample was flagged for antisocial values, 53.6% of offenders classified as high risk were flagged for this need. These findings illustrate the complexity of offender classification systems that often must reconcile and integrate complex information. This could help explain why many justice professionals fail to develop assessment-informed case

3. The correlation between the OTI score (risk) and the ONA score (needs) is 0.369 ($p < .000$). This finding is expected given the similarity among several items on both instruments.

TABLE 5

Model Fit Statistics for Latent Class Analysis of Dynamic Needs

Model	Log Likelihood	BIC ^a	Entropy	Lo-Mendell-Rubin Test <i>p</i> value)	Mean Latent Class Probabilities
Class 2	−103,945.24	208,041.77	0.65	9750.98 (.00)	.88, .91
Class 3	−103,479.38	207,188.98	0.63	923.83 (.00)	.77, .89, .73
Class 4	−103,118.95	206,547.05	0.54	714.76 (.00)	.68, .77, .76, .73
Class 5	−102,993.05	206,374.19	0.50	249.66 (.00)	.74, .60, .54, .75, .73
Class 6	−102,894.24	206,255.51	0.52	195.94 (.08)	.58, .58, .71, .74, .74, .53

Note. Bolded Class 4 is the selected LCA model.

^aAdjusted for sample size.

plans when offenders have complex risk and need profiles (Miller and Maloney, 2013; Viglione, Rudes, and Taxman, 2014).

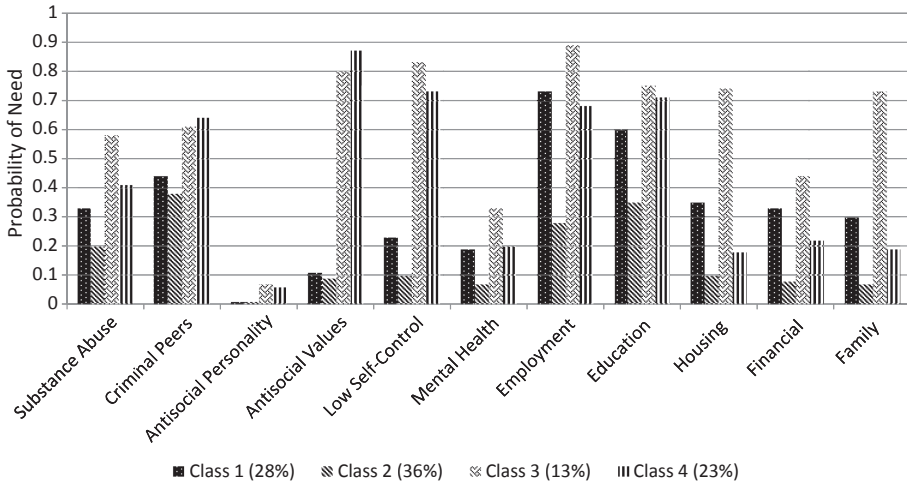
Latent Class Analysis

The primary goal of this study was to explore the clustering of dynamic offender needs to determine whether distinct need profiles could be identified. Identifying common need profiles has important implications for informing case management and the development of differential treatment interventions. The clustering of dynamic needs was assessed using LCA. Using an iterative model fit procedure, the current study analyses examined LCA models with two to seven classes of dynamic needs. The model fit indices are displayed in Table 5. Based on the available fit indices, a four-class model was selected as the best-fitting model. Parsimony (i.e., fewer latent classes) was also considered when selecting the four-class model. As is often the case, the BIC continued to improve as additional classes were added to the model; however, the *p* value of the Lo-Mendell-Rubin test began to move toward significance after the four-class model. Two primary factors led to the selection of the four-class over the five-class model. The first was that the mean latent class probabilities for two classes in the five-class model (.60, .54) were well below the .70 cutoff suggested by Nagin (2005). The second was the lack of substantive meaning added to the model by including the fifth latent class. An examination of conditional item probabilities revealed that the five-class model included two classes that were very similar in regard to their likelihood of having all but one or two dynamic needs.

The next stage of the study analyses involved an examination of the conditional item probabilities of each dynamic need across the four classes that emerged from the LCA. Conditional item probabilities represent the within-class prevalence of each of the 11 observed need and destabilizer factors. These are equivalent to the probability of an individual in a given class having a specific need. These probabilities allow us to define each latent class on the basis of observed need indicators. Figure 2 displays the probabilities

FIGURE 2

Conditional Item Probabilities Across Latent Class Membership



of each need within each latent class, and it illustrates considerable differences across the identified classes. To help label these classes, the current study distinguishes the first five need factors presented in Figure 2 as primary criminogenic needs from the remaining six dynamic needs factors that are labeled as destabilizing factors.

As displayed in Figure 2, class 1 represents approximately 28% of the community corrections population in the current study. Relative to the other classes, individuals classified in class 1 had low probabilities of being flagged for any of the five primary criminogenic needs. Criminal peers (.44) and substance abuse (.33) were the primary needs most likely to be flagged for these individuals. Despite this relatively low prevalence of primary criminogenic needs, this class displayed high levels of destabilizers in the areas of employment deficits (.73), educational deficits (.60), and financial problems (.33). Based on these conditional items probabilities, class 1 was labeled as moderate need with high destabilizers (MN-HDs).

The largest class, class 2 (36%), had the lowest probability of having any of the 11 primary needs or lifestyle destabilizers. Accordingly, this class was labeled as low need with low destabilizers (LN-LDs). The most prevalent need factors based on conditional item probabilities in the class were criminal peers (.38), education (.35), and employment (.28). All of these probabilities were the lowest of any of the four classes.

Class 3 (13%) was the smallest class identified. This class displayed the highest probability of having three of the five primary criminogenic needs and all six destabilizers. This class displayed the highest probability of low self-control (.83), antisocial personality (.70), and substance abuse (.58), and it displayed high probabilities of criminal peers (.61) and antisocial values (.80). This class displayed high probabilities of destabilizers in

the areas of employment (.89), education (.75), housing (.74), financial (.44), and family (.73). Although the probability of being flagged for a mental health issue was .33 for this class, this was the highest among any of the four classes. Based on the diversity of needs and destabilizers within this class, class 3 was labeled as high need with high destabilizers (HN-HDs).

The final class, class 4, consisted of 23% of the overall study sample. This class was characterized by high probabilities of most primary criminogenic needs, but low-to-moderate levels of destabilizers. The primary distinguishing factor between class 3 and class 4 was the lower probability of destabilizers among individuals in class 4. Class 4 displayed the highest probability of being flagged for antisocial values (.87) and criminal peers (.64), but it displayed high probabilities of low self-control (.73), substance abuse (.41), and antisocial personality (.60). Regarding destabilizers, class 4 had a relatively high probability of being flagged for education (.71) and employment (.68) but relatively low probability of housing, financial, or family destabilizers. Based on conditional item probabilities, class 4 was labeled as high need with moderate destabilizers (HN-MDs).

After examining the conditional item probabilities of the 11 criminogenic needs and destabilizers, the current study explored the composition of the four latent classes in regard to demographics and risk. Table 6 displays the distribution of risk and demographics across the four latent classes. Class 1 displayed the lowest prevalence of males (69.2%) and individuals younger than 28 years old (45.5%) of any of the four classes. The average age of individuals in class 1 was 31.8. Class 2 was made up of 73.5% males and had the lowest prevalence (10.8%) of high-risk individuals. Approximately 20% of the individuals classified in class 2 were minimal risk. Class 3 was characterized by 54.5% of individuals younger than 28 years old and approximately 50% high-risk individuals. An additional 31.6% of individuals in class 3 were moderate risk. Class 4 was the youngest and most predominantly male of the four classes. Class 4 was characterized by approximately 36% of both high- and moderate-risk cases.

One-way ANOVAs and Tukey's B post hoc analyses indicated significant mean differences in age and risk scores across the four classes. As displayed in Table 6, the mean age (26.2) was lowest in class 4. The mean age in class 4 was significantly lower than the other three classes. The mean age was second lowest in class 3 (29.4), and this was significantly lower than classes 1 and 2 ($F = 215.49, p < .001$). The mean class risk score was lowest in class 2 and highest in class 3. Post hoc analyses revealed that the mean risk score for class 2 was significantly lower than the other three classes. The mean risk score in class 1 was significantly lower than in classes 3 and 4, and finally, the mean risk score in class 4 was significantly lower than class 3 ($F = 960.04, p < .001$).

Latent Class Membership as a Predictor of Recidivism

The final stage of the current study analyses assessed the relationship between latent class membership and three measures of recidivism. Recidivism rates were contrasted across all

TABLE 6

Prevalence and Mean Differences Across Latent Need Class

Variable	Full Sample (n = 17,252)	Class 1 (n = 4,863)	Class 2 (n = 6,151)	Class 3 (n = 2,341)	Class 4 (n = 3,897)	χ^2 / F
Gender						
Male	73.3	69.2	73.5	72.1	79.1	109.56***
Age Group						
Younger than 28	52.3	45.5	47.0	54.5	67.8	557.93***
28–35	17.7	18.9	20.1	16.8	13.0	
36–42	12.3	14.1	13.9	11.6	8.0	
Older than 43	17.7	21.5	19.0	17.2	11.2	
Risk Level						
High	27.0	28.7	10.8	50.4	36.2	2367.21***
Moderate	33.4	35.7	30.1	31.6	36.6	
Low	28.0	25.8	39.3	14.8	21.0	
Minimal	11.6	9.7	19.8	3.1	6.1	
Age	30.1	31.8	31.3	29.4	26.2	215.49***
					C4 < C1, C2, C3	
					C3 < C1, C2	
Risk Score	28.6	29.3	23.4	35.2	31.7	960.04*
					C2 < C1, C3, C4	
					C1 < C3, C4	
					C4 < C3	

* $p < .05$, *** $p < .001$.

four latent classes of needs and destabilizers. Table 7 displays the results of a series of cross-tabulations comparing 1- and 2-year recidivism rates across latent classes. As hypothesized, individuals with the greatest number of criminogenic needs and destabilizers (i.e., class 3) had the highest rates of recidivism across recidivism measures and length of follow-up. Within 2 years of beginning community supervision, 44.7% of individuals classified in class 3 had been rearrested, 22.2% had been reconvicted, and 36.1% had been incarcerated for a new offense or technical violation. Recidivism rate differences across classes were statistically significant. Class 4 displayed the second highest rates of recidivism across the four classes followed by class 1 and finally class 2.

The potential added value of the latent need classes is depicted in Table 8. The values displayed in Table 8 reflect 2-year arrest rates across both latent class membership and assessed risk level. The findings suggest that, despite the predictive validity of risk, adding needs and destabilizers can improve prediction. For example, individuals classified as minimum risk who were also classified in groups 1 or 2 had considerably lower recidivism rates relative to minimum-risk individuals who were assigned to groups 3 or 4. On average, minimum-risk offenders in groups 3 or 4 were arrested at rates more similar to low-risk offenders. Across all four assessed risk levels, individuals in latent classes characterized by

TABLE 7

Recidivism Prevalence across Latent Need Class						
Variable	Full Sample (n = 17,252)	Class 1 (n = 4,863)	Class 2 (n = 6,151)	Class 3 (n = 2,341)	Class 4 (n = 3,897)	χ^2
New Arrest						
Within 1 year	21.6	21.8	15.1	29.9	26.7	309.23***
Within 2 years	32.1	32.3	23.2	44.7	38.3	465.93***
New Conviction						
Within 1 year	7.7	7.5	5.0	11.3	9.8	129.18***
Within 2 years	15.6	15.5	10.4	22.2	19.8	257.69***
Incarceration						
Within 1 year	16.8	16.7	11.4	22.8	21.9	258.49***
Within 2 years	25.9	25.6	18.1	36.1	32.7	414.60***

*** $p < .001$.

TABLE 8

Group	Assessed Risk Level			
	Minimum	Low	Moderate	High
LCA group 1	12.7%	21.6%	32.2%	48.5%
LCA group 2	10.5%	18.9%	28.8%	46.1%
LCA group 3	24.7%	27.1%	41.8%	53.0%
LCA group 4	20.6%	23.0%	37.2%	51.2%
Rate within risk category	12.7%	20.9%	33.6%	50.1%

a more complex array of needs and destabilizers (groups 3 or 4) were more likely to be arrested within 2 years of supervision commencement than other individuals in the same risk classification category. The LCA analyses, which reflect complexity of needs regardless of static risk level, illustrate the incremental value of focusing on dynamic factors to refine decisions regarding who should receive services and the type of services they should receive.

Discussion

The primary issue explored in this study was the complexity of dynamic risk and need profiles across the offender population to identify possible targets for treatment programming. This work has implications for advancing the RNR framework and improving the effectiveness of correctional interventions. In the RNR framework, the concept of risk is important because it helps practitioners identify *who* requires more structure and intensive treatment programming. The limitation of the static risk indicator is that it does not identify what specific factors the treatment programs should address or how individual offender level behavioral targets should be addressed. The “what works for whom” discussion has been

hampered by the generic nature of many treatment programs. Most of the research literature has emphasized that static risk is a consistently robust predictor of recidivism (Austin, 2006; Caudy, Durso, and Taxman, 2013; Lowenkamp et al., 2006) and that placement of higher risk individuals in cognitive behavioral programming reduces recidivism (Landenberger and Lipsey, 2005; Lipsey, 2009; Lowenkamp and Latessa, 2006). But, static risk alone is an oversimplification of the underlying behavioral issues associated with the offender population. The limitation of the current literature is that much of it has focused almost exclusively on static risk and the merits of relying upon static risk. The imprecise nature of static risk limits how it can most effectively be used in correctional treatment policies and practices. The result of this heavy focus on static risk is that many practitioners have limited decision support guidelines to prioritize specific offenders for certain programs based solely on their individual risk factors without paying attention to dynamic factors.

To identify targets for correctional interventions, attention must be focused on dynamic needs. Considerable empirical research has pointed to a mixture of both criminogenic (i.e., directly related to recidivism outcomes) and noncriminogenic needs (i.e., might be indirectly related to recidivism and/or reflect lifestyle destabilization such as mental health status, concentration in disadvantaged areas, housing instability) that can be targeted during treatment. The RNR framework stresses the importance of programming that targets specific criminogenic needs while providing support services to stabilize other, noncriminogenic needs that can interfere with the offender's change progress. A major barrier that has emerged in the field of corrections is a lack of understanding of the complex interactions among static risk, criminogenic needs, and other relevant destabilizing factors such as mental health status, housing instability, and developmental and maturity levels. This is an area where future research is need. This study illustrates how important a consideration of the three-legged stool (risk, criminogenic needs, and destabilizers) are in advancing correctional programming.

Implications for Practice

Current study findings suggest that differential interventions can be better suited for different profiles of offenders. The LCA analysis revealed four classes of needs and destabilizers that were common within the study sample. The four classes were labeled based on the conditional item probabilities of criminogenic needs and destabilizers among individuals within each class. The four classes were labeled as follows: moderate need with high destabilizers (class 1, 28%), low need with few destabilizers (class 2, 36%), high need with high destabilizers (class 3, 13%), and high need with moderate destabilizers (class 4, 23%). A subsequent analysis of the four latent classes indicated the complexity of needs within risk levels and across demographic characteristics. The fact that some individuals who were classified as low or minimal risk were found to have complex dynamic needs (i.e., were classified in class 3 or 4) indicates that risk is only part of the story. To illustrate, 17.9% of the 2,341 individuals classified in class 3 were either low or minimal risk. This translates into

approximately 419 individuals who displayed the most complex pattern of criminogenic needs and destabilizing factors observed in the study but who might not have been eligible for treatment services in some jurisdictions given that they were classified as lower risk to reoffend. And, in examining the recidivism rates by risk level within class structures, the incremental value of the class structures was demonstrated (Table 8). For minimum-risk offenders in class 3 or 4, the observed 2-year arrest rates were nearly twice as high relative to minimum-risk offenders in class 1 or 2. These findings highlight the importance of considering criminogenic needs as unique constructs and not simply lumping them into a global risk score or category.

The proportion of offenders (36% of the sample when classes 3 and 4 are combined) who are likely to have multiple criminogenic needs and a mixture of destabilizing factors illustrates the difficulties that correctional officers, probation officers, and case managers might encounter in determining which available intervention is most appropriate for each client. The current study findings indicate that most offenders have service provision needs in multiple life domains. The high prevalence of destabilizers (e.g., mental health and housing) across the classes heightens the importance of integrating case-management services within treatment programming and stresses the necessity for the development of interventions that are sensitive to the complexity of offender treatment needs. Practices that do not address life functioning issues either through case management or integrated programming would not be recommended given the prevalence of these destabilizers in the lives of offenders on probation in this sample.

A review of the recidivism rates of each class illustrated that individuals classified in classes characterized by a greater number of needs had higher recidivism rates. For instance, approximately 45% of individuals in class 3 and 38% of individuals in class 4 were arrested for a new offense within 2 years of starting supervision relative to approximately 32% in class 1 and approximately 23% in class 2. This suggests that latent class membership could be useful for both informing treatment placements and predicting recidivism risk. This also demonstrates the importance of prioritizing individuals with multiple needs, regardless of risk level, for rehabilitative interventions.

Informing Differential Intervention Frameworks

As noted, CBT is the preferred treatment orientation based on the confluence of research. The latent classes of dynamic needs identified in the current study can help to inform the content and emphasis of CBT programming. For instance, individuals in class 3 have a high probability of being flagged for a substance abuse treatment need and therefore might benefit from programming that places greater emphasis on addressing substance use disorders. However, individuals in class 3 also presented with relatively high probabilities of antisocial values, peers, and low self-control, as well as a myriad of destabilizers. Accordingly, this class could benefit most from integrated CBT programming that addresses both substance abuse and criminal lifestyle issues. Given the high prevalence of destabilizers in this class, ancillary

services might be needed to help foster desistance from offending for these individuals. Even if specific program content is not varied for this group, it might be efficacious to match these clients to more intensive and comprehensive forensic therapy programs (Polaschek, 2011) with increased dosage (Bourgeon and Armstrong, 2005; Crites and Taxman, 2013; Sperber, Latessa, and Makarios, 2013a, 2013b).

Given the high probabilities of antisocial values, peers, and low self-control in class 4, interventions for individuals in this class should focus primarily on criminal lifestyle (criminal thinking/antisocial values). Because the probability of destabilizers was lower in this class relative to class 3, fewer support services might be needed to bring about sustainable behavior change. Using Polaschek's (2011) CBT framework that suggests varying the intensity of CBT based on risk and needs, individuals in class 4 might be best matched to midlevel multifactorial treatment programs. Programs in this category target high- and moderate-risk offenders and are characterized by medium- to high-intensity CBT (Polaschek, 2011).

Given the lower probability of criminogenic needs but considerable level of destabilizers, interventions for individuals classified in class 1 should focus on social skill development, advocacy, and brokerage of relevant services for improving employment, housing, and basic needs (see Botvin and Wills, 1985; Crites and Taxman, 2013). Interventions for these individuals might fall into the basic-level rehabilitation programs category in the Polaschek (2011) hierarchy of CBT programs. Given the low probability of presenting with criminogenic needs or destabilizers, individuals classified in class 2 should be targeted for limited or no interventions; instead, it might be more appropriate to rely on restorative justice or standard supervision in the community for these individuals.

The current study findings stress the importance of emphasizing criminogenic needs, along with risk factors, in determining the nature and type of programs and controls. If the goal of the RNR model is to target criminogenic needs, then it is important for CBT programming to be tailored and to address specific combinations of needs more accurately. This highlights the need for further development and evaluation of rehabilitative interventions that can deal with the complex array of clinical and criminogenic treatment needs of many justice clients (Taxman et al., 2014). It also highlights the need for advancement of a research agenda that is designed to examine patterns of desistance with an emphasis on the sequencing of different interventions or services (Stephenson, Harkins, and Woodhams, 2013).

Unanswered Questions

An ongoing debate in the field of corrections concerns the content and scoring of risk- and need-assessment instruments. This issue is particularly important for informing policy and practice given the various applications of these assessment tools in the field. One controversial issue is whether risk and needs factors should be combined into a single score to reflect the overall severity of the behavior (dimensional quality) or whether risk and needs

should be separated (categorical quality). In many risk- and need-assessment instruments, such as the Level of Service Inventory-Revised and the Ohio Risk Assessment System, risk- and need-assessment information is summed to create a total risk score. The advocates of this approach suggest that criminal history and criminogenic needs are part of a range of risk factors that are better reflected in a total risk score, even if static risk is more heavily weighted in the scoring. Under this dimensional argument, the number and type of nonstatic factors (dynamic) affect the total picture of the individual. However, Baird (2009) pointed out that when criminal history and dynamic needs are considered simultaneously, risk is potentially inflated by factors that do not universally predict recidivism. A total score might mask the importance of a particular area of need that could be important for informing referral to treatment programs, especially if only a small percentage of the items on a risk- and need-assessment tool are intended to measure that construct.

Regardless of how they are generally used in practice, most third- and fourth-generation risk and needs assessments have the potential to inform intervention placement decisions. Many commonly used instruments include a matrix or some translational tool to help users convert a risk or needs score or profile into a case plan. Other tools use graphic displays of the high-scoring risk or need areas to help facilitate assessment-driven placements. Even with these tools, case planning and treatment matching tends not to reflect the complex nature of the client's risk and need profile. Recent empirical research has found that correctional officers tend to rely heavily on court-ordered conditions in their plans or do not use assessment information at all when developing case plans (Miller and Maloney, 2013; Viglione et al., 2014). A recent qualitative study of probation officer use of risk- and need-assessment tools revealed that advancing the use of assessment tools would require (a) more attention to creating a culture within the organization where officers are comfortable with the tools and with the concepts of dynamic needs, (b) changes in the intake process to allow for better use of assessment information, and (c) educating probation staff on the linkage between offender risk–need profiles and programs that are available to address these needs (Viglione et al., 2014).

Although this study does not directly address the issue of how static risk and dynamic risk should be combined, it does raise some issues for consideration. Foremost, the study findings indicate that multiple classes of offenders might exist within the population of offenders regardless of static risk. These potentially distinct classes would not be detectable based on a dimensional risk score alone. Although risk is essential for predicting recidivism and identifying individuals who should be prioritized for more intensive controls and interventions, it does not identify specific intervention needs and therefore is limited in its utility for informing case-management decisions and the development of effective correctional interventions. Subsequent research is needed to understand whether a dimensional or categorical approach more effectively advances treatment-matching practices.

Limitations

Like any study, this study has limitations that warrant consideration. First, the OTI instrument employed to measure risk in the current study used a total score that combined static and dynamic factors. This limited the ability to examine the independent effects of each type of factor and potentially confounds the distinctions made between static and dynamic risk. Future research should replicate the study methodology with other, more purely static risk measures. Second, the definitions of needs used in the ONA instrument were defined by the correctional agency. Accordingly, it was not possible to test how different definitions of criminogenic needs and destabilizers could have changed the study findings regarding the latent classes that emerged. Some definitions (e.g., substance abuse, mental health, and antisocial values) are broad, and future work should explore the clustering of needs using different measures of needs. Although this might limit the external validity of the study findings, it accurately reflects the measures that are used in the jurisdiction to determine supervision status and make recommendations to treatment. Another limitation is that several cases in the original administrative data files did not have an assessment completed within 90 days of commencement of probation or were missing a matching identifier in the assessment file. This might limit the generalizability of the study findings beyond the cases with full data available. Finally, the data are limited to one state. Given the potentially limited generalizability, additional work is needed to explore whether the latent classes identified here can be replicated in other jurisdictions or using other types of samples.

Conclusions

The RNR framework is well accepted by researchers, practitioners, and policy makers alike. The conceptual model provides a framework for identifying offenders who need more intensive, structured programming. A limitation of the framework as it is currently applied in many jurisdictions is that static risk does not capture the complexity of needs that affect reoffending. The emphasis that is placed on managing offenders based on static risk or a global risk–need score that is primarily driven by static risk detracts attention from the specific criminogenic needs that should be identified to ensure that correctional programming can be effectively tailored. The current study findings highlight the complexity of offender need profiles and the fact that one size cannot fit all when it comes to providing correctional interventions. This study builds on the growing body of literature that advances knowledge beyond the risk principle to consider, for example, the interaction between offender risk and program dosage (Sperber et al., 2013a, 2013b; Taxman, Perdoni, and Caudy, 2013), the sequencing of interventions based on offender risk and readiness to change (Stephenson et al., 2013), and the tailoring of CBT programming to the risk and needs of the individual offender (Polaschek, 2011). Continuation of this line of inquiry is essential for maximizing the effectiveness of correctional treatment in practice. Risk, both static and dynamic, is an essential component of the RNR framework, but it provides

only a foundation on which we must build to improve the effectiveness of correctional interventions and maximize recidivism reductions.

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Detection of Dynamic Risk Factors and Correctional Practice

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Taxman and Caudy (2015, this issue) argue for the utility of basing correctional interventions on individual need profiles as opposed to levels of reoffending risk and lists of risk dynamic factors. Although they acknowledge the value of the risk–need–responsivity (RNR) framework in guiding offender classification and subsequent correctional interventions, the inability of the RNR model to bridge the theory–practice gap is recognized as a major weakness. The problem is that offenders vary in terms of their psychological and social problems, and this variability is often overlooked by correctional jurisdictions that use the RNR to construct policy and programs for offenders. In other words, the RNR is too blunt an instrument to reflect adequately the real-world experiences and treatment needs of individual offenders—treatment needs that span both programs and case management.

Taxman and Caudy’s (2015) response to the problem of offender need heterogeneity is to search for clusters of dynamic risk factors they label “criminogenic needs” and “lifestyle destabilizers.” They believe that the best way to reduce recidivism rates is by developing a more fine-grained understanding of risk profiles and to use the subsequent grouping of offenders to determine the type and duration of intervention packages. To achieve this end, latent class analysis (LCA) was used to detect groups of offenders (from a sample of 17,252 offenders on probation) with similar clusters of needs and lifestyle destabilizers using a risk-assessment scale and measures of 11 classes of dynamic risk factors, including substance abuse, low self-control, antisocial peers, antisocial values, employment education, and family support. The employment of this statistical technique resulted in four groups: class 1—moderate needs with high destabilizers, class 2—low need with few destabilizers, class 3—high need and high destabilizers, and class 4—high need and moderate destabilizers.

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As predicted, classes 3 and 4 had higher recidivism rates and were younger on average than the other two classes.

In this policy essay, I focus on three sets of challenges that emerge from their study. First, what do the results tell us? Second, I examine the conceptual challenges posed by this type of research, centering on the question of the validity of the constructs of dynamic risk factors, criminogenic needs, and lifestyle destabilizers. Third, I discuss the policy implications arising from my examination of the previous two issues.

What Do the Results Tell Us?

Taxman and Caudy's (2015) study is important and innovative. I agree with the authors that generic correctional programs based on simple RNR-type classification protocols are insufficient to guide individual-level intervention and paint with too broad a brush, so to speak. Large-scale studies of this type face difficult problems about how best to construct groups that reflect individual-level variability, deciding what psychometric techniques to use and trying to find the balance between risk management and responding to offender needs.

It is apparent that the LCA has identified four groups that differ in their levels of risk, need, and destabilizers. This significant achievement promises to streamline allocation of individuals to relevant intervention programs. The decision to use a combination of dynamic risk factors and static risk variables to identify underlying clusters makes sense given the transparency of the data analyzed and the fact the measures that yield it are routinely employed in correctional services. However, to understand the process of discriminating between groups of offenders, we need to know whether the resulting clusters really point to genuine underlying differences in causal processes. This is important, as the formulation of intervention plans relies on causal assumptions concerning the nature of offence related dispositions and their relationship to relevant contextual variables (Ward and Beech, 2014). There is still much we do not know about the nature of dynamic risk factors. That is, we do not know how—or even if—the dynamic risk factors within each cluster interact and whether they are causally linked or simply “comorbid” factors. In other words, why are these groups the way they are? Relatedly, the union of the dynamic risk factors within each group and their relationship with subsequent reoffending is simply statistical, not causal. All we know is that that they occur together not that they actually cause reoffending. Therefore, their relevance for treatment remains uncertain.

A challenge all empirical researchers confront when using risk-related measures to construct typologies is how to come up with something meaningful. For Taxman and Caudy (2015), this has been especially difficult because of the reliance on what are essentially different types of risk factors. The measures used to derive the groups are all credentialed dynamic risk factors, and as such, they predict recidivism to varying degrees of accuracy. Thus, the division into separate risk/need and destabilizer categories, while potentially valuable, is a little misleading. Because Taxman and Caudy view dynamic risk factors

as needs rather than as indicators of risk (which they are) and then break them into criminogenic needs and destabilizers, they artificially create two types of constructs that are used to construct four groups. Really, only static risk plus dynamic risk factors exist. Because dynamic risk factors *are risk predictors*, it is odd then to examine their relationships to reoffending and well-known correlates such as age. Of course, they predict reoffending, we already know that. Second, this is confirmed by the fact that clusters 3 and 4 have the highest chances of reoffending and inspection reveals they comprise individuals with more dynamic risk factors and who are younger: a well-established finding. I suggest that one way out of this impasse is to examine dynamic risk factors critically and reconstruct them theoretically by reference to empirical research and models of the offense process (see the next section).

A final issue concerns the nature of the measures used to construct the four classes. A lack of inter-rater reliability coefficients and information on the content validity of the various measures of the 11 dynamic risk factors is problematic. It is unclear whether the allocation of individuals into criminogenic needs or destabilizer bands is accurate and whether the scales are valid measures of the factors in question. To their credit, Taxman and Caudy (2015) acknowledge this weakness in their study but could have more fully addressed the issue of validity.

Dynamic Risk Factors, Criminogenic Needs, and Lifestyle Destabilizers

In my view, the most interesting questions about Taxman and Caudy's (2015) study relate to its conceptual distinctions among dynamic risk factors, criminogenic needs, and lifestyle destabilizers. Although I understand the reasons why they have divided the key ideas up in this way, I have doubts whether this is theoretically the best way to do it. The concept of dynamic risk factors refers to the changeable psychological, environmental, and social aspects of offenders and their lives that predict the reoccurrence of offending (Ward and Beech, 2014). They are not needs in any straightforward therapeutic sense but are factors statistically associated with recidivism. The problem faced by correctional researchers and practitioners is that construing dynamic risk factors as needs is misleading and, from a practice viewpoint, not that helpful.

The distinction between criminogenic needs and destabilizers seems to be based on their assumed causal (direct or indirect) pathways to reoffending and on the strength of their association with reoffending. Thus, criminogenic needs can be viewed as crime-related dispositions that destabilizers trigger to result in crime. For example, sex offenders who struggle to regulate (disposition-criminogenic need) negative mood states might offend when confronted with interpersonal rejection (trigger-destabilizer). After reading Taxman and Caudy's (2015) article, I was left uncertain which of these possibilities underpins their distinction between the two constructs. Establishing the existence of direct or indirect pathways requires the specification of causal mechanisms and experimental manipulation, which is a difficult conceptual and empirical task. Although basing the distinction solely on

the strength of the statistical association between dynamic risks factors and recidivism is a bit more straightforward, ultimately it does not get us what we want. It really collapses into the task of sorting dynamic risk factors into predictive classes; there is not a need to refer to causal pathways in prediction contexts. The authors face this problem because the concept of criminogenic need is especially slippery and needs to be rethought.

In my view, one way forward is to grasp the nettle and to question the commonly accepted assumption that dynamic risk factors exist outside prediction contexts. Taxman and Caudy (2015) seem to assume that the concept of dynamic risk factors and, by implication, those of criminogenic needs and lifestyle destabilizers are valid constructs and refer to real psychological and social processes. In this they are not alone as it is the default assumption of the majority of researchers, policy makers, and practitioners in the correctional area. For example, in the sexual offending domain, theorists routinely recruit dynamic risk factors to explain the onset and reoccurrence of sexual offending, and practitioners use them in assessment and treatment planning (Ward, 2014). Although at face value this makes sense, I think it is incorrect; once taken out of the context of risk assessment and prediction, dynamic risk factors have little explanatory or clinical value. A close analysis reveals that they are *composite constructs* containing a heterogeneous mixture of social, behavioral, and psychological indicators (some of which fail to cohere together), and dynamic risk factors consist of both causal and state components or causes and surface attributes (Ward and Beech, 2014). Dynamic risk factors do not exist in the form they are typically stated.

Dynamic risk factors and their subclasses of criminogenic needs and lifestyle destabilizers are useful predictive devices, but they cannot really explain offending or directly inform treatment. Because Taxman and Caudy (2015) have approached the problem of identifying individuals' clusters of need from a psychometric viewpoint and through a risk-management lens, it is easy to overlook this possibility. The issue of dynamic risk factors' composite nature has significant implications for their usefulness in both theory construction and clinical case formulations. Dynamic risk factors are of instrumental value in risk-assessment contexts and do an excellent job of flagging problems confronting offenders and in augmenting risk prediction. But if incorporated into explanations and clinical case formulations unmodified, they exceed their epistemic warrant, so to speak. They then become fictitious entities. Because dynamic risk factors do not strictly exist, it is unhelpful to investigate their relationship with protective other risk and offense-related variables. It also means that we should be careful in concluding from their predictive utility that they can be applied in the risk-assessment context in any straightforward sense. Borsboom (2005: 158) captured this issue nicely when he asserted:

If a term is treated as referential but has no referent, then one is reifying terms that have no other function than that of providing a descriptive summary of a distinct set of processes and attributes. For instance, one then comes to treat

a name for a group of test items as if it were a common cause of the item responses. That of course is a mistake.

If no attribute answers the referential call the test is not valid for measuring that attribute no matter how useful the test may be for prediction, selection or how well it may fulfill other functions.

Therefore, what the LCA tells us is that there are four classes, each composed of individuals who share common features. The degree to which dynamic risk factors used to construct the groups are actually causes of offending and therefore should be used to structure correctional interventions is still up in the air. What is needed to bridge the conceptual gap between risk assessment and intervention is a model that depicts their causal role in offending (Durrant and Ward, in press; see the next section).

What Are the Policy Implications for Intervention?

Taxman and Caudy (2015, this issue) make several excellent points about the need to have a more fine-grained understanding of individuals' array of dynamic risk factors to steer assessment and interventions with individuals in prisons and on probation. However, their understandable assumption that dynamic risk factors and the allied concepts of criminogenic needs and lifestyle destabilizers can be directly translated into policy and practice is problematic. Evidence-based practice relies on clinical judgment and attention to offender priorities and preferences alongside the use of empirically supported interventions. Individuals' core commitments, aspirations, risk factors, strengths, and hopes for the future all should be factored into their intervention plans (Gannon and Ward, 2014).

Dynamic risk factors in the correctional domain are intended to predict harm related to reoffending, typically to victims and the community. Protective factors are features that lessen the chances of risk factors having this effect, or more generally, if present they reduce the likelihood of offending occurring. I propose that it is a good idea to *flip* things around and start with the personal and contextual factors referred to by both dynamic risk factors and protective factors (for a detailed description of an agency model of risk, see Durrant and Ward, in press). In my view, they refer to the components of agency: 1) goals, plans, and strategies; 2) implementation and evaluation; and 3) the subsequent revision of goals and plans. Furthermore, in our recent *Agency Model of Risk* (Durrant and Ward, in press) model, there are three levels of agency, each associated with its own distinct set of goals, plans, and strategies, and each capable of influencing the other types of agency (see the next section): system level, social role, and personal. The type of goals offenders possess and the plans they construct to achieve their goals and to evaluate their effectiveness are partly a function of the contexts in which they live and the resources available to them. Dynamic risk factors can be viewed as flaws in their functional capacities, social supports, and opportunities.

Thus, dynamic risk factors once broken down into their causal elements can be viewed as psychological and social processes (i.e., those associated with goals, plans, strategies,

and action implementation) that impair normal functioning and hence disrupt persons' internal and external relationships to their social, cultural, and physical environments. This disruption can be at multiple levels and even can be confined to incorrect actions within a single practice (e.g., relationship repair). Protective factors, once stripped down into their core elements, work in multiple ways across the various levels of agency to inhibit and/or disrupt dysfunctional systems, and to restore normal functioning. Sometimes, the constraints exerted by protective factors are external, such as the construction of supportive social networks around high-risk offenders.

The implications of this depiction of dynamic risk factors and their division into criminogenic needs and lifestyle destabilizers are far reaching. It suggests that LCA of the type performed by Taxman and Caudy (2015) is an important *first step* in developing an understanding of offending and in the formulation of individual intervention plans. It moves us well beyond the limitations of a one-size-fits-all approach to correctional programming. The next, and I think especially crucial, step is to reconceptualize dynamic risk factors in the manner outlined earlier. For example, the dynamic risk factor (criminogenic need) of intimacy deficits in sex offenders can be understood as 1) maladaptive beliefs and norms concerning relationships (e.g., adults are untrustworthy); 2) interpersonal and emotional regulation strategies that damage relationships with adults (e.g., do not talk about feelings and avoid social contact with adults) and that isolate individuals from social support; and 3) the active search for, and construction of, social environments in which such individuals feel comfortable and where their needs seem to be met (e.g., pedophilic networks and spending a lot of time with vulnerable children). The idea is to break down dynamic risk factors into several causal elements that in certain environments create, and maintain, antisocial values or behavior. Furthermore, it then becomes much easier to dig beneath the surface to redirect research and practice to relevant targets.

Conclusions

Taxman and Caudy (2015) make a strong case for the value of identifying different clusters of needs in offenders to inform policies concerning crime prevention and practice. I am strongly supportive of their overall approach to needs analysis, although I view it only as a first step. The policy implications of Taxman and Caudy's (2015) argument are numerous, and I will focus only on a few. First, it is important to make sure risk management and correctional interventions are not conflated; they refer to distinct and equally valuable domains of practice. At the moment, there is a real danger of this problem occurring. Second, correctional programs and intervention plans should be based on approach goals that are responsive to offenders' individual needs and priorities while reducing risk. Third, there should be a move toward evidence-based practice, in the broadest sense of that concept, in the training of practitioners and setting of research agendas. Correctional policies should aim to develop practitioners who have the expertise to make informed judgments about the unique causal factors underpinning offenders' crimes and to translate

their priorities into goals that are prosocial, risk reducing, and personally meaningful to the individual concerned. Finally, the trend to identify need-based groups of offenders should be strongly encouraged. Such an initiative is likely to result in more motivated individuals and fewer treatment dropouts. In my experience, offenders are looking for programs that promise them the possibility of better lives, not simply the promise of less harmful ones.

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Needle in a Haystack

Logical Parameters of Treatment Based on Actuarial Risk–Needs Assessments

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Risk/needs assessments continue to dominate correctional management and programming. Although the science behind them is known to be imprecise, actuarial assessments are routinely adopted and rigorously defended. A polarized debate has emerged between those who promote actuarial assessments and their continued refinement and those who question the epistemological basis of this practice and/or advocate for blended models that integrate empirically structured assessment and discretion (Falzer, 2013; Hart and Cooke, 2013; Neller and Frederick, 2013; Rossegger et al., 2013).¹ Within this context, researchers and practitioners recognize the complexity involved in issues such as treatment, desistance, and recidivism.

Taxman and Caudy (2015, this issue) tackle some of the complexities associated with attempts to match programs and offenders in a meaningful way, and they call for a better understanding of the “comorbidity of criminogenic needs” (i.e., the number of, interactions between, and salience of these needs). Taxman and Caudy explore how risk/need profiles can be assessed and individualized to improve the efficacy of correctional programming. Specifically, they argue that offenders vary considerably in terms of risks/needs and that non-criminogenic destabilizing factors (e.g., employment problems, housing, and educational deficits) should also be considered, adding more complexity to the task of assessing appropriate programming. They apply the statistical technique of latent class analysis to explore whether and how needs may cluster to identify common need profiles that can inform case management and treatment interventions. The idea of tailored treatment interventions is

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1. This debate is especially salient in the area of predicting violence or sexual offending.

reasonable and should be part of effective case management. Taxman and Caudy also make good points about the timing and sequencing of interventions to maximize their effects.

In principle, I agree with Taxman and Caudy's (2015) suggestion that individualized treatment plans are more likely to succeed than treatment assignments that are not focused on specific need profiles. This basic premise is behind most case-management approaches informed by feminist, Aboriginal, and some social work theory, wherein the goal is to contextualize each offender's needs and appropriate treatment. However, these largely qualitative (but empirically informed) holistic approaches have often been critiqued for being nonscientific, subjective, and unverifiable (Van Voorhis, 2012). Empirical research (both quantitative and qualitative), evidence-informed practice, well-executed needs assessments, and the prudent use of scarce treatment resources are certainly important. However, I must question the persistent focus and framing of treatment based on increasingly sophisticated, actuarially derived risk/needs assessments that are too often interpreted by practitioners and policy makers as effective ways to assess "what works" to reduce recidivism—at the expense of other forms of knowledge and informed discretion.

The following discussion will explore some concerns related to quantitatively refining and categorizing clusters of needs to target treatment more precisely and thereby reduce recidivism measurably. My first concern relates to the current state of our ability to predict. Before committing to determining how needs can cluster, it seems reasonable to ensure that knowledge about the needs of offenders can even help distinguish which offenders will or will not reoffend. This issue is still the subject of much debate (which itself usually ignores issues such as how race and gender can affect criminogenic needs; see Van Voorhis 2012). The criminogenic qualities of structural or destabilizing factors are also the subject of debate: These may be beyond Taxman and Caudy's (2015) scope but still are crucial factors when crafting specialized needs-based interventions. My second concern relates to how practitioners engage with risk/need predictions, specifically how a focus on needs is conflated with risk if they remain unmet and, therefore, typically contributes to increased scrutiny and surveillance. My third concern is related to the need to consider how agency and individuality can introduce elements of uncertainty. My fourth and final concern relates to how this kind of research could inform policy recommendations and specifically how it differs from (or supports) longstanding holistic models and a growing body of desistance research that situates human needs within a wider context.

Once Again: Race, Gender, and Risk

The concept of "criminogenic need" has rarely been deconstructed in empirical research. Researchers often have used established universal criminogenic need categories without a comprehensive analysis of how needs involve different meanings for different subgroups. Researchers focusing on risk/need in correctional populations must acknowledge the gendered and racialized socioeconomic constraints that contribute to conflict with the law and affect how offender populations are defined, assessed, targeted, and managed. Although

Taxman and Caudy (2015) refer to the role of “destabilizing factors,” their primary objective is to improve needs assessment, with the objective of improving treatment interventions informed by cognitive behavior techniques. They do not discuss how gender or race informs needs (and, in turn, the risk of recidivism) or exacerbates destabilizing factors, nor do they discuss the inadequacy of research about how issues related to gender and race inform treatment and influence primary assessments of risk and need. Researchers have been increasingly focusing on how understandings and assessments of risk/needs are informed by race and gender (Hannah-Moffat and Maurutto, 2010; Harcourt, 2010; Raynor and Lewis, 2011). Most risk/needs assessments and meta-analyses that inform “what works” models use data collected from largely White male correctional populations. Few studies have used representative samples of women and minorities; more commonly, they inappropriately have generalized findings to women and minorities, and have dismissed the methodological problems that could affect the validity of assessments and standardized treatment approaches (Hannah-Moffat, 2006, 2013; Holtfreter and Cupp, 2007; Kreis, Schwannauer, and Gillings, 2014; Taylor and Blanchette, 2009; Van Voorhis, 2012). Risk/need research has demonstrated that racial minorities have different self-reported needs (Gavazzi, Yarcheck, and Lim, 2005; Mitchell, 2005) and different experiences of victimization and criminalization (Ghandnoosh, 2014), and that race and ethnicity can influence how practitioners attribute risk factors to offenders (Harcourt, 2007; Hudson and Bramhall, 2005; Martel, Brassard, and Jaccoud, 2011). It is important to focus more closely on, and possibly modify, our understanding of “criminogenic needs.” As in larger society, gendered and racialized experiences fundamentally shape the identities, opportunities, and experiences of offenders: “[I]t is impossible to treat individuals fairly if they are treated as abstractions, unshaped by their particular contexts of social life” (Hannah-Moffat, 2009: 215). Meaningfully integrating elements related to race and gender will improve the construction and predictive validity of assessments, and ultimately it will lead to more meaningful treatment options.

Enhancing the Science of Prediction and Mediocre Interpretations

More complex assessment methods could result in more precise interventions and reductions in recidivism. However, in Taxman and Caudy’s (2015) study, the focus is less on the scientific merits of this study and more on its potential practical application. Regardless of their level of sophistication, all risk/needs assessments produce probabilistic scores: They are not causal or precise. Prediction, by definition, is uncertain. Unfortunately, practitioners in many contexts have difficulty interpreting risk/needs scores. Practically, these scores and their accompanying quantifications of “need” serve as prescriptions for correctional treatment, not as probability scores. The “abstract” risk/need score is converted into a correctional artefact that enables the efficient management of offender populations and resources and defines a person’s criminal justice experiences (Hannah-Moffat, 2013). This focus on actuarial assessments decontextualizes and deindividualizes by shifting the focus

away from the individual offender and his or her responsibility and toward the overall management of correctional populations (see also: Wandall, 2006).

Ample research has established the superiority of actuarial prediction over clinical discretion, but equally rigorous research has shown how actuarial instruments “black box” subjective and discretionary decisions (Falzer, 2013; Hannah-Moffat, Maurutto, and Turnbull, 2009), which means that the information and process used to score the criteria itemized in each risk or need category is not consistent or transparent to anyone but the assessor. The only thing provided is the score or priorities produced by the assessment tool. Goddard (2014) noted that risk/need classification is a “complex unresolved social construction predicated on a mixture of political, cultural, institutional and personal factors” and that policy and practitioners at all levels prioritize or deemphasize factors in accordance with wider organizational objectives (Goddard, 2014: 5; cf. Miller and Maloney, 2013). Risk/need assessments are not only variably interpreted (Knighton, Murrie, Boccaccini, and Turner, 2014) and misunderstood by many, but also they are used instrumentally to justify or discontinue programs. Although Taxman and Caudy (2015) cannot control how their research informs practice, it is critical to consider the effects of arguing for using risk/needs assessments to assign more or less programming in a climate where there is considerable slippage between “risk” and “need,” and where high levels of need (especially around mental health issues) are repositioned as high levels of risk.

Based on their findings, Taxman and Caudy (2015) posit that one “unanswered question” is whether risk and need assessments should be combined into a total risk score (as done in the Level of Service Inventory–Revised; LSI-R). They refer to methodological reasons for differentiating between static risk and dynamic needs, but I argue that this distinction is also conceptually important. For example, my previous research has demonstrated that such combinations are problematic because conflating “risk” with “need” often results in a slippage and fusion between risk and need: It can become difficult to distinguish between the two, which may result in an elevated risk classification (Hannah-Moffat, 2004; Maurutto and Hannah-Moffat, 2006). It is important to separate risk and needs because the logic of each informs a different administrative and managerial approach (security versus welfare). Additionally, it is crucial to recognize the criminogenic aspects of “destabilizing factors,” which rarely are the focus of correctional treatment largely because correctional systems are responsive and not positioned to remedy the deep systemic inequalities that can encourage recidivism.

What About Individual Agency?

Individual agency is another important factor. Although Taxman and Caudy (2015) correctly focus on the complexity of individual needs and how particular needs intersect, they did not comment on individual motivation to engage in treatment. Intention to reform, commitment to change, and timing of interventions are crucial features of recidivism or compliance. Although predictions can be refined, even the most statistically sophisticated

and methodologically sound instruments cannot account for the complexity of choices made by individuals in complicated social contexts.

Is the proliferation and sophistication of risk/need assessment more about refining knowledge of who will recidivate, or is it more about the “empirically defensible” management of a carceral population? Practitioners and academics might be trying to find ways to “help” offenders by determining “what works,” but in reality the answer does not rest solely in the individual. The “what works” movement has resulted in the retention of correctional programming in many jurisdictions: In some instances, it has tempered more punitive turns toward penal austerity, warehousing, and inhumanity by encouraging the continuation of addictions, mental health, vocational and educational programming, and other forms of treatment. However, risk/need assessments generally fail to situate assessments and related interventions within a wider racialized, gendered, and stratified social context. I am not convinced that more robust risk/need assessments and the resulting targeted interventions will reduce recidivism, especially when this kind of approach can quickly be reconfigured into more conditions for offenders—which can lead to increased surveillance, a greater likelihood of breaches, and even elevated assessments of risk if offenders choose not to comply with or are not “ready” for treatment.

The logic of targeted risk/need assessment as presented by Taxman and Caudy (2005) parallels the logic of holistic approaches that can help situate offenders’ needs and integrate professional discretion into treatment priorities and allocations. Taxman and Caudy refer to the need to “prioritize individuals with multiple needs, regardless of risk level for rehabilitative interventions” and to “integrate case management services within treatment programming and stress the necessity for development of interventions that are sensitive to the complexity of treatment needs.” This logic would elevate service to individuals based on their criminogenic needs. However, in this context, “criminogenic needs” are predetermined factors that are statistically correlated with recidivism in aggregate offender populations: Need is not individualized, contextualized, or self-reported (Hannah-Moffat, 2004). Ward and Stewart (2003) and others have challenged researchers and practitioners to embrace an “enriched concept of needs” that incorporates the idea of human well-being and the importance of context, individuality, and the limits of actuarial methods. This kind of approach can help reduce recidivism by providing a coherent conceptual basis for rehabilitation. Specifically, it can expand the concept of need by assessing not only how need equates to recidivism but also how internal and external factors contribute to an individual’s reformatory capacities. Increased appreciation and dialogue between seemingly divergent scholars (desistance, risk/need, gender or racially informed holistic approaches) could enhance current debates, since each are concerned with enhancing correctional program delivery.

Do We Need a More Complex Risk/Need Matrix?

My concerns do not simply relate to the methodological, ideological, or even disciplinary dissimilarities in how we understand and measure offending and/or formulate correctional

interventions. The real issue is whether such refinements are even needed: Do we need actuarial tools to identify needs that require interventions to reduce recidivism? Clearly, it is exceptionally difficult to know with any certainty what may help reduce recidivism at the individual level. Empirical research has shown that offender motivation and other responsibility factors affect recidivism (Andrews, Bonta, and Wormith, 2006) and that careful matching of needs to interventions can reduce recidivism (Vieira, Skilling, and Peterson-Badali, 2009). However, more complex need frameworks may have less practical salience than the reintroduction of well-constructed holistic assessments, along with dialogues with offenders that allow them to self-identify their own needs, as well as motivations and barriers related to treatment. Holistic approaches are often dismissed as nonscientific, but they can provide considerable insight into the uncertainties inherent to predicting risk/need.

One possible reason for the general aversion toward offender-driven assessments and more “subjective” assessments/interventions is that these might reveal structural limitations and disincentives to compliance—and how clearly *criminogenic* the “noncriminogenic” destabilizing factors (e.g., employment problems, housing, and educational deficits) actually are. Thus, the recent emphasis on desistance-based and strength-based approaches, versus deficient approaches such as understanding “what works,” offers practitioners novel space for innovation. Emerging research (which includes a significant body of gender-responsive and culturally specific literatures) is moving away from individual pathology and instead stressing the importance of larger social contexts and conditions required to support change (Bloom, Owen, and Covington, 2003; Farrall, Bottoms, and Shapland, 2010; Farrall and Mauruna, 2003; Hannah-Moffat, 2006, 2009; McNeill, 2003; Ward and Maruna 2007; Ward, Melsler, and Yates, 2007).

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EDITORIAL INTRODUCTION

MATERNAL INCARCERATION AND CHILD WELLBEING

Promoting Child Wellbeing Among Children Who Experience Maternal Incarceration

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It is my pleasure to introduce an excellent research article and two highly thought-provoking commentaries on the topic of maternal incarceration and child wellbeing, a policy concern of increasingly important significance. Despite mothers comprising less than 5% of the prison population in the United States, the number of children who have experienced a mother undergo incarceration numbers into the hundreds of thousands. In 2007, Glaze and Maruschak (2008) estimated that approximately 147,000 children had a mother incarcerated in state or federal prison. The cumulative estimate is likely much larger. Wildeman (2009) has estimated that approximately 0.6% of all White and 3.3% of all Black children born in 1990 experienced a mother undergo incarceration. Assuming these percentages apply to the population of children younger than 18 years of age in the United States in 2010, approximately 328,000 White and 373,000 Black children will have experienced a mother undergo incarceration before reaching their 15th birthday.¹ Such numbers, along with an array of related economic, behavioral, and health risks these children face, emphasize the national importance of adopting evidence-based policies and interventions that reduce adverse outcomes for children who experience maternal incarceration.²

Although broad agreement might exist for generating policy and programs that reduce adverse effects, developing research that has direct policy implications related to maternal incarceration is a much more difficult task. Through their thoughtful and rigorous analysis,

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1. The numbers are derived by multiplying Wildeman's (2009) percentages with the U.S. Census Bureau's (2014) report for the numbers of White and Black children residing in the United States on July 1, 2010. Racial populations include those of Hispanic origin.
2. For an overview of these risks, see Murray, Bijleveld, Farrington, and Loeber (2014).

Turney and Wildeman (2015, this issue) examine children from the Fragile Families and Child Wellbeing Study who have experienced maternal incarceration. Using propensity score modeling to control for several potential confounding variables such as poverty, prenatal drug use, and family instability, the authors demonstrate that early maternal incarceration is associated with behavioral problems, cognitive ability, and early delinquency. Turney and Wildeman also observe surprising “heterogeneous” effects, in which maternal incarceration is associated with these adverse outcomes among children with mothers at “lower risk” for incarceration. Conversely, the effect of maternal incarceration is observed for children with mothers at higher risk for incarceration. It is important to note that, despite the rigor and importance of their research, Turney and Wildeman’s findings are limited by factors such as potential selection bias associated with nonrandom attrition, survey design, and inability to randomly assign incarceration for propensity score modeling.

In their thoughtful responses, Giordano and Copp (2015, this issue) and Arditti (2015, this issue) use their extensive expertise on maternal incarceration to address study limitations, and their responses delve into etiological causes and potential interventions that lead to adverse outcomes in children. Drawing from a two-decade study of delinquent children who have experienced parental incarceration, Giordano and Copp (2015) develop the concept of “packages of risk” faced by children of incarcerated mothers. To some degree, all children with an incarcerated mother have multiple risks associated with subsequent adverse outcomes. However, for children with “higher risk” mothers, Giordano and Copp note that maternal incarceration marks a host of overlapping issues that include factors such as family disruption, exposure to maternal drug use and antisocial behavior, domestic violence, and economic strain. These factors could make maternal incarceration inconsequential or even beneficial to these children. Consequently, policies that simultaneously address multiple, overlapping risks are needed to benefit these severely disadvantaged children. Giordano and Copp note examples where a mother’s behavior could negatively influence her child (e.g., drug use and criminality); consequently, incorporating policies such as regular drug testing and treatment for deviant behavior may benefit children if a mother is subsequently given custody of her children after release from prison.

Noting that researchers might reasonably expect maternal incarceration to harm all children, Arditti’s (2015) policy essay focuses on the role of family processes that might lead to heterogeneous effects among children. Arditti notes how issues such as father incarceration, interparental conflict, or a reduced quality of mothering could result in the period of pre-maternal incarceration actually constituting a less stable and more stressful environment for the child. Consequently, for higher risk mothers, maternal incarceration may lead to null effects by being indicative of a transition into a more stable, supportive environment for the child. A second potential explanation for these heterogeneous effects is advanced through recent research suggesting that more disadvantaged children and families can become more resilient to the effects of a mother undergoing incarceration. For example, resilience can increase when children are more likely to establish close relationships with

alternative mother figures, and extended kin networks become much more intimately involved in the daily care of the child. Despite such adaptations, Arditti notes that the most disadvantaged children could remain the most in need of policies that ameliorate the many issues that accompany maternal incarceration.

Reading the Turner and Wildeman (2015) article and the subsequent responses, I am struck by the extent to which Arditti (2015) and Giordano and Copp (2015) provide context and interpretation for Turney and Wildeman's work. I suggest further research is needed to unpack the layers of risk that encompass children who experience maternal incarceration. Outside of the body of research on maternal incarceration, a large body of research has focused on "toxic stress" and adverse health, developmental, and behavioral issues such as those examined by Turney and Wildeman. This body of research has explored factors such as family instability and abuse, but it includes a range of additional stressors such as prenatal stress, genetic propensities, institutional neglect, and exposure to heavy metals (e.g., lead), which lead to adverse developmental and behavioral issues in children (Johnson, Riley, Granger, and Riis, 2013). As Johnson et al. noted, the effects of toxic stressors may be effectively reversed by programs that, for example, treat postpartum depression and promote stable, nurturing bonds between caregivers and children. Through basic research and investigation of policy-relevant programs, researchers can help policy makers establish evidence-based programs and policies that are tailored to address the unique circumstances of each child experiencing maternal incarceration.³ In doing so, the adverse outcomes associated with maternal incarceration can be ameliorated, irrespective of the mother's risk for incarceration.

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3. For a listing of many promising programs of proven efficacy that can be adapted to treat children of incarcerated mothers, see *Blueprints for Healthy Youth Development* at blueprintsprograms.com/.

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Detrimental for Some? Heterogeneous Effects of Maternal Incarceration on Child Wellbeing

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Research Summary

We use data from the Fragile Families and Child Wellbeing Study ($N = 3,197$) to consider the heterogeneous effects of maternal incarceration on 9-year-old children. We find that maternal incarceration has no average effects on child wellbeing (measured by caregiver-reported internalizing problem behaviors, caregiver-reported externalizing problem behaviors, Peabody Picture Vocabulary Test-Third Edition scores, and child-reported early juvenile delinquency) but that the effects vary by mothers' propensities for experiencing incarceration. Maternal incarceration is deleterious for children of mothers least likely to experience incarceration but mostly inconsequential for children of mothers more likely to experience incarceration.

Policy Implications

It is important that public policies take into account the fact that not all children experience similar effects of maternal incarceration. For children of mothers who are unlikely to experience incarceration, the negative consequences of maternal incarceration could be driven by at least three factors, all of which may operate simultaneously and all of which potentially call for different policy interventions: (a) jail incarceration

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as opposed to prison incarceration, (b) incarceration for a crime that did minimal—or no—harm to their children, and (c) inadequate family supports for coping with maternal incarceration. We discuss these policy implications.

Keywords

maternal incarceration, parental incarceration, child wellbeing, heterogeneous treatment effect models, public policy

In response to dramatic, highly concentrated increases in the American incarceration rate throughout the last four decades (e.g., Bonczar, 2003; Sampson and Loeffler, 2010; Western, 2006), scholars have developed an acute interest in the growing, yet recently stabilized, population of children who experience parental incarceration (Wildeman, 2009). Most of this research has explored the intergenerational consequences of *paternal* incarceration (e.g., Foster and Hagan, 2007; Geller, Cooper, Garfinkel, Schwartz-Soicher, and Mincy, 2012; Hagan and Foster, 2012a; Murray and Farrington, 2005, 2008; Roettger and Boardman, 2012; Roettger and Swisher, 2011; Wakefield and Wildeman, 2011, 2013; Wildeman, 2010), which is unsurprising given that children have a much higher cumulative risk of experiencing paternal, rather than maternal, incarceration (Wildeman, 2009).

But recent decades have witnessed striking relative increases in *maternal* incarceration, especially among poor and minority children (Wildeman, 2009), and accordingly, a burgeoning literature has considered the intergenerational consequences of maternal incarceration (for reviews, see Arditti, 2012a, 2012b; Eddy and Poehlmann, 2010). Quantitative research in this area often has estimated the average effects of maternal incarceration on indicators of child wellbeing including internalizing and externalizing problem behaviors, test scores, and delinquency (e.g., Cho, 2009; Dallaire, Zeman, and Thrash, 2014; Foster and Hagan, 2013; Hagan and Foster, 2012b; Poehlmann, 2005; Wildeman and Turney, 2014). Some of this research has found that maternal incarceration, on average, is detrimental to children (Hagan and Foster, 2012b), whereas other research has suggested it is inconsequential (Wildeman and Turney, 2014) or dependent on the outcome (Foster and Hagan, 2013; Lee, Fang, and Luo, 2013; Murray, Farrington, and Sekol, 2012). The variation in the effects of maternal incarceration is strikingly apparent in the rich and textured qualitative literature (Arditti, 2012a; Giordano, 2010; Siegel, 2011; Turanovic, Rodriguez, and Pratt, 2012).

Despite compelling indications of heterogeneous effects within qualitative research studies, as well as inconsistency in the direction, magnitude, and statistical significance of findings across quantitative research studies, no broadly representative quantitative research has provided a systematic examination of the heterogeneous effects of maternal incarceration on children's problem behaviors, test scores, or delinquency. Therefore, in this article, we use data from the Fragile Families and Child Wellbeing Study (FFCWB), a birth cohort

of children born to mostly unmarried parents in urban areas, and a series of propensity score matching techniques to consider whether the effects of maternal incarceration vary by the social contexts that shape children's likelihoods of experiencing maternal incarceration. Specifically, we consider heterogeneity in the effects of maternal incarceration, according to maternal propensities to experience incarceration, across four indicators of wellbeing in middle childhood: caregiver-reported internalizing problem behaviors, caregiver-reported externalizing problem behaviors, Peabody Picture Vocabulary Test-Third Edition (PPVT-III) scores, and child-reported early juvenile delinquency. Although these data have been used extensively to consider the effects of paternal incarceration on children, few researchers have considered the effects of *maternal* incarceration (see Geller, Garfinkel, Cooper, and Mincy, 2009; Wildeman and Turney, 2014), and no studies using these data have considered variation in the relationship between maternal incarceration and children's wellbeing by the propensity for experiencing maternal incarceration. This lack of research is a missed opportunity on the research side as these data include established measures of wellbeing in middle childhood contain a large number of children exposed to maternal incarceration, and include incarcerated mothers who are demographically similar to mothers incarcerated in jails, state prisons, and federal prisons (Wildeman and Turney, 2014). It also represents a missed opportunity on the policy side, as identifying effect heterogeneity in the consequences of maternal incarceration also could provide guidance about which types of maternal incarceration policies might harm children, benefit children, or be inconsequential for children.

The results suggest that the effects of maternal incarceration on wellbeing in middle childhood are strikingly heterogeneous. For three of the four measures considered (caregiver-reported internalizing problem behaviors, caregiver-reported externalizing problem behaviors, and child-reported early juvenile delinquency), maternal incarceration is damaging for children of mothers unlikely to experience incarceration. The effects of maternal incarceration, for these children, are pronounced, corresponding to between two fifths and three fifths of a standard deviation difference from their counterparts without incarcerated mothers. But maternal incarceration exerts no independent effect on children of mothers more likely to experience incarceration. By providing the first broadly representative quantitative evidence documenting heterogeneous effects of maternal incarceration on children, this study helps rectify divergent findings about the average effects of maternal incarceration (e.g., Foster and Hagan, 2013; Hagan and Foster, 2012b; Huebner and Gustafson, 2007; Wildeman and Turney, 2014), advances our understanding about how the consequences of incarceration may vary across social contexts, and provides novel insights for policy makers.

Understanding Heterogeneity in the Effects of Maternal Incarceration

The inattention of prior quantitative research to systematically documenting the heterogeneous effects of maternal incarceration on child wellbeing is an unfortunate oversight

for at least three reasons. First, qualitative research has suggested that the effects of maternal incarceration are not identical (or even similar) for all children. Second, quantitative research, which has relied on samples that are varied in the proportion of children who experience maternal incarceration (as well as in the rigor of statistical methods employed and the extensiveness of controls included), has come to conflicting conclusions regarding the average effects of maternal incarceration. Third, many critical of research on the intergenerational consequences of parental incarceration have maintained that negative effects of parental incarceration are, at best, implausible for the most destructive parents (e.g., Giordano, 2010; Johnston, 2006; Sampson, 2011).

We discuss these three points in the following discussion.

Heterogeneity in Qualitative Research

First, and most importantly, it is important to document systematically the heterogeneous effects of maternal incarceration on children because qualitative research consistently has suggested considerable variability in effects (Arditti, 2012a; Siegel, 2011; Turanovic et al., 2012). For example, several in-depth qualitative examinations have provided evidence that maternal incarceration—through some combination of parental absence, emotional trauma, caregiver instability, or stigma—is harmful to children (Arditti, 2012a; Siegel, 2011; Turanovic et al., 2012). Jane Siegel's interviews with children of imprisoned mothers provided two especially compelling examples of the psychological toll that maternal incarceration can take on children:

I miss her so much. I just want her to be home already. It's really bad 'cause when things happen, I want to tell her about it and I really can't because she's not here and I really want her to really be here. I wanted her to be here for my fifteenth birthday. I want her to be here when I graduate. I want her to be here for my prom. I want her to be here for so many things, but she might not be here and I hate that. I want her to be here so bad. I love my mother. She is a very good mother. She's awesome. (Valencia, in Siegel, 2011: 138)

Most people's fathers be in since they was babies, for killing somebody or doing this or selling drugs. So it's not a big deal. So when your mother be in prison . . . it's even worse, period, than a father. Because most of the time a father don't never take part in the kid's life anyway. (Naja, in Siegel, 2011: 149).

Yet, and contradictory to evidence suggesting deleterious consequences of maternal incarceration, qualitative research has found that maternal incarceration is a constructive experience for some children and, more broadly, for family functioning. This possibility was convincingly present in two qualitative studies (Siegel, 2011; Turanovic et al., 2012). For example, Turanovic and colleagues (2012) found that, on balance, maternal incarceration is a positive experience for more than one fourth of children's caregivers. Maybe the most

poignant example of the beneficial effects of maternal incarceration comes from Eddy, a father of three:

You know what happens to a father when a mother goes to jail? In my case, it's the best thing that ever happened to me and my kids. Best thing that ever happened for us if you ask me. She didn't like the split between us so she would pop my tires, break my windows, so I went to the courts a couple of times and this time they just really put their foot down and she was sent to state, sentenced a year and a half. She cost me thousands of dollars, popping my tires and just chaos. We were hotel hopping. We didn't have a choice. I had to move three times because of Erica coming to my house being loud. One apartment complex put me out because she was yelling outside of my door, and I had a restraining order but they said it didn't matter, it was some kind of policed apartment complex, any problems and you're out of there. (Turanovic et al., 2012: 938–939)

In addition to providing evidence of positive and negative effects, some qualitative research has indicated that maternal incarceration is simply inconsequential for children. Maternal incarceration could be inconsequential for several reasons. First, some mothers are entirely absent from children's lives prior to incarceration, and in these cases, absence via incarceration likely has no direct effect (e.g., Turanovic et al., 2012: 935). Additionally, incarcerated mothers are an extremely disadvantaged group—they disproportionately report trauma, substance abuse, housing instability, and mental illness—and it could be these disadvantages, and not maternal incarceration itself, that explain any differences between these children and their counterparts (e.g., Giordano, 2010). In other words, these children would likely experience disadvantages regardless of maternal incarceration (e.g., Siegel, 2011; Turanovic et al., 2012). Finally, it is possible that the positive and negative effects of maternal incarceration roughly cancel each other out and, accordingly, lead to average null effects on children (e.g., Giordano, 2010: 147–150; also see Turney, 2014a).

Heterogeneity in Quantitative Research

A second reason to consider the heterogeneous effects of maternal incarceration on child wellbeing is that quantitative research, even when only considering the studies that have used broadly representative data, has documented incredibly disparate average effects.¹ Consider three examples that used large, population-based samples: Hagan and Foster's (2012b; also see Foster and Hagan, 2013) analysis of the National Longitudinal Study of

1. However, some research has suggested that individual-level characteristics of the mother can moderate the link between maternal incarceration and child wellbeing (e.g., Hanlon, Blatchley, et al., 2005; Hanlon, O'Grady, Bennett-Sears, and Callaman, 2005; Poehlmann, 2005; Poehlmann, Schlafer, Maes, and Hanneman, 2008).

Adolescent Health (Add Health), Huebner and Gustafson's (2007) analysis of children born to members of the National Longitudinal Study of Youth 1979 (NLSY79), and Wildeman and Turney's (2014) analysis of the FFCWB. Across these three studies, the proportion of children who experienced maternal incarceration—and, correspondingly, the level of selection into maternal incarceration—was dramatically different. Approximately 1% of children in the Add Health study experienced maternal incarceration any time between birth and 18 years of age (Hagan and Foster, 2012b: 48), approximately 2% of children in the NLSY79 study experienced maternal incarceration between birth and 18–24 years of age (Huebner and Gustafson, 2007: 286), and approximately 9% of children in the FFCWB study experienced maternal incarceration between birth and 9 years of age (Wildeman and Turney, 2014).

The dramatic differences between the two studies that used the Add Health and NLSY79 (Hagan and Foster, 2012b; Huebner and Gustafson, 2007) and the one study that used the FFCWB (Wildeman and Turney, 2014) could have resulted from differential selection into incarceration across the samples. The FFCWB study included a population-based sample of children born to mostly unmarried (and, therefore, mostly disadvantaged) mothers around the turn of the millennium. Because of their disadvantage and because of the relatively high incarceration rates, compared with rates in even slightly earlier historical periods, maternal incarceration is a more normative experience among these children than among children in the other two samples. Incarcerated mothers in this study, compared with those in the other two studies, are more similar to mothers who are not incarcerated. This differential selection could explain why two of the three studies found large and statistically significant negative average effects of maternal incarceration (Hagan and Foster, 2012b; Huebner and Gustafson, 2007) and one study found statistically nonsignificant average effects (Wildeman and Turney, 2014). Under significant heterogeneity by the propensity for incarceration, which these studies did not consider, such marked variations in the probability of experiencing maternal incarceration could easily lead to the divergent average effects across these studies (although, for research on racial and ethnic differences in the effects of maternal incarceration on caregiver-reported behavioral problems, see Wildeman and Turney, 2014). It could be that children drawn from samples in which maternal incarceration is highly unlikely experience deleterious consequences, and children drawn from samples where maternal incarceration is more common experience beneficial or null consequences. Yet, because no broadly representative quantitative research has considered both the average effects of maternal incarceration and the effects by the propensity for experiencing maternal incarceration, it is impossible to explain these divergent findings.²

2. Of course, variation across samples in the probability of experiencing maternal incarceration is not the only potential explanation for divergent findings across studies. Other features—sampling strategies, modeling strategies, control variables, ages of children, and outcomes—also could explain these divergent findings.

Critiques of Research on Consequences of Incarceration

A final—and different—reason why it is important to document the heterogeneous effects of maternal incarceration relates to research on the consequences of incarceration more broadly, especially as it relates to family life. Two ideas have been dominant among scholars most critical of this research (e.g., Giordano, 2010; Johnston, 2006; Sampson, 2011). The first idea is that selection into incarceration—via earlier criminal justice contact, mental illness, or substance abuse—rather than incarceration itself drives the negative effects of parental incarceration on child wellbeing. The second, and related, idea is that some incarcerated parents engage in behaviors so damaging to family life that, accordingly, their absence may actually be beneficial for their children. The second concern is directly relevant to the mothers with a high probability of experiencing incarceration.

A myopic focus on the average effects of maternal incarceration makes it, to a degree, impossible for scholars—especially those who know that characteristics such as emotional instability, severe substance abuse, or child neglect are detrimental to children—to find research that has shown negative effects of maternal incarceration credible (absent also having shown that maternal incarceration does not help—or at least does not harm—the children of mothers most likely to be incarcerated). Considering effect heterogeneity—by mothers' propensity for experiencing incarceration—thus has the potential to provide a “reality check” on the prevailing literature considering the average effects of maternal incarceration. Several examinations of the effects of paternal incarceration successfully considered variation in effects—although not in the propensity score matching framework—and they found that the detrimental effects of paternal incarceration are muted when the father was nonresident prior to his incarceration (Geller et al., 2012) and virtually nonexistent when the father had engaged in domestic violence (Wildeman, 2010).

Current Study

In this study, we use data from the FFCWB to examine how the effect of maternal incarceration varies across mothers' propensities for experiencing incarceration. This propensity score matching approach—which matches incarcerated mothers with mothers who are similar across a distribution of covariates except for their incarceration experience—allows us to consider an array of social contexts that shape children's lives prior to incarceration. This approach also is especially valuable given the vast differences between incarcerated and not incarcerated mothers. We proceed under the ignorability assumption, which is the assumption that there are no unobserved confounders (Morgan and Harding, 2006), but our analyses also investigate the extent to which unobserved selection into incarceration exists and, hence, provide insight into the degree to which the results could violate this assumption and find statistically significant effects.

Our examination of the relationship between maternal incarceration and child wellbeing has at least three key strengths. First, we provide insight into the heterogeneous effects of maternal incarceration by using data and methods that allow us to adjust extensively for

selection into incarceration. In so doing, we contribute to research on the consequences of incarceration for families (e.g., Comfort, 2008; Turney, 2014b; Turney, Schnittker, and Wildeman, 2012; Turney and Wildeman, 2013) and to research on heterogeneous treatment effects (e.g., Brand and Xie, 2010). Second, by considering a range of outcomes in middle childhood that are linked to later life-course outcomes, we provide broad insight into how maternal incarceration will affect children throughout their life course (Caspi, Bem, and Elder, 1989; Knoester, 2003; Loeber, Farrington, and Petechuk, 2013; McLeod and Kaiser, 2004). Finally, by adding nuance to research on the consequences of imprisonment by looking for both statistically significant and nonsignificant effects, we contribute to a shift in this research program (e.g., Turney and Wildeman, 2013).

Method

Data

We use longitudinal data from the FFCWB, a birth cohort study of 4,898 children born between 1998 and 2000 (Reichman, Teitler, Garfinkel, and McLanahan, 2001). Baseline in-person interviews with both mothers and fathers occurred nearly immediately after the focal child's birth. Parents were interviewed by telephone when their children were approximately 1, 3, 5, and 9 years old, and at the latter three waves, some families also participated in an in-home interview. Baseline response rates were 86% for mothers and 78% for fathers. Of those who participated in the baseline interview, 91%, 89%, 88%, and 76% of children had at least one parent (and often both parents) participate in the 1-, 3-, 5-, and 9-year telephone interviews, respectively. Approximately 69% of children had a caregiver (most often a mother) complete the 9-year in-home interview.

In constructing the analytic sample, we dropped the 1,507 observations without a complete 9-year in-home interview, as the dependent variables are measured during this interview, and the additional 194 observations missing data on any of the four dependent variables. The analytic sample, then, includes 3,197 observations.³ Because families with a complete 9-year in-home interview are likely different from those without a complete 9-year in-home interview, and this attrition might have implications for the results, we compare the baseline sample and the analytic sample in Table A1. This table shows there are some statistically significant, although small, observed differences between the baseline and analytic samples. Mothers in the analytic sample, compared with mothers in the baseline sample, are more likely to be non-Hispanic Black, less likely to be foreign-born, and are more likely to have younger mothers. In the analytic sample, mothers are more likely to be employed and fathers are less likely to be employed. Fathers have higher impulsivity and

3. This analytic sample includes two children who had a mother incarcerated at the 9-year survey. We include these children in the analytic sample because they have valid outcomes on the dependent variables.

are more likely to have been previously incarcerated. We return to the implications of these differences in the discussion.

We do not impute the dependent variable but preserve missing covariate data with multiple imputation (Allison, 2001). Prior to imputation, nearly all covariates are missing fewer than 10% of observations in the analytic sample. Exceptions include mother's parenting stress, father's employment, and father's impulsivity, which are missing 17%, 26%, and 35% of observations, respectively.

Measures

Outcome variables. We examine four indicators of child wellbeing: caregiver-reported internalizing problem behaviors, caregiver-reported externalizing problem behaviors, PPVT-III scores, and child-reported early juvenile delinquency. To begin with, during the in-home 9-year interview, children's caregivers (mothers, in 93% of cases in the analytic sample) were asked to respond to a series of questions from the Child Behavior Checklist, a commonly used measure of children's behavior (Achenbach, 1992). Caregivers were asked to report how often their children engaged in an array of behaviors (0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true). Internalizing problem behaviors are measured by averaging responses to 32 questions ($\alpha = .88$), and externalizing problem behaviors are measured by averaging responses to 34 questions ($\alpha = .91$). Additionally, the PPVT-III, administered during the in-home 9-year interview, measures children's age-standardized verbal ability. Interviewers read words to children, who had to identify a picture (among a set of four pictures) corresponding to the word (Dunn and Dunn, 1997). Finally, early juvenile delinquency is measured by children's self-reports about participating in 17 delinquent activities from the "Things that You Have Done" scale (Maumary-Gremaud, 2000; also see Elliott, Huizinga, and Menard, 1989). The measure of delinquency is a sum of these items (Thornberry and Krohn, 2002).⁴ For consistency across outcomes and ease of interpretation, we standardize all four dependent variables (mean = 0 and standard deviation = 1).⁵

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4. Children were asked to report whether they had ever done the following 17 activities: (a) purposely damaged or destroyed property that was not yours; (b) taken or stolen something that did not belong to you from another person or from a store; (c) taken some money at home that did not belong to you, like from your mother's purse or from your parents' dresser; (d) cheated on a school test; (e) had a fist fight with another person; (f) hurt an animal on purpose; (g) gone into somebody's garden, backyard, house, or garage when you were not supposed to be there; (h) run away from home; (i) skipped school without an excuse; (j) secretly taken a sip of wine, beer, or liquor; (k) smoked marijuana, grass pot, or weed; (l) smoked a cigarette or used tobacco; (m) been suspended or expelled from school; (n) written things or sprayed paint on walls or sidewalks or cars; (o) purposely set fire to a building, a car, or other property or tried to do so; (p) avoided paying for things such as movies, bus or subway rides, or food; or (q) thrown rocks or bottles at people or cars. Note that some of these activities might be prosocial and others may lead to future deviant behavior (e.g., Foster, Nagin, Hagan, Angold, and Costello, 2010).
 5. The dependent variables have low (e.g., r for internalizing problem behaviors and PPVT-III scores = -0.08) to high correlations (e.g., r for internalizing and externalizing problem behaviors = 0.66).

Explanatory variable. A dummy variable indicates maternal incarceration between the 1- and 9-year interviews. Mothers are considered to experience incarceration if the interviews provide direct or indirect evidence of incarceration. Direct evidence means that either the mother or father reports, at the 3-, 5-, or 9-year interviews, that the mother is currently incarcerated or has been incarcerated since the previous interview. Indirect evidence means that information about maternal incarceration emerged at other points during the mother's, father's, or caregiver's interviews (e.g., a report that the child stopped living with the mother because she was incarcerated), instead of in response to a direct question. Indirect evidence of maternal incarceration also is ascertained when the mother and father reports, at the 1-year survey, that the mother was never incarcerated and that the mother or father subsequently reports she was *ever* incarcerated. Therefore, both direct and indirect evidence of incarceration indicates the mother was incarcerated in the child's lifetime. Approximately 9% of mothers experienced incarceration.

Control variables. We use mother, father, and child characteristics, including a host of characteristics associated with selection into incarceration, to generate propensity scores for maternal incarceration. Importantly, to ensure temporal ordering between the control variables and maternal incarceration, we measure all control variables at the baseline or 1-year survey and, thus, prior to maternal incarceration. The one exception includes maternal impulsivity, described below, which was only ascertained at the 5-year interview but is considered a stable, time-invariant characteristic (Gottfredson and Hirschi, 1990).

Demographic characteristics include dummy variables that indicate mother's and father's race (non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic other race), mother's immigrant status, mother's age, and mother's family structure at 15 years of age (1 = lived with both biological parents and 0 = did not live with both biological parents). Socioeconomic factors include mother's and father's educational attainment (less than high school, high-school diploma or GED, postsecondary education), a dummy variable indicating the mother's household income is below the poverty line, a continuous measure of material hardship (e.g., received free food or meals in the past year, evicted from home or apartment for not paying the rent or mortgage), and dummy variables indicating the mother and father were employed in the last week. Family characteristics include a dummy variable indicating whether a grandmother lives in the child's household, the parents' relationship status (married, cohabiting, nonresidential romantic relationship, or separated), a continuous variable indicating mother-reported relationship quality with the father (1 = poor to 5 = excellent), and a continuous variable indicating the number of children in the mother's household. The analyses also control for mother's major depression (measured with the Composite International Diagnostic Instrument-Short Form; Kessler, Andrews, Mroczek, Ustun, and Wittchen, 1998) and mother's parenting stress (e.g., I feel trapped by my responsibilities as a parent, taking care of my child is much more work than pleasure; $\alpha = .60$). Three child characteristics include gender, low birth weight, and

a continuous measure of children's temperament, with higher scores indicating greater emotionality and shyness ($\alpha = .52$; Buss and Plomin, 1984).

Finally, in generating the propensity score, we control for a host of mother's and father's characteristics that could confound the relationship between maternal incarceration and child wellbeing. Dummy variables indicate the mother smoked during pregnancy and the mother used drugs or drank alcohol during pregnancy, both of which might be related to adverse birth outcomes. Dummy variables indicate the following: The mother has a substance abuse problem (measured by an affirmative response to at least one of the following at the 1-year interview: since the child was born, drinking or using drugs interfered with day-to-day management; since the child was born, drinking or use drugs interfered with personal relationships; and sought help or been treated for drug or alcohol problems since the child was born); the father has a substance abuse problem (measured similarly as mother's substance abuse problem but includes both mother's and father's reports of the father's substance abuse problem at the baseline and 1-year interviews); the father engaged in domestic violence; the mother was previously incarcerated (between the baseline and 1-year interviews); and the father was previously incarcerated (at or prior to the 1-year interview, including before baseline). Mother's and father's impulsivity were measured with a continuous variable measured by questions such as "I will often say whatever comes into my head without thinking" and "often I don't think enough before I act" ($\alpha = .86$ for mothers and $.84$ for fathers; Dickman, 1990). Descriptive statistics are presented in Table 1.

Analytic Strategy

The first analytic stage estimates the average effects of maternal incarceration on child wellbeing. Although prior research has considered the average effects of maternal incarceration using these data (e.g., Geller et al., 2009; Wildeman and Turney, 2014), we present these estimates to (a) show that our approach (which is similar, but not identical, to previous research) provides results consistent with previous research and (b) provide context for interpreting the results demonstrating heterogeneous effects. To estimate the average effects, we first estimate a logistic regression model to generate a propensity score for each observation in each of the 20 imputed data sets. The propensity score, which is essentially a risk factor for experiencing the treatment, maternal incarceration, ranges from 0 to 1. We use all control variables, which prior research has shown to be associated with either incarceration and/or child wellbeing, to generate the propensity score. Next, we ensure that covariates in the treatment and control groups are statistically indistinguishable from one another. The two groups differ only in their experience of the treatment. We then use kernel matching, which matches all treatment observations to control observations by weighting control observations by their distance from treatment cases (kernel = Epanechnikov; bandwidth = 0.06). Ordinary least-squares (OLS) models then estimate internalizing problem behaviors, externalizing problem behaviors, PPVT-III scores, and early juvenile

T A B L E 1

Descriptive Statistics of Variables Used in the Analysis

Variable	Mean	(SD)	Minimum	Maximum
Dependent Variables				
Internalizing problem behaviors (y9)	0.160	(0.179)	0	2
Externalizing problem behaviors (y9)	0.180	(0.197)	0	2
PPVT-III (y9)	92.859	(14.843)	37	159
Early juvenile delinquency (y9)	1.238	(1.766)	0	17
Independent Variable				
Mother incarceration (y3, y5, y9)	0.089			
Control Variables				
Mother race (b)				
Non-Hispanic White	0.205			
Non-Hispanic Black	0.504			
Hispanic	0.258			
Non-Hispanic other race	0.034			
Mother and father a mixed-race couple (b)	0.144			
Mother foreign-born (b)	0.135			
Mother age (b)	24.997	(5.991)	14	47
Mother lived with both biological parents at age 15 (b)	0.411			
Mother education (b)				
Less than high school	0.331			
High-school diploma or GED	0.317			
Postsecondary education	0.352			
Father education (b)				
Less than high school	0.321			
High-school diploma or GED	0.382			
Postsecondary education	0.297			
Mother in poverty (y1)	0.421			
Mother material hardship (y1)	1.161	(1.629)	0	9
Mother employment (y1)	0.553			
Father employment (y1)	0.764			
Mother lives with child's grandparent (y1)	0.190			
Mother relationship with child's father (y1)				
Married	0.285			
Cohabiting	0.277			
Nonresidential romantic	0.101			
Separated	0.338			
Mother has new partner (y1)	0.119			
Mother relationship quality (y1)	3.263	(1.412)	1	5
Mother number of children in household (y1)	2.326	(1.325)	0	10
Mother parenting stress (y1)	2.179	(0.673)	1	4
Mother depression (y1)	0.155			
Child male (b)	0.520			
Child born low birth weight (b)	0.093			

(Continued)

T A B L E 1

Continued

Variable	Mean	(SD)	Minimum	Maximum
Child temperament (y1)	0.567	(0.128)	0	1
Mother smoked during pregnancy (b)	0.191			
Mother used drugs or drank alcohol during pregnancy (b)	0.123			
Mother has substance abuse problem (y1)	0.014			
Father has substance abuse problem (b, y1)	0.185			
Mother impulsivity (y5)	1.526	(0.483)	1	4
Father impulsivity (y1)	2.034	(0.668)	1	4
Mother reports domestic violence (b, y1)	0.076			
Mother previously incarcerated (b, y1)	0.007			
Father previously incarcerated (b, y1)	0.328			
<i>N</i>			3,197	

Notes. Timing of measurement of all variables in parentheses (b = baseline interview, y1 = 1-year interview, y3 = 3-year interview, y5 = 5-year interview, y9 = 9-year interview). Internalizing problem behaviors and externalizing problem behaviors reported by children’s caregivers. Early juvenile delinquency reported by children.

delinquency on matched samples. We average the results across the 20 imputed data sets (Allison, 2001; Rubin, 1987).

The second analytic stage, and the key part of our analytic strategy, estimates the heterogeneous effects of maternal incarceration on child wellbeing. We use multilevel propensity score models to explore the possibility that some children are more vulnerable to the effects of maternal incarceration than other children. First, we group observations into three stratum based on their propensity score $\{p = [.00, .05), p = [.05, .10), p = [.10, .30)\}$. These strata allow for natural cutpoints of the propensity scores and for similar numbers of observations in each stratum (Xie, Brand, and Jann, 2012; also see Rosenbaum and Rubin, 1984). Following Xie et al.’s (2012: 329) recommendation, we ensure that each stratum includes at least 20 treatment observations and 20 control observations. Observations in the first stratum have the lowest likelihood of maternal incarceration, and those in the third stratum have the highest likelihood of maternal incarceration. Importantly, within each stratum, we restrict the analyses to regions of common support and ensure that there are no statistically significant differences in the control variables between the treatment and control groups. For example, in stratum 1, the treatment and control groups have a similar distribution of covariates and vary only by maternal incarceration. Including all variables used to generate the propensity score in the models estimating average effects was not possible, as their inclusion precluded the within-stratum balance requirement of this propensity score matching approach (see Table A2 for the means across treatment and control groups of variables used in the heterogeneous treatment effect models).

We then estimate multilevel models. Level 1 estimates the effects of maternal incarceration on child wellbeing in each stratum, and Level 2 estimates the trend in the variation of effects by propensity score stratum. Again, all outcomes are estimated with OLS regression models. Because these multilevel models cannot be estimated with multiply imputed data, these models use only one imputed data set. The magnitude and statistical significance of the point estimates, however, remain substantively similar in robustness checks that use different single imputed data sets.

Although propensity score matching is a strategic method for estimating the effects of maternal incarceration, because it approximates an experimental design and ensures the treatment and control groups differ only in their experience of the treatment, this method only accounts for observed characteristics. We proceed under the assumption that no unobserved characteristics could render any observed effects of maternal incarceration statistically nonsignificant (the ignorability assumption, as discussed previously), and it is possible that unobserved characteristics—such as criminal activity or child maltreatment—exist. Therefore, both the estimates of average and heterogeneous effects cannot rule out the possibility that selection into incarceration rather than incarceration itself drives any observed association (Morgan and Harding, 2006). We conduct sensitivity analyses to consider this possibility more fully and return to this point in the discussion. All analyses were conducted with Stata (StataCorp, College Station, TX) (also see Becker and Caliendo, 2007; Jann, Brand, and Xie, 2007).

Results

Estimating the Average Effects of Maternal Incarceration on Child Wellbeing

Table 2 presents estimates of the effect of maternal incarceration on four measures of child wellbeing: internalizing problem behaviors, externalizing problem behaviors, PPVT-III scores, and early juvenile delinquency. The unmatched differences are presented in the first column. These estimates suggest that children with incarcerated mothers, compared with their counterparts, have greater internalizing behaviors ($b = 0.105, p < .10$), greater externalizing behaviors ($b = 0.179, p < .01$), lower PPVT-III scores ($b = -0.130, p < .05$), and more early juvenile delinquency ($b = 0.279, p < .001$).

The matched differences, which match treatment observations to control observations via kernel matching, are presented in the next column. These matched differences show that, between the treatment and control groups, no substantively or statistically significant differences were found in internalizing problem behaviors, externalizing problem behaviors, PPVT-III scores, and early juvenile delinquency. Therefore, consistent with other research using these data that has considered the average effects (see Wildeman and Turney, 2014, which employed propensity score matching to estimate 21 caregiver- and teacher-reported problem behaviors), the results show that the unmatched differences likely result from social selection forces.

T A B L E 2

Propensity Score Matching Estimates of the Average Effect of Maternal Incarceration on Child Wellbeing

Dependent variable	Unmatched	Matched
Internalizing problem behaviors	0.105 [†] (0.062)	0.016 (0.067)
Externalizing problem behaviors	0.179 ^{**} (0.062)	-0.026 (0.071)
PPVT-III	-0.130 [*] (0.062)	0.023 (0.060)
Early juvenile delinquency	0.279 ^{***} (0.062)	0.101 (0.083)
Treatment <i>N</i>	285	285
Control <i>N</i>	2,912	2,912

Notes. Internalizing problem behaviors and externalizing problem behaviors reported by children’s caregivers. Early juvenile delinquency reported by children. Propensity scores are estimated with a logistic regression model estimating maternal incarceration as a function of pre-incarceration covariates. Standard errors in parentheses.

[†]*p* < .10. ^{*}*p* < .05. ^{**}*p* < .01. ^{***}*p* < .001 (two-tailed tests).

Estimating the Heterogeneous Effects of Maternal Incarceration on Child Wellbeing

The previous estimates, which documented no robust average effect of maternal incarceration on child wellbeing, assumed that the effect of maternal incarceration is similar for all children. However, it is possible that the effects are heterogeneous, meaning that some children might suffer substantial harm and that others might considerably benefit from maternal incarceration. We next consider this possibility. We generate three propensity score strata, each of which include mothers in the treatment group and mothers in the control group that have a similar distribution of covariates.

Table 3 shows that mothers from the first stratum (those with the lowest propensity, or risk, for incarceration, with no more than a 5% risk) are more advantaged than mothers in the second stratum (those with a 5% to 10% risk of incarceration) and, especially, third stratum (those with a 10% to 30% risk of incarceration). For example, in stratum 1, just more than one third (36%) of mothers were non-Hispanic Black, compared with 56% in stratum 2 and stratum 3. Additionally, compared with their counterparts, mothers in stratum 1 are likely to have postsecondary education (54% compared with 42% in stratum 2 and 11% in stratum 3), are unlikely to have household incomes below the poverty line (27% compared with 36% in stratum 2 and 62% in stratum 3), are likely to be married to the focal child’s father (53% compared with 27% in stratum 2 and 10% in stratum 3), and are unlikely to report depression (6% compared with 13% in stratum 2 and 28% in stratum 3). Furthermore, among mothers in stratum 1, only 4% shared a child with a previously

T A B L E 3

Means of Covariates by Propensity Score Strata

Variable	Stratum 1 <i>p</i> = [.00, .05]	Stratum 2 <i>p</i> = [.05, .10]	Stratum 3 <i>p</i> = [.10, .30]
Mother Race (b)			
Non-Hispanic White	0.171	0.260	0.176
Non-Hispanic Black	0.356	0.558	0.561
Hispanic	0.403	0.162	0.243
Non-Hispanic other race	0.069	0.020	0.020
Mother and Father a Mixed-Race Couple (b)	0.133	0.140	0.159
Mother Foreign-Born (b)	0.430	0.036	0.000
Mother Age (b)	27.565	25.203	22.360
Mother Lived with Both Biological Parents at Age 15 (b)	0.681	0.363	0.244
Mother Education (b)			
Less than high school	0.175	0.161	0.672
High-school diploma or GED	0.287	0.416	0.214
Postsecondary education	0.537	0.423	0.114
Father Education (b)			
Less than high school	0.252	0.249	0.465
High-school diploma or GED	0.296	0.424	0.401
Postsecondary education	0.453	0.327	0.135
Mother in Poverty (y1)	0.271	0.357	0.622
Mother Material Hardship (y1)	0.722	1.136	1.576
Mother Employment (y1)	0.783	0.631	0.251
Father Employment (y1)	0.895	0.790	0.618
Mother Lives with Child's Grandparent (y1)	0.126	0.186	0.256
Mother Relationship with Child's Father (y1)			
Married	0.534	0.265	0.096
Cohabiting	0.319	0.284	0.218
Nonresidential romantic	0.044	0.109	0.141
Separated	0.102	0.342	0.545
Mother Has New Partner (y1)	0.020	0.122	0.201
Mother Relationship Quality (y1)	3.836	3.260	2.752
Mother Number of Children in Household (y1)	2.159	2.260	2.511
Mother Parenting Stress (y1)	2.098	2.140	2.294
Mother Depression (y1)	0.057	0.126	0.278
Child Male (b)	0.545	0.501	0.525
Child Born Low Birth Weight (b)	0.074	0.095	0.109
Child Temperament (y1)	0.584	0.575	0.570
Mother Smoked During Pregnancy (b)	0.059	0.180	0.313
Mother Used Drugs or Drank Alcohol During Pregnancy (b)	0.074	0.125	0.166
Mother Has Substance Abuse Problem (y1)	0.006	0.007	0.032
Father Has Substance Abuse Problem (b, y1)	0.084	0.163	0.304
Mother Impulsivity (y5)	1.465	1.485	1.625
Father Impulsivity (y1)	1.871	1.988	2.237
Mother Reports Domestic Violence (b, y1)	0.036	0.051	0.144
Mother Previously Incarcerated (b, y1)	0.000	0.003	0.018
Father Previously Incarcerated (b, y1)	0.043	0.275	0.684
<i>N</i>	811	1,239	958

Notes. Timing of measurement of all variables in parentheses (b = baseline interview, y1 = 1-year interview, y5 = 5-year interview). Mothers in stratum 1 have the lowest propensity for incarceration, and mothers in stratum 3 have the highest propensity for incarceration.

T A B L E 4

Propensity Score Matching Estimates of the Heterogeneous Effects of Maternal Incarceration on Child Wellbeing

Dependent variable	Level 1			Level 2
	Stratum 1 <i>p</i> = [0, .05]	Stratum 2 <i>p</i> = [.05, .10]	Stratum 3 <i>p</i> = [.10, .30]	Trend
Internalizing problem behaviors	0.508** (0.195)	0.074 (0.092)	-0.066 (0.096)	-0.235* (0.096)
Externalizing problem behaviors	0.596** (0.173)	0.119 (0.096)	-0.073 (0.101)	-0.298** (0.094)
PPVT-III	-0.147 (0.233)	-0.102 (0.106)	0.021 (0.076)	0.102 (0.097)
Early juvenile delinquency	0.434* (0.177)	0.398*** (0.106)	0.022 (0.093)	-0.251** (0.092)
Treatment <i>N</i>	26	99	151	
Control <i>N</i>	788	1,140	807	

Notes. Internalizing problem behaviors and externalizing problem behaviors reported by children’s caregivers. Early juvenile delinquency reported by children. Propensity scores are estimated with a logistic regression model estimating maternal incarceration as a function of pre-incarceration covariates. Mothers in stratum 1 have the lowest propensity for incarceration, and mothers in stratum 3 have the highest propensity for incarceration. Standard errors are in parentheses.

p* < .05. *p* < .01. ****p* < .001 (two-tailed tests).

incarcerated father, compared with 28% of mothers in stratum 2 and 68% of mothers in stratum 3.

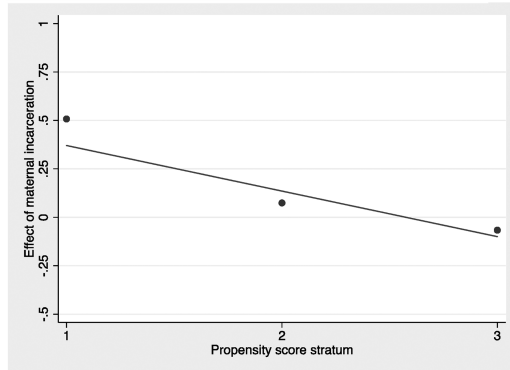
Table 4 presents results from multilevel models estimating the heterogeneous effects of maternal incarceration. Recall that higher values indicate less favorable outcomes for internalizing problem behaviors, externalizing problem behaviors, and early juvenile delinquency and more favorable behaviors for PPVT scores. Turning first to estimates of internalizing problem behaviors, the Level 1 coefficients show that the effect of maternal incarceration varies across the three strata. Maternal incarceration is associated with one half of a standard deviation increase in internalizing problem behaviors in stratum 1 (*p* < .01), a small and statistically nonsignificant increase in internalizing problem behaviors in stratum 2, and a small and statistically nonsignificant decrease in internalizing problem behaviors in stratum 3. The Level 2 slope demonstrates that, for each unit change in stratum, there is a 0.235 standard deviation decrease in the effect of maternal incarceration (*p* < .05). Figure 1a provides a graphical depiction.

The results are nearly identical for externalizing problem behaviors and early juvenile delinquency. The Level 1 coefficients show that the effects of maternal incarceration are concentrated among individuals only in stratum 1 (for externalizing problem behaviors) and in both strata 1 and 2 (for early juvenile delinquency). The Level 2 coefficient shows that these between-strata differences are statistically significant. For example, maternal

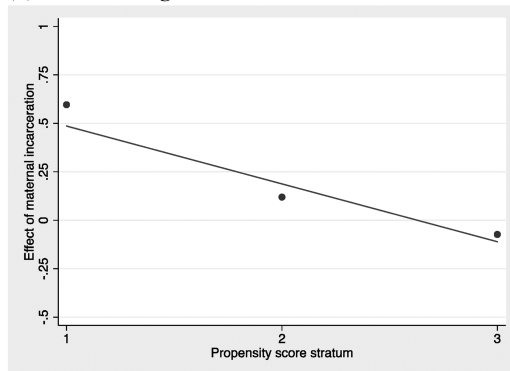
FIGURE 1

Heterogeneous Treatment Effects of Maternal Incarceration on Children’s Wellbeing (a) Internalizing Problem Behaviors (b) Externalizing Problem Behaviors (c) Early Juvenile Delinquency

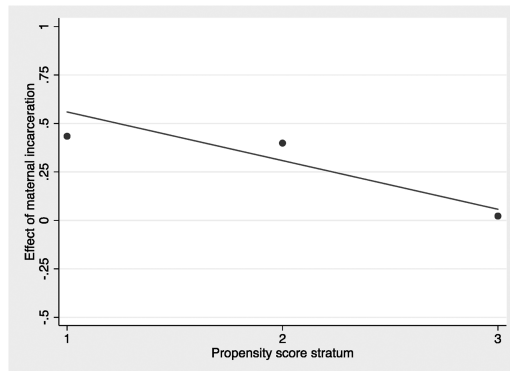
(a) Internalizing Problem Behaviors



(b) Externalizing Problem Behaviors



(c) Early Juvenile Delinquency



incarceration is associated with about a three fifths of a standard deviation increase in externalizing problem behaviors in stratum 1 ($p < .01$), a small and statistically nonsignificant increase in externalizing problems behaviors in stratum 2, and a small and statistically nonsignificant decrease in problem behaviors in stratum 3. The Level 2 slope shows, for each unit change in stratum, a 0.298 standard deviation decrease in externalizing problem behaviors ($p < .01$) and a 0.251 standard deviation decrease in early juvenile delinquency ($p < .01$). Figures 1b and 1c provide graphical depictions.

The estimates for PPVT-III scores follow a similar pattern, with the largest coefficient for children of mothers least likely to be incarcerated and the smallest coefficient for children of mothers most likely to be incarcerated. But the between-stratum differences are not statistically significant, and therefore, we do not provide a graphical depiction of this relationship. See Appendix A for additional analyses that interrogate the robustness of these findings.

Discussion

Results Summary

Children of incarcerated mothers represent a growing and vulnerable population, and accordingly, a burgeoning literature has considered how maternal incarceration—above and beyond other disadvantages that are correlated with maternal incarceration—affects the wellbeing of children. But quantitative research, at least broadly representative quantitative research, has provided evidence of both deleterious (e.g., Hagan and Foster, 2012b; Huebner and Gustafson, 2007) and null (e.g., Wildeman and Turney, 2014) average effects, and qualitative research has documented that maternal incarceration may be deleterious, beneficial, or inconsequential (e.g., Arditti, 2012a; Giordano, 2010; Siegel, 2011; Turanovic et al., 2012). Therefore, in this article, we attempt to reconcile these findings by considering the heterogeneous effects of maternal incarceration on children.

We use data from the FFCWB—a data source that includes incarcerated mothers demographically similar to mothers incarcerated in jails, state prisons, and federal prisons (Wildeman and Turney, 2014)—and a series of propensity score matching models to estimate the effects of maternal incarceration on wellbeing among 9-year-old children, finding significant evidence of effect heterogeneity; the children least likely to experience this event suffer deleterious consequences, and the children most likely to experience this event suffer no statistically significant responses. One explanation for the statistically nonsignificant findings among children most likely to experience maternal incarceration, a disadvantaged group of children prior to maternal incarceration, could be that children stop accumulating adverse consequences once they reach a certain point of saturation (Hannon, 2003). A related explanation could be that maternal incarceration offers relief from other stressors such as domestic violence or economic deprivation (Wheaton, 1990). A final possibility is that women who are most likely to experience incarceration are probably also most likely to be lost to attrition. It is possible that the analytic sample excludes some mothers with a

high propensity for experiencing incarceration and, therefore, makes it difficult to find any statistically significant (positive) effects.

The evidence of heterogeneous effects complements both qualitative and quantitative research on maternal incarceration and, more broadly, contributes theoretically to research on the consequences of incarceration. Consistent with the nuanced qualitative research on maternal incarceration (Arditti, 2012a; Giordano, 2010; Siegel, 2011; Turanovic et al., 2012), we show that maternal incarceration can harm some children and have no discernible effect on others. Importantly, we find no statistically significant positive effects of maternal incarceration that often have been described in the qualitative literature (e.g., Turanovic et al., 2012). This could be because these positive effects are not driven by characteristics associated with selection into incarceration. Alternatively, it could be that even the mothers with the highest propensities for incarceration in our sample (those with a 10% to 30% risk) were still not above a threshold that would produce consistently beneficial effects of incarceration. Although the coefficients for mothers with the highest propensities are not statistically significant, in the case of internalizing and externalizing problem behaviors, the direction of the coefficients suggests positive effects, and it is likely that some positive effects are counterbalanced by negative effects (Turney, 2014a; for research on paternal absence more generally, see Jaffee, Moffitt, Caspi, and Taylor, 2003). Indeed, as there are likely individual instances where maternal incarceration improves child wellbeing, future research should continue to test for positive effects of maternal incarceration and should consider that these positive effects could be driven by something other than the mother's propensity for incarceration. More generally, given that considering only the average effects of maternal incarceration masks considerable heterogeneity, both research and public policy surrounding the consequences of maternal incarceration should carefully consider treatment heterogeneity.

Relatedly, the results regarding effect heterogeneity bring together the three most rigorous, broadly representative analyses of the effects of maternal incarceration on children. For instance, in Hagan and Foster's (2012b) analysis of the Add Health data and Huebner and Gustafson's (2007) analysis of the NLSY79 data, approximately 1% and 2% of mothers were incarcerated, respectively. These analyses documented large, statistically significant negative effects of maternal incarceration, which is precisely in line with our findings for children of mothers least likely to be incarcerated (e.g., those with a propensity below 5%). Additionally, in Wildeman and Turney's (2014) analysis of the FFCWB data, where approximately 9% of mothers were incarcerated, they found statistically nonsignificant effects for 19 of the 21 outcomes considered. This result is consistent with what we find here for children of mothers with relatively high propensities for experiencing incarceration. Furthermore, although Wildeman and Turney (2014) did not consider variation by the propensity for experiencing maternal incarceration, they did consider race and ethnic differences in the relationship between maternal incarceration and caregiver-reported problem behaviors, finding evidence that maternal incarceration decreases problem behaviors among

White children. Thus, seemingly divergent findings across prior research could be driven by the populations they represent, not by differences in statistical methods, children's ages, or outcomes.

More generally, these findings provide confidence that the effects—positive, negative, or null—of maternal incarceration across studies reflect the social reality of children's lives. This observation is especially true in conjunction with studies that found null effects of maternal incarceration in disadvantaged samples (e.g., Wildeman and Turney, 2014), studies that found that theoretically relevant moderators condition the effects of parental incarceration on children (e.g., Dallaire et al., 2014; Hanlon et al., 2005a, 2005b; Poehlmann, 2005), and studies that suggested heterogeneity in the effects of incarceration on family life more broadly (Turney and Wildeman, 2013).

Limitations

Although the analyses do reconcile much prior research on this topic and contribute theoretically to broader research on the effects of incarceration, limitations exist. Importantly, not all families who participated in the baseline sample remained in the study at the 9-year survey, which was when the outcome variables were measured. Although descriptive analyses show small observed differences between the baseline and analytic samples, it is possible that there are additional *unobserved* differences between those who did and did not remain in the study. We suspect that those who do not remain in the study are more disadvantaged in their unobservable characteristics and, therefore, are more likely to be families with a high propensity for experiencing maternal incarceration. If we could retain these families, it is possible that maternal incarceration would have a protective effect on children with a high propensity for experiencing maternal incarceration.

Additionally, the propensity score matching models proceed under the ignorability assumption, which is the assumption that unobserved characteristics are not excluded when balancing across treatment and control groups (Morgan and Harding, 2006). Unmeasured characteristics—such as heritability or mothers' criminal history—could confound our results. The analyses, however, provide evidence that this is not a major concern. For one, the models estimating average effects document null effects. Also, the models estimating heterogeneous effects show that the negative statistically significant effects are concentrated among children of the least disadvantaged mothers. Indeed, if unobserved heterogeneity produced biased results, then we would likely find statistically significant negative effects among children of the *most* disadvantaged mothers. The Rosenbaum bounds also provide assurance that our results—the negative effects of maternal incarceration on children of the least disadvantaged mothers—are likely not unduly biased by omitted variables driving both maternal incarceration and poor child outcomes. However, absent a randomized control trial, we cannot undoubtedly rule out unmeasured heterogeneity, and therefore, our policy suggestions are contingent on being replicated with experimental data. Unlike research on the effects of paternal incarceration, where it is difficult to link disadvantaged men to their

children through administrative records, linking disadvantaged mothers to their children is more straightforward and future research should undertake these analyses.

Other limitations, common among studies that examine the effects of maternal incarceration, exist. For one, the measure of maternal incarceration is crude. We cannot differentiate children of mothers who experienced short incarceration stays from those who experienced lengthy ones. We also cannot distinguish between prison or jail incarceration, have no data about the distance between the incarcerated mother and her child, and lack information on earlier stages of criminal justice contact (e.g., arrest) or family circumstances immediately prior to maternal incarceration, all of which could influence child wellbeing (Dallaire et al., 2014; Sampson, 2014). Also, too few mothers were incarcerated at each wave to consider how the timing or chronicity of maternal incarceration may affect child wellbeing. Future studies of child wellbeing, especially those with nationally representative and population-based samples, should collect information about these details to facilitate a more nuanced understanding of the heterogeneous effects of maternal incarceration and the mechanisms underlying these effects.

Implications for Public Policy and Conclusions

The implications of these results for public policy are difficult to disentangle, especially because the analytic strategy lacks a true experimental design, and we thus hope this article launches both additional research on the effects of maternal incarceration on children and a conversation about how public policy could minimize the consequences of maternal incarceration for children.

First, it is important to discuss the public policy implications of our null findings. We find that, for children of mothers more likely to experience incarceration (those in stratum 2 and stratum 3), maternal incarceration is not independently associated with deleterious outcomes in children, which is in line with findings from other research that has considered the average effects of incarceration with these data (Wildeman and Turney, 2014). Importantly, children of mothers with a high propensity for experiencing incarceration are an extremely disadvantaged group, and it is likely that the relative influence of these other disadvantages—compared with maternal incarceration—drive unfavorable outcomes for these children. Therefore, although reducing maternal incarceration could do little to benefit these children, public policy might instead focus on issues that disproportionately affect children of mothers with a high likelihood of incarceration, such as alleviating poverty or increasing access to substance abuse treatment. Furthermore, as it is possible that these children simply learn how to cope with maternal incarceration, public policy efforts could be directed toward social service programs that help children and families adapt to maternal incarceration, perhaps by striving to increase cooperation and support among children's caregivers, additional family members, and teachers.

Next, we focus our public policy discussion on the group of children who, in our analyses, suffer the most substantial consequences of maternal incarceration: children of

mothers who are unlikely to experience incarceration (those with a 0% to 5% risk). For children of mothers unlikely to experience incarceration, the negative consequences of maternal incarceration could be driven by at least three factors, all of which may be operating simultaneously and all of which potentially call for different policy interventions: (a) jail incarceration as opposed to prison incarceration, (b) incarceration for a crime that did minimal—or no—harm to their children, and (c) inadequate family supports for coping with maternal incarceration. We consider each of these points in the following paragraphs.

For one, it is possible that the negative effects of maternal incarceration among children of mothers unlikely to experience incarceration are driven by the conditions of confinement (specifically, jail incarceration compared with prison incarceration). It is possible that because mothers with a low propensity for incarceration are more likely than their counterparts with a higher propensity for incarceration to be experiencing incarceration for the first time, they may be more likely to be incarcerated in jails than prisons. Because jails are usually located closer to pre-incarceration residences than prisons, they facilitate easier visitation that could be traumatic for either the mother or the child. Relatedly, jail stays are generally shorter than prison stays, which means that children of mothers incarcerated in jail experience more family instability than children of mothers incarcerated in prison. Unfortunately, these data, like most other data on maternal incarceration, do not allow us to differentiate between jail and prison incarceration (or other types of incarceration experiences, as discussed at length previously). This, of course, makes it difficult to know what is driving the effects, and calls both for heavier reliance on qualitative research and for better information on the conditions of confinement. We do not have information about the conditions of confinement experienced by mothers with a low propensity for incarceration (whose children respond poorly to their incarceration) or how those conditions of confinement differ from those of mothers with a higher propensity for incarceration (whose children show no effects). As we lack information on the conditions of confinement, this public policy conversation will be best had after research with more information on these features of incarceration has been conducted.

A second possibility is that mothers with a low propensity to experience incarceration were disproportionately committing crimes that did little harm to their children prior to their incarceration—and, by extension, could have had relatively few broader consequences for society prior to their incarceration. If this assumption is true, then this—in conjunction with our findings about the deleterious effects on children of these mothers—leads to public policy suggestions that are relatively easy to follow: Rely on criminal justice interventions other than incarceration for low-level offenses, with an emphasis on decriminalizing possession of marijuana and other petty offenses (especially minor public order offenses). Yet the difficulty is that the data do not allow us to know whether the mothers with a low propensity for incarceration are those incarcerated for the least serious crimes, although this assumption is plausible.

A third possibility is that families, like inmates (see the review in Wildeman, Turney, and Schnittker, 2014), learn how to cope with incarceration. In this regard, it might be the case that mothers who have previously experienced incarceration or families who have previously experienced paternal incarceration have a better strategy in place for dealing with maternal incarceration—possibly because the parent is periodically absent for other reasons—than do families in which incarceration comes as more of a shock. This possibility, it seems to us, is eminently reasonable, and it calls for a different public policy intervention. Specifically, this possibility suggests that family interventions—whether through the provision of childcare or some other direct intervention—that focus on families experiencing incarceration for the first time might especially help the children experiencing that event. Unfortunately, because we do not know the direct mechanisms through which these effects might operate—through social psychological trauma, a reduction in childcare, or some other avenue—and there are very few randomized control trials evaluating such interventions, it is difficult to know what policy shift might be successful.

In closing, although we cannot say anything definitive regarding public policy, the data and corresponding discussion provide some insights as to how policies might respond to children of incarcerated mothers, especially children unlikely to experience maternal incarceration. These analyses, which provide the first broadly representative quantitative evidence about heterogeneity in the relation between maternal incarceration and child wellbeing, make three essential contributions to the research on the consequences of maternal incarceration for children. First, we show that the effect heterogeneity strongly motivated within qualitative research (e.g., Arditti, 2012a; Giordano, 2010; Siegel, 2011; Turanovic et al., 2012) and across quantitative research (e.g., Foster and Hagan, 2013; Wildeman and Turney, 2014) also can be detected in population-based quantitative data by testing for heterogeneous treatment effects (e.g., effects by the propensity for experiencing maternal incarceration). Second, they bring together the seemingly disparate findings from previous quantitative research, as we find substantial detrimental effects on children of mothers very unlikely to be incarcerated, as has previous research (e.g., Hagan and Foster, 2012b; Huebner and Gustafson, 2007), and no evidence of detrimental effects on children of mothers most likely to be incarcerated, as has previous research (Wildeman and Turney, 2014). Finally, and most importantly, our analyses provide an important “reality check” for those critical of the great emphasis placed on the effects of mass incarceration, relative to the effects of criminality and other forms of disadvantage, on families and children (Giordano, 2010; Johnston, 2006; Sampson, 2011). By documenting the point at which the effects of maternal incarceration shift from harmful to nonexistent, we show that the deleterious consequences of maternal incarceration for children are limited to those unlikely to experience that event. In this regard, to construct the most accurate social ledger of incarceration possible and to broaden understanding about the implications of mass imprisonment for inequality (Sampson, 2011), future research must seriously consider the heterogeneous effects of paternal incarceration on children.

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Appendix A

Robustness Checks

It is possible that this striking pattern of findings results from (a) the measurement of maternal incarceration or (b) the reliance on caregiver-reported problem behaviors. We investigate these two possibilities in a series of robustness checks.

First, we replace the measure of maternal incarceration with a more conservative measure of incarceration. In this conservative measure, we code incarceration affirmatively if there is direct or indirect evidence of incarceration (and *not* if mothers were reported to be “never incarcerated” at the 1-year interview and then reported to have been “ever incarcerated” at a subsequent interview with no additional evidence of incarceration). This alternative specification—which, because of the smaller number of mothers considered incarcerated ($N = 153$), necessitates examining differences across only two strata—produces similar findings. These results show that, for children of mothers with a low propensity for incarceration (those in stratum 1), maternal incarceration is associated with large and statistically significant increases in problem behaviors ($b = 1.106$, $p < .001$ for internalizing problem behaviors; $b = 0.875$, $p < .001$ for externalizing problem behaviors; $b = 0.734$, $p < .01$ for early juvenile delinquency), but there is no effect for children of mothers with a high propensity for incarceration (those in stratum 2). The Level 2 coefficients show that the between-stratum differences are statistically significant ($p < .001$ for internalizing problem behaviors, $p < .001$ for externalizing problem behaviors, and $p < .01$ for early juvenile delinquency).

In the second set of robustness checks, we estimate both teacher and child reports of problem behaviors at the 9-year interview. Teacher-reported problem behaviors are measured by responses to the internalizing and externalizing scales of the Social Skills Rating System (Gresham and Elliott, 2007). Child-reported internalizing and externalizing problem behaviors are measured by responses to the Self-Description Questionnaire (Marsh, 1990). Because not all teachers and children were interviewed, these analyses necessitate relying on fewer observations ($N = 2,004$ for teacher-reported behaviors and $N = 3,008$ for child-reported behaviors). The patterns of results are consistent with those estimating caregiver-reported problem behaviors. Children in stratum 1 experienced increases in teacher-reported internalizing ($b = 0.259$, $p < .05$) and externalizing ($b = 0.262$, $p < .05$) problem behaviors as a result of maternal incarceration. The between-stratum differences, shown by the Level 2 coefficients, are statistically significant in estimates of teacher-reported internalizing problem behaviors ($p < .01$) but not in estimates of teacher-reported

TABLE A 1

Descriptive Statistics of Variables Used in Analyses

Variable	Baseline Sample		Analytic Sample	
	Mean	(SD)	Mean	(SD)
Mother Incarceration (y3, y5, y9)	0.081		0.089	
Mother Race (b)				
Non-Hispanic White	0.211		0.205	
Non-Hispanic Black	0.476		0.504*	
Hispanic	0.273		0.258	
Non-Hispanic other race	0.040		0.034	
Mother and Father a Mixed-Race Couple (b)	0.149		0.144	
Mother Foreign-Born (b)	0.170		0.135***	
Mother Age (b)	25.278	(6.052)	24.997*	(5.991)
Mother Lived with Both Biological Parents at Age 15 (b)	0.433		0.411†	
Mother Education (b)				
Less than high school	0.347		0.331	
High-school diploma or GED	0.303		0.317	
Postsecondary education	0.350		0.352	
Father Education (b)				
Less than high school	0.324		0.321	
High-school diploma or GED	0.361		0.382†	
Postsecondary education	0.315		0.297†	
Mother in Poverty (y1)	0.408		0.421	
Mother Material Hardship (y1)	1.148	(1.649)	1.161	(1.629)
Mother Employment (y1)	0.529		0.553*	
Father Employment (y1)	0.786		0.764*	
Mother Lives with Child's Grandparent (y1)	0.188		0.190	
Mother Relationship with Child's Father (y1)				
Married	0.301		0.285	
Cohabiting	0.273		0.277	
Nonresidential romantic	0.098		0.101	
Separated	0.328		0.338	
Mother Has New Partner (y1)	0.113		0.119	
Mother Relationship Quality (y1)	3.305	(1.412)	3.263	(1.412)
Mother Number of Children in Household (y1)	2.305	(1.333)	2.326	(1.325)
Mother Parenting Stress (y1)	2.180	(0.675)	2.179	(0.673)
Mother Depression (y1)	0.155		0.155	
Child Male (b)	0.524		0.520	
Child Born Low Birth Weight (b)	0.102		0.093	
Child Temperament (y1)	0.568	(0.128)	0.567	(0.128)
Mother Smoked During Pregnancy (b)	0.195		0.191	
Mother Used Drugs or Drank Alcohol During Pregnancy (b)	0.136		0.123†	
Mother Has Substance Abuse Problem (y1)	0.018		0.014	
Father Has Substance Abuse Problem (b, y1)	0.169		0.185†	
Mother Impulsivity (y5)	1.531	(0.484)	1.526	(0.483)
Father Impulsivity (y1)	1.987	(0.668)	2.034**	(0.668)

Continued

TABLE A 1

Continued

Variable	Baseline Sample		Analytic Sample	
	Mean	(SD)	Mean	(SD)
Mother Reports Domestic Violence (b, y1)	0.075		0.076	
Mother Previously Incarcerated (b, y1)	0.009		0.007	
Father Previously Incarcerated (b, y1)	0.298		0.328**	
<i>N</i>	4,897 ^a		3,197	

Notes. Timing of measurement of all variables in parentheses (b = baseline interview, y1 = 1-year interview, y3 = 3-year interview, y5 = 5-year interview, y9 = 9-year interview). Internalizing problem behaviors and externalizing problem behaviors reported by children's caregivers. Early juvenile delinquency reported by children. Asterisks indicate statistically significant differences between baseline and analytic samples.

^a*N*s vary across baseline sample because of item nonresponse.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$

TABLE A 2

Means of Covariates by Maternal Incarceration and Propensity Score Strata

Variable	Stratum 1		Stratum 2		Stratum 3	
	$p = [.00, .05]$		$p = [.05, .10]$		$p = [.10, .30]$	
	$E(X) d = 1$	$E(X) d = 0$	$E(X) d = 1$	$E(X) d = 0$	$E(X) d = 1$	$E(X) d = 0$
Mother Race						
Non-Hispanic White	0.174	0.242	0.283	0.280	0.212	0.193
Non-Hispanic Black	0.435	0.354	0.556	0.558	0.576	0.558
Hispanic	0.391	0.404	0.161	0.162	0.212	0.249
Mother Foreign-Born	0.348	0.433	0.020	0.037	0.000	0.000
Mother Lived with Both Biological Parents at Age 15	0.652	0.683	0.333	0.366	0.238	0.245
Mother Less than High School	0.174	0.175	0.192	0.159	0.702	0.667
Mother Employment	0.696	0.786	0.646	0.630	0.219	0.257
Mother Co-Resident with Child's Father	0.913	0.852	0.566	0.547	0.238	0.328
Mother Depression	0.130	0.055	0.091	0.129	0.305	0.273
Father Previously Incarcerated	0.043	0.043	0.303	0.273	0.728	0.675
<i>N</i>	26	788	99	1,140	151	807

Notes. $E(X) | d = 0$ indicates means for not incarcerated mothers. $E(X) | d = 1$ indicates means for incarcerated mothers. Mothers in stratum 1 have the lowest propensity for incarceration, and mothers in stratum 3 have the highest propensity for incarceration.

externalizing behaviors ($p = .118$). Additionally, children in stratum 1 experience increases in child-reported internalizing ($b = 0.262, p < .05$) and externalizing ($b = 0.374, p < .01$) problem behaviors, and the between-stratum differences are statistically significant ($p < .05$ for both child-reported internalizing and externalizing problem behaviors). The results are consistent when restricting the sample to children with mother-reported outcomes.

Therefore, the similarities of caregiver-reported findings to those of teacher- and child-reported findings suggest the data are both valid and reliable.

Sensitivity Analyses. The preceding analyses suggest that the negative consequences of maternal incarceration are concentrated among children unlikely to experience maternal incarceration. It is still possible that these effects result from social selection forces. To investigate this possibility, we present results from Rosenbaum bounds sensitivity analyses, which evaluate how sensitive the propensity score results are to unobserved characteristics. These unobserved characteristics can be correlated with selection into incarceration. We restrict these Rosenbaum bounds to those observations where we find significant effects, those in stratum 1 ($n = 814$). These findings show that any unobserved characteristics not included in the propensity score would have to increase the odds of being incarcerated by 70% ($\Gamma = 1.7$) for internalizing problem behaviors, by 130% ($\Gamma = 2.3$) for externalizing problem behaviors, and by 150% ($\Gamma = 2.5$) for early juvenile delinquency. To contextualize just how substantial a missing source of unobserved heterogeneity would have to be to render our results statistically nonsignificant, consider the results from the logistic regression model estimating the propensity score (not presented). Those results show that exposure to domestic violence is associated with only a 60% increase in the odds of incarceration. Similarly, maternal substance use during pregnancy and paternal incarceration, respectively, are associated with a 110% and 30% increase in the odds of incarceration. Thus, unobserved selection forces would need to be substantial to render these results statistically nonsignificant.

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“Packages” of Risk

Implications for Determining the Effect of Maternal Incarceration on Child Wellbeing

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Interviewer: What’s the best thing that’s happened to you in the last 6 months?

Jason (age 13): My mom came home from prison.

Interviewer: What’s the most stressful thing . . . ?

Jason: My mom came home from prison. (Giordano, 2010: 147–148)

As scholars and practitioners alike have drawn attention to negative effects of incarceration, researchers have increasingly considered that one of the most important collateral consequences may be the impact on the wellbeing of children. Most research on the effects of parental incarceration has focused on the father’s incarceration, which is a reasonable emphasis given the much higher rates of male incarceration. Yet every jurisdiction includes a number of women incarcerated in local and state facilities, and as Turney and Wildeman (2015, this issue) note, this number has been increasing (Guerino, Harrison, and Sabol, 2011). They further underscore that similar to male incarceration, this phenomenon has become a bigger issue in the lives of poor and minority children who already face significant challenges (Wildeman, 2009). A compelling reason to focus research attention on maternal incarceration in particular is that although research clearly has established that father involvement is an important basis of variation across a range of child wellbeing outcomes (e.g., Carlson, 2006; Dyer, Day, and Harper, 2013), mothers remain “close in” if not the primary caregivers for a majority of U.S. children. Thus, it is important to determine not only whether there are aggregate effects of maternal incarceration on children, as Wildeman and Turney (2014) have explored in other recent

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analyses, but also how the effects can vary, as in Turney and Wildeman's current (2015) study.

Turney and Wildeman (2015) document inconsistencies and contradictory effects across previous studies that have examined the impact of maternal incarceration on child wellbeing—some finding detrimental effects, some essentially “null” or no effect, and still other results hinting that incarceration might actually be beneficial to the child. In addition, they note that this variation is evident across investigations based on quantitative as well as qualitative methods. However, Turney and Wildeman conclude that one reason for the disparate findings may be variations in the type of sample employed, recognizing that maternal incarceration occurs at a relatively low base rate within the general population. Drawing on the Fragile Families and Child Wellbeing Study (FFCWB) (in which a large proportion of the sample includes children born to unmarried parents) is a particular asset of this analysis, as 9% of mothers report incarceration experience. This result compares with the relatively small number of participants (1%) in studies such as the National Longitudinal Study of Adolescent Health (Add Health), who report a background of maternal incarceration. The FFCWB sample provides a basis not only for making the general comparison (children in families where a mother has been incarcerated vs. no maternal incarceration), but also a larger sample for exploring the idea of conditional effects (some children affected more than others). Turney and Wildeman (2015) find that negative effects of maternal incarceration are observed only among the subgroup least likely to experience it, based on their more favorable socioeconomic, family, educational, and lifestyle circumstances. We explore the potential meaning(s) and implications for policy of the aggregate findings (and the parallel pattern evidenced within families whose circumstances are consistent with a high propensity for incarceration), as well as of these conditional effects findings.

In general, Turney and Wildeman's (2015) results are consistent with a perspective on incarceration effects developed through an examination of the lives of a sample of 158 children born to women and men with significant levels of juvenile and adult incarceration experience (Giordano, 2010). In that study, Giordano followed up a group of delinquent youths originally interviewed as adolescents and incarcerated in institutions for juvenile offenders. These young people were interviewed again as adults (average age 30), when many had small children, and in connection with a second follow-up (average age 39) that focused primarily on issues of parenting and child wellbeing of the adolescent children of the original respondents. Many of the children born to this sample of respondents had experience with a mother's or father's incarceration or with both parents' criminal justice system involvement. Yet based on our interviews with these young people, and on assessments of the total “package” that was life within many of these families, we concluded that the parents' broader lifestyle (e.g., drug use, violent behavior, other forms of offending, and economic and social marginality) appeared outsized in its effects on child

wellbeing—relative to consequences stemming from the experience of maternal or paternal incarceration itself.

This conclusion seems in line with (a) Turney and Wildeman's (2015) maternal incarceration results relying on the FFCWB data, (b) the thrust of a previous commentary in this journal by the director of the Center for the Children of Incarcerated Parents (Johnston, 2006), and (c) conclusions drawn from a more recent study based on interviews with caregivers of children with incarcerated parents (Turanovic, Rodriguez, and Pratt, 2012). Johnston's (2006) comments and suggestion that we may be "going down the wrong road" (i.e., focusing too much on the incarceration issue, not enough on the underlying difficulties and problems that predate incarceration) are of particular note, as the center she directed was initially developed to address children's needs that stemmed from the incarceration experience. The research by Turanovic et al. (2012) is also important, as the researchers' interviews with caregivers provide a different vantage point for understanding what by all accounts are "complex family systems" characterized by a formidable set of disadvantages (this nicely parallels Turney and Wildeman's focus on propensity indices that include many of these other-than-incarceration factors). The caregivers interviewed within the context of their study also frequently expressed the idea of either positive changes or no change after incarceration, particularly noting that many of the women had mental health issues, problems with addiction, and histories of abuse. The researchers noted that in many cases, mothers of those in their sample had been involved intermittently in the lives of their children or in other instances had not ever been primary caregivers. Turanovic et al. concluded that the finding that maternal incarceration is harmful may be a result of "the research literature's inability to disentangle preexisting hardships from the focal incarceration" (2012: 945).

Turney and Wildeman (2015) make a significant contribution on the "disentangling" front, as the FFCWB data include respondents and children whose circumstances reflect varying levels of disadvantage and hardship, as well as variability on whether or not the mother had been incarcerated. This provided the opportunity to determine whether an effect of incarceration was observed once these other disadvantages had been taken into account, as well as to examine the situation in which a child experienced incarceration even though the broader background reflected advantaged circumstances quite unlike the (more typical) configuration in which these other hardships were also present. The FFCWB study includes oversampling of unmarried parents who live in large cities, providing a sample of socioeconomically disadvantaged families, which increases the range of problematic circumstances of the children whose wellbeing was assessed. And in related work, Wildeman and Turney (2014) show how certain basic characteristics of their sample of incarcerated mothers are similar to those of women incarcerated in jail and state prison settings. However, two apparent differences are worthy of mention. First, the clear majority of children in the analytic sample (93%) lived with their biological mothers, as a contrast to studies cited previously and national statistics (e.g., Glaze and Maruschak, 2008) indicating that a larger share of incarcerated mothers may not live with the child prior to incarceration (or did so

intermittently as Turanovic et al. indicated) or after they are released. As another example, in the Ohio Life-Course Study (OLS), 49% reported that they did not have custody of at least one minor child. In addition, as shown in results presented in Table 3 of Turney and Wildeman (2015), only 3% of mothers in the high-propensity subgroup reported “a substance abuse problem” (as contrasted with 0.6% in the low-propensity stratum), a finding that also diverges from other research, including prison surveys pointing to a central role of drug involvement in understanding women’s offending patterns and paths to incarceration (Mumola and Karberg, 2006). The FFCWB question that taps drug problems (posed as a direct question) could have resulted in underreporting, and practical considerations limited the reach of the sample to respondents who completed the 9-year in-home interview. Yet while the sample to a degree likely underrepresents serious female offenders and their children, as a whole it is nevertheless disadvantaged relative to traditional survey samples, and the lives of children of incarcerated mothers in this sample include an array of additional disadvantages. The results of Turney and Wildeman’s (2015) analyses, then, can be viewed as providing a conservative test, as no incarceration effect was observed even within the framework of the levels of disadvantage accessed via the FFCWB sampling strategy. Next we consider in more detail some of the implications of these findings.

“Central Tendencies” within These Data May Be of Greatest Importance from a Policy Standpoint

Turney and Wildeman’s (2015) methodological strategy identified a condition under which maternal incarceration itself seemed to result in detriments to child wellbeing—the situation in which many aspects of children’s lives differed from the typical circumstances of children of incarcerated mothers. However, it would be premature to conclude from this analysis that policy initiatives and scarce resources should be directed to these unlikely-to-experience-the-event children, as Turney and Wildeman acknowledge.

First, as shown in their Table 3, this is a relatively small subgroup relative to the larger group of children with incarcerated mothers whose circumstances include the full “package” of these other hardships and sources of risk. In addition, information was not provided about the absolute levels of the difficulties observed (i.e., did the children in the low-propensity subgroup who experienced parental incarceration score lower on the Peabody Picture Vocabulary test and higher on delinquency than their counterparts in the high-propensity subgroup, or was it simply that they scored lower than would be expected given their generally favorable status on these other dimensions?). In most studies, numerous layers of risk are linked to less favorable outcomes (e.g., Chapman et al., 2004; Evans and English, 2002; Evans and Kim, 2010; Schilling, Asetine, and Gore, 2007; Turner and Lloyd, 1995). For example, Whitaker, Orzol, and Kahn (2006) examined the impact on early child wellbeing of three maternal problems, including mother’s mental illness, drug use, and domestic violence, and they found that the presence of all three was particularly detrimental. This idea of a highly negative impact of configurations of

risk is also consistent with the current interest in polyvictimization (Finkelhor, Ormrod, and Turner, 2007; Finkelhor, Shattuck, Turner, Ormrod, and Hamby, 2011; Ford, Elhai, Connor, and Frueh, 2010), a line of research emphasizing that a nexus or “piling on” of such aversive experiences seems to be especially deleterious for child wellbeing outcomes. Finally, considering the other features of the lives of the low-propensity subgroup (a high percentage of the parents had postsecondary education, a majority lived with both parents, and a minority were living in poverty) provides reason for expecting that many of the children in this subgroup could benefit over the long haul from these resources and potential sources of resilience as they begin to navigate the peak periods of risk (adolescence and the transition to adulthood). In contrast, those in the high-propensity subgroup are likely to face additional challenges because of their disadvantaged structural locations (e.g., higher concentrations of delinquent peers and lower quality schools), and these factors could combine with the earlier experienced difficulties to compromise the long-term wellbeing of many of those in this multiple-disadvantages subgroup. As the “usual, customary” children of the incarcerated mothers, these should be the focus of significant policy attention. That the incarceration experience does not contribute uniquely to their scores on the wellbeing indices should not be a basis for minimizing the risks facing the high-propensity group and the group as a whole (of which they are a major part).

Some Parts of the “Package” (Notably Offending and Incarceration) Are Especially Intimate in Their Connections to One Another and to Overall Risk

The idea of configurations of risk has long been of sociological interest (e.g., early research in the Chicago School tradition—Park and Burgess, 1925; Shaw and McKay, 1942), but there is a particularly close association between offending and incarceration—one that is not always foregrounded in discussions of and research on incarceration effects. Thus, findings from the Chicago School research highlighted that various societal problems tended to cluster within the same neighborhoods; yet clearly infant mortality is a social problem distinct from criminal behavior. In contrast, incarceration does not occur (except among the falsely accused) without some level of offending that precedes it. Despite this basic linkage, as Uggen (2013: 2) recently suggested, the current interest in mass incarceration has developed somewhat independently of research in the causal tradition:

Criminologists such as Edwin Sutherland viewed the process of making laws, breaking laws, and the societal reaction against lawbreaking as “three aspects of a somewhat unified sequence of interactions.” Contemporary advances in these areas, however, have increasingly developed in separate literatures.

Our view is that as we consider the various elements that make up propensity (or the idea of a “package” of disadvantages), the parent’s offending behavior is a key element and part of the sequence of actions and (societal) reactions that *together* are likely to adversely affect child wellbeing. Our own critique of the incarceration effects literature developed

from what we saw as a general inattention to the stresses and negative dynamics attached to the underlying “lifestyle” or offending aspects of respondents’ histories. Nevertheless, periods of incarceration were generally part and parcel of the life experiences of the women we interviewed and, in turn, were intertwined in the life experiences and effects on their developing children.

In many respects, the processes that directly influence the child’s wellbeing (mechanisms) are themselves parallel and often are part of a reciprocally related process. For example, maternal drug use, particularly in disadvantaged contexts, can be associated with housing instability and frequent school moves, but these may occur in a sequence that includes moves occasioned by arrests and periods of incarceration. As an example, Daniella, a respondent who participated in the OLS study, had six children, and when interviewed in her small apartment at the first adult follow-up, none of the children (ages 10, 9, 7, 6, 5, and 2) were living in the household with her. Yet most of these children (except the two youngest) had lived with Daniella at various times, while residing at other points with either Daniella’s mother or their aunt. Maurice, now living with his father, describes his history of school moves, which were sometimes related to one of Daniella’s jail stays, to periods of especially heavy drug use, and to the family’s meager economic circumstances:

I went to Jefferson my whole freshman year . . . sophomore year second semester I went to Fairview. . . And then first quarter junior year I went to Central, and then I went back to Jefferson my whole junior year . . . because I was moving with my mom. See when I was going to Fairview, I was staying with my auntie, and I moved with my mom my sophomore year right when I switch . . . then started off at Central, because she’s [mother] in Central district, then I moved with my dad that same year, and then back to Jefferson the rest of my junior year. Now I’m at Walnut Grove [lives with Dad who also moved again] . . . I really don’t like it that much. I don’t know, it ain’t my type of school. (Giordano, 2010: 114)

Each of the lengthy interviews with mothers and children was transcribed and later abstracted, and cases were often given a shorthand label to aid recall during analyses of these data. Daniella’s label was “more jail, violence, drugs, misery,” a descriptor that serves to highlight the total “package” idea and interconnected nature of Daniella’s—and her children’s—difficulties.

As scholarship in the mass incarceration tradition has developed, it is easy to understand why offending and incarceration have often been “decoupled”: Researchers have shown that incarceration trends are deeply influenced by political and economic interests, and significant increases in incarceration have occurred even as crime rates stabilized or declined (Western, 2006). Furthermore, studies of decision making across various levels of the criminal justice system have revealed numerous biases, inconsistencies, and jurisdictional differences (Steffensmeier and Demuth, 2000; Ulmer, Light, and Kramer, 2011; Zatz,

1987). However, particularly when viewed at the individual and family level, those who garner incarceration experience often have a fairly significant history of offending. For example, we decided to interview girls at the state juvenile correctional facility (which later became the OLS longitudinal study) in connection with our larger neighborhood-based study of female delinquency. The impetus for this phase of the study was that even though we had oversampled in high-crime areas, the number of female adolescents who could be considered delinquents was nevertheless low. In a comparison of responses of the young people incarcerated at the state correctional facilities and within the context of the neighborhood-based study, we found that the incarcerated girls and boys were not only more delinquent than the average neighborhood youth but also more delinquent relative to the most delinquent youth included in the neighborhood survey (Cernkovich, Giordano, and Pugh, 1985). Consistent with this, we note that even within the context of studies focusing on biases in criminal justice decisions, most research has shown that the seriousness of the offense is a significant predictor of police actions (Black, 1980; Wilson, 1978) and, along with prior offenses, a robust predictor of sentencing decisions—including the incarceration decision as well as determinations about sentence length (Spohn, 2000; Zatz, 2000). This does not equate to the idea that incarceration is the appropriate option for handling many of these cases, but it does suggest that a parent's incarceration is an efficient "marker" of a significant offending history—with its own attendant costs to child wellbeing.

Offending Often Is Up Close and Personal

Why should we be concerned with the offending side of things? The offending component of this offending–incarceration package may last longer than typical spells of incarceration (particularly if these revolve around the typically shorter jail stays), is often intrusive (i.e., is part of the child's daily life), and provides a direct pathway to the child's own aggressive behavior, delinquency involvement, and substance use. For example, when Kierston was asked about how old she was when she became aware that her mother was using drugs, she replied "seven. She'd just stay out all night. This has been going on since I was seven years old, and I'm twenty-one" (Giordano, 2010: 141). Jason, quoted at the outset, was happy that his mother had recently come home from prison, and yet he found her presence stressful. This respondent told the interviewer that he had "a hammer and I sit it right next to my bed 'cause I know if my mom comes in messed up on drugs, she gets real violent" (Giordano, 2010: 1). The life history narrative makes clear that Jason has at times attempted to manage the problem directly and provides a caution to the idea (Hirschi, 1969) that parents, even if deviant, rarely reveal this to their children:

I've seen her pass out and stuff fall out of her pockets and hands and stuff. I flush it down the toilet and I throw it as far as I can . . . and, like, I spit on it, and . . . if its pills and stuff I put them in hot water . . . then down the sink

'cause I know she'll drink it. . . . I flush them down the toilet . . . 'cause if I put them down the sink she always like, she thinks about getting in the pipes, and she always looks for wrenches and stuff. (Giordano, 2010: 144)

Jason also resented that in the past his mother had stolen from him ("why would you steal off me? Why her own son?" Giordano, 2010: 145), even as he expressed love for her and fears for her safety out on the streets ("I gotta worry about . . . seeing in the newspaper that they found a dead body—it's heartbreaking"; Giordano, 2010: 149). At the time of the interview, Jason expressed a strong desire to go down a path that was different ("everybody expects me to be like just like my mom and everybody knows I just ain't like my mom"; Giordano, 2010: 168). However, perhaps even more heartbreaking than this 13-year-old's discussion of his complicated concerns and emotions, we note that as of this writing, 21-year-old Jason had himself accumulated 14 separate entries on the state department of corrections website (e.g., drug use paraphernalia, resisting arrests, breaking and entering, and failure to appear).

The offending aspect of the package also potentially provides more detailed lessons (relative to the child's experience of the parent's incarceration) that are directly implicated in intergenerational transmission processes. Some studies of incarceration effects have focused on the feelings of loss and experience of stigma that can surround the parent's incarceration (Arditti, 2005). Murray, Bijleveld, Farrington, and Loeber's (2014) recent work is consistent in emphasis, describing mechanisms that heighten the risk of negative outcomes for the next generation, including "trauma of parent-child separation, stigma associated with the incarceration, and social and economic strains that result from the parent's absence" (Murray et al., 2014: 27).

First, parallel or interrelated dynamics are linked to the parent's offending. For example, one young respondent talked about being embarrassed when his mother would come to pick him up at a friend's house and it was obvious that she was high; another pointed out that after her mother came home from jail, she would often promise to stop using drugs, "but after about 4 days she'll take off." Even more on point, the parent's behavior provides a ready model and direct, frequent communications to the child heighten the likelihood that the latter will come to rely on aggression during conflict situations or draw on drugs or alcohol use as a coping strategy. Other attitudes that are not strictly speaking "definitions favorable to the violation of law" (Sutherland, 1939), such as negative reactions to teachers and other authority figures, may decrease the child's access to traditional means to a more prosocial lifestyle. For example, when Susan came home from school and told her mother about an altercation with her teacher, her mother went back to the school and wound up physically assaulting the teacher herself.

Thus, viewing parental effects only through the lens of a stress process, or in light of what is missing from the child's life, does not complete the portrait of mechanisms involved, particularly when the focus is on externalizing behaviors or early juvenile delinquency, which

are two of the wellbeing outcomes assessed in the current study. In addition, the life histories we elicited from the OLS respondents provided ample evidence that what is “present” in the way of antisocial influences extends well beyond the attitudes and behaviors of the focal parent. In addition to antisocial partners, other family members and friends can comprise a wider network of affiliations that contributes to children’s encapsulation in worlds that include but are not limited to a familiarity with prison and jails. This is a particular problem for children of women with offending (and incarceration) histories, as some of these same individuals might become caregivers when the women cannot care for their children—whether because of their mother’s drug involvement or other lifestyle concerns or because of periods of incarceration.

Policy Implications and Future Research Directions

Turney and Wildeman’s (2015) research showed that children growing up in families characterized by maternal incarceration do not fare well on a range of wellbeing outcomes, and in our view, the policy implications should be drawn primarily from these aggregate findings. Turney and Wildeman also showed conditional effects, as a negative impact of incarceration was observed when family circumstances did not include the package of other disadvantages that tend to co-occur with the incarceration experience. However, most children of incarcerated parents or who have parents with incarceration experience do experience these other forms of disadvantage, including not only less favorable social and economic circumstances but also exposure to parents whose offending histories contribute to risk directly. We should not conclude, either from this analysis or our own research, however, that incarceration is really “inconsequential.” In the long run, it may prove more useful to conceptualize these components as part of a difficult-to-pry-apart package and to develop ways to capture more effectively the idea of a sequence of events that results in greatly diminished life chances. Certainly, the parents and children’s problems do not all stem from incarceration, but periods of incarceration often further marginalize individuals and families (e.g., some forms of housing are off limits and the criminal record diminishes employment prospects) as critics of mass incarceration trends have effectively highlighted.

In the short term, it is important to devote significant resources to the children of incarcerated mothers, as they are an extremely vulnerable group. In our view, much of the focus should be on the inconsequential effects or high-propensity subgroup (i.e., those with all the interrelated disadvantages). Generally consistent with the study results, the resources provided should extend beyond efforts to address the stresses associated with the mother’s incarceration (e.g., facilitating more frequent visits), to include safe alternative placements, treatment for abuse or other forms of victimization, and positive alternative models who can provide concrete support (e.g., academic assistance). Future research on conditional effects could be directed toward features of the child’s life that often, but not inevitably, serve as pathways to greater difficulty, such as the frequency of school or residential moves. Focusing on these areas could provide additional direction for ways to interrupt what

is often a formidable press in the direction of an intergenerational pattern of continued difficulties.

Longer term, high-quality programs to address many women offenders' underlying problems with addiction and/or mental health issues are needed, as prison and jail settings often do not provide intensive, consistent delivery of these services. Relative to men in the OLS study, women were much more likely to have frequent contact with their children despite the challenges posed by their offending and their incarceration. This finding suggests the need for support and monitoring, whether this occurs postincarceration, after drug treatment, or ideally, as participation in the newer generation of programming designed around the multiple problems and needs of women offenders (Van Voorhis, 2012).

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Family Process Perspective on the Heterogeneous Effects of Maternal Incarceration on Child Wellbeing

The Trouble with Differences

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Although the preponderance of evidence suggests that parental incarceration has lasting and detrimental effects on children (Arditti, 2012; Murray and Farrington, 2008a; Murray, Farrington, Sekol, and Olsen, 2009; Poehlmann and Eddy, 2010; Wildeman and Wakefield, 2014), research has been advancing that seeks to understand the conditions in which negative consequences are most likely. The issue of heterogeneity involves considering variation in children's social and family environments, as well as examining incongruities in child and family outcomes as they pertain to parental incarceration. As pointed out by Turney and Wildeman (2015, this issue), these incongruities among studies are more obvious with regard to maternal incarceration and child outcomes, and they could stem from a methodological approach with qualitative studies suggesting a wider and more nuanced range of possibilities for children experiencing incarceration than quantitative studies. Given the epistemological assumptions that guide qualitative research, it makes sense that new and unexpected possibilities could then emerge, including findings suggesting that children might do well in conjunction with a parent's incarceration. Sample variation, measurement, and different statistical approaches contribute to heterogeneous effects of maternal incarceration on children. In this policy essay, I discuss the applied implications of the issue of heterogeneity as it pertains to maternal incarceration and comment on a well-executed analysis examining the heterogeneous effects of maternal incarceration. Turney and Wildeman used a well-known representative quantitative data set surveying

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fragile families. The central conclusion of their study was that *maternal incarceration was deleterious for children whose mothers were least likely to experience incarceration but mostly inconsequential for children of mothers more likely to experience incarceration*. Turney and Wildeman's findings lend support for the need to study both average and heterogeneous effects of parental incarceration. In the following discussion, I hope to help augment explanations for the heterogeneous effects of maternal incarceration. My comments are informed by a family process perspective that pays close attention to mediating mechanisms and childhood and family resilience. I situate these explanations by first summarizing the context of maternal incarceration.

Context: Profile of Incarcerated Mothers and Their Children

Although women constitute only approximately 8–10% of the incarcerated population at any given time, their rate of confinement has been most remarkable. The number of women in prison increased by 646% between 1980 and 2010, and this rate of increase was approximately 1.5 times the rate of men (Harrison and Beck, 2006). Most female prisoners are mothers, and the steep increase in the incarceration of women has been estimated to impact more than 1 million American children. Since 1991, the number of children younger than 18 years of age with a mother in prison has doubled (up 131%; Glaze and Marushak, 2010). Female prisoners are also more likely than men to report having multiple children and are more likely to have resided with their children prior to arrest and subsequent incarceration (Glaze and Maruschak, 2008). Approximately 64% of mothers held in state prison, and 80% of mothers in federal prisons, reported living with at least one of their children prior to incarceration, with almost half of mothers reportedly living in a single-parent household (Glaze and Maruschak, 2010).

Because of women's roles as primary caregivers, children's wellbeing is often closely tied to their mothers' confinement and treatment within the criminal justice system (Foster and Hagan, 2007; Snyder, Carlo, and Mullins, 2001). Maternal incarceration has been linked to child psychopathology including school failure, antisocial behavior, and intergenerational incarceration (Dallaire, 2007; Huebner and Gustafson, 2007; Murray and Farrington, 2008a; Phillips, Burns, Wagner, Kramer, and Robbins, 2002). Scholars have argued that the apparently detrimental effects of maternal incarceration are partly caused by risk and discontinuity in children's care arrangements that often result from a mothers' confinement. For example, a fundamental difference between incarcerated mothers and fathers is who cares for the children during the parent's absence. Although 89% of incarcerated fathers report that their children were in parental care, that is, living with their nonincarcerated mothers, only 37% of incarcerated mothers in state prisons reported their children lived in parental care with the other parent. Children of incarcerated mothers appear to reside in diverse, nonparental care arrangements, with 45% of mothers in prison reporting that

children were living with grandparents, other relatives (23%), or in foster care (11%) (Glaze and Maruschak, 2010).¹

Apart from the potential disruptions a mother's criminal justice involvement could cause for her children, maternal incarceration is typically indicative of extreme disadvantage and can further intensify disadvantage among her children (Johnson, 2007; Vainik, 2008). Women in the criminal justice system are disproportionately women of color; Black women are incarcerated at nearly 3 times, and Hispanic women are incarcerated at approximately 1.6 times the rate of White women (Guerino, Harrison, and Sabol, 2011). Women in the criminal justice system are also more likely to be poor, single mothers, often with highly stigmatized histories of drug use and mental health difficulties (Covington, 2007; Glaze and Maruschak, 2010; Klee, 2002). Mothers involved in the criminal justice system can be described as the most vulnerable women in the United States given their backgrounds of economic deprivation (sometimes characterized by homelessness prior to arrest), histories of childhood abuse, domestic violence, sexual victimization, and substance abuse (Arditti and Few, 2006; Glaze and Maruschak, 2010; Hanlon, O'Grady, Bennett-Sears, and Callaman, 2005; Lawston, 2008; Richie, 2000). In sum, the profile of women in the criminal justice system is that they are mothers with minor children and have intense histories of cumulative disadvantage. These facts translate to heightened risk for children that were under their care.

Family Process Perspective on Maternal Incarceration and Child Outcomes

Scholars studying heterogeneity have reasoned that recent research reporting “null effects” with regard to the effects of maternal incarceration on children (e.g., Wildeman and Turney, 2014) might obscure negative effects on children that connect with specific constellations of risk. Indeed, *it is difficult to imagine a scenario in which a mother's incarceration was inconsequential for children*. And yet, for children categorized by Turney and Wildeman (2015) as having mothers who were *most* likely to be incarcerated, that is exactly what was revealed by the multivariate analysis. Conversely, maternal incarceration significantly predicted negative child outcomes for more advantaged youth whose mothers were *least* likely to be incarcerated. Turney and Wildeman suggest that their findings could be a result of sample attrition or a “saturation” effect in that children stop experiencing negative consequences once they hit a certain level of adversity. Both of these explanations make sense. Here, I would like to offer additional commentary regarding Turney and Wildeman's findings based on a family process perspective, which would point to how family functioning might or might not be impacted by maternal incarceration and how these shifts (or the lack thereof) could translate into heterogeneous child outcomes. A family process perspective also

1. The numbers are likely comparable but are unavailable for children with parents in the federal system (see, for example, Mumola, 2000, regarding estimates that represent averages of both state and federal prisoners). These numbers exclude children whose mothers are in jail.

supports a focus on individual and family resilience, that is, patterns of positive adaptation within the context of adversity (Masten and Powell, 2003; Walsh, 2006). Using a family process perspective suggests two additional possibilities with regard to the heterogeneous effects of maternal incarceration: (a) Family caregiving processes are of higher quality and/or less likely to be disrupted as a result of maternal incarceration among the most disadvantaged children and (b) the most disadvantaged children are the most resilient or have the most resilient families.

Heterogeneity Explanation 1: Maternal Incarceration and Family Caregiving Processes

Amato, Loomis, and Booth's (2005) research examining the heterogeneous effects of parental divorce on children provide us with some "clues" regarding the importance of considering family processes to understand the impact of family transitions on child wellbeing. Using longitudinal research that specifically assessed levels of family conflict in both divorced and married households, the study findings by Amato et al. debunked the predominant paradigm that divorce was always bad for children and that having married parents ensured children's psychological and emotional wellbeing. The heterogeneity of effects involved differences in family processes between those children of divorce from "high-conflict" homes and those from "low-conflict" homes. In high-conflict families, children had higher levels of wellbeing in young adulthood if their parents were divorced than if they would have stayed together. Amato et al. interpreted this finding to suggest that children from high-conflict homes might gain some relief from divorce because of a decline in the stress they were experiencing. Amato et al. (1995: 913) argued: "Divorce can remove a child from a hostile, dysfunctional, and perhaps abusive environment." Conversely, not all cases of divorces were preceded by periods of overt conflict, and children in low-conflict families might have experienced shock and disbelief over their parents' divorce, which in turn could correspond to long-term negative outcomes. I believe Turney and Wildeman's (2015) study, which seeks to unpack the null effects of maternal incarceration, yields findings that point to underlying differences in family functioning between more advantaged and less advantaged youth. The most plausible explanation for heterogeneity among youth in Turney and Wildeman's analysis likely has to do with the effects (or lack thereof) of maternal incarceration on the quality and stability of children's caregiving. Unfortunately, Turney and Wildeman's datum does not permit an exploration of how this key mediating mechanism might contribute to diverse child outcomes.

Children's positive relationships with their primary caregivers can potentially mediate the degree to which youth are affected by trauma experiences (Federal Interagency Working Group, 2013; Parke and Clarke-Stewart, 2001). Similar to Amato et al.'s (1995) family conflict model within the context of divorce, here it seems that effect heterogeneity might once again point to contexts when maternal incarceration might improve children's caregiving scenarios (e.g., removing an abusive or neglectful parent from the home) or, at the very least, fail to disrupt those scenarios. Improvement can involve protecting children

from exposure to harmful behaviors such as maternal drug abuse (Hanlon et al., 2005) or because mothering was troubled in the period prior to incarceration. Similarly, maternal incarceration could be inconsequential to the extent it was not associated with changes in children's lives *because they were already under the supportive care of someone else besides the mother* (Turanovic, Rodriguez, and Pratt, 2012).

I speculate the most disadvantaged children either correspond with Amato et al.'s (1995) "high-conflict" children of divorce in that their environments were characterized by more stress prior to the transition event (in the current study by Turney and Wildeman [2015], mothers' incarceration) or because children in highly disadvantaged families were already disengaged from the incarcerated mother. It stands to reason, then, that maternal incarceration might be more negative for more advantaged youth and their families, who might experience the most negative effects of maternal incarceration, similar to youth from "low-conflict" families in which they later experienced the most negative effects of divorce. Maternal incarceration is less likely to occur in more advantaged families, and in turn, family members might react with shock and disbelief, and they might be unprepared to deal with the host of changes and difficulties necessitated by maternal incarceration. However, the context of family life is different in the most disadvantaged families whereby maternal incarceration is most likely and, arguably, most expected. In these families, mothering is probably troubled and characterized by factors (such as substance abuse, impulsivity, and father incarceration) that would make it more likely that the most disadvantaged children are already in alternative nonparental care arrangements. This likelihood (nonparental care that might be either better than maternal care or in place prior to the mother's incarceration) is amplified by the fact that in Turney and Wildeman's study, the most disadvantaged mothers were the least likely to be married to their children's fathers, and their children were more likely to experience *both* maternal and paternal incarceration.

Thus, highly disadvantaged kids and their families might be better "prepared" for maternal incarceration. Mother's confinement might not be associated with declines in child wellbeing to the extent it does not create disruptions in children's primary family relationships—the quality and stability of which are theorized to mediate the effects of parental incarceration on children (Arditti, 2012; Murray and Farrington, 2008b; Parke and Clarke-Stewart, 2001). Turanovic et al. (2012) provided some support for this possibility in their qualitative study of maternal incarceration, which found that caregivers of imprisoned women's children were likely to have expressed either positive changes or no changes to their lives as a result of the incarceration. Interview data revealed that this was because many of them had assumed a large share of parenting roles in children's lives "long ago" and had "distanced themselves from their children's mothers (resulting in no changes)," or they had "otherwise experienced a form of relief in their absence" (Turanovic et al., 2012: 945). Hanlon et al.'s (2005) study of drug-addicted African American mothers who later became incarcerated revealed similar themes; most of their children ($n = 88$) were neither maladjusted nor deviant based on the study measures (Hanlon et al., 2005). Hanlon et al.

(2005) admitted their study findings ran counter to their expectations. They attributed the youth's apparently benign circumstances to the fact that in most instances, mothers had not been the primary caregivers prior to the incarceration but in fact:

[T]he incarceration of these mothers did not deprive the children of their primary caregivers (in most cases, the grandmother) who, early in the children's lives, had already assumed major responsibility for their upbringing. . . . Nearly 80% of the children indicated that they were currently living in a peaceful and caring home atmosphere . . . [and] expressed satisfaction with how they were currently being parented by their surrogate mothers. (Hanlon et al., 2005: 83)

The "null" effect of maternal incarceration revealed by both of these qualitative studies suggests the need to examine family processes and, specifically caregiver functioning and youth perceptions of the quality of these relationships, to disentangle the effects of maternal incarceration on family outcomes.

Heterogeneity Explanation 2: Maternal Incarceration and Family/Childhood Resilience

Similar to the dearth of research examining caregiving processes as it pertains to maternal incarceration, little research is available that is strengths-based or that has documented the resilience of offender parents, their children, and their family members. A family resilience perspective identifies protective factors and processes within the family system that seem to "buffer" or lessen a family's vulnerability to adversity, as well enhance its ability to adapt and demonstrate competence under stress (Conger and Conger, 2002). Qualitative research has revealed that even within contexts of extreme disadvantage (such as those that characterize maternal incarceration), resilient families are extremely resourceful, have broad and flexible family boundaries, and share breadwinning and nurturing roles as needed (Burton, 1992; Jarrett, 2010). Could it be that in addition to being more "prepared" for maternal incarceration (and subsequently less affected), the most disadvantaged youth and their families are more resilient?

A recent phenomenological study revealed evidence of resilience among adolescents with a parent in prison—some of whom had mothers in prisons. These youth coped in an array of ways, including deidentifying (i.e., avoiding their relationship) with their incarcerated parent and bonding with other parental figures in their lives. At least half the youth in this small study employed such a process and, as a result, adapted to parental incarceration (Johnson and Easterling, 2014). For youth with mothers in prison, we can speculate this process of deidentification with the incarcerated parent and identification with replacement parental figures might be salient given the heightened chance that they will be in "nonparental care" as a result of their parent's incarceration (compared with youth with incarcerated fathers; Glaze and Maruschak, 2010). This possibility (deidentification with the incarcerated mother) is heightened in instances when children are in a close, stable, and longstanding relationship with a family caregiver such as a grandmother (Hanlon et al.,

2005), as could be the case for highly disadvantaged youth given their social contexts. We find similar processes of “deidentification” with parents among transcendent youth who experience extreme adversity in other childhood contexts and yet can thrive and forge functional lives despite a painful past (Rubin, 1996). It would be intriguing to examine the coping strategies of youth and determine whether there are differences based on their social environments and level of disadvantage.

Similarly, African American families (who also are more likely to be represented among the most disadvantaged families) might inherently possess the characteristics of resilience because of their adaptation over centuries of disenfranchisement and cumulative disadvantage. Such adaptations include contemporary kin networks in which children are a shared responsibility (Miller, 2007). Characteristics of resilient African American families include a strong sense of familial obligation, fluid household boundaries exhibited by the willingness to “absorb” relatives, high familial interactions, and strong systems of mutual aid (Moras, Shehan, and Berardo, 2007). This view and practice of children as a “collective responsibility” is a cultural asset of incarcerated parents and their children, particularly in instances of maternal incarceration, whereby affected families tend to need a great deal of assistance (Arditti, 2012; Hanlon et al., 2005). The child welfare literature, which has identified nonparental care as a “risk” for children, also has noted that some nonparental care arrangements are better than others in terms of child outcomes and placement stability (Vandivere, Yrausquin, Allen, Malm, and McKlinton, 2012). Being cared for by relatives tends to be associated with the best outcomes for children compared with residential or foster care arrangements, particularly for African American children who tend to report close relationships with relative caregivers (McWey and Wojciak, 2015). Children’s close relationships with relative caregivers was documented among Hanlon et al.’s study of predominantly African American youth (93% of sample) with incarcerated mothers. It is interesting to note that African American mothers are more inclined to have family members care for their children during their incarceration than White mothers (Enos, 2001). Relative care, then, could be a resilience factor for children with a mother in prison.

Therefore, the most “disadvantaged” children, per Turney and Wildeman (2015), might be more likely to be in relative care and have family systems characterized by fluid boundaries, intergenerational connectedness, and other positive adaptations characteristic of African American families. Furthermore, in highly disadvantaged family contexts, because maternal incarceration is more likely and therefore expected, it might also be less stigmatized, and subsequently met with greater acceptance and support within youth’s social environment than youth in families that are more advantaged and therefore less likely to experience maternal incarceration. Social support is a protective factor that moderates stigma and enhances wellbeing for vulnerable caregivers and children affected by maternal incarceration (Hagen and Myers, 2003). In contrast, I suspect youth, who are less likely to experience maternal incarceration, and more likely to be White according to the descriptive information in Turney and Wildeman’s study, might lack certain cultural assets that can render them more

vulnerable to the negative effects of maternal incarceration than their more disadvantaged counterparts.² More “advantaged” youth (i.e., characterized by fewer risk factors in their social environments), might not only be less prepared for maternal incarceration but also might have family systems that are less accommodating and therefore less resilient. These youth might be more stigmatized, have inadequate social support, and possess a lesser ability to cope.

The Trouble with Differences: Least Affected Children Could Still Be the Ones Most in Need

The search for heterogeneity has implications for policy in that not all children will experience maternal incarceration in the same manner. In applied medicine, the same argument is articulated in terms of “the trouble with averages.” Global evidence, or average effects measured as population means, does not tell the whole story, and treatment effects are not necessarily the same for everyone (Kravitz, Duan, and Braslow, 2004). The bottom line in evidence-based medicine is that misapplying averages can cause harm by giving patients treatments that do not help or denying patients treatment that would help (Kravitz et al., 2004). Such logic is also rightfully applied to the study of maternal incarceration, where treatment and intervention is in its infancy and clearly based on the law of averages. Intervention targeting offenders and their families tends to be fragmented and haphazard, and at times, it could do more harm than good (Arditti, 2012). Examining heterogeneity is worthwhile with regard to maternal incarceration, particularly if it yields information that would inform a responsive intervention and policy protocol for children and their families. Evidence of heterogeneity, such as that yielded by Turney and Wildeman (2015), compels us to consider more fully the context of children’s social environment before jumping to any conclusions and applying interventions to address child outcomes of parental incarceration. Here, I hope to expand the discussion in that heterogeneity in child outcomes might point to differences among youth in terms of the quality and stability of their caregiving arrangements, as well as resiliency on the part of youth and their families within the context of severe disadvantage.

Given the profile of mothers and their children who are impacted by maternal incarceration, we must exercise caution and not misapply findings pertaining to null or heterogeneous effects of maternal incarceration. Null average effects might not necessarily mean that children impacted by maternal incarceration would not benefit from a meaningful policy agenda aimed at alleviating cumulative disadvantage (Wildeman and Turney, 2014). Let us

2. However, Wildeman and Turney (2014) found that maternal incarceration was more likely to be inconsequential or even beneficial for White children based on caregiver reports. Wildeman and Turney argued that the “more select” the mothers who experience incarceration, the more likely the positive or null effects on children. Because White women are far less likely to experience incarceration than Black women, they expected incarceration to be least harmful to the children left behind. This finding is in contrast to Turney and Wildeman’s (2015) study.

not look to heterogeneous effects of maternal incarceration as a reason to ignore the needs of the most disadvantaged children. The fact that the most disadvantaged children seem to be “least affected” does not negate the need for responsive intervention and policy attending to their disadvantage. Individual resilience or the presence of family strengths should never be an excuse to “do nothing”—particularly with regard to ameliorating poverty and other indicators of social and educational disadvantage (Rutter, 1987; Seccombe, 2002). Conversely, Turney and Wildeman’s (2015) findings suggest that greater economic and parental assets do not fully protect children from the negative effects of maternal incarceration. Interventions must be carefully tailored to meet the needs of the target population, and heterogeneous effects point to the fact that maternal incarceration is a complicated issue that will not be addressed effectively via panacea approaches based on a “simple cure” (Petrosino, Turpin-Petrosino, and Finckenauer, 2000). Just as we might incorrectly base a “do nothing” attitude on null effects pertaining to maternal incarceration, we also run the risk of misunderstanding heterogeneity because of a lack of data pertaining to mediating family processes and resilience factors. A family process perspective not only acknowledges the systemic interdependence and distinctive experiences among family members, a framework broadly applied to Turney and Wildeman’s study, but also a comprehensive understanding of what is happening within the family and children’s proximal relationships. A process view goes beyond simply charting risk factors; “the assumption is that risk factors and . . . outcomes are interrelated due to the action of underlying mechanisms” (Cummings, Davis, and Campbell, 2000: 52).

In developing efficacious policy and intervention, I believe far greater precision is needed with regard to what these underlying mechanisms might be and how they cut across or vary depending on the social ecology of families impacted by parental incarceration. Researchers have contended that parental incarceration profoundly alters family relationships, yet scant attention has been given to the role of family processes in contributing to or mediating children’s psychopathology and adjustment, largely as a result of the difficulty in sampling this population of vulnerable families. Moreover, archival databases yielding secondary analyses are typically not designed for this purpose and offer limited insight as to what helps or hurts children with a parent in prison (Aaron and Dallaire, 2010; Edin, Nelson, and Paranel, 2001). Turney and Wildeman (2015), while drawing our attention to the fact that null effects might in actuality obscure differential effects, also reflect on the inadequacies of the data in addressing mechanisms of effect. There is a great need for data that are “incarceration specific”—that is, survey research that incorporates the measures theorized to capture the interrelations of child, family, and systems-level mediating processes. Such research is needed to understand the pathways through which parental incarceration transmits its influence and is valuable in advancing scientific theory that specifies the mechanisms that link incarceration to children’s outcomes (Sampson, 2011).

In addition to the need to fine-tune intervention and policy, Turney and Wildeman’s (2015) findings compel us to collect better data regarding family and resilience processes

associated with parental incarceration. Mixed-methods approaches hold promise in contributing to our understanding of process mechanisms driving heterogeneous effects. Innovative mixed-methods research incorporates a strong and flexible qualitative component to document unexpected and contradictory findings (cf. Lopez et al., 2013), such as the heterogeneous effects discovered by Turney and Wildeman. Qualitative data from a subgroup of study participants would greatly aid in the interpretation of complex quantitative analyses. In bringing more precision to our methodological approach to examining the role of parental incarceration on children's developmental trajectories, we might develop practice and policy recommendations that are effective across a broad range of circumstances.

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