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Table of Contents

PAGE	ARTICLE
iii	Foreword <i>Brecht Donoghue</i> <i>Deputy Associate Administrator of Innovation and Research, OJJDP</i>
1	The Impact of Juvenile Mental Health Court on Recidivism Among Youth <i>Donna M. L. Heretick and Joseph A. Russell</i> <i>Strategies for Solutions Consulting, Arvada, Colorado</i>
15	Gender-Specific Mental Health Outcomes of a Community-Based Delinquency Intervention <i>Ashley M. Mayworm and Jill D. Sharkey</i> <i>University of California, Santa Barbara</i>
36	Predicting Recidivism Among Juvenile Delinquents: Comparison of Risk Factors for Male and Female Offenders <i>Kristin C. Thompson and Richard J. Morris</i> <i>University of Arizona, Tucson, Arizona</i>
48	Building Connections Between Officers and Baltimore City Youth: Key Components of a Police–Youth Teambuilding Program <i>Elena T. Broaddus, Kerry E. Scott, Lianne M. Gonsalves, Canada Parrish, Evelyn L. Rhodes, Samuel E. Donovan, and Peter J. Winch</i> <i>Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland</i>
63	Internet-Based Mindfulness Meditation and Self-regulation: A Randomized Trial with Juvenile Justice Involved Youth <i>Michelle Evans-Chase, University of Pennsylvania, Philadelphia</i>

OJJDP

PAGE

80

Assessing Youth Early in the Juvenile Justice System

*Anne M. Hobbs and Timbre Lee Wulf-Ludden, University of Nebraska, Omaha
Jenna Strawhun, University of Nebraska, Lincoln*

97

A Jury of Your Peers: Recidivism Among Teen Court Participants

*Brenda Vose, University of North Florida, Jacksonville, Florida
Kelly Vannan, University of Central Florida, Orlando, Florida*

110

Commentary: Place-Based Delinquency Prevention: Issues and Recommendations

Jeffrey J. Roth, Indiana University of Pennsylvania, Indiana, Pennsylvania

OJJDP

Foreword

Historically, the state and local response to delinquency has focused on strategies and tactics as they pertain to the system and its agents—law enforcement, the courts, corrections, and affiliated agencies. Today, a growing body of research on adolescent brain and behavioral development, philanthropic advocacy, and pressing fiscal realities are fueling efforts in states and communities across the country as they rethink their response to juvenile offending. Recognizing that an evidence-based approach must guide innovation and reform, OJJDP supports research that informs juvenile justice policymakers and practitioners about what works, what is worth further exploration, and how to improve existing delinquency prevention and intervention responses.

Significant new scientific findings are expanding what we know about the processes of growth and maturation that are ongoing during adolescence. Simply put, adolescents are on the path to adulthood, but this transitory period between childhood and full maturity presents its own unique challenges for the juvenile justice community. Adolescents are not yet adults, nor should we treat them that way when they offend. Our responsibility to our children is to help them successfully navigate the difficult process of growing up so that they become fully contributing members of their communities. Because violence and trauma can often derail positive development of too many young people, it is important that we examine and discuss the issues that hinder their potential and work to get their lives back on track for healthy growth and wellness.

The *Journal of Juvenile Justice* is a critical component in OJJDP's efforts to support the infusion of evidence into policy and practice and to ensure that our partners in the field have ready access to the latest juvenile justice research and evaluation findings. In this issue, we present articles on a study of the effects of one juvenile mental health court on recidivism, an evaluation of gender-specific mental health outcomes of a community-based delinquency intervention program, and a study of whether male and female offenders have differing risk factors for recidivism. Other articles examine a Baltimore team-building program to improve interactions between police and middle school students, the impact of Internet-based mindfulness meditation and guided relaxation on helping incarcerated youth self-regulate, whether formal processing diversion programs or assessments that screen low-risk youth out of the system are effective against recidivism, and the effectiveness of teen courts on recidivism. The Journal closes with a critique of "hot spot" policing on delinquency prevention.

The juvenile justice field is currently undergoing a great period of innovation and reform. OJJDP publishes the *Journal of Juvenile Justice* to share and lend a critical eye to the exciting developments that are taking place in communities across the country. Our goal is to spark an ongoing conversation about how we can better serve our children and point to possible ways forward. We hope that you find this issue of the Journal helpful and thought provoking.



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The Impact of Juvenile Mental Health Court on Recidivism Among Youth

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Keywords: juvenile justice, mental health court, recidivism, program evaluation

Abstract

As many as 70% of youth who enter the juvenile justice system are diagnosed with mental disorders. In 2009 alone, 1.54 million juveniles were arrested. Recidivism rates for these youth can be as high as 52%. Juvenile Mental Health Courts (JMHCs) in conjunction with Intensive Supervised Probation (ISP) is one initiative that addresses the special needs of these juveniles; however, there is limited outcome research with meaningful data comparing juveniles with and without access to JMHCs. This study employed a retrospective observational design to compare the recidivism outcomes of 81 youths (ages 10 to 17) who entered a JMHC in Colorado between 2005 and 2011 with recidivism outcomes for juveniles who entered a JMHC in California during the same time period. This study also compared the outcomes of juveniles in Colorado who were adjudicated and assigned to other forms of probation and diversion, and juveniles in the same state who were diagnosed with a mental disorder and assigned to intensive supervised probation, but

who do not have access to a JMHC. Youth in the experimental group (i.e., those with access to the JMHC) showed significantly decreased recidivism rates during and following their probationary period than those in the comparison groups. Average time to reoffending for youth who completed JMHC successfully exceeded 1 year, with a significant reduction in violent/aggressive and property offenses. This article examines outcomes and includes recommendations for the future evaluation of JMHCs.

Introduction

It is estimated that as many as 70% of youth who enter the juvenile justice system are diagnosed with one or more mental disorders (Hammond, 2007). To put this figure into perspective, approximately 1.54 million individuals under age 18 were arrested in the United States in 2009 alone (U.S. Census Bureau, 2012). While precise recidivism rates for this population are often difficult to determine (Roberts & Bender, 2006; Snyder & Sickmund, 2006), McReynolds, Schwalbe, and

Wasserman (2010) have estimated a recidivism rate of 52.8% for these youth.

Mental Disorders Among Youth

Definitions of mental disorders among youth and adolescents in the juvenile justice system generally have followed criteria established by the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; APA, 2000). The most common diagnoses for these youth are disruptive disorders (46.5%), especially conduct disorder, followed by substance use disorders (46.2%), anxiety disorders (34.4%), and mood disorders (18.3%). Even when substance use disorders are not included, fully 61.8% of youth in the juvenile justice system meet criteria for at least one, and often more, mental disorders (Shufelt & Coccozza, 2006).

Juvenile Mental Health Courts

JMHCs are voluntary diversion programs that adhere to a paradigm of therapeutic jurisprudence, following a "nonadversarial, treatment-oriented approach when adjudicating juvenile offenders, while still upholding their due process rights" (Office of Juvenile Justice and Delinquency Prevention, OJJDP, n.d., para. 6). JMHCs rely on cooperation and collaboration among members of a multidisciplinary team who work with and for the benefit of the youth and the family. Similar to mental health courts for adults, JMHCs have two main goals: first, to decrease recidivism; and second, to increase participants' adherence to treatment (McNiel & Binder, 2007).

The youth's and family's compliance with treatment is essential to the effectiveness of JMHCs. The definition of treatment compliance for youth is broader than it is for adults, and may include not only follow-up and adherence to treatment for health and mental health concerns, but expectations in relation to the youth's behavior in school and within the family. In addition, the family is expected to comply with the JMHC program, since their compliance also

affects outcomes for youth (Callahan, Coccozza, Steadman, & Tillman, 2012).

The JMHC attempts to meet the needs of juvenile offenders while protecting public safety. Various models of JMHCs have been implemented; evaluation of their effectiveness is ongoing. JMHCs follow the tradition of other diversion programs for youth, which are based on the philosophy that for certain youth, involvement in the courts and institutions is counterproductive to rehabilitation (Center on Juvenile and Criminal Justice, 1999; Wales, Hiday, & Ray, 2010).

Between 1977 and 1979, researchers in Colorado pilot tested an early diversion program that provided individual, parental, and/or family counseling to a general sampling of 848 youth who were diverted from processing in the formal juvenile justice system (Pogrebin, Poole, & Regoli, 1984). Although not a juvenile mental health court, youth in this initial demonstration diversion program had significantly lower recidivism rates than a control group of youth who proceeded through the juvenile justice system as usual (Pogrebin et al., 1984). Many successful diversion programs, not specific to youth diagnosed with mental disorders, have followed the methods detailed in that study (Center on Juvenile and Criminal Justice, 1999; District Attorney Jefferson & Gilpin Counties, CO, 2012).

Early JMHCs were introduced in 1998 in York County, Pennsylvania; in 2000 in Mahoning County, Ohio; and in 2001 in Santa Clara County, California. By early 2012, there were approximately 50 JMHCs in 15 states, either in operation or in the planning stages. Ohio, with nine, and California, with eight, are the states with the greatest number of JMHCs. Other states, such as Colorado, Illinois, and Idaho, have one to two districts with JMHCs (Callahan, et al. 2012; SAMHSA's Gain Center, n.d.).

Pre-Release and Post-Release Recidivism

Recidivism, generally defined as reoffending, is classified by the Colorado Division of Probation

Services (2010) according to two types: pre-release recidivism/failure and post-release recidivism. Pre-release recidivism, which occurs while the individual is on probation, is defined as “an adjudication or conviction for a felony or misdemeanor, or a technical violation relating to a criminal offense, while under supervision in a criminal justice program.” Post-release recidivism is defined as, “a filing for a felony or misdemeanor within 1 year of termination from program placement for a criminal offense” (Colorado Division of Probation Services, 2010, p. vii). Both status and nonstatus offenses are included in these definitions. A “status” offense is one which, under the current law, would not be a crime if committed by an adult (e.g., truancy or curfew violations; Colorado Division of Criminal Justice, 2011a).

Evaluations of Mental Health Courts

As Coccozza and Shufelt (2006) note, most of the evaluations of mental health courts have focused on those for adults. Recent studies of adult mental health courts have included comparison groups, as well as pre-post designs. Results indicate that they are effective both in reducing recidivism and in increasing the use of mental health services (Callahan & Wales, 2013).

By comparison, fewer outcome studies have evaluated the effectiveness of JMHCs, especially with viable comparison groups using post-participation recidivism rates (Coccozza & Shufelt, 2006; OJJDP, n.d.). One of the few that has been evaluated is California’s Santa Clara County Court for the Individualized Treatment of Adolescents (CITA; Behnken, Arredondo, & Packman, 2009). The CITA evaluation compared offense patterns of youth before they entered CITA with their offense patterns and frequency of offenses during their time in the program. The researchers found a significant reduction in recidivism during the youths’ participation in CITA. However, the researchers did not have information on a viable comparison group or on post-release recidivism patterns (Behnken et al., 2009).

A more recent report on California’s Alameda County Juvenile Collaborative Court (ACJC; National Center for Youth Law, NCYL, 2011) offers information on retrospective data (case files) for 34 participants (29 successful completers) who attended between 2007 and 2009. Their report includes patterns of offenses, and needs and uses of mental health and other services, for a period prior to the youths entering ACJC, during their participation, and for up to a year following participation. In addition, interviews and surveys of stakeholders expand on the researchers’ descriptions of experiences and needs. However, the sample size is small, and the repeated measures design does not provide for between-group comparisons on relevant outcome measures.

Target Program for Present Evaluation

The current project is an evaluation of the JMHC of Colorado’s First Judicial District. Initiated in 2005, this Colorado JMHC was modeled after the CITA program in Santa Clara County, California (Behnken et al., 2009) and follows principles of therapeutic jurisprudence and multidisciplinary cooperation:

The First Judicial District Juvenile Mental Health Court is a collaborative effort between the Jefferson Center for Mental Health, the District Attorney, the courts, the probation department, the Public Defenders’ Office, the Juvenile Assessment Center, Human Services, the school district, and the Rocky Mountain Children’s Law Center. A member from each of these agencies makes up the mental health court’s screening committee (District Attorney Jefferson & Gilpin Counties, CO, 2009, para. 4).

Referrals to the Colorado First Judicial District JMHC can come from any public agency, community provider, school, or individual when a charge has been filed against a youth for either an eligible felony or misdemeanor. In order to be eligible for JMHC, the youth must be at least 10 years of age and a legal minor. The youth is screened for mental health status, and must have either a major mental health disorder or substance abuse use with a major mental health

disorder. Ineligibility also includes current or previous charge for a class 1 felony, and primary mental health diagnosis of behavior disruptive disorder (e.g., conduct disorder), mental retardation or brain injury, sexually abusive youth, substance dependence or abuse, or personality disorder, although these may be co-occurring or secondary diagnoses. With agreement and recommendation from the screening review committee, the juvenile's case is moved from juvenile court to JMHC.

The [juvenile] mental health court requires that each child enter into a contract with the Probation Department to be supervised at the Intensive Supervision Probation (ISP) level. ISP includes much more frequent meetings with the probation officer than ordinary probation, as well as unannounced visits to home and school. The family has to agree to support the child and to the contract's conditions. They must also be required to participate in family counseling (District Attorney Jefferson and Gilpin Counties, CO, 2009, para. 9).

Once recommended to the JMHC (and with the voluntary agreement of the parents/caregivers), the youth and family have their first of frequent, ongoing hearings for case review with the JMHC judge. The specific expectations of the court are tracked and reviewed by the youth's probation officer and counselor, who are in contact with the youth, the youth's school, family, and other parties who are part of the treatment/support team, and their reports are filed with the court for the judge's evaluations and actions at each hearing. The caseload for the juvenile probation officer who works with youths in the JMHC is a maximum of 25 youths at any given time. Charges are dismissed from the youth's record if he or she completes the terms and conditions of JMHC. If the youth violates the terms and conditions of JMHC, especially by a new offense or other problematic behaviors, the youth may be discontinued from participation ("unsuccessful"). His or her probation status may be revoked, with the youth returning to juvenile court for the usual processing of the offense(s). However, this is the very last resort and a successful completer may

have offenses ("pre-release recidivism") during their time in the JMHC.

This program evaluation was requested by the Coordinator of the First Judicial District Mental Health Court (SB94). The initial phase of the project began in 2010 when the authors (independent consultants) met with key programmatic stakeholders and staff to gather basic information on the history and characteristics of the JMHC, as well as to identify the types of data that were potentially available in order to answer key questions. By consensus, key questions were identified as follows:

1. Who participates in the JMHC: demographics, intake diagnoses, and offenses?
2. What are the recidivism outcomes of participation in the JMHC?
3. How do these outcomes compare with relevant comparison groups?
4. Are there predictors of successful or unsuccessful outcomes for youth in the JMHC?

This kind of evaluation not only provides relevant feedback for the particular JMHC, but also offers more empirical data for the general literature on juvenile mental health courts and their outcomes.

Method

Archival Data Collection

After consultation with the JMHC coordinator and advisory committee, key resources for program data were identified by the advisory group and evaluators. JMHC and Department of Probation personnel then made plans to provide the data to the authors. Data from case files and computer databases were provided for youth who had attended JMHC between March 5, 2005 and March 3, 2011.

JMHC Data Sources and Ethical Protection of Information

Plans for and execution of the project followed professional standards of evaluation,

focusing on utility, feasibility, propriety, and accuracy (American Evaluation Association, 2004; Yarbrough, Shulha, Hopson, & Caruthers, 2011). The evaluators signed confidentiality agreements regarding the contents of the case records; their access was limited to data that were provided directly by personnel of the First Judicial District. The researchers did not have direct access to any of the district's or Colorado state's databases.

The identities of the juveniles were maintained as confidential and the study substituted identification codes for their names. The list of names that matched the codes has been kept in a separate, secure, password-protected computer file of the first author. Similarly, all data files and all written case materials have been maintained in secure, password-protected computer files or in locked cabinets at the office of the first author. Only group data were used for reports to the District and for this article. Written permission to report the findings to professional audiences (e.g., conferences, articles in professional journals) with identification of the District was obtained from the Coordinator of the First Judicial District JMHC on September 9, 2012.

Data Collection for Comparison Groups

A key challenge for any program evaluation is to identify reasonable benchmarks or comparison groups so as to put the findings into perspective. The following groups and sources of information were selected for this study:

1. Participants in the juvenile mental health court in California (CITA) (Behnken et al., 2009).
2. Colorado state data for juveniles on probation (Colorado Division of Criminal Justice, 2011b; Colorado Division of Probation Services, 2010; State of Colorado, n.d.).
3. Juveniles in diversion programs (District Attorney Jefferson & Gilpin Counties, CO, 2012).

Levels and Types of Probation

Adults and juveniles in Colorado can be placed on various types of "regular" probation, which is differentiated from intensive supervised probation. Types of regular probation include administrative probation (a probation officer usually has no direct supervision over the probationer), unclassified probation (there are too few probationers for "meaningful analysis"), and minimum, medium, and maximum levels. As the risk level of the probationer increases, which is determined by preassessment scores, the intensity of supervision increases from minimum to maximum: "Those supervised at the maximum supervision level are considered to be at the highest risk for failure" (Colorado Division of Probation Services, 2010, p. 7).

Results for youth in minimum, medium, and maximum levels of regular probation, JISP, and in diversion programs were considered to be meaningful alternative groups, and we assumed that mental health diagnoses occur in these groups with frequencies similar to those generally reported for youth in the juvenile justice system (Hammond, 2007).

Data Analysis

We computed descriptive statistics for participants' demographics and outcome variables. Where appropriate, we used *t*-tests to compare group means across programs. We compared frequencies/proportions using the chi-square test with Yates correction and two-sample *z*-tests. We used binary logistic regression to evaluate predictors of successful and unsuccessful outcomes in juvenile mental health court. Two-tailed alpha levels were set at .05.

Results

Characteristics of Participants in the Colorado JMHC

We compared demographics for 81 youths who participated in the Colorado JMHC from its inception in 2005 through March, 2011 and who had

either successfully or unsuccessfully terminated the program, with the available published data for the general population of Colorado juveniles who were arrested and had their cases adjudicated (Colorado Division of Criminal Justice, 2011b), and with 133 total number of youths who entered the Santa Clara CITA program between 1996 and 2008. As a reminder, the CITA program was selected as a comparison group for two reasons: first, the Colorado JMHC program was modeled on the CITA program; and second, the CITA program was the only report on a JMHC that yielded sufficient and relevant quantitative data.

In general, youths from the Colorado JMHC were younger ($M = 14.47$ years, $SD = 1.62$) than the CITA youths ($M = 15.0$, $SD = 1.45$; $t(212) = 2.48$, $p = .014$, Cohen's $d = .34$) and the adjudicated juveniles, according to state estimates ($M = 15.5$ years; SD not reported). Males comprised the majority of youth in all groups: Colorado JMHC (72%), CITA (66%), and those in statewide probation (76.2%). While White youth comprised the majority of JMHC participants (75%), Whites comprised only 34% of the CITA group ($z = 5.75$, $p < .001$). Hispanics comprised the second largest CITA group (33%). The majority of all juvenile arrests in Colorado are White (approximately 82%; Colorado Division of Criminal Justice, 2011b). Thus, it would appear that the JMHC youth were fairly representative of Colorado juveniles, but younger than and not as racially/ethnically diverse as those in the CITA program.

Intake mental health diagnoses. Most youth in both the Colorado JMHC and CITA programs received multiple mental health diagnoses, even within the same general diagnostic category. In fact, the total for various diagnoses in subcategories of mood disorders (e.g., various forms of depression and bipolar disorder) was 112.04% for the CITA group and 95.62% for JMHC youth. Among JMHC youth, anxiety disorder/posttraumatic stress disorder (PTSD) (25.97%) were the second most common diagnoses, followed by attention deficit hyperactivity disorder (ADHD)

(20.78%) and developmental disorders (JMHC, 25.97%).

In contrast, a diagnosis of ADHD (60.15%) was considerably more frequent among CITA youth, followed by developmental disorders (38.34%) and anxiety disorder/PTSD (13.53%), respectively. The differences between CITA and JMHC youth in terms of the frequency of ADHD and developmental disorders are best explained by differences in eligibility criteria for the two programs: unlike CITA, JMHC did not consider a single diagnosis of ADHD or developmental disorders as meeting eligibility criteria. To be eligible for the JMHC, Colorado youth were required to have ADHD or a developmental disorder as a co-occurring, rather than a primary, diagnosis. Comparable data are not available for other Colorado youth.

Participant offenses. As a reminder, major (class 1) felony offenses and extremely high-risk youth, such as those who are sexually violent, are not considered eligible for JMHCs or similar probation diversion programs. In order to compare rates of offenses by youth in the JMHC and CITA programs, we grouped offenses into the four major categories used in the CITA report (see Behnken et al., 2009). In general, rates of types of pre-intake offenses did not differ between the two groups: violent/aggressive (CITA: 158 or 408 total offenses, 38.72%; JMHC: 68 of 187 total charges, 36.36%) and miscellaneous (CITA: 127/408, 31.13%; JMHC: 65/187, 34.76%) offenses were the two most common, with property offenses (CITA: 83/408, 20.34%; JMHC: 32/187, 17.11%) and those that were substance-related (CITA: 40/408, 9.8%; JMHC: 22/187, 11.76%) following in frequency ($\chi(3) = 1.9$, n.s). Thus, the background offenses for youth in the two programs were generally similar.

Recidivism Rates for JMHC and Comparison Groups

The following discussion of recidivism is consistent with the terminology and reporting method used by the Colorado Division of Probation

Services since 1998: “pre-release recidivism” includes new charges filed for offenses (technical violations or status or nonstatus offenses) that occur while the youth is still participating in the JMHC or another form of probation; “post-release recidivism” includes new charges that are filed after the completion of the JMHC or another form of probation (Colorado Division of Probation Services, 2010). These sources do not include any statistics regarding offending or reoffending that occurred prior to entry into the probation/diversion program.

We compared participants in the Colorado JMHC program with Colorado youth who had been placed on minimum, medium, or maximum levels

of “regular” supervision; Colorado probationers who were on JISP; Colorado youth diagnosed with mental disorders who were on probation (levels not specified); and Jefferson County (First Judicial Court District) youth who were in other diversion programs. Post-recidivism rates for Colorado youth were calculated for any new criminal charge within 1 year following successful termination of probation. Unfortunately, comparable post-release recidivism rates were not reported for the CITA youth (Behnken et al., 2009).

Comparing JMHC and CITA participants

Youth in both programs were considered “successful” if they met the program and court

Table 1. Comparison of Recidivism Rates for JMHC with Other Colorado Juvenile Probation Programs

Probation Program	N of All Participants	N Who Reoffended	% Who Reoffended	Comparison of % with JMHC
Pre-Release¹				
Reg. Minimum ³	11034	726	6.67	$z = -11.04, p < .0001$
Reg. Medium ³	9276	2107	22.85	$z = -3.22, p = .0013$
JC Diversion ⁵	143	42	29.00	$z = -1.31, n.s.$
JMHC ⁶	79	30	37.98	
M H Dx on Probation ⁴	58	6	45.00	$z = .81, n.s.$
JISP ³	3443	1863	53.96	$z = 2.84, p = .005$
Reg. Maximum ³	4922	2783	57.12	$z = 3.3, p < .0001$
Post-Release²				
JMHC ⁶	61	4	6.60	
Reg. Minimum ³	10308	1310	12.61	$z = 1.44, n.s.$
Reg. Medium ³	7169	1261	17.11	$z = 2.26, p = .024$
JISP ³	549	113	20.81	$z = 2.64, p = .008$
Reg. Maximum ³	2139	486	22.07	$z = 2.99, p = .003$
M H Dx on Probation ⁴	58	15	25.00	$z = 2.87, p = .0041$
Diversion ⁵	400	112	28.00	$z = 3.60, p = .0003$

¹These offenses occurred while the youth was in the respective probation program. The reports of the various Colorado probation programs indicate the proportions of youths who were terminated from the probation status (“pre-release failure”) due to pre-release offenses, making them unsuccessful completers of the particular program (Colorado Division of Probation Services, 2012). However, pre-release offenses did not automatically lead to termination for the JMHC or CITA youth.

²Post-release recidivism rates are for successful completers of all Colorado probation programs, including the JMHC. All Colorado groups are for a period of 1 year following successful completion of the probation program.

³Mean annual rates for 2005-2011 reports computed from Colorado Division of Probation Services (Tables 11 and 12; 2012).

⁴Estimate based on random sample of 20% of cases from 2001 to 2007, provided by Probation Department from internal records.

⁵Pre-release recidivism and unsuccessful completion of program only available for 2010; post-release recidivism for successful completers is an average of the annual rates provided for 2006 to 2009 cohorts (District Attorney Jefferson and Gilpin Counties, CO, 2012).

⁶These figures are for youths who participated and terminated (successfully, 61, or unsuccessfully, 18) from JMHC from 2005-2011. During the post-release period, one additional youth had a charge filed after completion of JMHC, but the offense was committed prior to entry to JMHC.

requirements, “graduated” from the program, and completed their probation. The JMHC data gave us some information on those who had been “unsuccessful”; that is, those who committed new offenses and were deemed inappropriate to continue in the program. Their cases were then referred back to juvenile court for further action. Of the 18 unsuccessful JMHC youth, six were placed directly into custody of the Colorado Division of Youth Corrections.

CITA reported only the number of offenses during participation in the program for their successful completers ($M = 1.14$, $SD = 1.41$, range: 0-6 offenses). Although the mean number of offenses during the program was higher for those who completed JMHC successfully ($M = 1.31$, $SD = .82$, range: 0-3 offenses), the difference was not statistically significant ($t(123) = .82$, n.s.).

Comparing JMHC and other Colorado programs

Recidivism reports for youth in other Colorado programs considered the number of youth in each probation program who incurred new charges, rather than the number of new charges, and included those who were not successful completers. Data are summarized in Table 1, with programs listed from lowest to highest for recidivism rates.

Pre-release recidivism rates.

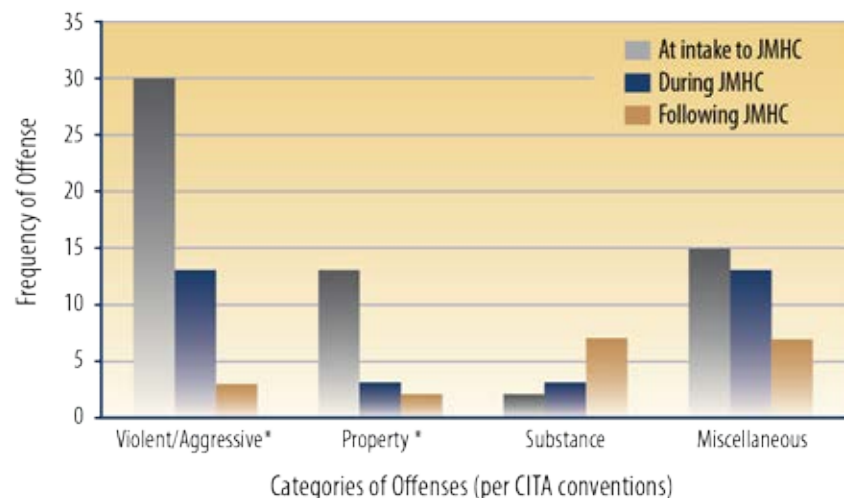
Recidivism rates for JMHC youth while on probation fell between recidivism rates for the other Colorado groups, being statistically significantly higher than those for youth on minimum ($p < .0001$) or medium ($p = .0013$) regular probation, but statistically significantly lower than youth on JISP ($p = .005$) or maximum regular probation. While higher than the rate for youth in other diversion programs, and lower than the rate for juveniles diagnosed with mental disorders not in JMHC, these differences did not reach statistical significance.

Post-release recidivism rates. By contrast, successful completers of JMHC fared better than all other Colorado groups on post-release recidivism. Only the difference in recidivism rates with youth who had been on minimum regular probation failed to reach statistical significance.

Changes in Offense Patterns

One of the notable findings of this study is that there were significant declines in the incidence of violent/aggressive ($\chi^2(2) = 24.3$, $p < .0001$) and property/theft offenses ($\chi^2(2) = 12.3$, $p < .01$) from intake to JMHC to while active in JMHC, and following successful completion of JMHC. Changes in miscellaneous and substance-related offenses were not significant (see Figure 1). However, ongoing substance use/abuse problems by a few youths accounted for a notable portion of the post-release offenses: of the 24 post-release charges reported for the 16 youths who were successful completers of the JMHC, 10 (45%) of the charges were drug/alcohol related and committed by only six (37.5%) of these 16 youths.

Figure 1. Frequency and types of offenses at intake, during, and following participation in the Colorado JMHC for successful completers.



Note: * indicates significant differences in number of offenses by time for the given category.

Similar declines in the frequency of violent/aggressive and property/theft pre-release offenses were reported for the CITA program. The 64 successful CITA graduates also showed significant decreases in both the frequency of violent/aggressive offenses at intake (65) and during participation in the program (16; $\chi^2(1) = 28.44$, $p < .0001$), and in the number of property/theft offenses from intake (39) to participation in the program (8; $\chi^2(1) = 19.14$, $p < .0001$). The frequency of miscellaneous offenses did not change (intake = 45; during = 43 offenses). The CITA program did not report these data for substance-related offenses (Behnken et al., 2009, Table 5).

Predictors of Outcomes for JMHC Participants

Because the criterion variable is dichotomous (successful, unsuccessful completion of JMHC), we used a simultaneous logistic regression to model participants' outcomes. The predictor variables were: age (in years) at intake screening; race/ethnicity (White, nonWhite); intake primary diagnostic code (bipolar, mood disorder, anxiety/PTSD, other); previous Individualized Education Plan (IEP; yes/no); primary intake charge code (violent/aggressive, property/theft, miscellaneous); as well as length of time in JMHC, number of charges during JMHC, and number of court reviews during JMHC (all continuous scale of measurement).

Results of the logistic analysis indicate that the predictor model provided a statistically significant improvement over the constant-only model ($\chi^2(9) = 28.92$, $p = .001$). The model accounted for 57.2% of the total variance, indicating that the model discriminates between successful and unsuccessful participants in the JMHC. Prediction success was relatively high, with an overall prediction success rate of 82%, and 91.5% correct for successful completers and 50% correct for unsuccessful completers. Table 2 presents the regression coefficients (B), the Wald statistics, significance levels, and odds ratios [Exp(B)]. Only number of reviews and number of new charges

during JMHC were statistically significant predictors ($p = .005$ and $p = .003$, respectively); the number of days in JMHC was a meaningful predictor, although it did not reach statistical significance ($p = .063$).

Additional *t*-tests found statistically significant differences between successful and unsuccessful participants on all three of these variables: number of days in JMHC, successful participants ($M = 301.2$, $SD = 133$) versus unsuccessful ($M = 407.7$, 174.8 ; $t(77) = -2.77$, $p = .007$); number of new charges while in JMHC, successful ($M = .4$, $.7$) versus unsuccessful ($M = 1.9$, 1.0 ; $t(75) = -7.20$, $p = .000$); and, number of reviews while in JMHC, successful ($M = 11.8$, 6.9) versus unsuccessful ($M = 20.1$, 11.7 ; $t(66) = -2.61$, $p = .018$). Thus, those who were ultimately unsuccessful had more charges, more court reviews of their cases, and were in JMHC longer than those with successful outcomes. This highlights the program's commitment to working with the youth as far as possible to achieve success.

Table 2. Logistic Regression Results for Predictors of Successful or Unsuccessful Completion of JMHC (Dependent Variable = Successful)

Predictor	B	S.E.	Wald	df	Sig.	Exp.(B)
Age	-.414	.31	1.78	1	.183	.66
Race/Ethnicity	1.516	1.35	1.25	1	.263	4.55
Intake Diagnosis	-.523	.45	1.34	1	.247	.59
IEP	-.533	1.10	.23	1	.629	.59
Intake offenses			.71	2	.702	
Intake offenses (1)	.487	1.06	.21	1	.646	1.63
Intake offenses (2)	-.528	1.44	.14	1	.713	.59
Days in JMHC	-.011	.01	3.46	1	.063	.99
Number of reviews	.289	.11	7.77	1	.005	1.34
Number of new offenses during JMHC	1.810	.60	9.02	1	.003	6.11

Summary and Discussion

The results of this program review clearly support the efficacy of the Colorado First Judicial District's juvenile mental health court for reducing both recidivism while in the program and during at least 1 year following successful completion. There also is preliminary evidence that post-release recidivism rates of youth in the JMHC were significantly lower than those for a sample of other youth in the juvenile justice system diagnosed with mental disorders.

A contribution of this evaluation is that we considered the outcomes of this program in the context of other relevant comparison markers, including another juvenile mental health court program (CITA; Behnken et al., 2009) and Colorado youths in other probation programs (Colorado Division of Probation Services, 2010; District Attorney Jefferson & Gilpin Counties, Co., 2012; state of Colorado, n.d.). This allowed us to consider the breadth of risk levels of the youth and the related levels of supervision during probation.

Results of this kind of research help us to compare the effectiveness of JMHCs with the effectiveness of adult mental health courts. For example, we can now note that graduates of JMHC show significant post-release reduction in violent offenses, which also are reported for successful completers of adult mental health courts (McNiel & Binder, 2007).

Limitations

Study limitations are common for program evaluations that rely on archival, rather than prospectively planned, data; that is, some data may not be documented sufficiently or may be unavailable (Posavac & Carey, 2007). One notable example of such a limitation was not having information on the pre-entry offense histories of youth who participated in the JMHC or for those in other probation programs in Colorado. Another limitation that may affect the interpretation of results is the possible impact of

nonrandom assignment by JMHCs; participation is voluntary. It is possible that youth and/or their families who participate in JMHC differ in their motivation for treatment or some other unknown variable from those who are eligible but choose not to participate. Regrettably, there were no data for a comparison sample of youth who were eligible for the JMHC but chose not to participate. In fact, most families who were accepted to JMHC did participate, unless they left the district or otherwise became ineligible. Furthermore, our case study focused on one judicial district in one state. It is difficult to know how these findings may generalize to other locations and other programs.

While we interpreted our evaluations in comparative contexts, there is always the risk of variations in diagnostic procedures, eligibility criteria, and definitions of recidivism that may limit direct comparison (Cocozza & Shufelt, 2006). Although it was clear that successful completion of JMHC was positively related to decreased recidivism, we were not able to identify predictors of successful completion. Was it a matter of youth or family readiness, or was it due to other support systems and resources (e.g., Cottle, Lee, & Heilbrun, 2001)?

We also were short on quantifiable information on treatment compliance and the juveniles' use of mental health services, a second criterion typically noted for evaluating outcomes of JMHC treatment (McNiel & Binder, 2007; Office of Juvenile Justice, n.d.). We discovered that although the JMHC probation officer and counselor/navigator kept case notes on treatment activities and clearly followed up with the youth and families regarding care, there was no systematic central record from which these details were readily available for external analysis. Recommendations have been made to the First Judicial District for ways to improve prospective data collection and maintenance for future evaluations of this JMHC. Improved data collection will allow evaluators to consider possible predictors

of outcome, such as successful completion of JMHC and recidivism rates.

Recommendations for Future Research

Procedures for evaluation of mental health courts have been described elsewhere (e.g., Steadman, 2005). Clearly, a key recommendation is preplanning for prospective data collection aimed at offering relevant, usable, and comparable data, both for participants and nonparticipants of JMHC. Systematic, even standardized, operational definitions and measurements of key variables need to guide information gathering and data management.

Although randomized assignment of eligible youth to the JMHC as opposed to other post-adjudication options usually is not possible, systematic data for viable comparison groups—including juveniles who are screened and are eligible, but who choose not to participate in the juvenile mental health court—offer opportunities for quasi-experimental designs using matching methods, with regression-based model adjustments, which could be used for reliable estimation of causal effects (Stuart & Rubin, 2008). It is important to interpret the outcomes of JMHCs within the larger context of how other youth in the juvenile justice system are faring, especially those who are diagnosed with mental disorders.

State, local, and even national resources should keep the same kind of details on the dispositions and outcomes for youth who are diagnosed with mental disorders and eligible for JMHCs as they do for the general population of youth who enter the juvenile justice system. This would help researchers compare outcomes for youth when

they enter various levels of regular probation, JISP, and other diversion programs. Similarly, we need to be able to track recidivism, compliance, and other meaningful indicators for juveniles who are eligible for and enter JMHC, but who do not successfully complete the program.

While the current focus of research seems to be on recidivism, more attention needs to be given to collecting and managing meaningful data on mental health status and use of services for youth diagnosed with mental disorders, and comparing their offense histories and rates prior to entry, during, and post-release from JMHC. The ACJC report (National Center for Youth Law, 2011) offers one attempt to do this with juveniles, but with retrospective data. Examples from research on adult mental health courts can provide guidance. Similar also to research on adult mental health courts, evaluations should begin to study multiple sites (Callahan & Wales, 2013). This helps to identify not only generalizable findings, but also those that may be program—or location—specific.

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Gender-Specific Mental Health Outcomes of a Community-Based Delinquency Intervention

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Abstract

Juvenile delinquency intervention research has recently called for a focus on the specific treatment needs of females. The current study evaluated the gender-specific mental health outcomes for youth involved in a community-based delinquency intervention (NEW VISTAS). Participants included 102 (42% female) delinquency-involved youth and their mothers. After controlling for initial scores, we found no gender differences in post-intervention mental health scores; parent- and self-report for both girls and boys revealed significantly lower mental health concerns at exit. Results suggest that comprehensive and individualized delinquency interventions such as NEW VISTAS are effective in reducing mental health problems for all participants. Considering gender in the delivery of probation services, and specifically addressing mental health concerns, may be

related to significantly lower recidivism rates for youth who successfully complete such a program than youth in a historical comparison group.

Introduction

Effective rehabilitation services are critical for preventing negative and promoting positive outcomes for youth involved in delinquency. Girls and boys who engage in delinquent behavior and have subsequent involvement with the juvenile justice system are not only at risk for further criminal offending (Colman, Mitchell-Herzfeld, Kim, & Shady, 2010), but also for serious mental health problems, academic failure (Chesney-Lind & Sheldon, 2004), partner violence, risky sexual behavior (Miller, Malone, & Dodge, 2010), and child maltreatment (Colman et al., 2010). Because of the stability of untreated behavior concerns over a lifetime (Dinh, Roosa, Tein, & Lopez, 2002),

it is critical for juvenile offenders to receive interventions that effectively promote healthy development and reduce their likelihood of reoffending.

Historically, research on and programming for juvenile offenders have focused almost exclusively on males (Chesney-Lind & Shelden, 2004). In a review of the history of research on female crime, Tracy, Kempf-Leonard, and Abramoske-James (2009) found that female crime was largely ignored in the research literature for much of the 20th century, perhaps because the prevalence and incidence of female criminality was deemed insufficient for examination. Whereas males have traditionally committed (and continue to commit) more crimes than females, the rates of arrest for males and females in the past few decades show changing trends. Uniform Crime Report data for the year 2007 show that although males continue to comprise the vast majority of juvenile arrests in the United States (71% of all arrests), rates of arrest for males have steadily decreased from 1997 to 2007, while rates for females decreased much more gradually and remained relatively stable from 2002 to 2006 (Tracy et al., 2009).

Various researchers and theorists have debated the reason for the increased proportion of females in the juvenile justice system. Although the data seem to indicate a shift in the behavior of girls, many researchers argue that this increase actually reflects a change in the way police and juvenile justice systems are responding to the behavior of girls (Chesney-Lind & Shelden, 2004; Javdani, Sadeh, & Verona, 2011). Girls are more likely to be arrested for less serious crimes, such as status offenses (e.g., running away and curfew/loitering), than boys (Chesney-Lind & Shelden, 2004), but they are also more likely to receive the harshest sanctions in court (e.g., juvenile prison) for status offenses or technical probation violations (Tracy et al., 2009). Girls are placed in correctional facilities at younger ages than boys and are disproportionately placed in residential settings for status offenses; the great majority of

boys are placed in residential settings for more serious misdemeanor or felony offenses (Tracy et al., 2009). These findings suggest that juvenile justice systems treat boys and girls differently, even when they commit similar crimes. Although differential treatment may be needed to effectively intervene with juveniles of different genders, there is insufficient evidence to adequately inform practice. Researchers have recently dedicated more attention to gender issues in juvenile delinquency, but further evaluation of delinquency interventions for both males and females is needed. The current study addressed this need by exploring gender-specific outcomes after involvement in a comprehensive, community-based delinquency intervention.

Delinquency Risk and Protective Factors and Trajectories

Involvement in antisocial and criminal behaviors can be predicted by a complex interplay of factors in multiple areas of youths' lives, including in the individual, family, school, peer, and social/community contexts (Hawkins et al., 2000). The transactional-ecological model of development recognizes the importance of understanding individuals and their behavior as embedded within multiple systems and relationships (Sameroff, 2000). From this perspective, a youth's difficulties and strengths are a product of the interaction between dynamic, complex aspects of the youth's environment over time. In addition, risk and resiliency research and theory states that it is not one specific risk factor that determines one's likelihood to commit a crime or enter the juvenile justice system, but the number, or accumulation, of risks and protections. For example, Whitney, Renner, and Herrenkohl (2010) found that boys and girls who have a high number of risk and low number of protective factors are more likely to engage in delinquency than their peers who are low in risk and high in protective factors. Findings support the need for delinquency interventions that address multiple risk and protective factors, and suggest that the more risks a youth faces, the

more comprehensive and multimodal the treatment needs to be.

In general, the risk and protective factors associated with delinquency are similar for boys and girls. For instance, family dysfunction, associating with antisocial peers, and living in disadvantaged neighborhoods have been found to predict both boys' and girls' delinquency (Zahn, 2007). However, important distinctions also exist, with particular risk and protective factors for delinquency being more common or having more of an influence for one gender or the other. Findings from the Girls Study Group, which reviewed and summarized more than 1,600 articles and book chapters related to youth delinquency, found that girls' risk factors for delinquency differ in a number of ways from boys' (Zahn et al., 2010). For example, one unique risk factor for girls is the combination of early puberty, significant life stressors, and association with delinquent male peers. In addition, although sexual abuse and maltreatment are risk factors for both boys and girls, girls are more likely than boys to experience sexual abuse both in and outside of the home. Furthermore, internalizing mental health problems such as depression and anxiety are more common in girls than boys and may be related to victimization experiences.

In the overall population, boys have higher levels of risk factors and fewer protections than girls, which may account for boys' higher rates of involvement in delinquency (Fagan, Van Horn, Hawkins, & Arthur, 2007). However, girls who engage in delinquency typically have more risk factors than boys who exhibit similar behaviors. This phenomenon has been referred to as the "gender paradox," which states that for disorders or difficulties with an unequal gender ratio, members of the gender with lower prevalence rates (in this example, girls) are more likely to have more serious outcomes and a higher number of risk factors than members of the gender with higher prevalence rates (in this example, boys)

(Loeber & Keenan, 1994). In a comparison of risk factors for girls and boys with and without a conviction history, Walrath et al. (2003) demonstrated support for the gender paradox. Both males and females with a conviction history were significantly more likely to report a high number of risk factors than nonconvicted youth. However, females with a conviction history were significantly more likely to report a higher number of individual risk factors than groups of males or nonconvicted females. Considering the relation between gender and differences in type and number of risk factors for delinquency, addressing gender in the design and evaluation of delinquency interventions seems critical and suggests that unequal outcomes may be expected for boys and girls who take part in the same delinquency intervention.

Mental Health and Delinquency

Mental health is a critical factor to address in any delinquency intervention, as one of the most consistent findings in juvenile delinquency research is that the juvenile justice system has an overrepresentation of youth with mental health problems (Graves, Frabutt, & Shelton, 2007). Mental illness is present in about two-thirds of juvenile offenders, which is significantly more than the nonincarcerated population (Cauffman, 2004). Substance abuse, conduct and oppositional disorders, anxiety and depression, and posttraumatic stress disorder (PTSD) are some of the most common mental health concerns for this population (Marston, Russell, Obsuth & Watson, 2012). In a comparison of the behavioral and mental health of males and females in the juvenile justice system, Drerup, Croysdale, and Hoffmann (2008) found that 92% of the males and 97% of females met criteria for at least one mental disorder, while 32% of males and 60% of females met criteria for three or more disorders; others found that 27% of boys and 84% of girls in juvenile justice facilities meet criteria for a diagnosis of mental disorder (Timmons-Mitchell et al., 1997). Mental health

problems are of serious concern in both male and female juvenile justice populations, but perhaps are more significant in female delinquency.

Mental health problems are often characterized as falling into one of two categories: externalizing disorders or internalizing disorders. Externalizing disorders are generally defined as those disorders that manifest outwardly, including hyperactivity, aggression, and defiance, whereas internalizing disorders are those with more inward manifestations such as depression, anxiety, and withdrawal (Achenbach, 1991a, 1991b). Both internalizing and externalizing problems have been associated with delinquency in male and female youth. Externalizing problems are common, and often expected, in juvenile justice populations, as many of the behaviors that lead to incarceration are externalizing in nature. In the general population, boys are more likely than girls to exhibit externalizing problems (Rosenfield, Phillips, & White, 2006). However, in the juvenile justice population, females often have as high, if not higher, rates of externalizing problems. Timmons-Mitchell et al. (1997) found that in a sample of incarcerated juvenile delinquents, females scored significantly higher than males on almost all mental health subscales, including externalizing scales such as impulsive propensity, delinquent predisposition, and forceful, oppositional, and unruly behavior. In the Gender and Aggression Project (GAP), Marston et al. (2012) found that 92.9% of the 141 incarcerated adolescent females in their study “met criteria for an externalizing disorder” (p. 107) such as attention deficit hyperactivity disorder (ADHD), conduct disorder (CD), and/or substance abuse. In contrast, in the general population, girls are more likely than boys to exhibit internalizing problems (Rosenfield et al., 2006). This gender difference tends to hold true in juvenile justice populations. Timmons-Mitchell et al. (1997) found girls to have significantly higher scores on internalizing scales such as anxiety, depression, and somatization than boys. In other research, the depression and anxiety/social problems of girls, but not boys, predicted dual involvement

in mental health and juvenile justice services (Graves et al., 2007). The GAP project found 33.3% of the female participants “met criteria for an internalizing disorder” (Marston et al., 2012, p. 107) such as major depressive episode (MDE), major depressive disorder (MDD), and/or generalized anxiety disorder (GAD). Although girls in the juvenile justice system tend to have higher rates of internalizing problems than boys, rates for boys are also of concern; for example, Teplin, Abram, McClelland, Dulcan, and Mericle (2002) found that 17.2% of detained male youth met criteria for depression and/or dysthymia.

Research suggests that mental health problems are associated with likelihood to engage in serious delinquency in the future. Postlethwait, Barth, and Guo (2010) explored the ways in which depression, substance use, and parental discipline influenced changes in self-reported youth delinquency over an 18-month period. They found that changes in delinquency varied as a function of level of depression for females and level of substance use for males. More specifically, females with normative levels of depression at baseline had a 16% lower probability of engaging in serious delinquency, whereas females with borderline/clinical levels of depression at baseline had a 204% increase in probability of engaging in serious delinquency. Findings such as these suggest that by addressing mental health concerns, particularly among females, the likelihood of future delinquency and recidivism will decrease.

As Marston et al. (2012) describe, girls with mental health problems who are also involved in delinquency are in double jeopardy—placing them at an increased risk for negative outcomes as they enter adulthood. Numerous mental health professionals have stated that providing mental health services could reduce recidivism (Marston et al., 2012). Nonetheless, a meta-analysis conducted by Foley (2008) found that of the gender-specific intervention articles she reviewed, only one-fourth measured internalizing and/or externalizing behavior change. The study described

in this article aims to address this gap in the literature by measuring mental health outcomes among youth involved in a delinquency intervention and attempting to understand the relation between these changes and recidivism rates.

Gender-Specific Delinquency Intervention and NEW VISTAS

In 1992, the 1974 Juvenile Justice and Delinquency Prevention Act was reauthorized, calling for increased research on the specific needs of girls involved in delinquency, as well as the intervention strategies that will best meet those needs (Foley, 2008). These intervention programs, “designed to address the needs unique to the gender of the individual to whom the services are provided,” were titled gender-specific programs (GSPs; Juvenile Justice and Delinquency Prevention Appropriations Authorization, 1992). GSPs refer to programs designed to meet the specific needs of both males and females, although the term is most commonly used to describe female interventions. Research examining effective delinquency interventions for both boys and girls has found that some critical elements of an effective program include: comprehensiveness (addressing multiple risk and protective factors); family involvement, addressing both mental and physical health; and a strengths-based focus (Cooney, Small, & O’Conner, 2008). For girls in particular, programs should address salient factors associated with female involvement in crime, including physical and sexual abuse, social and emotional regulation, relationships with deviant friends and relatives, family problems, running away, substance abuse, teenage pregnancy, and academic failure (Foley, 2008).

Informed by research about risk and protective factors for juvenile delinquency, as well as evidence-based interventions for decreasing delinquency and criminal involvement for males and females, the Santa Barbara County Juvenile Justice Coordinating Council, with funding from a California State Challenge grant and the help of the community and other agencies, created the Neighborhood Enrichment With Vision Involving

Services, Treatment, and Supervision (NEW VISTAS) program. NEW VISTAS was a delinquency intervention that utilized a comprehensive service delivery model, which included creating individualized treatment plans for criminally involved youths and their families based on a family-focused, neighborhood-based supervision model. The goals of NEW VISTAS were to increase youth and family “behavioral and emotional strengths, while decreasing recidivism and other negative outcomes,” including mental health concerns (Jimerson et al., 2003, p. 2). Some of the core components of NEW VISTAS were its comprehensive and individualized treatment planning, family focus, provision of substance use and mental and physical health services, and relationship-building opportunities. Intervention elements are summarized here; readers are referred to Jimerson et al. (2003) for more detail.

Comprehensive and individualized treatment. The theoretical underpinnings of the NEW VISTAS program were based on the ecological-transactional model of development, thus targeting intervention to environmental influences in multiple levels of each youth’s ecology. Numerous researchers have discussed the importance of implementing comprehensive, multidimensional interventions for delinquency, rather than those that focus on single risk factors (Hipwell & Loeber, 2006). Those interventions that have utilized a multicontextual approach have been found to be more effective than more narrowly focused programs (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Multimodal interventions for juvenile offenders, such as Multisystemic Therapy (Ogden & Hagen, 2009) and Multidimensional Treatment Foster Care (Leve, Chamberlain, Smith, & Harold, 2012), have found significantly less recidivism for program participants than for youth in control groups.

The NEW VISTAS comprehensive service-delivery model was accomplished through interagency collaboration between agencies and schools in the community. An interagency team provided treatment supervision, case planning, and

management and also tracked, supported, and monitored the progress of participating families. Youths were referred to NEW VISTAS through Probation, Truancy, Parole, or Child Welfare Services, and once identified, received an individualized, comprehensive treatment plan to meet the diverse needs of the population, including being effective for clients of different acculturation levels and both males and females. This focus not only on comprehensiveness, but individualization, supports research findings that interventions should be tailored to youth's specific needs; when adolescents are placed in treatment that they do not need (e.g., group drug treatment when they are not abusing drugs) they may actually have more problems after intervention (Cécile & Born, 2009).

NEW VISTAS provided youth with some choice in determining their treatment in order to avoid iatrogenic effects, as well as to encourage their active engagement in treatment (Jimerson et al., 2003). Matthews and Hubbard (2008) suggest that allowing youth to have personal agency in their treatment helps build strong therapeutic relationships and results in better treatment outcomes. Bloom, Owen, Deschenes, and Rosenbaum (2002) also recommended small, community-based programs for females involved in juvenile justice, which foster one-on-one relationships. One way NEW VISTAS addressed this intervention need was by assigning smaller than typical caseloads to probation officers to try and promote more supportive, one-on-one relationships (Jimerson et al., 2003).

Some of the aspects of NEW VISTAS that meet the multimodal model of treatment delivery include the focus on providing visits and supervision at home (86% of the girls and 83% of the boys), with families (79% of the girls, 76% of the boys), and in the schools (98% of the girls, 78% of the boys). The collaboration with schools, in addition to families, is essential, as both girls and boys involved in juvenile justice frequently experience difficulties in school. For example, juvenile offenders frequently require special education

services, or have been diagnosed with a learning disability, at some point in their lives (Kataoka et al., 2001); they often drop out of school (Jenson & Howard, 1998), have low educational achievement (Murray & Farrington, 2010), and low school bonding (Payne, 2008). NEW VISTAS attempted to address these school-related factors through school visits and supervision, as well as tutoring and mentoring programs.

Family-focused intervention. Another core component of NEW VISTAS was to involve family members in the treatment program to counteract the family-based risk factors associated with delinquency; research has found that family risk is significantly, positively, and similarly related to delinquency for boys and girls in middle and high school (Fagan, Lee, Antaramian, & Hawkins, 2011). To address family factors, in addition to receiving home visits and family case management and supervision, many NEW VISTAS families received family counseling or conferencing (33% of the girls, 27% of the boys). Utilizing family therapy in delinquency and substance use interventions for male and female adolescents has been supported by numerous studies, which have found multiple forms of family therapy (e.g., Brief Strategic Family Therapy, Functional Family Therapy) to be effective in reducing these harmful behaviors (Baldwin, Christian, Berkeljon, Shadish, & Bean, 2012). Furthermore, Garcia and Lane (2012) suggested that relationship strain, or negative and painful stimuli associated with relationships with family members, peers, and others, is highly associated with delinquency in girls. Research findings suggest that interventions for girls should target relationships, particularly familial relationships.

Many parents also received individual counseling and/or parent training through NEW VISTAS (24% of the girls, 44% of the boys), based on their needs. For boys, parent training has been found more effective in reducing criminal offending than juvenile justice treatment as usual (Bank, Marlowe, Reid, Patterson, & Weinrott, 1991). However, few (if any) studies have specifically analyzed the effect of parent training on reducing

delinquency among female juvenile offenders. Providing individual counseling for parents of youth involved in delinquency is supported by research showing that some of the risk factors for youth delinquency are parental incarceration or criminal offending and substance use/mental health concerns (Aaron & Dallaire, 2010).

Drug and alcohol abuse intervention. There is also ample evidence that substance use is related to delinquency among youth. For example, Johansson and Kempf-Leonard (2009) found that individual-level risk factors predicting serious, violent, and chronic offending by males and females were similar, with mental health problems, running away, and substance abuse problems among some of the most important. NEW VISTAS integrated substance use prevention and treatment into its service-delivery model. Available services included alcohol abuse treatment for youth (43% of the girls, 51% of the boys) and/or counseling (19% of the girls, 20% of the boys), drug abuse treatment for youth (43% of the girls, 51% of the boys) and/or counseling (17% of the girls, 20% of the boys), and substance use treatment/counseling for parents. Families were separated into different substance use service tracks based on their degree of impairment (i.e., moderate or severe), so that individual family needs could be met (Jimerson et al., 2003). Numerous researchers have recommended integrating treatment for substance abuse into a comprehensive, individualized intervention for both female delinquency (Cauffman, 2008) and youth delinquency in general (Chassin, 2008).

Mental and physical health intervention. As mentioned previously, mental health problems are a particularly important risk factor to address in delinquency intervention. One of the specific goals of NEW VISTAS was to reduce internalizing and externalizing problems among youth participating in the program by providing youth counseling (57% of the girls, 44% of the boys) and anger management (21% of the girls, 19% of the boys). Part of the NEW VISTAS model was to match staff and clients appropriately, respect

cultural strengths and barriers, and provide gender-specific treatment (Jimerson et al., 2003). All of these goals were integrated into mental health treatment. Matthews and Hubbard (2008) discuss the importance of allowing the option of same-gender counselor matches in gender-specific delinquency interventions, which may help to promote a therapeutic alliance and improve the therapeutic relationship. Research on gender-specific interventions has also pointed out the importance of recognizing within-gender differences, such as cultural differences, and utilizing interventions appropriate for youth of different cultural, ethnic, and linguistic backgrounds (Vincent, Grisso, Terry, & Banks, 2008). NEW VISTAS had bicultural and bilingual staff, focused on neighborhood-based service providers, and individualized mental health treatment with these needs in mind.

Recreational and peer-related intervention. The NEW VISTAS program also provided additional services that have been suggested in the delinquency intervention literature, including probation supervision and a variety of recreational and educational activities. Research has indicated that involvement in structured activities decreases youth delinquency, while involvement in unstructured, social activities, such as hanging out with friends, increases delinquency among males and females (Novak & Crawford, 2010). Thus, recreational programming, including tutoring, mentoring, peer counseling, vocational and life skills training, community service, leadership training, and afterschool recreation were available to youth. The majority of these services were available in all-boy and all-girl settings. In addition to providing structured environments for youth, these services aimed to foster positive relationships, as “creating caring relationships” was one of the core components of the NEW VISTAS model (Jimerson et al., 2003). Research has emphasized the importance of fostering positive peer and adult relationships for juvenile justice involved youth, especially girls, as positive relationships are protective against delinquency

(Bloom et al., 2002; Garcia & Lane, 2012; Matthews & Hubbard, 2008). It is important that youth are provided with opportunities to build relationships with prosocial peers, as research has found that those who have a greater number of delinquent peers are more likely to engage in delinquency and violence themselves (Worthen, 2012); this relation is particularly strong for girls (Fagan & Wright, 2012). In addition, male youth who lack positivity in friendships are more likely to engage in delinquency (Worthen, 2012). Programs such as peer tutoring and community service provide real-world settings to cultivate these essential positive relationships. In addition, in order to facilitate involvement in NEW VISTAS programs, a large percentage of the participants (57% of the girls, 41% of the boys) also received transportation to their services, which otherwise may have been difficult to attend.

The Current Study

The current research literature on delinquency interventions lacks studies with adequate numbers of females in their samples, as well as studies that specifically evaluate gender effects (Hipwell & Loeber, 2006). In addition, delinquency interventions often focus on evaluating only changes in recidivism rates, rather than also measuring changes in mental health concerns, such as internalizing and externalizing problems (Foley, 2008). As is clear from the research literature on risk factors for delinquency, mental health problems are common concerns in the juvenile justice population and have been found to predict delinquency (Postlethwait et al., 2010). The current study aimed to address these gaps in the literature by measuring how participants' internalizing and externalizing symptoms changed, by gender, after completion of the NEW VISTAS program. A comprehensive report of the NEW VISTAS program (Jimerson et al., 2003) found that 6-month recidivism rates for youth who successfully completed the program (19%) were significantly lower than a historical comparison group (39%), although gender differences were not examined.

We hypothesize that similar reductions in mental health symptoms will be found. Five research questions are examined: (a) Do males and females differ at intake on levels of internalizing and externalizing problems?; (b) Are there gender differences in youth-reported internalizing and externalizing symptoms at exit from NEW VISTAS, after controlling for initial levels?; (c) Are there gender differences in mother-reported youth internalizing and externalizing symptoms at exit, after controlling for initial levels?; (d) Do participants' internalizing and externalizing scores significantly decrease from intake to exit?; (e) Are changes in symptomatology related to recidivism rates, and does this differ by gender?

Method

Participants

Participants included 102 juveniles who were enrolled in, and successfully completed, the community-based NEW VISTAS program between the years 1999 and 2003. Following guidelines described by Dattalo (2008), we ran a power analysis using the G*Power 3.1 program (Faul, Erdfelder, Lang, & Buchner, 2007). Results indicated that a MANCOVA (with 2 groups, 2 covariates, and 2 outcomes; numerator $df = 4$) conducted with 102 participants and power of .80 would be able to detect a small to medium effect size ($f^2 = .12$). Participants were selected to participate in NEW VISTAS based on referrals from juvenile probation ($n = 90$) and truancy ($n = 12$). Participants were enrolled in the program for anywhere between 86 days to 1,013 days, with an average of 317 days ($M = 317.18$, $SD = 192.23$). As shown in Table 1, participants were relatively balanced across genders and most were Latino. In addition, the majority (79.5%) were in high school (9th-12th grade). Almost one-half (48.0%) of the participants had been suspended or expelled from school in the 12 months prior to program entry, and almost one-fourth (24.5%) identified themselves as being in a gang. Overall, participants are representative of the juvenile justice population in Santa Barbara County, except that

the proportion of females is larger in our sample, as researchers oversampled females for the program evaluation. It was not possible to have an experimental control group for this study, but archival data from the Santa Barbara County Probation Department for the 1994–1998 time period was used to gather information about 104 youths who had previously successfully completed probation services. This historical comparison group was matched with the NEW VISTAS participants by gender, ethnicity, age, and severity of offense.

Attrition. Table 1 compares participants who successfully completed the program and were included in the current analyses with those who dropped out through no fault of their own (e.g., moved; $n = 34$) and those who dropped out because they failed the program ($n = 12$). Participants who dropped out were similar to those who completed the program in age and ethnicity; participants who dropped out for reasons beyond their control were more likely to be male than participants who completed

the program. Drop-out rates for males (7.6% of males) and females (8.7% of females) were similar. Participants who failed the program had higher levels of internalizing and externalizing problems at intake than the group who completed the program, although analysis of variance (ANOVA) comparing intake levels of internalizing and externalizing problems between the groups revealed no statistically significant differences.

Measures

Child Behavior Checklist (CBCL). Mothers completed the CBCL, a parent-report measure of child behavior problems, at intake and exit. The youth self-report (YSR) and CBCL were designed as complementary multi-informant measures of child behavior and are some of the most widely used measures of child behavior problems in psychological research (Achenbach, 1999). The CBCL can be used to rate children ages 4 to 18 years and takes about 15 minutes to complete. Measures were available in English or Spanish. In this study, two broadband behavior scales

Table 1. Comparison of Demographics and Variables of Interest for Study Participants Versus Dropped Participants

	Study Participants Mean (SD)	Dropped Out- No Fault Mean (SD)	Dropped Out- Failed Mean (SD)
<i>n</i>	102	34	12
Sex			
Male	57.8%	73.5%	58.3%
Female	42.2%	26.5%	41.7%
Age	16.24 (1.04)	16.30 (1.14)	16.37 (1.45)
Ethnicity			
Latino	77.5%	76.5%	75.0%
Anglo	19.6%	17.6%	25.0%
Black	1.0%	0%	0%
American Indian	2.0%	0%	0%
Other	0%	5.9%	0%
Internalizing Pretest (Youth Report)	51.49 (11.15)	51.50 (11.36)	56.67 (10.05)
Externalizing Pretest (Youth Report)	51.48 (11.76)	51.91 (12.07)	56.33 (13.40)
Internalizing Pretest (Mother Report)	58.42 (12.00)	55.71 (12.76)	60.67 (9.20)
Externalizing Pretest (Mother Report)	57.52 (12.31)	57.59 (11.69)	62.08 (8.32)

Note. Internalizing and externalizing scores reflect Standardized Scores ($M = 50, SD = 10$).

from the CBCL (Internalizing and Externalizing Problems) were used, for a total of 63 items. To measure Internalizing Problems, the 9-item Withdrawn Behavior (e.g., sad, sulks), 9-item Somatic Complaints (e.g., dizzy), and 13-item Anxious/Depressed (e.g. lonely) subscales were combined. Externalizing Problems were measured by combining the 11-item Delinquent Behavior (e.g., runs away) and 21-item Aggressive Behavior (e.g. starts fights) subscales. Participants responded to each item on a three-point Likert scale (0 = "not true", 1 = "somewhat or sometimes true", 2 = "very true or often true"). We then transformed raw scores for both scales into age-standardized scores ($M = 50$, $SD = 10$). Standard scores below 60 are considered to be in the normal range, scores ranging from 60 to 63 are in the borderline range, and scores above 63 are in the clinical range. Achenbach (1991b) reported adequate test-retest reliability, criterion validity, and concurrent validity. In the current study, internal consistencies for both the Internalizing and Externalizing scales were excellent ($\alpha = 0.89$ and 0.93 , respectively).

Youth Self Report. To measure internalizing and externalizing problems, juvenile participants completed five of eight subscales of the YSR (Achenbach, 1991a) at both intake and exit. The YSR is a standardized, self-report measure that is appropriate for children between the ages of 11 and 18. Participants responded to each item on a three-point Likert scale (0 = "not true", 1 = "somewhat or sometimes true", 2 = "very true or often true"). To measure internalizing symptoms, we combined the 7-item Withdrawn Behavior (e.g., "I would rather be alone than with others"), 9-item Somatic Complaints (e.g., "I feel dizzy"), and 15-item Anxious/ Depressed (e.g., "I feel that I have to be perfect") subscales to create an overall Internalizing cluster. To measure externalizing symptoms, we combined the 11-item Delinquent Behavior (e.g., "I lie or cheat") and 19-item Aggressive Behavior (e.g., "I argue a lot") subscales to create an overall Externalizing cluster. We transformed raw scores into age-standardized

scores in the same way we did for the CBCL. The YSR has been found to have good test-retest reliability and construct validity (Achenbach, 1991a). In the current study, the internal consistencies of both scales were excellent ($\alpha = 0.90$).

Recidivism. Recidivism was measured by the number of arrests within 6 months after exiting the program. Data were collected by the probation department and transmitted to the researchers at the end of the project. Number of arrests was dichotomized into 1 = had at least one arrest and 0 = had no arrests.

Procedure

Participants were referred to the NEW VISTAS program through the truancy and juvenile probation offices between 1999 and 2003. A Research Advisory Panel, including researchers, police officers, school district personnel, and mental health professionals developed and reviewed the program evaluation protocol. All participants in NEW VISTAS provided data required by the Board of Corrections for the evaluation; a sample of one in two females and one in three males was recruited for a more intensive set of local evaluation measures. Data were collected from the involved families at program intake and exit by the team leaders, who were probation staff responsible for case planning, negotiating services, and family supervision. The forms could be filled out in Spanish or English and were available in interview or questionnaire format. When the data packets were complete they were transferred to researchers who scanned the forms and downloaded the data into the Statistical Package for the Social Sciences (SPSS) software program. Recidivism data on the intervention and historical comparison group were collected by the probation department and sent to the researchers to be analyzed. To adhere to the procedures established to protect the participants, neither names nor identification numbers were included with these data; therefore they were matched with the intervention group using date of birth.

Design and Data Analysis

The current study employed a pretest-posttest design to clarify the association between treatment provision and mental health, and a post-test-only design with a historical control group to examine the association between treatment provision and recidivism. We ran a series of independent samples *t*-tests to assess whether there were significant differences in both youth- and mother-reported youth internalizing and externalizing symptoms at intake. We made a Bonferroni correction to adjust the *p* value from 0.05 to 0.0125 to accommodate multiple *t*-tests. To determine whether gender differences exist for posttest internalizing and externalizing mental health symptoms, after controlling for scores at intake, we conducted two multivariate analysis of covariance (MANCOVA) tests (one for youth-reported symptoms and one for mother-reported youth symptoms) on two dependent variables associated with mental health: post-intervention internalizing and externalizing scores. We adjusted for two covariates: intake internalizing scores and intake externalizing scores. The independent variable was gender. This method is recommended over repeated measures ANOVA when using a pretest-posttest design and when groups are not randomly assigned (Jennings, 1988). The covariates were moderately correlated with each other and with all of the dependent variables (range .312 to .671),

which also support the use of MANCOVA rather than multiple ANCOVA tests. All assumptions of MANCOVA were met for both the youth-reported and mother-reported analyses. Finally, descriptive analysis depicted the association between improvement in mental health and recidivism for those participants whose data we could match. All analyses were run using SPSS 20 statistical software.

Results

Research Question A: Gender Differences at Intake and Exit

Results of *t*-tests indicate that males and females did not differ significantly at intake on youth-reported internalizing, $t(100) = -1.91, p = .059$, mother-reported internalizing, $t(100) = 0.60, p = .549$, or mother-reported externalizing problems, $t(100) = 0.01, p = .996$, at intake. However, females had higher youth-reported externalizing behaviors than males, $t(100) = -3.02, p = .003$, at intake. Males and females did not differ significantly at exit on any of the scales before controlling for initial levels: youth-reported internalizing, $t(100) = -0.59, p = .558$, youth-reported externalizing, $t(100) = -1.15, p = .254$, mother-reported youth internalizing, $t(100) = -0.29, p = .772$, and mother-reported youth externalizing, $t(100) = 0.25, p = .803$. Table 2 provides means and standard deviations.

Table 2. *Intake and Exit Standard Score Means and Standard Deviations by Gender*

Gender	<i>n</i>	Internalizing		Externalizing	
		Intake (SD)	Exit (SD)	Intake (SD)	Exit (SD)
Youth Self-Report (YSR)					
Male	59	49.71 (11.52)	47.22 (11.39)	48.59 (12.46)	45.49 (11.45)
Female	43	53.93 (10.26)	48.58 (11.78)	55.44 (9.51)	48.23 (12.56)
Total	102	51.49 (11.15)	47.79 (11.52)	51.48 (11.76)	46.65 (11.95)
Mother Report of Youth (CBCL)					
Male	59	59.03 (12.38)	52.78 (11.66)	57.53 (12.94)	51.41 (12.50)
Female	43	57.58 (11.55)	53.49 (12.76)	57.51 (11.54)	50.79 (11.94)
Total	102	58.42 (12.00)	53.08 (12.08)	57.52 (12.31)	51.15 (12.21)

Research Questions B & C: Gender Differences at Exit When Controlling for Initial Levels

Results of the MANCOVA revealed that the main effect of gender on youth self-reported internalizing and externalizing scores at exit was not significant, after controlling for intake mental health scores, $F(1, 97) = 0.46, p = .634$. There were similar findings for the MANCOVA conducted on mother-reported youth mental health, $F(1,97) = 0.75, p = .475$. This indicates that males' and females' self-reported and mother-reported post-test internalizing and externalizing mean scores did not differ significantly from each other, after controlling for initial levels.

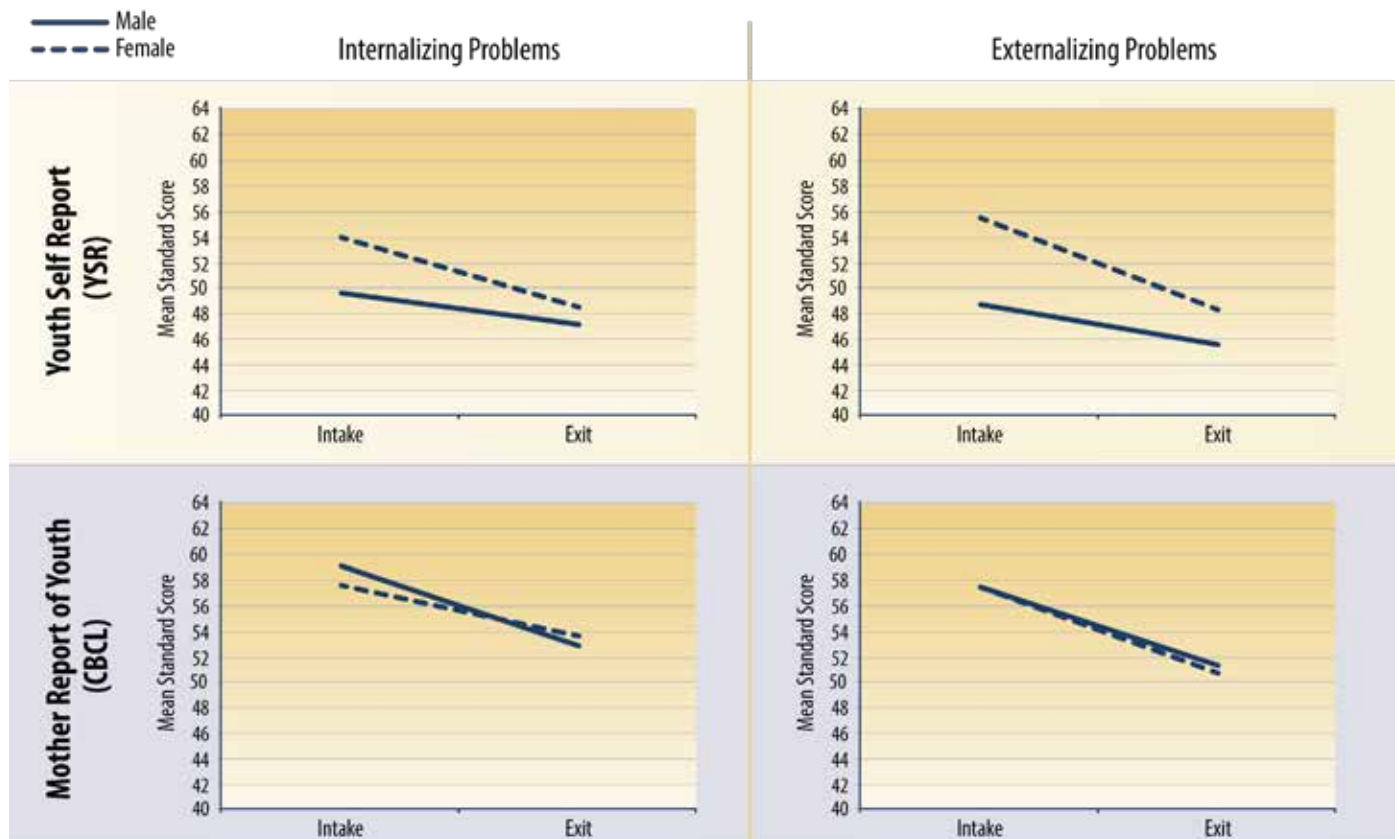
Research Question D: Pre-Post Change by Gender

Results of MANCOVA also revealed significant main effects for youth self-reported internalizing, $F(1, 97) = 17.73, p < .001$ (partial eta squared = .15), and externalizing behavior, $F(1,97) = 12.16,$

$p = .001$ (partial eta squared = .11), as well as mother-reported internalizing, $F(1,97) = 59.65, p < .001$ (partial eta squared = .38), and externalizing behavior, $F(1,97) = 11.82, p = .001$ (partial eta squared = .11); participants' internalizing and externalizing scores from both informants were significantly lower at exit than intake. See Figure 1 for a plot of male and female youth-reported and mother-reported youth scores at intake and exit.

Change in internalizing and externalizing scores from intake to exit can also be described in terms of categorical change (whether scores fell in the normative, borderline, or clinical range). The percentage of youth whose internalizing and externalizing scores were in the normative range increased from intake to exit for all measures: from 76.5% to 85.3% for youth-reported internalizing, 76.5% to 87.3% for youth-reported externalizing, 52.0% to 70.6% for mother-reported

Figure 1. Youth self-reported and mother-reported youths' internalizing and externalizing standard score means at intake and exit



internalizing, and 51.0% to 77.5% for mother-reported externalizing. Percentages of youth in borderline and clinical ranges decreased from intake to exit for all measures. The percentage of youth in the clinical range for youth- and mother-reported internalizing problems dropped from

12.7% to 8.8%, and 40.2% to 24.5%, respectively; youth- and mother-reported clinical range externalizing scores dropped from 14.7% to 4.9%, and 34.3% to 16.7%, respectively. Figure 2 depicts changes in participants' mental health categories from intake to exit.

Figure 2. Number of youths who were in either the normative, borderline, or clinical range at intake and the range they were in at exit, for youths' self-reports and mother-reports of youths' externalizing and internalizing symptoms.

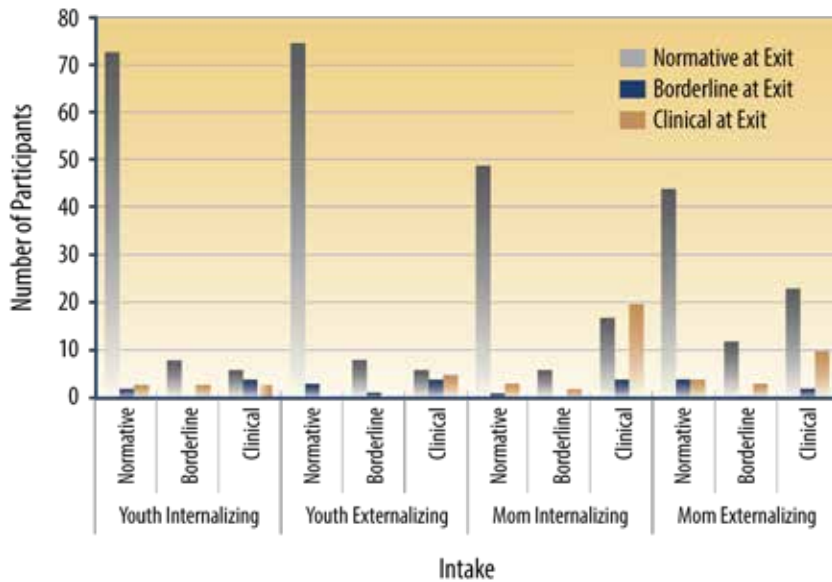
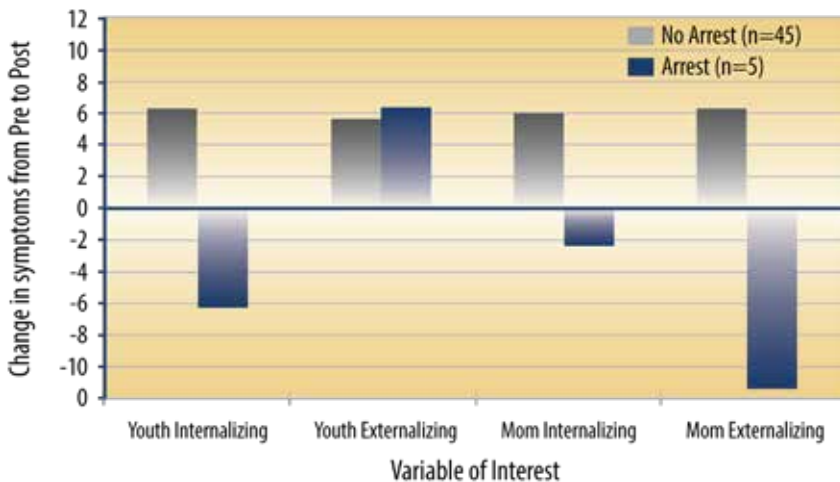


Figure 3. Change in symptom scores (Pre – Post) on the CBCL (youth self-report) and YSR (mother report) for youths with no arrests and at least one arrest at 6-month follow-up. A positive score indicates better mental health (lower levels of reported symptoms at exit).



Research Question E: Relation Between Change in Symptoms and Recidivism

Unfortunately, 6-month recidivism data were missing or unable to be matched with mental health data for 52 (51%) of the participants. Participants with unmatched follow-up arrest data were more likely to be male (75% versus 42%) and to have had an arrest during the intervention (66% versus 30%) than those with matched follow-up arrest data. Because of the small sample size, high percentage of missing data, and some notable differences between participants with and without follow-up data, we did not run statistical analyses. However, descriptive data suggest that recidivism rates at 6-month follow-up were very low for both males (81.0% did not recidivate, $n = 17$) and females (96.6% did not recidivate, $n = 28$). These rates of recidivism are lower than in the historical comparison group, of which only 64.2% of males ($n = 18$) and 55.5% of females ($n = 10$) did not recidivate during the 6-month follow-up period. In addition, in the NEW VISTAS sample, the magnitude of symptom change does appear to be related to whether a participant recidivated (see Figure 3).

Discussion

The current study aimed to understand the gender-specific mental health and recidivism outcomes for youth who participated in a comprehensive,

individualized, and neighborhood-based delinquency intervention with a focus on gender-specific treatment. Results of the study demonstrated that males and females had similar internalizing and externalizing symptoms at exit from NEW VISTAS after controlling for initial levels, which were significantly lower than their scores at intake. Results suggest that participants in the NEW VISTAS program had a significant decrease in mental health symptoms, with males and females showing similar changes. In addition to improvements in mental health, there was a lower recidivism rate for participants in NEW VISTAS when compared to a historical control group; NEW VISTAS participants' change in mental health symptom scores appears to be related to arrest rates at 6-month follow-up.

At intake we found that boys and girls were similar on measures of internalizing and externalizing symptoms. The finding that girls did not have significantly higher internalizing scores at intake is surprising, considering previous research that has found girls involved with the juvenile justice system typically have higher rates of depression and other internalizing problems than boys (Teplin et al., 2002; Timmons-Mitchell et al., 1997). This is especially surprising considering the fact that girls engaged in delinquency often have traumatic experiences that result in higher rates of PTSD and anxiety-related disorders (Zahn et al., 2010). This finding may reflect a difference in our sample of youth as compared to other studies, particularly because we have a larger Latino population than most other studies (e.g., Teplin et al., 2002; Timmons-Mitchell et al., 1997). Girls and boys did not differ significantly on mother-reported externalizing symptoms, with boys and girls having almost identical intake scores. However, girls had significantly higher self-reported externalizing scores at intake than boys. In the general population, boys typically demonstrate more externalizing problems than girls (Rosenfield et al., 2006); however, many studies have found girls to have higher rates of all mental health problems, including

externalizing problems, compared to boys (Timmons-Mitchell et al., 1997). Our finding may be explained by the "gender paradox" in youth delinquency, which states that because girls are less likely to be involved in juvenile delinquency, those girls who do engage in it are likely to experience higher levels of related risk factors, particularly comorbid mental health problems and disruptive behavior (Loeber & Keenan, 1994).

At exit, there were no significant differences between boys and girls on any of the measures of mental health after controlling for mental health scores at intake. As a group, participants' internalizing and externalizing scores decreased significantly after involvement in the program. These findings align with previous research on gender-specific interventions for delinquency, which show that programs that address the multitude of risk factors and ecological contexts that influence youth involvement in delinquency are the most effective (Henggeler et al., 1998; Mullis, Cornille, Mullis, & Huber, 2004). However, because we had the power to detect an effect size of $f^2 = .12$, it is possible that if a real, but very small effect of gender on outcomes existed, it may not have been detected in this study; a larger sample size may reveal these differences. Nonetheless, findings are supported by other studies of multimodal interventions (i.e., Multisystemic Therapy and Multimodel Treatment Foster Care), which have found that these individualized and comprehensive delinquency interventions are effective for both boys and girls (Leve et al., 2012; Ogden & Hagen, 2009). This study adds to this current literature, as it evaluated the gender-specific outcomes of a different multimodal intervention, NEW VISTAS, and focused on mental health symptoms as the outcome of interest. Few studies have measured changes in mental health after involvement in a delinquency intervention, despite the preponderance of evidence for its important relation to juvenile delinquency (Foley, 2008). Because both males and females experienced decreased mental health symptoms, and at similar rates, the current study provides

evidence for the use of comprehensive, community-based programming for the reduction of mental health problems in girls and boys.

Kazdin (2003) emphasized the importance of measuring not only statistically significant changes in adolescent behavior or mental health after an intervention, but also clinical significance (i.e., did the adolescent's behavior move into the nonclinical range?). Results of descriptive analyses revealed that the majority of the youths' internalizing and externalizing symptoms were in the normative range after exiting from NEW VISTAS, and most youth moved to a less severe range or stayed in the same range (Figure 2). The proportion of youth with borderline and clinical levels of mental health concerns at exit mirrored what is expected in the general population rather than the higher rates that occur in the juvenile justice population. There were a few participants whose mental health rating moved from either the normative range to the borderline range or the normative or borderline range to the clinical range. It is unclear why this occurred, and findings could indicate iatrogenic effects. Cécile and Born (2009) discussed the risk for iatrogenic effects in youth delinquency interventions, particularly group settings where youths can learn or reinforce further negative behavior because of their association with other deviant peers. Their review of the literature found that interventions that involve the family and target multiple factors that promote delinquency, including substance use and deviant peers, show the greatest success in reducing delinquency. Considering this previous research, it is surprising that some youths' behavior appear to have worsened after involvement in a comprehensive program such as NEW VISTAS. It is likely that these findings simply reflect that these youth were already on a negative trajectory and that the intervention failed to stop or only mitigated this negative course. Differences between youth whose symptoms increased and those whose did not should be explored in the future.

In addition to mental health outcomes, this study explored the possible relation between change in mental health symptoms and recidivism. A review of the literature conducted by McLean and Ransford (2004) found that one of the most important types of programs for reducing recidivism among parolees is mental health treatment, but that it is rarely provided. In the current study, missing 6-month follow-up recidivism data precluded statistical comparisons; however, descriptive analyses of the available 6-month follow-up data suggest that the great majority of participants did not recidivate. In fact, of participants in this study, only 19% of males and 3% of females reoffended in the 6 months after successfully completing NEW VISTAS, which is much lower than the historical control group reoffense rate of 39%. Descriptive results pictured in Figure 3 indicate that with the exception of self-reported externalizing behaviors, participants with decreases in reported internalizing and externalizing symptoms had no arrest at 6-month follow-up, while all participants with increases in these symptoms had an arrest. These findings must be cautiously interpreted because of the large percentage of missing data, small sample size, and potential differences between those with and without follow-up data. Future studies that are able to analyze the relation between changes in mental health symptoms and recidivism are needed to further elucidate this association.

Implications and Future Directions

The current study points to the potential for a comprehensive, individualized, and culturally- and gender-sensitive program to significantly reduce mental health symptoms for both males and females on probation. These findings are an important addition to the research literature on effective delinquency programming for female youth, as females have traditionally been neglected in delinquency intervention studies (Chesney-Lind & Shelden, 2004; Hipwell & Loeber, 2006). Zahn et al. (2010) described a great need for further research on what effective treatment

for females involved in the juvenile justice system looks like. The current study addresses this gap in the literature, although additional research must continue to strive to adequately understand the intervention needs of youths of different genders.

As this study relied on data gathered through the evaluation of a comprehensive community initiative, there were several limitations that need to be addressed in more controlled research. First, there was lack of specificity regarding the intervention programs that participants received. Probation contracted with several providers to implement services, including mental health treatment. Although probation partnered with agencies to select and implement programs that met NEW VISTAS program criteria, it is unclear to what degree each intervention was implemented with fidelity. In the future it will be critical for studies to isolate which specific aspects of the intervention are most and least helpful for youth of different genders. Future research should evaluate the gender-specific effectiveness of intervention models, such as NEW VISTAS, using randomized, control group studies with intervention fidelity checks to allow outcomes to be attributed to the treatment. In addition, human subjects protection for research with juveniles on probation and in the juvenile justice system, which required the sealing of juvenile records, yielded missing follow-up data. Such constraints to community-based research need to be identified and addressed proactively in future research. Finally, some participants were not included in the current analyses because of failure to complete the program, either because they moved or were unable to successfully participate. Even though dropped participants were

not significantly different from the study sample, findings should only be generalized to youth who are able to complete a comprehensive delinquency intervention such as NEW VISTAS, since research has found that families with multiple risk factors, including mental health concerns, are more likely to drop out of treatment prematurely (Hipwell & Loeber, 2006).

It will also be important for future studies evaluating gender-specific delinquency interventions to focus not only on changes in youth problems, such as mental health symptoms and recidivism, but also on strengths. Positive psychology points to the importance in understanding not only whether problems decrease during and after intervention implementation, but whether positive attributes that promote resiliency and well-being are also developed (Matthews & Hubbard, 2008). Agencies, communities, and schools working with youth involved in delinquency and/or the juvenile justice system should consider the use of collaborative approaches to intervention, such as NEW VISTAS, which recognize that the causes and facilitating factors for delinquency are complex and multifaceted.

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Predicting Recidivism Among Juvenile Delinquents: Comparison of Risk Factors for Male and Female Offenders

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Abstract

Research examining risk factors for delinquency and risk factors that predict recidivism among delinquents has produced inconsistent results, due, in part, to the various methodologies and samples used in studies. The majority of studies have used all-male samples or have been limited to groups of offenders who have committed only minor offenses on the one hand, or severe offenses on the other. As the number of female offenders increases, more research is needed that controls for gender and methodology in an effort to clarify risk factors for both delinquency and recidivism among male and female juveniles.

This study examined risk factors for recidivism related to education, demographics, and offense patterns in a diverse sample of 3,287 male and female juvenile delinquents from Arizona. The study sought to determine whether differences existed between male and female offenders in regard to risk factors for recidivism, and to identify those that were predictive of recidivism in male versus female delinquents. Overall, this study found significant differences between risk factors, and that male and female delinquents

differed with respect to which risk factors were predictive of recidivism. Academic achievement was not predictive of recidivism among females in this study, and contrary to the results of other studies, we found offense severity was not related to recidivism for either sex. Despite its relatively low frequency in the sample, we found emotional disabilities were predictive of recidivism for both sexes. Additional analyses found that juvenile delinquents with an emotional disability were at significantly greater risk for recidivism than were delinquents without an emotional disability.

Introduction

A major concern in the area of juvenile delinquency is the repeated arrest and incarceration of juveniles. Although the actual arrest rate of juveniles has declined over the past decade, recidivism has remained high and stable, with estimates of reoffending among juveniles ranging from 30% to 90% (e.g., McMackin, Tansi, & LaFratta, 2004; Trulson, Marquart, Mullings, & Caeti, 2005; van der Geest, 2008). This concern has led a number of studies to address risk

factors related to recidivism among juvenile offenders. For example, in regard to offense patterns, studies consistently report that the earlier juveniles begin to commit crimes, the greater the likelihood that they will continue to reoffend (e.g., Barrett, Katsiyannis, & Zhang, 2010; Cottle, Lee, & Heilbrun, 2001; Trulson et al., 2005). In addition, studies have found that delinquents who commit crimes of greater severity are at an increased risk for reoffending (e.g., Cottle et al., 2001; Dembo et al., 1998; Myner, Santman, Cappelletty, & Perlmutter, 1998).

Researchers have also linked academic achievement with recidivism (e.g., Katsiyannis, Ryan, Zhang, & Spann, 2008). For example, Archwamety and Katsiyannis (2000) studied juvenile delinquents in remedial math and reading groups and found that they were twice as likely to recidivate as those in the control group who were not in need of remedial academic instruction. A literature review by Vacca (2008) that focused on reading achievement and delinquency suggested that recidivism would decrease if more time were spent teaching delinquents to read.

Directly related to academic achievement, a limited number of studies have examined the relationships among delinquency, disability, and recidivism, as there is an overrepresentation of juveniles with such disabilities in the juvenile justice system. In fact, research has suggested that between 30% and 100% of delinquents have a disability as categorized under the Individuals with Disabilities Education Improvement Act (IDEIA) (IDEIA, 2004; Morris & Morris, 2006; Quinn, Rutherford, Leone, Osher, & Poirer, 2005), with delinquents having emotional disabilities (ED) being overrepresented. Some studies specifically examining the relationship between disability and reoffending suggest that juveniles with disabilities may be particularly vulnerable to recidivism (Barrett, et al., 2010; Zhang, Barrett, Katsiyannis, & Yoon, 2011; Zhang, Hsu, Katsiyannis, Barrett, & Ju, 2011), although research in this area is limited.

Inconsistent findings plague delinquency research, particularly when examining risk factors for recidivism. Qualitatively, a review of the literature shows nearly as many studies supporting various factors as being predictive of recidivism as studies failing to find any relationship. Specifically, although several studies have found academic achievement, disability, ethnicity, socioeconomic status, conduct problems, and offense patterns to be predictive of recidivism, several other studies have not (e.g., Calley, 2012; Cottle et al., 2001; Dembo et al., 1998; Duncan, Kennedy, & Patrick, 1995; Mulder, Vermunt, Brand, Bullens, & Marle, 2012; Myner et al., 1998; Tille & Rose, 2007). These inconsistencies are due, in part, to the various methodologies and samples used in studies, as the majority of studies utilize all-male samples or are limited to groups of juveniles who have committed either relatively minor or relatively severe offenses.

The differing ways in which studies define variables can also affect their results. For example, few studies examine the influence of a specific disability (e.g., emotional disability versus learning disability) on recidivism, instead using a generic category of "special education placement" despite supporting evidence that mental health issues (associated with an emotional disability) may be correlated with recidivism.

The majority of studies also utilize samples of primarily male delinquents, or combine male and female delinquents into one sample, despite available evidence suggesting that male and female adolescents may differ with regard to characteristics of delinquency and risk factors for recidivism (e.g., Tille & Rose, 2007; Trulson et al., 2005; Vitopoulos, Peterson-Badali, & Skilling, 2012). A study by Funk (1999), for example, found that risk factors of recidivism for males were different than risk factors of recidivism for females. A recent study by Steketee, Junger, and Junger-Tas (2013) examined male and female delinquents in 30 countries and concluded that there are significant differences in risk factors of recidivism for females versus males. These

researchers asserted that traditional theories of delinquency do not apply to females as they do to males. It is notable, however, that this study (and many other studies) relied on self-reported delinquency versus an actual arrest history.

The results of the studies mentioned above highlight the importance of gender-responsive delinquency research, given that it is scholarly research that serves as the premise for many risk-assessment instruments and intervention planning for delinquent youth. Consequently, the purpose of the present study was two-fold: first, to examine whether differences exist between female and male juvenile offenders with respect to educational and offense variables that research suggests may be predictive of recidivism; and second, to determine which are the best predictors of recidivism among male and female delinquents.

This study contained educational, demographic, and offense data for a large and diverse sample of youth arrested at least once over the 5 years between August 2006 and May 2011. The sample included male and female delinquents, and included youth with various offense histories. Youth in the sample had been arrested anywhere from 1 to 54 times, and had committed offenses ranging from relatively minor status offenses and misdemeanor offenses, to more severe felony offenses. The educational variables examined include diagnosis of an emotional disability; diagnosis of a learning disability; and standardized academic achievement test scores in reading, writing, and math. Offense variables examined included their type and severity, adjudication status, and total days in detention. Demographic variables included in the analyses were socioeconomic status, dual involvement in the court system because of either delinquency or child welfare issues, and ethnicity. We formulated the following hypotheses: (a) based on the limited research suggesting that female delinquents differ considerably from their male counterparts in terms of risk factors for delinquency, differences would be observed between male

and female delinquents in regard to risk factors for recidivism; and (b) variables included in the analysis would significantly predict recidivism among male and female delinquents.

Method

Participants

This study included 3,287 youth (2,134 males and 1,153 females) between the ages of 8 and 17 years. These juveniles were enrolled in a large public school district in Arizona and had been arrested at least once between August 2006 and May 2011. The most current data were used for participants who had been arrested multiple times during this time period. This project was approved by the University of Arizona's Institutional Review Board, the participating school district, and the participating juvenile court center.

Variables

The independent variables were as follows:

1. Presence of an emotional disability, as defined by the IDEIA (2004).
2. Presence of a learning disability, as defined by IDEIA (2004). The diagnoses of emotional and learning disabilities are two of the most common IDEIA diagnoses found among delinquents.
3. Presence of a speech or language impairment, as defined by IDEIA (2004). This variable was included because it was the second most prevalent IDEA diagnosis in the sample of participants.
4. Ethnicity.
5. Socioeconomic status, determined by students' participation in the school lunch program. This program makes students eligible to receive free or reduced lunch based on the income level of their parents or guardians. Those receiving no free lunch or reduced lunch fall above a predetermined income;

those receiving free lunch fall into the lowest income category. The three categories for the variable of socioeconomic status were: no free or reduced lunch, reduced lunch, and free lunch.

6. Dual involvement of youth in the court system, which included youth who were involved with the courts because of delinquency offenses, as well as child welfare issues.
7. The participants' Arizona Instrument to Measure Standards (AIMS) standardized achievement test scores in the areas of reading performance, writing performance, and math performance. Standardized achievement scores were determined from the scores available from the students' most recent AIMS standardized test results in these areas. Reliability coefficients for the AIMS tests are above 0.90 for all grade levels (Arizona Department of Education, 2008).
8. Adjudication status (guilty vs. not guilty) of participants arrested. Adjudication status was defined according to whether the participant was found guilty of at least one of the offenses for which he or she was arrested.
9. Severity of offense. Offense severity was determined by the local juvenile court center in four categories: status offenses, obstruction, misdemeanor, and felony. Given that some youth are likely to have committed more than one offense during a particular school year, the most severe offense was used in all statistical analyses. Because status offense is the only category in which a crime is illegal solely because of the juvenile's age, this was rated to be the least severe offense type. Obstruction, which consists of offenses such as violation of conditions of release or probation violations, was ranked second in terms of severity because violations are deemed criminal acts regardless of an individual's age. Misdemeanors and felonies ranked third and fourth, respectively, in terms of severity.

10. Type of offense committed. Type of offense was determined by the local juvenile court center and included a variety of categories, such as status offense, drug possession or sales, misdemeanor against property, misdemeanor against persons, felony against property, and felony against persons.

Recidivism served as the dependent variable and was defined as the total number of arrests present in a student's lifetime record with the local juvenile court center, including probation violations.

Procedure

Data for this study were obtained through the University of Arizona Juvenile Delinquency Project (UAJDP) database. This extensive database, which we created for this project, consists of offense history and educational data for students 8 to 17 years of age who have been arrested in an Arizona county. New data are obtained yearly through an intergovernmental data-sharing agreement between an Arizona juvenile court center, an Arizona school district, and the University of Arizona. As of 2012, the UAJDP had amassed data for 8,997 youths. This database is comprehensive in that it contains information for all youth arrested in a large school district ($n = 60,000$) each year. Consequently, it represents male and female offenders, first-time and repeat offenders, minor status offenders, juveniles completing probation violations or misdemeanor offenses, and offenders who have committed serious felonies. Some youth in the database have been detained and/or incarcerated, while others received only paper arrests. All data went through the juvenile court center before being given to researchers at the University of Arizona. To maintain confidentiality, each student in the database was first assigned a random identification number by information technology staff at the juvenile court center, none of whom were affiliated with this study or informed about its specific purpose or hypotheses. The identification numbers of youth who

had been arrested over multiple years of data collection were flagged for researchers to avoid duplication.

Demographics of Sample

The sample for this study consisted of 64.9% male delinquents and 35.1% female delinquents. These percentages are consistent with nationwide data on gender and delinquency. In regard to ethnicity, 54.0% of the study population was Hispanic, 27.9% Caucasian, 9.9% African American, 6.0% Native American, and 1.3% Asian American. The ethnic representation of the sample was consistent with that of the original

Table 1. *Sample Characteristics*^a

	Males	Females
Ethnicity		
African American	9.7	10.5
Asian	1.1	1.6
Caucasian	28	27.7
Hispanic	54.6	53
Native American	5.8	6.2
Special Education		
LD	18.5	9.2
ED	8.3	3.5
Speech-Language Impairment	10.3	6.0
Demographics		
Free/Reduced Lunch	69.0	69.1
Dually Involved	10.9	11.3
Academic Achievement^b		
Reading	42.1	53.5
Math	50.4	57.5
Writing	42.8	66.5
Offense Severity^c		
Felony	33.8	16.4
Misdemeanor	55.0	64.2
Obstruction	2.5	1.0
Status Offense	8.5	18.2
Adjudicated	12.7	4.3

^a Values represent percentages

^b Percentage with passing scores on state standardized achievement tests

^c Most severe offense reported

population of youth in the school district. See Table 1 for a comparison of male and female juveniles on all variables.

Data Analyses

We conducted chi-square analyses to determine whether there were differences among independent variables for male and female delinquents. We then used standard multiple regression analysis to determine which factors best predicted recidivism among male and female juvenile delinquents. These analyses allowed us to determine which independent variables best predicted recidivism for each sex, and whether risk factors differed between males and females.

Due to the categorical nature of ethnicity and offense type, we did not include these variables in the linear regression model. Instead, we conducted a one-way analysis of variance (ANOVA) to determine whether the number of referrals differed significantly among the various ethnic groups, as well as among the types of offenses committed.

Results

Hypothesis I: Comparison of Risk Factors for Male and Female Offenders

We conducted chi-square analyses to determine whether significant differences existed between males and females for the variables that were to be included in the prediction model for recidivism. While no significant associations were observed between males and females on ethnicity, socioeconomic status, or dual involvement in the juvenile court system, we observed differences between the sexes in all other areas. In regard to educational variables, more females than males were likely to have passed standardized achievement tests in the areas of reading $\chi^2(1, N = 3098) = 37.15, p < .001, \phi = .11$; writing $\chi^2(1, N = 3287) = 168.81, p < .001, \phi = .227$; and math $\chi^2(1, N = 3005) = 13.681, p < .001, \phi = .067$. It is noteworthy, however, that the effect size was small for both reading and math.

In addition, a significantly larger proportion of males than females were enrolled in special education programs $\chi^2(1, N = 3287) = 97.58, p < .001, \phi = .172$. In regard to specific disabilities, a smaller proportion of females than males were diagnosed with emotional disabilities $\chi^2(1, N = 3287) = 28.26, p < .001, \phi = -.093$, but again, the effect size was small. Fewer females than males were observed with a diagnosis of a learning disability $\chi^2(1, N = 3287) = 50.29, p < .001, \phi = -.124$. We observed similar results for speech and language impairments $\chi^2(1, N = 3287) = 32.89, p < .001, \phi = -.072$.

We categorized offense patterns as follows: (a) 1 offense; (b) 2 to 5 offenses; and (c) 6 or more offenses. We observed significant differences in offense patterns between male and female delinquents $\chi^2(2, N = 3280) = 19.52, p < .001$, Cramer's $V = 0.78$. Specifically, more females than males had only one offense, while a greater proportion of males than females had six or more offenses. We also observed differences in offense severity, $\chi^2(3, N = 3279) = 160.61, p < .001$, Cramer's $V = .221$, with a greater proportion of females than males having status offenses, and significantly more males than females having felony offenses. Males were also more likely than females to have been adjudicated $\chi^2(1, N = 3280) = 67.06, p < .001, \phi = .143$.

Hypothesis II: Predicting Recidivism Among Male and Female Juvenile Offenders

To test hypothesis II, we conducted standard regression analysis for both the male and female samples. For both male and female delinquents, initial analyses found that offense severity, learning disabilities, and a speech-language impairment had extremely low correlations (all < 0.10) with the dependent variable (recidivism) and consequently were not included in the final regression analysis. The final variables included in the analysis were as follows: socioeconomic status, dual involvement, adjudication status, total time spent in detention, emotional disability, and standardized achievement in reading, writing,

and math. Given the large sample size for both males and females, the number of cases per variable is well above the suggested number of cases needed to ensure a reliable equation in multiple regression (Tabachnick & Fidell, 2007).

Females

We conducted preliminary analyses to ensure no violation of the assumptions of normality, linearity, multicollinearity, or homoscedasticity. As previously mentioned, we removed three variables from the final analysis because of low correlations with the dependent variable. We found a significant model that explained 36% of the variance in recidivism among females, $F(9, 1057) = 67.31, p < .001$. Variables that significantly predicted recidivism among females included socioeconomic status, adjudication status, dual involvement, emotional disability, and total time in detention (see Table 2). We conducted a one-way ANOVA to determine whether ethnicity was significantly related to recidivism among females; results indicated that the number of referrals did not differ significantly from one ethnic group to another, $F(4, 1133) = 0.671; p > .05$. We also conducted a one-way ANOVA among groups of females who had committed different types of offenses to determine the effect of offense type on recidivism. We found a significant difference among females for offense type, $F(6, 1129) = 5.98, p < .001$. However, despite reaching statistical significance, the actual difference in mean number of arrests among the groups of females by offense type was small. The effect size, calculated using eta squared, was 0.001. Consequently, the statistical significance was likely due to the large sample size and, therefore, no post hoc analyses are reported here because upon examination these results were clinically insignificant.

Table 2. Variables Predicting Recidivism in Adolescent Females ($N = 1,153$)

Variable	β
Total time in detention	0.324
Dually Involved	0.281
ED	0.175
Adjudication Status	0.169
Socioeconomic Status	-0.110

Males

We conducted preliminary analyses to ensure no violation of the assumptions of normality, linearity, multicollinearity, or homoscedasticity. We found a significant model that explained 35% of the variance in recidivism among males, $F(9, 1921) = 116.58, p < .001$. Variables that significantly predicted recidivism among males included socioeconomic status, adjudication status, dual involvement, diagnosis of an emotional disability, total time in detention, writing achievement, and math achievement (see Table 3).

We conducted a one-way ANOVA to determine whether ethnicity was significantly related to recidivism; results indicated no significant differences among ethnic groups in regard to the number of arrests, $F(4, 2107) = 1.791; p > .05$. We also conducted a one-way ANOVA between groups to explore the impact of offense type on recidivism. Results indicated a significant difference for offense type, $F(6, 2075) = 2.97, p < .01$. However, despite reaching statistical significance, the actual difference in mean scores among the groups by type of offense was small. The effect size, calculated using eta squared, was 0.01. Consequently, the statistical significant was likely due to the large sample size and, therefore, no post hoc analyses are reported here.

Emotional Disability

Although the presence of an emotional disability was relatively small in this sample, particularly for females, an emotional disability was a significant predictive factor for recidivism for both male and female delinquents. This is important given that no educational variables were predictive of

Table 3. Variables Predicting Recidivism in Adolescent Males ($N = 2,134$)

Variable	β
Total time in detention	0.342
Adjudication Status	0.196
Dually Involved	0.187
ED	0.155
Socioeconomic Status	-0.149
Math	-0.110
Writing	-0.072

recidivism among female delinquents, including standardized achievement scores in reading, writing, and math or the presence of a learning disability or speech-language impairment. Consequently, we conducted further analyses to examine differences between samples with and without emotional disabilities.

Among female delinquents, we observed significant associations between recidivism, and an emotional disability by ethnic group, with significantly more Caucasian and African American females being diagnosed with an emotional disability than would be expected, $\chi^2(4, N = 1141) = 10.12, p < .05$, Cramer's $V = .094$. We observed the same pattern and associations among male delinquents, $\chi^2(4, N = 2116) = 39.79, p < .001$, Cramer's $V = .137$.

Offense type also differed significantly with diagnosis of an emotional disability. Females with an emotional disability committed fewer drug offenses and misdemeanors against property than would be expected, and more misdemeanors against persons, $\chi^2(9, N = 1150) = 20.43, p < .05$, Cramer's $V = .133$. We observed a similarly significant pattern for male delinquents with an emotional disability, who also had a substantially greater number of felonies against persons compared to males without an emotional disability, $\chi^2(9, N = 2130) = 67.218, p < .05$, Cramer's $V = .18$. We conducted an independent sample t -test to determine whether the amount of time spent in detention among youth with and without emotional disabilities differed; results indicated a significant difference between males with an emotional disability ($M = 2.31, SD = 7.76$) and males without an emotional disability ($M = 1.06, SD = 6.42$); $t(2128) = -2.41, p < .05$. We found no significant differences in the amount of time spent in detention for females with and without an emotional disability.

Academically, both male and female delinquents with an emotional disability performed significantly more poorly on standardized measures of reading, writing, and math than their

counterparts without an emotional disability. Specifically, for reading, although 43.9% of delinquents passed standardized tests, only 21.6% of male delinquents with an emotional disability passed, $\chi^2(1, N = 2000) = 29.33, p < .001$, Cramer's $V = .123$. Among females, 54.4% of girls without an emotional disability passed, while 26.3% with an emotional disability passed, $\chi^2(1, N = 1098) = 11.66, p < .001$, Cramer's $V = .103$. In regard to writing, only 17.5% of male youth with an emotional disability passed standardized tests, and 22.5% of girls with an emotional disability passed, $\chi^2(1, N = 2134) = 49.23, p < .001$, Cramer's $V = .15$; $\chi^2(1, N = 1153) = 34.04, p < .001$, Cramer's $V = .17$. For state standardized math tests, only 8.6% of male juveniles with an emotional disability passed, and 7.9% of female delinquents with an emotional disability passed; $\chi^2(1, N = 1938) = 42.36, p < .001$, Cramer's $V = .15$; $\chi^2(1, N = 1067) = 13.55, p < .001$, Cramer's $V = .11$.

Discussion

The purpose of this study was to determine whether male and female delinquents differ on educational and offense variables predictive of recidivism and, if so, to identify which risk factors are predictive of recidivism in both populations. Overall, this study found significant differences between risk factors, and that male and female delinquents differed with respect to which risk factors are predictive of recidivism.

Our results concur with those of other studies (e.g., Steketee et al., 2013), finding that females committed fewer and less severe offenses than males. Specifically, females in our study were more likely than males to commit status offenses. In fact, females had committed more than twice as many status offenses as males. Males, on the other hand, had committed more than twice as many felonies as females.

We observed differences in risk factors for recidivism among males and females primarily in the area of academic achievement. Specifically, females performed significantly better than

their male counterparts (although they were still below average) in the areas of reading, writing, and math. Higher achievement in these areas was not predictive of recidivism among females, although low achievement in writing and math was predictive of recidivism among males. Interestingly, despite evidence suggesting that poor reading skills and learning disabilities are predictive of delinquency and recidivism (e.g., Barrett et al., 2010; Archwamety & Katsiyannis, 2000; Vacca, 2008), neither of these was significant in this study.

We found a diagnosis of an emotional disability to be a strong predictor of recidivism among both male and female delinquents. This is of particular importance considering the small incidence of emotional disability within the sample. This variable precluded many other variables in the regression model. In addition, given the lack of empirical research examining the relationship between emotional disability, special education status, and recidivism, further investigation regarding this relationship is needed. Learning disabilities were not found to be a significant predictor of recidivism, despite the fact that nearly 55% of the sample receiving special education services were diagnosed with a learning disability.

Additional analyses found that delinquents with emotional disabilities differed significantly from their non-emotionally disabled counterparts in several areas, including number of arrests, academic achievement, and types of offenses committed. Interestingly, we found no relationship between offense severity and recidivism, and we observed no differences in offense severity between youth with and without emotional disabilities—despite the fact that youth with an emotional disability committed significantly more offenses than youth without an emotional disability. This finding has direct implications for how these youth are being dealt with in both the school system and the juvenile justice system. Early intervention for youth with emotional disabilities, which may include school

administrators and personnel finding alternative strategies for discipline, is critical. Finding ways of dealing with these children before turning them over to the juvenile justice system seems imperative, since they appear to not respond well to current procedures. Delinquents in this study who were diagnosed with an emotional disability spent significantly more time in detention than those without an emotional disability, even though the former group was not committing more severe offenses than the latter.

The discussions focusing on why delinquents with disabilities are overrepresented in the juvenile justice system are interminable. Yet, despite special education reforms and progress in providing services to students with disabilities within the general education system, more needs to be done within the juvenile justice system. Results of the present study have specific implications for the development of transition services for juveniles with disabilities, specifically those with emotional disabilities. Transition services are a required component of the services students are entitled to by the IDEIA (2004); however, the extent to which these services are provided in juvenile correctional facilities is minimal (Griller-Clark, & Mathur, 2010; Nelson, Jolivet, Leone, & Mathur, 2010). Given recent evidence suggesting that delinquents with disabilities who are provided transition services upon release are less likely to recidivate than those without access to such services (e.g., Griller-Clark, Mathur, & Holding, 2011), it is crucial that more be done to facilitate the development of prevention, intervention, and transition services for these youth.

As previously mentioned, contrary to the findings of other studies, offense severity was not significantly predictive of recidivism in this study, either for males or females. In fact, the correlation between severity and recidivism was so low that the variable was not retained in the final regression analysis. This finding may relate to the impact of sampling biases in other studies; a diverse, broad sample was a strength of our

study, as participants were recruited from more than one setting. This implies that research may need to further examine the use of severity as a covariate when conducting analyses, particularly given that females are more likely to have status offenses than are males.

Limitations of the Study

Our study had several limitations. First, because this study used a snapshot of information, research based on a more thorough offense history is needed to determine whether offense history continues to be predictive of recidivism. Second, the present study did not include youth who committed crimes that required them to be transferred to adult court. Such youth, if included in a similar study, may have an effect on the results, since their offenses are likely to be more serious. Third, although the sample was representative of the local population, there were a higher percentage of both females and Hispanic youth in our study than is found in the general population of delinquents nationwide; consequently, our sample may not be representative of delinquent youth across the United States. In addition, this study did not address the varied emotional and familial characteristics that studies have indicated may be disproportionately related to female, compared with male, delinquency (e.g., Steketee et al., 2013; Tille & Rose, 2007).

This study highlights the need to treat male and female offenders as two distinct populations when conducting research, as each population is characterized by distinct offense and academic patterns. This separation of male and female delinquents in research samples is particularly important if the goal of the research is to develop effective prevention or intervention programs, as the treatments must be modified to the etiology of delinquency.

The age of first offense is an important variable to include in a regression model, since research consistently shows that juveniles who begin offending at a younger age are likely to

commit a greater number of, and more serious, offenses than those who begin to offend later in their teenage years (e.g., Jones, Harris, Fader, & Grubstein, 2001; Trulson et al., 2005). It would also be important for future research to compare the influence of age at first offense to other variables, such as diagnosis of an emotional disability, which the current model found to be an important predictor of recidivism in this population.

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Building Connections Between Officers and Baltimore City Youth: Key Components of a Police–Youth Teambuilding Program

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Abstract

Animosity between youth and police officers reduces community–police collaboration and increases the likelihood of future negative encounters. The Baltimore Outward Bound Police Insight Program, a unique 1 day police–youth program, brings officers and middle-school students together for a day of team-building activities. Intergroup Contact Theory (ICT) supports the idea that bringing youth and police together under certain optimal conditions can improve the way members of each group view each other. This paper presents the findings from a qualitative study of the Police Insight Program and uses ICT as a framework to assess how the program

facilitates stereotype reduction between officers and youth. Our analysis indicates that the program successfully brings officers and youth together in a situation in which they have equal status, share common goals, must cooperate to succeed, and have the support of authority figures. Additional key program components are the neutral environment, fun and engaging atmosphere, and open discussion of stereotypes. Outcomes observed and reported by participants include reduced stereotyping of the opposite group and a desire for future positive interactions. Our findings suggest that the Police Insight Program model could serve as a steppingstone toward improved relationships between officers and youth in Baltimore and elsewhere.

Introduction

Relationships between police and youth in urban America are often strained (Brunson & Weitzer, 2011; Hurst & Frank, 2000; Lurigio, Greenleaf, & Flexon, 2009). Youth living in lower income areas, adolescent males, and African-American and Latino youth are particularly likely to report negative attitudes toward police, that they have been disrespected by police, and that they have experienced unwarranted and harassing stops and searches (Eith & Durose, 2011; Weitzer & Tuch, 2006). In turn, Engel (2003) describes how citizens from historically marginalized social groups, particularly young minority males, may behave in disrespectful and oppositional ways toward police to “symbolize their perceptions of injustice” (p. 477). There is a widespread lack of training programs to prepare officers to deal appropriately and effectively with youth or to address the underlying causes of disproportionate arrests of minority youth (International Association of Chiefs of Police, 2011; Thureau, 2009).

Negative attitudes and interactions between police and youth reduce opportunities for community–police collaboration, which has serious implications for public safety. Police are usually the first—and often the only—representative of the criminal justice system with whom youth interact; these early contacts support the development of stereotypes and inform future interactions between youth and the system (Winfrey & Griffiths, 1977). Fagan (2002) describes the law as “the meeting point between citizens and accepted social norms, learned from childhood” (p. 69). When the law is implemented in an unfair manner, which can include uneven application of criminal codes through race-based policing, failure to protect marginalized citizens from crime, and disrespectful treatment by police, disadvantaged groups internalize distrust for authorities and resistance to social regulation and control (Fagan, 2002, 2008).

Positive interactions with police have been found to be predictive of positive attitudes toward the

police, while negative interactions have been found to be predictive of negative attitudes (Rusinko, Johnson, & Hornung, 1978). Researchers have noted the tendency of youth to perceive officers as primarily an extension of an oppressive system rather than as individual people (Cooper, 1980; Williams, 1999). Similarly, police officers have been found to make assumptions about young people based on their race, age, dress, and appearance (Fine et al., 2003; Thureau, 2009; Williams, 1999). Researchers have also found evidence that police officers hold unconscious biases against minority youth (Graham & Lowery, 2004) and unconsciously associate African-American male faces with concepts of crime (Eberhardt, Goff, Purdie, & Davies, 2004).

In an effort to improve the quality of officer–youth interactions in a city confronting record-breaking rates of violence and youth incarceration (CDC, 2011), the Baltimore Police Department (BPD) partnered with the Baltimore Chesapeake Bay Outward Bound Center (OB) in 2008 to create the 1-day Police Insight Program (Fenton, 2008). The program runs on a monthly basis and participation in at least one program is required of all BPD officers as part of a mandatory training curriculum. Each Police Insight Program brings together all of the officers who work a given shift from one district (25 to 35 officers) with a roughly equal number of students from a middle school located in that same district. Students participate voluntarily and are invited to take part in the program at the discretion of teachers and school administrators. School staff is encouraged to invite students who span a wide range of academic and behavioral performance levels. The program day consists of small groups of students and officers, usually five of each, working together on a series of games and group challenges led by Outward Bound facilitators at the Baltimore Chesapeake Bay Outward Bound base. Though the base is within city limits, it is located in a large wooded park that contains several miles of hiking trails, several large open fields, and a climbing wall and other ropes-course elements.

The Police Insight Program's emphasis on experiential team-building activities, mandatory participation for officers, and 1-day length differentiate it from other police–youth programs described in the literature. Most of these programs are school- or sports-based, or involve supervised recreation or tutoring programs and are voluntary for all participants (Roth et al., 2000). For example, many police departments throughout the country run Police Explorer programs that provide interested youth with the opportunity to learn about police work (Learning for Life, 2013), School Resource Officer programs place officers in schools to both educate students and enforce rules (Canady, Bernard, & Nease, 2012), and Police Athletic Leagues bring officers and youth together for sports and other recreational activities (National Association of Police Athletic/Activities Leagues Inc., 2013). Other programs involve collaboration on service projects within the communities where youth live, or involve going to a camp or participating in a program where officers teach youth police skills (Anderson, Sabatelli, & Trachtenberg, 2007; Thurman, Giacomazzi, & Bogen, 1993). Studies of school- and sports-based youth–police programs indicate that such interventions have the potential to promote positive youth development (Anderson et al., 2007; Clements, 1975; Roth et al., 2000), as well as to reduce violence and discipline infractions within schools (Johnson, 1999; Yale University Child Studies Center, 2003).

Though few descriptions of police–youth programs specifically address a theoretical framework on which the program is based, many seem to draw on the concept of mentorship, which emphasizes the roles of police as advisers and youth as learners and focus primarily on improving and altering the behavior of the juvenile participants. Such programs emphasize longer-term involvement and repeated interactions, but tend not to focus on the specific conditions under which those interactions take place. In contrast, the Police Insight Program aims to break down hierarchies and stereotypical perceptions held

by both youth and officers by bringing them together in a unique setting and atmosphere over the course of 1 day.

Theoretical Framework

Allport's (1954) Intergroup Contact Theory (ICT) provides a theoretical basis for the idea that bringing youth and police officers together under certain optimal conditions may reduce stereotypical ideas that each group holds about the other. Allport specifies that the optimal conditions for improving intergroup relationships are that: (a) the groups share equal status, (b) participants work toward common goals, (c) there is intergroup cooperation, and (d) there is the support of an overarching authority (Allport, 1954). Though it has been critiqued by some as too idealistic (Dixon, Durrheim, & Tredoux, 2005), a meta-analysis of ICT studies supported the concept that intergroup contact under Allport's "optimal conditions" is a practical and effective means of improving intergroup relations (Pettigrew & Tropp, 2006). This meta-analysis also found that the greater the extent to which the contact context incorporates Allport's optimal contact conditions, the greater the reduction in prejudice between groups.

Contact theory has previously been discussed in relation to police–youth programming (Hopkins, 1994; Hopkins, Hewstone, & Hantzi, 1992; Rabois & Haaga, 2002); however, the authors of these studies focused primarily on the issue of "generalization," referring to whether positive views of individuals were generalized to the group as a whole. No studies of police–youth programs have previously examined the extent to which the programs meet Allport's optimal contact conditions, or how the presence or absence of these conditions may contribute to outcomes. Given the focus on "contact conditions" in the theoretical literature on improving intergroup attitudes via contact (Bettencourt, Brewer, Croak, & Miller, 1992; Brewer, 1996; Pettigrew & Tropp, 2006), the conditions created in police–youth programs merit scrutiny.

This paper presents findings from a qualitative study of the Baltimore Outward Bound Police Insight Program. Our primary aims were to identify and describe key program components using Allport’s specifications for optimal contact conditions as a framework, and to examine the ways in which key program components relate to participant-described program outcomes. This program description and analysis can help to inform future interventions targeting police–youth relationships in other urban settings.

Methods

The research team, all public health graduate students, developed the study protocol based on input from Outward Bound administrators and instructors, school representatives, police department program coordinators, and other police department officials. Permission for interviewing officers was obtained from the BPD Public Information Office prior to initiating the study; ethical approval for the entire protocol was obtained from the Johns Hopkins Bloomberg

School of Public Health Institutional Review Board.

Observation of Program Days

The research team conducted semiparticipant observation throughout 5 6-hour program days during the autumn of 2011 and winter of 2012. Each program included 20 to 35 students from grades 6 to 8 and a roughly equal number of officers. Detailed participant numbers and demographics for a sample of 2 program days is presented in Table 1. Researchers stayed with one group of officers and students throughout the day, observing all activities and discussions. Researchers used an observation guide and took detailed field notes on topics such as supportive comments or behaviors, signs of boredom or disrespect, and other aspects of group dynamics.

In-Depth Interviews

We conducted 27 in-depth interviews with different members of the five major stakeholder groups: students (10); officers (7); OB facilitators (5); Baltimore City Public School staff (3); and BPD Program Coordinators (2). See Table 2 for demographic details of respondents. We used a purposive sampling strategy in an attempt to maximize the range of perspectives accessed when recruiting students and officers. We recruited student participants through collaboration with school staff. We asked the school staff for parental contact information for students who would be able to provide us with a variety of perspectives on the program based on their personalities, backgrounds, and enjoyment of the program day. We then contacted parents to seek consent and, if given, sought assent from each student prior to the interview. We were able to reach the parents of 10 students and all provided consent; we were unable to reach the parents of four other

Table 1. *Demographics of Outward Bound Police Insight Program Participants (Sample Demographics from 2 of the 5 Program Days Observed)*

	Program Participants	Age	Gender	Race/Ethnicity
Program Day Example One	24 Officers	30s and 40s	20 Male 4 Female	13 African-American 7 White 4 Latino
	20 Students	6th, 7th, and 8th grade	7 Male 13 Female	All African-American
	5 Facilitators	20s and 30s	3 Male 2 Female	All White
Program Day Example Two	28 Officers	30s, 40s and 50s	23 Male 5 Female	9 African-American 14 White 4 Latino 1 Asian
	33 Students	8th grade	12 Male 21 Female	19 African-American 10 White 3 Latino 1 Asian
	4 Facilitators	20s and 30s	2 Male 2 Female	All White

students whom we attempted to contact. Due to privacy protection standards, we did not collect any data on the four students whose parents we were unable to reach; therefore, we are unable to comment on potential differences between them and the 10 students we did interview. Those interviewed displayed a range of attitudes toward the police in general and described a wide variety of perceptions of the program. Furthermore, their different descriptions of their experience with the program and their interactions with the officers seemed to accurately reflect our observations of the larger groups of student participants during the program day—in short, these students did not appear to be significantly more positive about the program or better behaved than their peers.

We recruited officers for interviews at the end of each of the 2 winter program days by approaching them individually and asking if they would be willing to leave their contact information with us so we could arrange for an interview. We specifically approached officers who, based on our observations, seemed to have a range of experiences and opinions about the program. We approached 13 officers on program days and all of them indicated willingness to give an interview. When we attempted to contact them later by phone, text, or E-mail we received replies from only eight officers. All eight agreed to be interviewed. However, one officer cancelled his interview at the last minute with no specific reason given, leaving us with seven officer interviews. Despite the low response rate, we still believe that we successfully accomplished our purposive sampling strategy; we retained four officers who had specifically been recruited based on their low enthusiasm levels at certain points of the program day and heard a variety of perspectives on the program. It does not appear that the officers willing to be interviewed were more youth-engaged or enthusiastic than the officers who did not respond to our requests. All of the officer participants we interviewed and observed were from the midnight shift in their given district.

We used an exhaustive sampling strategy to recruit OB facilitators, BCPS staff, and BPD program coordinators. This means that we sought interviews with all Outward Bound facilitators within the Baltimore area experienced in working with the Insight Program, as well as all involved BCPS staff and BPD program coordinators. All facilitators and program coordinators responded and were interviewed; however, one of the BCPS staff members declined to be interviewed due to her busy schedule. Student and BCPS staff interviews took place at their school during the day. Interviews with officers, OB facilitators, and BPD program coordinators took place at a location convenient for their participation. Interviews were digitally recorded and then transcribed.

Table 2. Demographics of the Outward Bound Police Insight Program Stakeholders That Participated in In-Depth Interviews

Interview Participants	Age	Gender	Race/Ethnicity
10 Students	12 to 14	3 Male 7 Female	9 African-American 1 White
7 Officers	20s to 50s	6 Male 1 Female	5 African-American 1 White 1 Latino
5 Facilitators	20s to 40s	3 Male 2 Female	2 African-American 3 White
3 School Staff Members	20s to 50s	1 Male 2 Female	All White
2 BPD Program Coordinators	40s to 50s	2 Male	1 African-American 1 White

Data Analysis

After reading all transcripts and observation field notes, the research team discussed key themes and concepts, then used these themes to develop a codebook. To identify and eliminate inconsistencies in different researchers' application of the codebook, all researchers individually applied the codebook to the same two transcripts (one from an officer interview and one from a student interview). After resolving all coding discrepancies that arose, and thus clarifying the appropriate

use of each code, the researchers then coded the transcripts of the interviews they had conducted. Field notes from program day observations were not coded but were read carefully and used to inform identification of key concepts in the interview transcripts. Our observation of group discussions of stereotypes and other program day activities enabled us to access comments from and observe the behavior of all participants, not just those with whom we conducted individual interviews. Observations of the changes in officer–student interaction over the course of the day provided critical information when drawing conclusions about the program’s outcomes. After coding was complete, we applied Allport’s (1954) ICT as a tool for analysis by examining whether our findings fit the theory’s contact condition specifications and the outcomes it predicts. This allowed us to develop a deeper theoretical understanding of which program components were most important and how those program components helped produce the outcomes identified. We were also able to generate recommendations for future police–youth programs.

Results

We first present respondent’s perceptions of officer–youth interactions outside the program, which illuminate the challenges facing police–youth relations in Baltimore, in order to contextualize the need for the Police Insight Program. We then present key components of the program using ICT as a framework. Finally, we discuss program outcomes, as described by interviewed participants.

Interactions and Perceptions “On the Street”

During interviews we asked students and officers to describe typical interactions with one another in order to better understand the prior experiences and perceptions that shaped their encounter during the program day. Officers spoke at length about the many barriers they faced to building more positive relationships with youth in the city. Many officers described a “culture”

of antipathy and distrust toward officers that is passed down to youth from parents and older siblings. The officers overwhelmingly articulated a perception that many adolescents in Baltimore were “not on the right path.” One explained that youth are “our predators of the street” (Male Officer 7). Another commented that:

Just like the kids see negativity from the police... like locking up and things that aren’t, aren’t positive, you know. They see that and they don’t feel like dealing with it. And, it’s the same for us. We deal with the kids on a difficult basis and, you just like, ah, I don’t feel like dealing with it. (Male Officer 1)

Several officers, youth, and facilitators described a subset of officers who were “jaded” or “angry” and had given up trying to “help”; however, nearly all officers interviewed said they wanted to improve relationships with youth. They expressed frustration that the nature of their work did not allow time or opportunities to socialize positively with young people, as officers are present only in challenging situations.

Only 2 of the 10 student respondents described specific firsthand accounts of interaction with officers, but many had witnessed friends or family members interact negatively with officers, as expressed by this student:

Like when my siblings or someone in my family get in trouble [with the police]. They just, it, it be crazy. [Gets quieter] Just be crazy

Interviewer: Yeah... why do you think that is?

Student: I don’t know... It probably be because they do somethin’ bad. But, it’s family over everything. [Gestures to chest.] (Male Student 3)

Students also often described irritation with police officers for bothering young people unfairly, or failing to help in difficult situations. Several students described this failure on the part of officers to respond when needed as evidence of a lack of “caring” on the part of the officers.

Although many students had positive perceptions of a specific officer, frequently one that worked in their school, the vast majority described officers as a group as “mean.” Students referred to officers “abusing their authority,” threatening and yelling at them, and being “mad,” “reckless,” and “ignorant.”

Interaction Conditions Specified by ICT

We now move on to describe the ways in which the Outward Bound Police Insight Program sought to improve relations between the two groups, arranged into sections by ICT conditions—with components not covered by ICT’s specific optimal conditions included in a section at the end of this article. Table 3 describes how

Table 3. Description of How the Outward Bound Police Insight Program Met Each of the Optimal Contact Conditions Specified by Allport’s Intergroup Contact Theory

Allport’s Conditions for Optimal Contact	How Contact Conditions Were Met at the Outward Bound Police Insight Program
Equal Group Status	<ul style="list-style-type: none"> • No police uniforms • Clear expectations for respect, listening, and using first names • Students take on leadership roles during activities • Both groups physically and mentally challenged by climbing activities
Common Goals	<ul style="list-style-type: none"> • Group members support each other to achieve goals on climbing wall and ropes course • Team-building challenges posed by facilitator
Intergroup Cooperation	<ul style="list-style-type: none"> • Student–officer pairs required for some activities • Activities tailored to maximize cooperation across groups • Debriefs focused on cooperation • Participants encouraged to talk and get to know each other
Support of Authority	<ul style="list-style-type: none"> • Students encouraged to participate by school staff members • Officers required to participate as a component of their training • High-ranking police officials present and enthusiastic • Facilitators act as overarching authority figures during the program

the Police Insight Program satisfies Allport’s “optimal” conditions.

ICT Optimal Condition #1: Equal Group Status.

According to ICT, establishing the conditions under which stereotypes can be addressed and challenged requires creating a sense of equality between the two interacting groups. While there are certain inherently unequal components of officer and youth identity, such as age difference, education level and (for some) race and social class, which cannot be set aside, the Police Insight Program created interaction conditions that were markedly different from the authority role of police on the street. The Police Insight Program promoted an increased sense of equality between the officers and students in a variety of ways. One key feature of the program was that the officers were all out of uniform—instead wearing sneakers, jeans, and jackets just like the students. Facilitators and program coordinators described this as an essential component of the program, because police uniforms create an immediate barrier between officers and youth. As one officer described, “You know, they see this uniform, it’s automatic—they tense up, tense up automatically” (Male Officer 7). Many students described being surprised to find out that all the adults present were officers, and that out of uniform, they appeared “just like regular people” (Female Student 6). When another student was asked during an interview what it would have been like if the officers had worn uniforms, he replied, “I would have automatically knew that they were police officers. And once I knew that, I probably would be less, like, less willing to cooperate with them, because I didn’t know their personalities or anything” (Male Student 4).

Facilitators also established clear expectations at the beginning of the program for respecting each other and calling each other by name, with no titles attached. One officer explained:

When you get to learn a person’s name, it means a lot. You’re not dealing with a police officer, you’re dealing with who I am, and I’m

dealing with who that youth is that I'm speaking with... [it] just makes you respect the person more when you refer to them by their name rather than just "some person." (Male Officer 5)

Throughout the day, facilitators encouraged students to take on leadership roles, reversing the usual power dynamics between officers and youth. Many of the activities gave students a chance to take charge and give directions. One example was described by an officer:

When we were doing the jump rope thing, the girls took over. The two instructors would turn the rope, and you had to get under without the rope touching you...the fun part was because the students, they were like "we got this, we got this." So they would tell us "go now, go now!" (Male Officer 6)

The climbing activities on the rock-climbing wall or ropes-course were particularly important because officers and students had to trust and encourage each other to succeed and officers, as well as students, were often initially frightened by these activities. One officer described the following conversation with a student: "One girl told me, she was like, 'I never knew police officers get scared.' And I said, 'What you mean?' And she said, 'Girl, cause you scared of heights!' I said, 'Well I'm human.'" (Female Officer 2)

ICT Optimal Condition #2: Common Goals.

Climbing activities also prompted students and officers to work together toward a common goal. One student's description of her experience climbing the wall provides a good example of this group support:

So I was real scared. So when I looked down, it looked like a real, real big fall. But then, when they was like, "Go ahead you can do it, it's okay, we got you," and stuff like that, I was okay and I wasn't all as scared as I was at first. (Female Student 6)

Often officers and students would climb the wall together in pairs. One explained, "There was a

police officer, she was afraid of heights. And she was the one that I actually climbed with. If she wouldn't have told me she was afraid of heights I wouldn't have gone up. She encouraged me" (Female Student 9).

Though less dramatic than the climbing activities, team-building challenges posed by the facilitator provided groups additional opportunities to strive toward a common goal. For example, one activity required everyone in the group to balance on two planks with one foot on each and hold on to ropes tied to the planks. The group had to use the ropes to raise one board at a time and slide it forward in order to reach a finish line. An officer explained, "That right there, just working with kids we never worked with before, it's just the small things, like, 'Alright everybody, on three, we gonna move the right leg! One, two, three!' So we were coming together and working together." (Male Officer 4)

ICT Optimal Condition #3: Intergroup

Cooperation. Facilitators prompted groups to pay attention to the way they were interacting in order to accomplish their shared goals. Activities emphasized cooperation and were frequently followed by "debrief" discussions, in which groups talked about what had worked well and where they could improve when working together. One student explained:

We had to actually strategize... You have to talk about what you gonna do, in order to make something work. So you can't like, just yell at each other. You have to like, actually sit and talk about what you're gonna do, and have a calm conversation. (Female Student 5)

An officer also noted the way the program activities required a certain level of cooperation and interaction:

Most of the games, we had to work together to get it done. Well actually all of 'em pretty much, to be honest with you. So, that way, [the students] had to deal with us and we had to deal with them. (Male Officer 6)

While we never observed students or officers being overtly disrespectful of one another, failure to listen to each other or communicate effectively (for example yelling, talking over each other) was occasionally evident. In some cases, students were so excited by the activity that they did not take time to collaborate. At other times, officers seemed intent on completing the activity correctly at the expense of involving students. Debriefs provided an opportunity for facilitators to bring these dynamics to the attention of the group and initiate a discussion about what prompted them and how they could be addressed in the future.

Working together during group games and paired activities helped pave the way to casual conversations between officers and students over lunch, and serious discussions later on about police–youth interactions in their communities. One officer described this as an “opening up” process:

[The kids] were a little shy at first but, they opened up. It didn’t take long. I guess the tasks that they had us participating in as a group kinda opened them up. It opened us up also. Because, whether you can believe, I mean, I was a little shy too. (Male Officer 4)

ICT Optimal Condition #4: Support of Authority.

For both students and officers, relevant authority figures were present and involved during the Police Insight Program. Students were accompanied by the teachers or other school staff members, who either selected them or encouraged them to participate in the Police Insight Program. All students arrived knowing that the program was sanctioned and supported by their teachers and school staff. Officers were required to participate in the program as part of a department-wide training program, and high-ranking police officials who helped to coordinate the program were always present, enthusiastic, and, as the only police official in uniform at the base, highly visible. In addition, facilitators acted as overarching authority figures for each group of officers and students, managing any problematic behavior

from both adults and youth, selecting and setting rules for group activities, and guiding and moderating group discussions. For example, we observed several instances in which officers who demonstrated outward signs of boredom (joking off to the side with other officers and hanging back from activities) were taken aside by facilitators and encouraged to engage more with the students. During these talks, the officers were reminded that they serve as role models for the youth and that their level of enthusiasm would set the tone for the day. After these one-on-one talks, we noticed that the officers became more engaged.

Important Program Components Not Specified by Intergroup Contact Theory

The following three subsections describe components of the Police Insight Program that did not fit within the particular conditions specified by ICT, yet that our findings indicate are important facilitators of success for a police–youth program. Table 4 displays Allport’s specified conditions, key components of the program not covered

Table 4. Table Displaying Contact Conditions Specified by Intergroup Contact Theory (ICT), Important Components of the Police Insight Program That Are Not Specified by ICT, and Participant-Described Program Outcomes

Conditions Specified by ICT	Important Program Components Not Specified by ICT	Program Outcomes
Equal Group Status Common Goals Intergroup Cooperation Support of Authority	Neutral Environment Fun and Engaging Atmosphere Open Discussion of Stereotypes	<ul style="list-style-type: none"> • Reduction in stereotyping • Positive attitude toward members of the opposite group in the program • Positive attitude may not be generalized to opposite group as a whole without follow-up • Increased tendency to see each other as people • Increased openness to communication • Desire for future positive interaction

by Allport's conditions, and the outcomes that resulted from bringing the two groups of participants together in this program.

Non-ICT Condition #1: Neutral Environment. The Police Insight Program's location outdoors in a large wooded park was described as "neutral ground" by several stakeholders. One facilitator said, "It's taking both groups out of their comfort zone, both groups out of the environment that they're used to" (Female OB Facilitator 3). When asked about the police department's decision to partner with Outward Bound at their base in the park, a BPD program coordinator explained:

There's no brick, there's no row homes, there's no streets. You know, there's no pavement. It's grass, it's woods, it's trees... There are so many places we could take officers and youth to come together. We could take [youth] to the academy, we could have the officers go to the schools, you know. But you need a separate entity. (Male Program Coordinator 2)

Non-ICT Condition #2: Fun and Engaging Atmosphere. Facilitators and program coordinators emphasized how important fun was for getting officers and students to "buy into" the program. Many officers described being skeptical or unenthusiastic about the program prior to participating, and many students said that they initially expected officers to be strict and severe. During observation we noted that at the beginning of each program day few participants spoke or interacted voluntarily with members of the opposite group: students generally clustered tightly in groups whispering to their friends while most officers stood on the opposite side of the program area, some looking bored or making sarcastic comments about the day to come. However, this initial lack of interest and interaction changed quickly during large-group games that involved running around, yelling silly things, laughing, and generally having a lot of fun. One officer said that when she arrived, "I'm gonna be honest. I did not want to go. It was cold. I was sick... but I think the first little bit of warm-ups

had us all like, 'Oooh yeah, we're gonna have fun'" (Female Officer 2). Another officer also explained, "You gotta at least fake the fun. You know, you gotta play the game, and, maybe when you're playing the game you start to actually really open up, and be... genuine" (Male Officer 1). Many students said that they initially expected officers to be strict and severe; however, as they saw the officers having fun they seemed less intimidating, and the students started to feel more comfortable interacting with them.

Non-ICT Condition #3: Open Discussion of Stereotypes. An activity described as very memorable by both students and officers was a group discussion about the stereotypes that existed about both officers and youth. Facilitators usually initiated the conversation toward the end of the day, asking participants for examples of how police and youth stereotypically perceived each other. Then facilitators asked participants to comment about what they thought of these stereotypes and whether they applied to the other group members with whom they had spent the day. Often it turned into a question and answer session, with students asking officers why police acted in certain ways, and officers asking students why youth perceived them in certain ways. Members of both groups had the opportunity to explain things from their perspective. One student explained, "[The officers] learned that each and every one of us is different" (Female Student 7). Another student described the conversation in her group, saying:

They taught us that we should not stereotype. Because like, you think all police officers are not cool and are boring or they're mean. But we got to know that they are regular people and they're very fun to be around. (Female Student 8)

Outcomes

Outcomes for Students. Students interviewed said they enjoyed the program and liked the officers in their group. All students said they

would recommend the program to a friend, told their classmates that it was fun, and would like to participate again in the future. Many students said they were happily surprised by how nice the officers were, and how different they were compared to the students' expectations. One student said, "When I looked at them, I thought they was gonna be mean and strict, but they wasn't. They was real laid back and cool and everything, and fun to talk to" (Female Student 2).

Comments varied regarding how the program influenced students' view of officers more generally. Some students said they thought the officers must have volunteered to be there and were the ones who wanted to spend time with kids, indicating they thought most officers did not really like children. However, many students made comments indicating their view of all officers had become more complex due to the program. One student said that during the program, "We learned about police officers. We learned that there's good ones and bad ones. Not just, like, bad and ignorant ones. Also some that can help" (Male Student 4). Many students described seeing officers as more human, and mentioned having a realization that police were actually just "regular people" at some point in the day. Students' comments also indicated they were less likely to make assumptions or automatically believe stereotypes about what police officers were like. One boy explained, "Now I think, some [officers] are cool, and some not. You just gotta talk to them. See how they is. Like, you can't just assume somebody because they police, assume their actions because they police" (Male Student 1).

Outcomes for Officers. Most officers we spoke with said that they liked kids and enjoyed having the opportunity to interact with youth in a positive way for a change, rather than being a disciplinarian. Several indicated that the program helped to remind them of the positive "side" of youth. One officer explained:

You get a perspective, especially working this job for a while, and you get a perspective where you say, "there's only a few [youth] that's worth saving." And then you look and you say "naw, that ain't right." You go to a program like that and you see that. (Male Officer 6)

Officers also echoed comments by students about the important realization that the individuals they were interacting with were people, were human, and were not very different from them:

The purpose for [police officers] is to let them know the youth are human, you know, 'cause I don't think sometimes we look at youth as... individuals. I think we look at them as a whole different monster... Hopefully the officers really got a good opportunity to see what youth are, you know, what they can possibly be, given the right environment and the right people. (Male Officer 7)

Officers also emphasized the need for program follow-up in order for lasting changes in police-youth relationships and attitudes to occur. They noted the difficulty of trying to build relationships with youth during their normal working hours, saying this would conflict with their law enforcement responsibilities. Many expressed a strong desire for more opportunities for positive interaction. When asked what recommendations he had for improving the program, one officer said:

I'd like to know [the kids'] background a little bit more. And maybe do a follow up or something. Just because then you, you start to build a relationship with them, you know. And, a relationship with them, then it might turn into a relationship with their parents. And then with their parents might help you out on dealing with crime in that neighborhood. Or maybe that parent hated the police, you know, and it changed their outlook on police, or you know, maybe that kid at least changed their outlook. (Male Officer 1)

Discussion

Our study results indicate multiple ways that the Outward Bound Police Insight Program creates optimal contact conditions as specified by Allport in his Intergroup Contact Theory (1954): equal status, common goals, cooperation, and support of an overarching authority. Our results also indicate the importance of certain contact conditions created by the program that are not “captured” by the four conditions Allport describes. Program outcomes for officers and youth include positive feelings toward fellow program participants, a more nuanced and less stereotyped view of the opposite group more generally, and a desire for future positive interactions.

We propose that, in addition to creating Allport’s optimal conditions, police–youth programs should also strive to provide (a) a neutral setting distinct from areas where the two groups normally interact, (b) a fun, light-hearted atmosphere, and (c) facilitated communication about stereotypes. Furthermore, a clear theme that emerged from our results regarding post-program outcomes was a need for program follow-up. Establishing optimal contact conditions may create the potential for improved longer term intergroup relations, but require follow-up interactions for that potential to be realized. Therefore, we recommend that police–youth programs also incorporate repeated follow-up that involves students and officers working with the same individuals they met during the program, as well as new individuals. Follow-up intergroup contact may not be as dependent on the need for a neutral setting as the initial interaction. Progressive introduction of the more polarizing settings in which the participants normally interact could help consolidate the benefits of the program by encouraging the participants to carry forward their insights into their everyday environment.

Limitations

The short duration of this study did not allow us to assess long-term program outcomes or effects on actual future police–youth interactions. Furthermore, while its qualitative nature allowed us to gain a detailed understanding of the experience of the officers and students that we observed and interviewed, further research in other settings is needed to understand police–youth relationships in other contexts. These research objectives are worthy topics for future studies utilizing mixed-method designs over a longer time frame. Also, as mentioned in the methodology section, we were able to interview only those students whose parents were accessible by phone, and only those officers who indicated they had time available for interviews. These selection criteria may have limited the range of perspectives that we were able to access. Nonetheless, we still interviewed a diverse group of students and officers who presented varying opinions of the program and did not appear to be an especially positive or pro-Outward Bound subpopulation. Our direct program observation also allowed us to overcome this limitation to some extent, as we were able to observe the reactions and comments of all participants, not only those we later interviewed.

Conclusion

Our findings indicate the importance of creating specific conditions when bringing officers and youth together in an effort to reduce stereotypes and improve relationships. The self-reported positive participant outcomes that we documented justify further investment in research to examine program outcomes using rigorous quantitative evaluation methods, as well as longitudinal qualitative follow-up regarding how changes in perspective and stereotyping alter the quality of future encounters between officers and youth. Although we were not able to assess long-term outcomes, our findings suggest that programs following the Police Insight Program model, if

paired with further follow-up, could serve as a steppingstone toward improved relationships between officers and youth “on the streets.”

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Internet-Based Mindfulness Meditation and Self-regulation: A Randomized Trial with Juvenile Justice Involved Youth

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Keywords: Internet, mindfulness meditation, self-regulation, juvenile justice, intervention

Abstract

There is mounting evidence that the traumas disproportionately faced by incarcerated youth outside of custody are barriers to the healthy development of self-regulation, compounding their risk for poor social and developmental outcomes. To address this risk, a randomized controlled trial was conducted comparing the impact of Internet-based mindfulness meditation and guided relaxation on self-regulation in juvenile justice-involved youth. Multiple regression analysis was used to assess the differences between treatment and control groups on post-test scores, controlling for pretest scores, with age group included as a moderator in an interaction term with treatment group. Treatment youth in the oldest age group (age 19 to 23) scored significantly higher on interpersonal self-restraint at posttest than similarly aged youth in the control group. Differences were found in the interaction model, but not in the main effects model indicating that, had age been included as a control variable only, treatment effects would not have been found due to the increased variation of age groups analyzed together. These findings support (a) the use of Internet-based mindfulness

meditation as a method of fostering the development of self-regulation in incarcerated youth, and (b) the use of age as a moderator in analyses of treatment effects when outcomes are self-regulatory in nature (i.e., delinquency).

Introduction

Youth incarcerated in the juvenile justice system are disproportionately exposed to stressors outside of custody known to increase the risk for physical violence, delinquency, and self-injurious behaviors (Duke, Pettingell, McMorris, & Borowsky, 2010). Such stressors include parental incarceration (Phillips, Burns, Wagner, Kramer, & Robbins, 2002; Simons, Simons, Chen, Brody, & Lin, 2007), violent victimization and exposure to violence (Hawkins et al., 2000), as well as poverty and family disruption (Snyder & Sickmund, 2006). These stressors, which are enduring factors in the lives of incarcerated youth prior to and after incarceration, are considered what the Centers for Disease Control has termed Adverse Childhood Experiences (ACE).¹ ACEs have been associated with increased risk for depression, substance use

¹ www.cdc.gov/nccdphp/ace

disorders, personality disorders, conduct disorders, attention deficit hyperactivity disorder (ADHD), and anxiety (Adams, 2010). Long-term outcomes associated with ACEs include poor anger control, high perceived levels of stress, relationship problems, risk of perpetrating or being a victim of domestic violence (Larkin, Shields, & Anda, 2012), delinquency, and violence perpetration (Duke et al., 2010). Although an estimated 34% of youth in the United States experience some type of ACE, it is an experience shared by 75% to 93% of youth entering the juvenile justice system (Adams, 2010).

ACEs have also been implicated as barriers to the healthy development of self-regulation (Allen, 2011; Hein, Cohen, & Campbell, 2005), a critical developmental process of the adolescent period and a skill whose maturation is associated with the reduction of normative risk-taking (Eshel, Nelson, Blair, Pine, & Ernst, 2007; Steinberg, 2008) and the increase in cognitive control of behavior in emotionally charged situations (Luna, Padmanabhan, & O'Hearn, 2010; Nelson, Leibenluft, McClure, & Pine, 2005). Incarcerated youth are thus a population at risk for poor social and developmental outcomes due to their disproportionate exposure to circumstances that not only act as barriers to healthy development, but also contribute to and exacerbate the high rate of emotional problems and recidivism found in this population. If the juvenile justice system is to successfully reduce recidivism among incarcerated youth, facility programming must support the healthy development of self-regulation while youth are in custody and find ways to maintain that support when youth are again faced with the traumas endemic to their lives outside of custody.

Background and Significance

An estimated 130,000 youth are incarcerated in juvenile justice facilities in the United States (Puzzanchera, Adams, & Sickmund, 2010). It is well documented that these youth experience disproportionately high rates of emotional, educational,

and substance use problems. For instance, 90% of youth leaving state custody in 2003 reported experiencing an emotional problem such as anger management difficulties (81%), anxiety (61%), depression (59%), substance abuse (68%), suicidal ideation (27%) or suicide attempts (21%), with a vast majority (71%) reporting multiple problems (Sedlak & McPherson, 2010; Snyder & Sickmund, 2006). In addition, 22% of incarcerated youth have more recently reported at least one past suicide attempt, four times the national average, as well as high rates of substance use, with 84% (vs. 30% in the general population) reporting marijuana use, 59% reporting being high or drunk the week prior to their arrest, and 68% reporting problems and blackouts stemming from their substance use (Sickmund, 2010).

Incarcerated Youth as an Adolescent Population

Although incarcerated youth are a special population given their disproportionate exposure to individual, family, and community adversity, they are also, by definition, a group in the midst of a critical developmental period. Central to this period is the neural development of key brain systems involved in self-regulation, which continues through the teens and into the early 20s. There is ample evidence to indicate that the development of connections in and between three of these key areas, the Medial Prefrontal Cortex (MPFC), the Ventrolateral Prefrontal Cortex (VLPFC), and the Anterior Cingulate Cortex (ACC), occur on a predictable developmental timeline while at the same time being responsive to experience, particularly during the adolescent period (Casey, Getz, & Galvan, 2008, p. 67; Cauffman, Steinberg, & Piquero, 2005). Accompanying the maturation of the MPFC, VLPFC, and ACC are increases in response inhibition, planning ahead, weighing risks and rewards, and simultaneously considering multiple sources of information (Steinberg, 2008).

There is mounting evidence that ACEs influence the development of the prefrontal cortex

and the neural pathways between the prefrontal cortex and the amygdala (Anda, et al., 2006; Bremner, 2003), which has implications for the healthy development of self-regulation, given the involvement of those pathways in the cognitive control of emotional impulses (Fareri, Martin, & Delgado, 2008). Given that youth incarcerated in the juvenile justice system are disproportionately exposed to ACEs, identifying interventions that support the development of self-regulation is vital to reducing the poor social and developmental outcomes associated with exposure to ACEs while decreasing the likelihood of repeat offending and further incarceration. One intervention that has been associated with positive mental health outcomes and increases in self-regulation is mindfulness meditation.

Mindfulness Meditation

Mindfulness meditation is a practice that is based in the Buddhist Vipassana, or insight meditation tradition, which “encourages the cultivation of nonjudgmental, moment-to-moment awareness both during formal meditation practice and in everyday life” (Jain, et al., 2007, p. 11). Successful integration of mindfulness meditation into individual practice has been found with programs ranging from 45-minute sessions once a week for 4 weeks (Jain et al., 2007) to 2-hour sessions once a week for 8 weeks (Ramel, Goldin, Carmona, & McQuaid, 2004). Mindfulness meditation may be an effective intervention for incarcerated youth because the mechanisms through which mindfulness meditation affect the practitioner include an increase in self-regulation, which is negatively associated with delinquent and other risk behaviors (Steinberg, 2008). Mindfulness meditation is an intervention that is amenable to experimentation, feasible with incarcerated youth, and appropriate as an intervention to address the issues that incarcerated youth face both in and out of state custody.

There are three main components common to most definitions of mindfulness meditation practice. The first, *present awareness*, refers to having

one’s awareness in the present moment. The second, *nonjudgmental awareness*, refers to being aware of but not judging the emotions, thoughts, or events of the present moment as good or bad. The third component, *acceptance*, refers to accepting the emotions, thoughts, or events of the present moment as they are (Biegel, Brown, Shapiro & Schubert, 2009; Burke, 2010; Ivanovski & Malhi, 2007). The experience of these components in practice has been described in the following way:

When thoughts or feelings come up in your mind, you don’t ignore them or suppress them, nor do you analyze or judge their content. Rather, you simply note any thoughts as they occur as best you can and observe them intentionally but nonjudgmentally, moment by moment, as the events in the field of your awareness. Paradoxically, this inclusive noting of thoughts that come and go in your mind can lead you to feel less caught up in them and give you a deeper perspective on your reaction to everyday stress and pressures. By observing your thoughts and emotions as if you had taken a step back from them, you can see much more clearly what is actually on your mind. You can see your thoughts arise and recede one after another. You can note the content of your thoughts, the feelings associated with them, and your reactions to them. You might become aware of agendas, attachments, likes and dislikes, and inaccuracies in your ideas (Kabat-Zinn, 2011, p. 1).

Positive Mental Health Outcomes and Behavior Change

Mindfulness meditation has been found in randomized controlled trials to have significant effects on positive states of mind and stress reduction (Broderick, 2005; Jain et al., 2007), as well as reduced rumination, which mediated reductions in maladaptive cognitive content and affective symptoms (Ramel et al., 2004). Other studies using qualitative and correlational designs

have found a positive relationship between mindfulness meditation and reduced substance abuse in a population of incarcerated adults (Bowen et al., 2006), and increased self-control and self-awareness and decreased stress and anger in adolescent sex offenders (Derezotes, 2000). Mindfulness meditation has also been combined with existing therapies, such as cognitive behavioral therapy and dialectical behavior therapy, as a treatment for children with anxiety (Semple, Reid, & Miller, 2005) and for the prevention of suicidal behavior in patients with past suicidal ideation (Williams, Duggan, Crane, & Fennell, 2006). A review of research spanning the years 2003 to 2008 found the associated effects of mindfulness meditation practice to include lowered anxiety, depression, anger, and worry; a greater sense of well-being; increased emotional control; lowered levels of cortisol; and an increased ability to reduce harmful behaviors such as binge eating, smoking, and substance use (Greeson, 2009).

Mindfulness Meditation with Adolescents

In recent years, meditation, particularly in the Buddhist tradition, has increasingly become a part of popular culture in America, reflected in movies such as the *Matrix* trilogy; in interviews with celebrity practitioners in professional sports (e.g., NBA players); music (Beastie Boys, Red Hot Chili Peppers, and hip hop guru Russell Simmons); and in the youth movement, Dharma Punx, which is made up of meditation groups in 14 American cities, including Philadelphia, Seattle, Washington, New York, San Francisco, San Diego, and Hollywood.

Although studies have been conducted on the effects of mindfulness meditation on adolescents, much of that research has been of generally low quality, using pre/post designs with no control group (Burke, 2010), suggesting a need for additional research with adolescent populations. However, studies that have been conducted with adolescent samples using control or comparison groups have found increases in positive outcomes for adolescents who practiced mindfulness

meditation. For instance, Biegel et al. (2009) found significantly lower levels of reported anxiety, stress, depressive symptoms, interpersonal problems, and obsessive symptoms and significantly higher levels of self-esteem and sleep quality in mindfulness meditation participants compared to a control group. Similarly, Huppert and Johnson (2010) found significantly higher levels of psychological well-being in treatment group youth who practiced the mindfulness meditation intervention more frequently outside of class than others in the treatment group who practiced less often, although there were no significant differences found overall between treatment and control groups.

These studies, regardless of design, indicate that adolescents are both able to and interested in learning mindfulness meditation. In addition, these studies provide evidence for the feasibility of providing mindfulness meditation training to adolescents in a variety of settings, including school (Huppert & Johnson, 2010; Semple et al., 2005) and clinical settings (Biegel et al., 2009; Derezotes, 2000), with no indications of unintended negative effects.

Mindfulness meditation may be uniquely suited for use in the juvenile justice system because it has been found to be effective as a treatment for behavioral and emotional problems similar to those reported by youth leaving custody, including suicidal ideation, anger management, anxiety, and depression (Biegel, et al., 2009; Semple, et al., 2005; Snyder & Sickmund, 2006; Williams, et al., 2006). There is also indication that mindfulness meditation may enhance the development of those specific brain areas that are both affected by childhood trauma and directly implicated in delinquent and other risk-taking behaviors.

Neuropsychosocial Model

Brain-imaging studies have found that mindfulness meditation affects those areas of the brain that are both involved in self-regulation (Creswell, Way, Eisenberger, & Lieberman, 2007; Holzel, et

al., 2011; Holzel, et al., 2007) and are undergoing significant change during the adolescent period (Ernst, Pine, & Hardin, 2005; Fareri et al., 2008; Giorgio, et al., 2010). Neural-imaging studies of adults with various levels of mindfulness meditation experience have consistently found increased activity in the medial prefrontal cortex (MPFC) and parts of the neural network of which the MPFC is a part, with significantly greater activity in the MPFC of experienced meditators compared to nonmeditators (Holzel et al., 2007). In addition, an 8-week mindfulness meditation intervention study found significant increases in treatment versus control groups in synaptic connections in several areas of the brain that form a neural network with the MPFC and are involved in considering the future and taking the perspective of others (Holzel, et al., 2011). Finally, a correlational study measuring the relationship between brain activity and levels of mindfulness found that higher levels of mindfulness were associated with higher levels of activity throughout the prefrontal cortex, particularly in the VLPFC and MPFC (Creswell, et al., 2007).

Overall, these findings indicate that mindfulness meditation increases synaptic connections and neural activity in areas that (a) are still developing in the adolescent brain, and (b) are involved in self-regulation. This increase in synaptic connections and the predicted increase in myelination associated with the rise in neural activity may well translate into enhanced neural functioning in those prefrontal areas that moderate emotional and reward systems, the predicted effect of which would be an increase in the ability to self-regulate.

The intersection of neurodevelopmental and mindfulness literature introduces two contrasting possibilities related to mindfulness meditation and the methods by which self-regulation matures (i.e., experientially and developmentally). The first is the possibility that mindfulness meditation could enhance self-regulation through the experiential aspect of self-regulatory maturation; the second is the possible developmentally

determined limitations of that enhancement. To explore these possibilities, two hypotheses guided the design and analysis of a mindfulness meditation intervention with incarcerated youth:

1. Mindfulness meditation will be associated with increased self-regulation among adolescents who practice it, when compared to a Guided Relaxation intervention.
2. The impact of mindfulness meditation on self-regulation will be moderated by age, used as a proxy for level of neurological development, such that the 15 to 17 year-old age group will experience smaller increases in self-regulation than those in the 18 to 23 year-old age group.

Methods

To test these hypotheses, a randomized-controlled trial was conducted in which participants were randomly assigned to either mindfulness meditation or guided relaxation.

Participants

One hundred and twenty-one youth incarcerated in a long-term juvenile justice facility were recruited for the study, with all but two consenting or assenting to participate. A total of 58 youth who consented/assented did not attend the pretest/randomization session. Twenty-three of these youth were under the age of 18 and were unable to participate due to a lack of consent by a parent or guardian. The remaining 35 did not participate for a variety of reasons, including refusal to attend the pretest session, lockdown on the day of the pretest, release from custody, or transfer to another facility. A total of 61 young men attended the pretest session and were randomized to eight sessions of mindfulness meditation or eight sessions of guided relaxation. Of the 61 participants who started the study, 44% ($n = 27$) completed the study through the posttest and were included in the analysis of treatment effects. Attrition from the study and thus exclusion from the final analysis was most often due to being out of custody at the time of the posttest

($n = 19$, 31%), followed by withdrawal from the study ($n = 8$, 13%), and being on lockdown (not allowed to leave the housing unit) on the day of the posttest ($n = 3$, 5%). Three additional youth from the control group who completed both the pretest and posttest were excluded from analysis of treatment effects due to exposure to the treatment (contamination) and one youth from each of the groups was dropped from both the baseline and final analysis due to an excessive number of missing answers on pretest measures of self-regulation.

Procedure

A randomized controlled trial was conducted in which participants were randomly assigned to either eight 1-hour weekly sessions of mindfulness meditation or guided relaxation. A male research assistant used prerecorded mindfulness meditation or guided relaxation instructions to facilitate treatment and control group sessions.

Consent interviews were conducted with youth 18 and over and assent interviews were conducted with youth 17 and under. Facility staff members were given parental consent forms, which they sent to the parents/guardians of all youth under the age of 18 who assented to participate. Randomization was done at the individual level within housing unit groups, with youth from housing units A, B, and C randomly assigned to either treatment or control groups meeting on Thursday nights and youth from housing units D, E, and F randomly assigned to either treatment or control groups meeting on Friday nights. Housing units were combined by the facility administrators based on those that normally mixed in other facility activities. The randomization process utilized a list of numbers, with even numbers representing mindfulness meditation assignment and odd numbers representing guided relaxation assignment. Each number was written on an individual piece of paper, folded, and placed in a small paper bag. At the end of the pretest session, as each participant turned in his completed questionnaire, he was asked to

pick a piece of paper out of the bag. The number chosen indicated his group assignment. All study activities were approved by the University of Pennsylvania Institutional Review Board (IRB).

Treatment Group: Mindfulness Meditation

The mindfulness meditation treatment sessions used recordings of lectures and guided meditation by Noah Levine, a Buddhist practitioner who has extensive training and experience in teaching meditation to incarcerated youth and adults, as well as to nonincarcerated youth recovering from drug and alcohol addiction. All audio recordings used in the study are available for free at Mr. Levine's website, <http://www.dharma-punx.com/htm/mp3.htm>. Each session began with a lecture-like presentation of mindfulness-related topics, such as compassion, patience, and mindfulness in everyday life followed by guided meditation encouraging relaxed, nonjudgmental awareness of thoughts and feelings while focusing on the breath.

Comparison Group: Guided Relaxation

The comparison group for this study participated in an alternative intervention, guided relaxation. Guided relaxation was chosen as the control group activity for its adaptability to an MP3 delivery and its ability to mimic the mindfulness meditation class setup; that is, participants in both classes simply sat at tables for the duration of the class and listened to audio instructions. Guided relaxation, also called progressive muscle relaxation, includes very simple instructions in shifting awareness through different muscle groups in a conscious attempt to relax the body and reduce cognitive and physiological stress (Pawlow & Jones, 2005). The practice has been found to significantly lower levels of salivary cortisol after a single 1-hour session (Pawlow & Jones, 2005) and, in meta-analysis, to have a medium-high effect on anxiety, particularly for young people (Manzoni, Pagnini, Castelnuovo, & Molinari, 2008). Although guided relaxation and meditation have both been found to significantly

reduce anxiety, the practice of mindfulness meditation is also associated with “important shifts in cognition, emotion, biology, and behavior” (Greeson, 2009, p. 15). It is this change in behavior, cognition, emotion, and biology that is hypothesized for the treatment group but not for the control group.

Internet Delivery

The study utilized MP3 (audio file) downloads from the Internet instead of employing a teacher trained in mindfulness meditation for several reasons. First, this approach to the delivery of adolescent interventions recognizes the centrality of technology in adolescents’ daily lives (Nelson & Nelson, 2010), which may increase the interest of participants. Second, this method of delivery increases assurance of the integrity of intervention delivery (i.e., fidelity) while testing a novel approach to meditation instruction. Third, this method of delivery provides an intervention that youth can continue to practice both in and out of custody with the same structure as that provided during the intervention, recognizing that most of these youth will return to impoverished families and communities (Bailey et al., 1999; Bjerck, 2007; Carlson, 2006) that cannot always provide the guidance they need once they are out of custody.

Measuring Self-Regulation

A self-reported measure of self-regulation was completed prior to and after the 8 weeks of treatment and control sessions using the Restraint-Weinberger Adjustment Inventory (RWAI). Two of the four RWAI subscales were used to measure complimentary dimensions of self-regulation: the Suppression of Aggression subscale, which assesses interpersonal self-restraint and the Impulse Control subscale, which assesses intrapersonal self-restraint (Weinberger, 1996). Internal consistency of the subscales has been found to range from 0.79 to 0.82 for the Suppression of Aggression scale and 0.66 to 0.69 for the Impulse Control scale (Feldman & Weinberger, 1994). Construct validity has been

demonstrated in studies of clinical and non-clinical samples of children and youth (Farrell & Sullivan, 2000; Weinberger, 1997). Internal reliability with the current sample was found to equal 0.82 for the Self-Regulation composite, 0.73 for the Impulse Control subscale, and 0.81 for the Suppression of Aggression subscale.

Together, the two subscales comprise 15 items that include questions such as: “If someone tries to hurt me, I make sure I get even with them;” “I’m the kind of person who will try anything once, even if it’s not that safe;” and “I do things without giving them enough thought.” Response options for both subscales range from 1 (Never) to 5 (Almost Always), or 1 (False) to 5 (True), with degrees of application in between (e.g., Sometimes, Often or Somewhat False, Somewhat True).

Data Analysis

In recognition of possible differences in the capacity to increase levels of self-regulation via experience due to that part of self-regulation that is developmentally determined, age as a proxy for neurological development was included in analysis as a moderator of the relationship between mindfulness meditation intervention effects and self-regulation. Age groupings were used based on common developmental subdivisions in brain-imaging studies of self-regulation (Luna, Padmanabhan, & O’Hearn, 2010). Based on the age makeup of the sample and to allow for contrast with multiple referent groups of similar sizes (Gordon, 2010), the final age groupings used for the analysis were: age1 (age 16 to 17), age2 (age 18), and age3 (age 19 to 23). The study used multiple regression analysis to test for intervention effects on self-regulation using (a) a Main Effects model, which included pretest scores, a treatment dummy variable, and two of three age group dummy variables; and (b) an Interaction model, which added a treatment x age group interaction term.

Results

The mean age of the overall sample was age 18 years ($sd = 1.30$), with 17 youth (28%) in the age 16 to 17 group, 24 youth (40%) in the age 18 group, and 19 youth (32%) in the age 19 to 23 group. The age range for the sample was skewed to the higher age groups compared to the population of male youth in residential placement in New Jersey's juvenile justice system, where 57% are age 16 to 17 and 30% are age 18 and older.² The difference between the overall population of youth in residential placement and this sample is directly related to the number of parents who did not return consent forms rather than to a lack of interest in participation by youth under the age of 18.

All participants took the Self-Regulation pretest, with higher scores reflecting higher levels of self-regulation and lower scores reflecting lower levels. Pretest scores for the Self-Regulation composite ranged from 25–66 out of a possible range of 15–75, with a sample mean of 44 ($sd = 9.2$); the Impulse Control scores ranged from 14–36 out of a possible range of 8–40, with a sample mean of 24.5 ($sd = 5.48$); and the Suppression of Aggression scores ranged from 10–34 out of a possible range of 7–35, with a sample mean of 5.35 ($sd = 5.35$). Descriptive analysis of each measure, along with subscales and bivariate relationships among variables, are provided in Table 1.

Table 1. Summary of Self-Regulation Pretest Scores

	Self-Regulation Composite	Impulse Control	Suppression of Aggression
Self-Regulation Composite	1.00		
Impulse Control	0.85*	1.00	
Suppression of Aggression	0.85*	0.45*	1.00
N	59	59	59
Mean	43.93	24.50	19.43
SD	9.20	5.48	5.35

* $p < 0.05$

² Easy Access to the Census of Juveniles in Residential Placement: 1997-2010 http://ojjdp.gov/ojstatbb/ezacjrp/asp/Age_Sex.asp

Equivalence Check and Fidelity Assessment

Of the 59 participants with complete self-regulation pretest data, 29 were randomized into the treatment group and 30 were randomized into the control group. Rates of attrition, baseline equivalency between those included and excluded from the final analysis (Tables 2 and 3), and baseline equivalency between the final treatment and control groups

Table 2. Baseline Comparisons of Mean Self-Regulation Scores at Pretest of Cases Included vs. Excluded from Final Analysis

	Excluded M (SD)	Included M (SD)	t-test (df)	2-tailed p-value
Self-Regulation Composite	44.23 (9.87)	43.57 (8.52)	0.27 (57)	0.79
Impulse Control	24.70 (5.75)	24.26 (5.23)	0.31	0.76
Suppression of Aggression	19.53 (5.97)	19.31 (4.60)	0.15	0.88

Table 3. Baseline Comparison of Age Groups: Cases Excluded vs. Included in Final Analysis

Age Group	Excluded n	Included n
1 (16-17)	10	7
2 (18)	13	11
3 (19-23)	10	9

$$\chi^2(2) = 0.15 \quad p = 0.93$$

Table 4. Baseline Comparisons of Mean Self-Regulation Scores at Pretest: Final Control vs. Final Treatment

	Final Control M (SD)	Final Treatment M (SD)	t-test (df)	2-tailed p-value
Self-Regulation Composite	43.65 (8.71)	43.50 (8.67)	0.05 (25)	0.96
Impulse Control	24.00 (6.14)	24.50 (4.45)	-0.24	0.81
Suppression of Aggression	19.65 (3.56)	19.00 (5.52)	0.36	0.72

Table 5. Comparison of Age Groups: Final Control vs. Final Treatment

Age Group	Final Control	Final Treatment
1 (16-17)	2	5
2 (18)	5	6
3 (19-23)	6	3

$$\chi^2(2) = 2.34 \quad p = 0.31$$

used in analysis (Table 4 and 5) were made with no significant differences found between groups.

To measure the fidelity of the treatment and control sessions to the intended intervention and research plans, session summary sheets and field notes were analyzed, which indicated that only 6%—or 6 out of 102 sessions (i.e., mindfulness meditation class sessions, guided relaxation class sessions, pretest/randomization sessions, and posttest sessions across three rounds of the study)—deviated in any way from the treatment plan or the research design.

Posttest Suppression of Aggression: Treatment Versus Control

As reported in Table 6, there were several significant differences in mean posttest Suppression of Aggression scores between treatment and control

Table 6. *Suppression of Aggression Mean Posttest Scores*³

	Suppression of Aggression	
	Main Effects B (SE)	Interaction B (SE)
Pretest	1.08 (0.25)*	1.06 (0.20)*
Treat v Control	-0.551 (1.53)	
Treat v Control Age 1		-5.38 (2.47)* ¹
Treat v Control Age 2		-2.72 (1.78) ²
Treat v Control Age 3		5.75 (2.08)*
Age 1	-1.96 (2.08)	3.63 (2.48)
Age 2	0.631 (1.90)	3.84 (1.90)
Age 1 × Treat		-11.13 (3.19)*
Age 2 × Treat		-8.47 (2.71)*
Intercept	0.191 (5.37)	-1.51 (4.30)
N	27	27
Adj ² R	0.48	0.67
F-Value	F(4, 22) = 6.94*	F(6, 20) = 9.79*
Δ Adj ² R		0.22
F-Value		F(2,20)=7.33*

* $p < 0.05$

¹Intercept: $B=2.13$, $SE=5.26$, $p > 0.05$

²Intercept: $B=2.33$, $SE=3.65$, $p > 0.05$

³ Additional calculations were conducted to provide coefficients and significance levels for the dummy variable reference categories in Table 6 for the sake of convenience in discussing the models.

conditions and between age groups within the treatment condition using the Interaction model. First, older youth in the age3 treatment group scored, on average, almost 6 points higher ($p < 0.05$) on the Suppression of Aggression posttest than the age3 control group. Second, the age3 treatment group scored 11 points higher ($p < 0.05$), on average, than the age1 treatment group, and 8 points higher ($p < 0.05$), on average, than the age2 treatment group. Finally, in the age1 group, youth in the control group outperformed youth in the treatment group by an average of 5 points ($p < 0.05$). No differences were found between treatment and control groups in the Main Effects model for the Suppression of Aggression scale, nor in either model for the Impulse Control or Self-Regulation Composite scores.

Discussion

This randomized controlled trial supports the use of an Internet-based mindfulness meditation intervention to increase *interactional* self-regulatory capacities of incarcerated youth. These findings also indicate, as hypothesized, that this ability is most pronounced in older youth, with the largest mean differences between treatment and control groups occurring in the oldest age group and, within the treatment group, between the oldest and the youngest age groups, with diminishing differences between the oldest and middle age groups. It is important to note that without the addition of an interaction term, which allowed for the comparison of treatment effects within each age group, these results would have been lost in the developmental variation of age groups analyzed together. This is evident in the main effects model, in which age was included as a control variable only and where no significant differences were found between treatment and control groups.

One significant difference between groups that was not hypothesized was in Suppression of Aggression posttest scores between treatment and control youth in the youngest age group (age

16 to 17), where youth in the guided relaxation control group outperformed youth in the mindfulness meditation treatment group. While guided relaxation has not been associated in previous research with increases in self-regulation, it has been associated with reductions in stress, making it plausible that the source of the difference between the groups may have been based on differences in stress levels. Changes in interpersonal aggression due to changes in stress levels would be consistent with studies correlating stress with aggression in interpersonal relationships (Shortt, Capaldi, Kim, & Tiberio, 2013) and the ability to self-regulate emotions in interpersonal interactions (Chan & Wan, 2012). It may be that guided relaxation is more effective in reducing stress than mindfulness meditation, or that guided relaxation, because it is more physical in nature (tightening and relaxing muscles groups), is more engaging for younger youth than the more passive, cognitively based practice of mindfulness meditation.

The causal mechanism underlying changes in Suppression of Aggression scores, therefore, may be different for different age groups. Changes in stress levels from the practice of guided relaxation may underscore differences in Suppression of Aggression scores in the younger group in whom, theoretically, there is no limit in the ability to experience decreases in stress, but in whom, theoretically, there are limitations in the ability to experience increases in self-regulation. Alternatively, changes in stress levels and self-regulation may underscore differences in Suppression of Aggression in the older group where theoretically those in the mindfulness meditation group would have the benefit of both the reduction in stress associated with mindfulness meditation and the increase in self-regulation.

Impulse Control

Neither the main effects model nor the interaction model indicated any significant differences between the treatment and control groups in any

of the age groups, nor between age groups within the treatment group, for intrapersonal self-regulation as measured by the Impulse Control scale. Therefore, hypotheses one and two were not supported when self-regulation is operationalized as *intrapersonal self-restraint*.

The difference in treatment effects between the two types of self-regulation may be explained by differences in exposure to situations within the juvenile justice facility setting that call for *intra-* versus *interpersonal self-restraint*. It is plausible that the opportunity to practice *intrapersonal restraint* is more limited in the correctional setting, making examples of having or not having *intrapersonal restraint* less salient or harder to bring to mind when considering Impulse Control items such as, "When I'm doing something for fun (for example, partying, acting silly), I tend to get carried away and go too far." Memories of such instances may be more likely to be of experiences outside of custody, with little opportunity to bring to mind more recent experiences that might indicate a change in behavior while in custody.

In contrast, more recent experiences of *interpersonal restraint* as assessed by the Suppression of Aggression scale may be easier to bring to mind when considering such statements as, "If someone does something I really don't like, I yell at them about it." Many opportunities are likely to exist in the juvenile justice setting for youth to experience such situations, providing the opportunity to bring to mind more recent examples of, and changes in, the extent to which one identifies with the statement or the frequency with which one reacts in such a manner.

Self-Regulation Composite

The Self-Regulation score was a composite of *intra-* and *inter-personal self-restraint* such that it was the combination of Impulse Control and Suppression of Aggression scores. Changes in the composite measure of self-regulation were assessed using the combined posttest scores. Neither the main effects model nor the interaction model found any significant differences

between the treatment and control groups in any of the age groups on the Self-Regulation composite posttest scores, nor were significant differences found between age groups within the treatment group. Therefore, hypotheses one and two were not supported when self-regulation is operationalized as a composite measure of intrapersonal and interpersonal self-restraint. One plausible explanation for the differences in treatment effects between a measure of interpersonal self-restraint (i.e., the Suppression of Aggression scores) and a composite of interpersonal and intrapersonal self-restraint may be that although the two scales have been found in general population studies to be complementary (Feldman & Weinberger, 1994; Weinberger, 1996), they may not have been so in this sample due to differences in the opportunity to exercise and thus bring to mind instances of intrapersonal and interpersonal self-restraint in the juvenile justice setting. Thus, a composite of the two scales as currently scored may not be a valid indicator of self-regulation in this population.

Challenges

Measuring the impact of juvenile justice interventions is an important part of ensuring the efficient use of program participants' time and the resources expended in program provision. Establishing a valid estimate of the impact of a program or intervention involves more than simply measuring the program outcomes before and after participation, given that many other factors may arguably contribute to measured changes. Therefore, to establish the true causal impact of a program, changes experienced by program participants must be compared to what those same outcomes would have been had those same people not experienced the program, a hypothetical situation called the counterfactual (i.e., what it would have been without; Bloom, Michalopoulos & Hill, 2006). This study attempted to establish the counterfactual via the random assignment of youth to either a mindfulness meditation treatment group or a guided relaxation control group.

Creating the counterfactual, as well as conducting mindfulness meditation and guided relaxation class sessions with youth in a residential juvenile justice facility was, as would be expected, an awesome experience rife with challenges.

Posttest Attrition

A primary challenge in conducting this study was the retention of participants through the 8 weeks of classes to the posttest at week 9. The relatively high rate of attrition between the pretest and posttest was not, by all indications, due to a lack of interest in the classes, but was most often due to the release from custody or transfer of participants to other facilities. Overall, the study's attrition rate between randomization and the posttest was 55%, leaving a small sample size of $n = 27$ for analysis. While all possible attempts were made to avoid the attrition of participants, the primary source of attrition (release or transfer) was outside the control of the principal investigator. Analysis of baseline scores, however, indicated that neither the external validity (i.e., generalizability) nor the internal validity (i.e., equivalency of treatment and control groups) of the study was compromised as a result of study attrition.

The primary challenge of using a small sample in analysis of intervention effects is the increased likelihood of making a Type II error due to the reduced power to detect an effect. The findings here suggest that the reduced power did not lead to a Type II error, given that an effect was found in several comparisons of mean scores. In addition, the ability to find an effect in studies of mindfulness meditation with such a small sample is supported by previous studies of mindfulness meditation using randomized controlled trials, in which effect sizes ranged from medium to large (Biegel, et al., 2009; Jain, et al., 2007; Burke, 2010), with studies finding significant differences between groups with samples as small as $n = 25$ per group (Davidson et al., 2003), $n = 18$ per group (Holzel, et al., 2011), and samples even smaller than the one used here (Ditto, Eclache, & Goldman, 2006, $n = 10$ per group).

Conclusion

The purpose of this study was to evaluate an intervention for incarcerated youth, the design and evaluation of which were informed by neuropsychosocial theories of development and out-of-custody contexts, in an effort to more effectively support youths' healthy development both in and out of custody. The successful implementation and positive outcomes found here provide support for several new directions in the field of juvenile justice intervention research.

First, findings from this study provide support for a new intervention for incarcerated youth, mindfulness meditation, which has been shown here to increase the ability of older youth to suppress unwanted reactions in interpersonal contexts. The use of mindfulness meditation in juvenile justice facilities may also serve to support other juvenile justice interventions, given that self-regulation is often a mechanism by which many interventions attempt to reduce delinquency (i.e., by targeting or attempting to increase the ability of youth to delay gratification, consider the consequences of their actions, or control their emotional responses to situations). Utilizing the Internet to deliver the intervention as was done here also increases the ability of juvenile justice facilities to provide a longer period of transitional support for youth leaving custody such that the Internet-based mindfulness meditation program is freely accessible from any computer, giving youth the opportunity to continue to practice intervention skills after they are released.

Second, findings from this study provide support for the use of age as a moderator in the relationship between intervention effects and self-regulation outcomes. Without the use of age as a moderator, treatment effects on self-regulatory outcomes (e.g., delinquency) may be obscured in analyses, similar to the main effects model reported here. Considering that the use of age as an additive control variable in the analysis of juvenile justice intervention effects has been the most common use of age in the literature

(Evans-Chase, Kim, & Zhou, 2013), it may be that there are many interventions that have been determined to have no effect on self-regulatory outcomes when, in fact, the true effect has been lost in the "noise" of variation that comes from combining differing levels of neuropsychosocial development in analysis.

Future Studies

This study is but a beginning to what should be the continued investigation of both the use and delivery of mindfulness meditation via the Internet with youth in the juvenile justice system and the use of neuropsychosocial principles to establish intervention effects in juvenile justice intervention research. Future studies of the use of MP3 downloads in the delivery of mindfulness meditation should explore additional samples, locations, and variations in class design to fill in the gaps and address the challenges of the current study.

Future research should include samples of girls and young women in juvenile justice facilities and special populations of youth not represented here (i.e., those in substance use and mental health treatment units). Future studies should also explore the efficacy of a shorter intervention period, with multiple classes per week across fewer weeks to address the high rate of attrition due to changes in custody status (i.e., release or transfer to a different facility) endemic to an 8-week intervention in the juvenile justice system, while maintaining the overall number of structured practice times demonstrated here to be effective. In addition, future studies should explore the efficacy of individual delivery via personal ipods as a complement to classroom delivery, to allow for the inclusion of juvenile justice-involved youth who are not safe within group settings.

Support for a moderating impact of age on the relationship between treatment effects and self-regulatory outcomes also opens up the possibility that re-analyzing data from previous studies,

whose treatment effects may have been lost due to the misspecification of age in the original analysis, may provide new information about effective interventions while saving the time and expense of additional studies requiring new data collection. Finally, the testing of interaction effects in future studies using age groups that reflect neuropsychosocial levels of development may help to establish treatment effects with more precision, thus moving the field of juvenile justice intervention research forward by identifying best practices to support one of the most vulnerable and traumatized populations of youth in our country: those incarcerated in our juvenile justice system.

About the Author


Michelle Evans-Chase received her PhD from the School of Social Policy and Practice at the University of Pennsylvania where her focus was on the design and evaluation of interventions for youth in the juvenile justice system informed by neuropsychosocial development and the impact of trauma on self-regulation. Dr. Evans-Chase received her Master's degree in Social Psychology from San Francisco State University, where she also worked for the Public Research Institute on field studies in the criminal justice system.

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Assessing Youth Early in the Juvenile Justice System

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Keywords: assessment, diversion programs, early intervention programs, evidence-based programs

Abstract

Unnecessary involvement in the juvenile justice system generally results in negative long-term outcomes (Annie E. Casey Foundation, 2008). The problem lies in determining when involvement is unnecessary and when it is necessary. A juvenile's path to detention often begins years prior. Research indicates that unnecessary court involvement may contribute to worse outcomes, which can ultimately culminate in detention (Holman & Ziedenberg, 2006). Youth who are formally processed through court are more likely to be under closer supervision, which, in turn, increases their chances of being caught violating curfew, missing school, or committing another technical violation. To test the effect of system involvement, we examined youth enrolled in two early intervention programs: Juvenile Diversion, which involves formal processing and services, and Early Assessment, a process designed to screen youth out of system involvement. Only low-risk, juvenile law offenders are eligible for either of these two programs. Using propensity score analysis we examined whether youth who

participated in Early Assessment were less likely to recidivate than their peers who participated in the Juvenile Diversion Program. Our findings indicate that, 24 months after program completion, Early Assessment participants were significantly less likely to have a new law violation compared to youth who participated in Juvenile Diversion.

Introduction

From 1994 to 2009, juvenile crime decreased significantly nationwide, yet rates of adjudicating and detaining youth rose steadily (Annie E. Casey Foundation Website, 2008; Bouffard & Bergseth, 2008; Knoll & Sickmund, 2011; Knoll & Sickmund, 2012; Puzzanchera & Adams, 2011). According to Puzzanchera and Adams (2011), levels of juvenile crime fell 50% between 1994 and 2009. Trends in detaining juveniles did not follow suit (Annie E. Casey Foundation, 2010). Even as late as 2008, thousands of youth sat in detention and other confined settings. On any given night "an estimated 400,000 youngsters cycle through juvenile detention centers; and nearly 100,000

youth are confined in juvenile jails, prisons, boot camps, and other residential facilities” (Annie E. Casey Foundation, 2008, p. 3). Roughly 40% of all detained youth are held for nonviolent offenses (e.g., status offenses, probation violations, low-level property offenses; Annie E. Casey Foundation, 2013), making the United States a country that treats adolescent offenders more harshly than almost any other industrialized nation (Steinberg, 2013). Unnecessary detention is not an effective use of resources. Researchers have repeatedly documented that when juveniles are detained for low-level offenses detention does not have a deterrent effect, but may actually increase recidivism (Annie E. Casey Foundation, 2008; Mendel, 2011). In addition, detention is a costly intervention, with states spending an estimated \$5.7 billion annually to detain youth, most of whom could be safely managed in the community (Holman & Ziedenberg, 2006). If juvenile detention is unnecessary, ineffective, and costly, why then do we rely on juvenile detention as our primary intervention for juvenile crime in the United States? Many jurisdictions are in the process of reforming their juvenile justice systems to address these contradictory and damaging trends.

Research confirms that the practice of detaining juveniles for relatively low-level offenses is both ineffective and detrimental (Frazier & Cochran, 1986; Holman & Ziedenberg, 2006; Kenny, Lennings, and Munn, 2008). Potential iatrogenic consequences range from reinforcement of violent attitudes due to association with other high-risk youth (Ryzin & Dishion, 2013), mental health concerns (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002) and sexual health issues (e.g., increases in sexually transmitted diseases; Aalsma et al., 2012). Increases in violent behavior and subsequent law violations have also been cited as results of detaining low-risk juveniles (Mendel, 2011; Tonry, 2007). Holman and Ziedenberg (2006) note a variety of individual-level negative outcomes that flow from detaining youthful offenders, including: (a) poor mental

health outcomes; (b) barriers to education and, (c) obstacles to future employment. In addition, adolescents are commonly more vulnerable to negative influences, particularly salient, maladaptive peer pressures (Fried & Reppucci, 2001; Steinberg & Scott, 2003). Youth who have been detained also have worse legal outcomes than those who have not. Harsher legal penalties are more prevalent for youth who have been previously detained. Frazier and Cochran (1986) examined the severity of court outcomes among nearly 10,000 delinquent youth. They found that detained youth, regardless of offense seriousness, referral status, and various demographic variables, experienced much harsher outcomes at later decision-points in court-processing than did similarly situated youth who were not detained.

The Annie E. Casey Foundation has been on the forefront of efforts to reform juvenile detention and is active in roughly 36 states to advocate for evidence-based alternatives for low-risk youth. They argue that many low-risk youth end up in detention because other systems (e.g., education, mental health) cannot provide appropriate services (Annie E. Casey Foundation, 2010). Generally, however, detention reform focuses on the youth at the “deep end” of the system. The path to detention begins with the first law violation; relatively few reform initiatives and studies focus on that very first interaction youth have with the legal system. Research has demonstrated that official processing of a juvenile law violation may be the least effective means of rehabilitating juvenile offenders.

Petrosino, Turpin-Petrosino, & Guckenburg’s (2010) study presents the most comprehensive analysis of the impact of formal court processing on delinquent youths’ future offending. They examined 29 juvenile justice studies to determine whether formal processing of juvenile offenders reduces subsequent acts of delinquency. Their meta-analysis included 7,304 juvenile records over a 35-year period (Petrosino, et al., 2010). Formal processing included youth who were charged in juvenile court, adjudicated,

or placed on probation. Youth who were formally processed were compared to those who were diverted from the system to other services or who were released without any requirements. Although the results were not uniform across each of the 29 studies, the general findings of the meta-analysis were startling: processing a juvenile through formal juvenile court proceedings appears to result in later acts of delinquency. “Rather than providing a public safety benefit, processing a juvenile through the system appears to have a negative or backfire effect” (Petrosino et al., 2010, p. 38).

Net Widening: Not All Youth Need Intervention

While Petrosino’s (2010) research supported alternatives to formal processing, it did not support a policy of diverting youth who would not otherwise have been processed, or net widening. In other words, researchers were not in favor of diverting all youth, but only youth who needed intervention.

Why does net widening happen? Some of the behaviors that we now criminalize in our juvenile justice system are behaviors that used to be tolerated to some degree by society (American Psychological Association, 2008; Dupper, 2010; Snyder 1998). Many researchers cite the myth of juvenile violent offenders, perpetuated by the media, as the underlying reason for the rapid increase in juvenile court processing (Dembo, Wareham, & Schmeidler, 2005; Haegerich, Salerno, & Bottoms, 2012; Greene & Evelo, 2013; Muschert, 2007; Snyder, 1998). More recent legal cases and reform efforts point to a systemic misunderstanding of adolescent development as the source of this net widening. For example, a recent study conducted by Allen, Trzcinski, & Kubiak (2012) found that not only were participants’ views of adolescent development predictive of how they believed juveniles should be treated in the justice system, but attitudes toward adolescent development explained more variance in how juveniles should be treated than any other demographic construct. Taking

adolescent development into account, evaluators and stakeholders should inquire whether: (a) the youth requires any intervention or whether the process brings juveniles into the system unnecessarily, and (b) whether the intervention is a developmentally appropriate response designed to reduce recidivism.

Adolescent Development

According to the Annie E. Casey Foundation (2008), “behavioral research has proven that children and adolescents are far less able than adults to gauge risks and consequences, control impulses, handle stress, and resist peer pressure” (p. 2). Similarly, Cauffman and Steinberg (2000) have reported that socially responsive decision making is significantly more common among young adults than adolescents. Although the 1980s and 1990s were increasingly focused on protecting the rights of the community over the rights of the juvenile defendant (Fried & Reppucci, 2001), developments in adolescent neuroscience are now returning to emphasizing the juvenile. In a recent Supreme Court case, the Court noted that adolescent deficiencies in executive functioning and their inability to consider long-term consequences made certain legal consequences unconstitutional. Writing for a 5-4 majority, Justice Elena Kagan wrote, “Mandatory life without parole for a juvenile precludes consideration of his chronological age and its hallmark features—among them, immaturity, impetuosity, and failure to appreciate risks and consequences” (*Jackson v. Hobbs*, 2012). The Court ruled that mandatory life without parole is unconstitutional for juvenile defendants (*Jackson v. Hobbs*, 2012; Steinberg, 2013).

In addition to a juvenile’s inability to fully appreciate long-term consequences and the legal ramifications, decades of research support the notion that participation in delinquency is commonplace during adolescence and that most young offenders will cease any law-breaking tendency as part of the normal maturation process (Matsuda, 2009; Snyder, 1998; Gottfredson &

Hirschi, 1990). Given all of the negative aspects of juvenile detention, and the fact that most youth will naturally cease delinquent acts without intervention, it becomes imperative for our systems to differentiate between youth who are behaving in a manner consistent with normative development, and youth who may be displaying atypical behaviors consistent with psychopathology and future criminal offending.

While it is harmful to overtreat youth, it is also potentially harmful if youth who need services are not identified and offered intervention early enough. Too often youth with mental health needs, learning disabilities, or poor support and structure in their homes go unidentified and may end up deeply entangled in our juvenile justice systems (Cocozza & Skowrya, 2000). A delicate balance exists between identifying youth early enough without overreacting and criminalizing normal youth development and experimentation. In short, our systems need to be able to assess which youth require serious legal interventions and which will benefit most from community-based intervention, or no treatment at all.

Formal and Informal Methods of Diverting Juveniles

Many jurisdictions operate formal programs that allow youth to divert a minor law violation by sending the youth through a diversion program in lieu of formal court processing. In Nebraska, like many states, a county attorney may refer a juvenile to diversion prior to filing a petition in court. There are also informal methods of diverting youth out of the system. A prosecutor may simply dismiss the case for lack of evidence or because they do not believe it should be prosecuted. Prosecutors may use other informal methods such as holding on to a case to allow the youth's family time to set up services or to see if the youth has any subsequent law violations. Whether because of public perception, victim rights, or political implications, prosecutors often do not track the number of cases they handle informally.

Diverting Youth Prior to System Involvement

Formal juvenile diversion is often built upon principles of restorative justice (U.S. Department of Justice and Office of Juvenile Justice and Delinquency Prevention, 2009). Youth referred to diversion are generally thought to be diverted from the formal process of juvenile court, but diversion clearly falls within part of the processing decision, albeit very early on in the process. Some jurisdictions are now exploring ways to keep youth out of the system altogether. In Lancaster County, Nebraska, the chief juvenile prosecutor worked with the local diversion program to identify youth who could be diverted prior to diversion. The county attorney implemented a process designed to screen out low-risk juvenile law offenders charged with misdemeanors. This process became known as the Early Assessment Process. The stakeholders involved in the Early Assessment Process used a bifocal approach by considering both short- and long-term consequences. Collaborative planning for this project included representatives from juvenile diversion, juvenile probation, the public defender's office, the city and county attorneys' offices, private and nonprofit providers, and the juvenile detention facility. The goal of this collaborative undertaking was to identify, very early in the juvenile process, which youth required further intervention and which youth had sufficient community supports to be diverted away from official processing, sometimes without any intervention. After receiving the citation or referral from law enforcement, a staff of the county attorney contacted the youth and guardian by phone. This was generally done within 10 days of the law violation, and the staff conducted a brief screening using the Nebraska Youth Screen (NYS), an abbreviated version of the Youth Level Services/Case Management Inventory (YLS/CMI).¹ Based upon the screening, the prosecutor chose to dismiss, divert, or file the case in court.

¹ The YLS is derived from the Level of Service Inventory Revised (LSI-R), a standardized risk assessment for adult offenders created by Andrews and Bonta (1995). There are a number of studies that demonstrate the predictive validity of the YLS/CMI, linking the relationship between recidivism and YLS/CMI scores.

This new approach generated some concern when it was initiated in 2009. Would providing additional information to the prosecutor result in net widening, thereby leading even more youth to be drawn into the system? More specifically, by focusing on young offenders, would even younger juveniles be pulled into the juvenile system? Because youth are sometimes given only one opportunity at diversion, another concern was whether youth offered prediversion would later be ineligible for diversion. Perhaps the most salient question was whether such a minimal intervention would, in fact, have any impact. Would youth who received only a phone call be likely to disregard the system as inconsequential, and be more likely to engage in future law violations? For purposes of this article, we examined only the long-term research question of whether youth who were screened out were more likely to commit a new law violation.

Similarities and Differences of the Programs

The Early Assessment Process and Juvenile Diversion are fairly similar in the characteristics of the youth they accept, as well as the types of law violations committed by referred youth. They are different, however, in the amount of resources required to run the program. The key programmatic differences between the two programs are:

1. Youth referred to the Early Assessment Process generally only speak with a juvenile justice professional over the phone, while youth enrolled in Juvenile Diversion have ongoing meetings over a series of months.
2. Youth referred to the Early Assessment Process are screened using a brief assessment tool called the Nebraska Youth Screen (NYS), an adaptation of the Youth Level Services/ Case Management Inventory (YLS/CMI). Youth in Juvenile Diversion complete the YLS/CMI and may have more in-depth evaluations and therapeutic requirements based on the results.
3. Youth referred to the Early Assessment Process generally do not have to complete any requirements, whereas youth in Juvenile Diversion are required to complete a number of requirements such as educational classes, community service, paying restitution, or written assignments.
4. Youth who go through Juvenile Diversion must pay a fee.

Method

Because the Early Assessment Process and Juvenile Diversion have been in operation since 2009 and 1994, respectively, random assignment to treatment and control groups was not possible. As a result, selection bias presented a potential methodological problem. For example, youth referred to the Early Assessment Process may have been less likely to recidivate to begin with—due to age, the type of law violation, etc.—than youth referred to Juvenile Diversion. Fortunately, there are several options available to minimize selection bias.

Random selection is the most effective way to minimize selection bias. By randomly assigning individuals to a treatment or control group, it can be assumed that individuals in each group are similar in all respects. The only difference will be whether or not they are assigned treatment. Unfortunately, as is the case with the present data, perfect random selection is not always possible. However, other alternatives exist that allow researchers to address selection bias. Traditional matching techniques have frequently been used in the past to ensure that treatment and control groups are equivalent when randomization is not possible; however, the more covariates used in traditional matching, the more difficult it becomes to create a perfect match (Guo & Fraser, 2010). In other words, a perfect match is easy if you are matching on one item, such as age. However, if a researcher tries to match an individual in their treatment group to an individual in their control group using several characteristics

(age, race, and marital status), it becomes more difficult to find a perfect match. Propensity score matching (PSM) can be used to address this problem.

Propensity score matching (PSM) was developed by Rosenbaum and Rubin (1983) and is another possible way to ensure that treatment and control groups are similar. PSM simplifies matching by creating a single item on which matches can be made. This item is known as the propensity score (Guo & Fraser, 2010). A propensity score is the probability of being assigned to a treatment group, given a set of observed covariates (Apel & Sweeten, 2010; Guo & Fraser, 2010; Rubin, 2001).² Basically, the propensity score encapsulates and summarizes a variety of covariates in a single score (Guo & Fraser, 2010). Once a propensity score is generated, it can be used to match individuals in the treatment group with individuals in the control group. Instead of matching treatment cases to control cases based on a variety of individual covariates, treatment and control cases are simply matched using a single propensity score (Guo & Fraser, 2010).

Furthermore, because the propensity score is a summary of those many covariates, individuals with similar propensity scores can be considered “comparable, even though they may differ on values of specific covariates” (Guo & Fraser, 2010, p. 130). If analyses are limited to individuals with similar propensity scores, selection bias can be largely reduced as a result. When individuals in the treatment and control group are matched based on their propensity scores, the two groups are similar and are considered to be “balanced.” Therefore, if it can be demonstrated that the treatment and control groups have been balanced via PSM, selection bias should be largely eliminated (Guo & Fraser, 2010). In other words, given the propensity score, treatment assignment is independent of the other covariates (Guo & Fraser, 2010). Because PSM has been

established as a useful tool for simplifying matching and eliminating selection bias, we chose to use PSM in this study.

PSM is increasingly being used by researchers in the criminal justice field to explore differences between groups of individuals. To elaborate, PSM has been effectively used to study offending populations (see for example, Boduszek, 2013; Duwe & Goldman, 2009; Grady, Edwards, Pettus-Davis, & Abramson, 2013; Jolliffe & Hedderman, 2012), including youthful offenders (see for example, Caldwell, 2011; Cuellar, McReynolds, & Wasserman, 2006; Fagan, 2008; Loughran et al., 2010; Nagin, Cullen, & Jonson, 2009; Petitclerc, Gatti, Vitaro, & Tremblay, 2013). For example, Petitclerc and colleagues (2013) used PSM to compare youth processed through the juvenile justice system with those who were not. They found that youth processed in the juvenile justice system were more likely to be convicted of later crimes as adults than were similar youth who were not processed. As a further example, Loughran and colleagues (2010) used PSM to explore recidivism among delinquent youth. Specifically, they compared differences in recidivism among youth who were transferred to adult court and those who were not. They demonstrated that the effect of transfer to adult court on recidivism was dependent on the type of charge. The present study will add to a growing body of research that utilizes PSM to research youthful offenders.

Procedure

Data on individual youth involved in Early Assessment were provided by the Lancaster County Attorney’s office ($n = 2,475$). This dataset included all youth screened for Early Assessment since the program began in January 2009. Many of the variables included in the original data provided by the Lancaster County Attorney’s office were case processing variables (e.g., time contact was attempted), and were not used for matching. Instead, the covariates used to generate the propensity score included demographic- and

² For more details on the origins of the equations used in generating the propensity score, please see Rosenbaum and Rubin’s (1983) article. For further in-depth discussion of the application and function of these equations, see Guo and Fraser (2010).

offense-specific data, explained as control variables below.

Data on individual youth referred to Juvenile Diversion from 2004 to 2011 ($n = 7,093$) were provided by CEDARS Youth Services, a non-profit agency contracted by the Lancaster County Attorney and Lincoln City Attorney to serve youth eligible for Juvenile Diversion. Early Assessment was designed as part of a continuum of juvenile services; consequently, some youth had been sent through the Early Assessment Process and then later committed a law violation and were referred to Juvenile Diversion. For comparative purposes, we divided youth into two comparison groups: (a) Early Assessment only and (b) Juvenile Diversion only. Youth who completed both programs were not included in this analysis.

Recidivism data was collected by a staff member within the Lancaster County Attorney's office. The staff member examined recidivism data by entering each youth's name into the Lancaster County Attorney's case management system and searching for law violations that resulted in a juvenile or criminal petition being filed (post program completion). Because well over 9,000 individual youth were included in the Juvenile Diversion and Early Assessment datasets, it was not practical for the staff member to generate reports for every youth. Therefore, we provided a random list of names, drawn from all participants in each group. Specifically, a random sample of 400 youth who participated in Juvenile Diversion and a random sample of 400 youth who participated in Early Assessment were selected from the data provided. The staff member then provided recidivism data for these specific youth.

Participants

One youth in the Juvenile Diversion group and one in the Early Assessment group had incomplete or missing data and were eliminated from the sample, leaving a final sample of 798 total youth who had participated in either Early Assessment ($n = 399$) or Juvenile Diversion

($n = 399$). Descriptive statistics of the sample are available in Table 1.

Table 1. *Descriptive Statistics*

Variable	Mean	Std. Dev.	Min.	Max.
Age	14.435	2.365	7	20
Gender	0.624	0.485	0	1
Race/Ethnicity				
Black	0.143	0.350	0	1
Hisp	0.040	0.196	0	1
White	0.627	0.484	0	1
Other	0.190	0.393	0	1
Offense Type				
Person	0.257	0.437	0	1
Property	0.452	0.498	0	1
Weapons	0.020	0.140	0	1
Drugs/Alcohol	0.190	0.393	0	1
Traffic	0.005	0.071	0	1
Other	0.075	0.264	0	1

Youth in the final sample were, on average, 14.4 years old. Most (62.4%) youth were male. White youth made up the largest racial group in the sample (62.7%). In addition, 14.3% of sampled youth were Black, 4.0% were Hispanic, and the remaining 19.0% were categorized as some "other race." Approximately 45% of sampled youth had committed a property offense, while approximately 26% of the sample had committed a person-related offense. An additional 19% of offenses fell into the drugs/alcohol category. Very few youth committed weapons-related (2.0%), traffic (0.5%), or other (7.5%) offenses.³

Data Analysis Plan

Program assignment was coded as a simple dichotomous variable. Youth who were referred to Early Assessment were coded as "1" and youth referred to Juvenile Diversion were coded as "0."

Recidivism was defined as any law violation charged, or filed on, by the Lincoln City Attorney

³ For detailed notes on the coding of offense types, see the Appendix.

or Lancaster County Attorney after resolution of a youth's initial law violation (the violation that brought the youth to Early Assessment or Juvenile Diversion). Recidivism was measured as a dichotomous variable at three distinct time periods: 12 months, 24 months, and long-term/any recorded recidivism. For each time period, a code of "1" indicated that the youth had reoffended and a code of "0" indicated that the youth had not reoffended within the specified time period.

Several additional covariates were included in the analyses, such as age (measured in years) and gender (females were coded as "0" and males were coded as "1"). Race was coded as a series of dichotomous indicator variables, including White, Black, Hispanic, and Other. Because of the very small number of youth who fell into the Asian, Native American, and Other categories, these three groups were collapsed into one "Other" race variable. This "Other" category was left out of the analysis as the reference group. Several dichotomous indicator variables were also created to indicate the type of offense a youth committed. Specifically, variables for person, property, weapons, drug and alcohol, traffic, and other offenses were created. The "other" category was the reference group. Each of these control variables are used to generate a propensity score on which the youth in our sample were matched. A propensity score is literally a score that takes into account matching characteristics of a youth. As stated above, this allowed us to isolate the treatment effects.

We began our analyses by estimating the propensity score for each individual case. Next, youth assigned to Early Assessment were matched with those assigned to Juvenile Diversion. Specifically, we used nearest neighbor matching. Nearest neighbor matching is a strategy used to match an individual from the treatment group with an individual from the control group. A match is created between two individuals when "the absolute difference of propensity scores is the smallest among all possible pairs of propensity

scores" (Guo & Fraser, 2010, p. 146). This simply means that youth in the treatment group were matched to an individual in the control group whose propensity score was most similar to their own. We also implemented a caliper restriction. Caliper matching helps to weed out "bad matches" (Caliendo & Kopeinig, 2008). A caliper is basically a restriction placed on how much the propensity score of two cases can differ in order to be considered a match (Caliendo & Kopeinig, 2008; Guo & Fraser, 2010). The smaller the caliper, the more similar two cases must be in order to be paired together. We chose to use a caliper of .05.

We then checked for balance across the covariates both before and after matching. Subsequently, we used Stata to calculate the average treatment effect for treated youth (ATT). If the ATT is significant, then program participation is responsible for a significant change in the dependent variable (Guo & Fraser, 2010). In other words, if the ATT is significant, then participation in Early Assessment is responsible for any changes in recidivism.

Results

After matching youth who participated in Early Assessment and Juvenile Diversion, we assessed the balance among the matches. Recall that when selection bias is present, treatment and control groups will be different based on something other than treatment assignment. When selection bias is controlled for, treatment and control groups are considered well balanced (i.e., individuals in both groups are considered similar and matched in all respects, with the exception of whether or not they were assigned treatment). As a result, we test for balance in our sample in two ways. First we compare the treatment and control groups before any matching has been done, and test to see whether they are balanced across a variety of covariates. Next, the two groups are examined again, this time after they have been matched based on the propensity score. If the two groups are similar (i.e., well balanced) there will be no significant differences

Table 2. *Achieving Balance Among Diversion and Early Assessment Youth: Pre- and Post-Matching t-tests*

Variable	Unmatched sample			Matched Sample		
	Early Assessment	Diversion	<i>p</i>	Early Assessment	Diversion	<i>p</i>
Age	13.063	15.812	0.000*	13.484	13.470	0.910
Gender	0.629	0.618	0.749	0.610	0.549	0.099
Race/Ethnicity						
Black	0.188	0.098	0.000*	0.165	0.198	0.249
Hisp	0.025	0.055	0.030*	0.025	0.014	0.281
White	0.657	0.595	0.075	0.670	0.643	0.436
Offense Type						
Person	0.341	0.173	0.000*	0.346	0.401	0.126
Property	0.484	0.422	0.081	0.467	0.440	0.457
Weapons	0.028	0.013	0.131	0.025	0.008	0.081
Drugs/Alcohol	0.083	0.296	0.000*	0.091	0.088	0.897
Traffic	0.008	0.003	0.318	0.008	0.000	0.083

**p* < .05

between treatment and control groups on any of the covariates. Table 2 displays results from the pre- and post-matching *t*-tests for the covariates in the study.

The results of our test for balance indicate that prior to matching on the propensity score, youth referred to Early Assessment and Juvenile Diversion, while similar in some respects, were significantly different along several key variables. Table 2 demonstrates that before matching on the propensity score, the treatment and control groups were relatively well balanced in terms of gender, the distribution of White youth, and offense types (property, weapons, and traffic offenses). In other words, there were no significant differences between youth in either group based on these individual covariates. However, Early Assessment participants and Juvenile Diversion participants were significantly different in terms of age, type of offense (person, drugs/ alcohol), and race.

Specifically, before matching on the propensity score, Juvenile Diversion participants were significantly older than Early Assessment participants (mean age of 15.81 and 13.06, respectively). In

addition, more Black youth and significantly fewer Hispanic youth were in Early Assessment compared to Juvenile Diversion. Furthermore, more youth committing offenses against a person were in the Early Assessment group while more drug and alcohol offenders were in the Juvenile Diversion group. There were no significant differences in terms of the other covariates. However, after matching (see Table 2), the treatment and control groups were well balanced across all covariates; no significant demographic differences existed between the two groups based on any of the measured covariates. Ultimately, there were 364 treatment cases and 297 control cases on the common support⁴ which were included in our analyses.

The results are displayed in Table 3. After balancing on the covariates, we used Stata (version 11.0) to estimate the average treatment effect for the treated youth (ATT).

Note that Table 3 gives the *t*-statistic both before and after matching based on the propensity score. This illustrates the importance of

⁴ Cases on the “common support” are those cases that were able to be matched with one or more cases in the comparison group based on their propensity scores (Guo & Fraser, 2010).

Table 3. Results from Propensity Score Matching Analyses

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Re-Offense at any time	Unmatched	0.150	0.490	-0.340	0.031	-11.02
	ATT*	0.159	0.475	-0.316	0.083	-3.79
	ATU	0.492	0.424	-0.067	.	.
	ATE			-0.204	.	.
Re-Offense at One Year	Unmatched	0.088	0.128	-0.040	0.022	-1.84
	ATT*	0.091	0.069	0.022	0.046	0.48
	ATU	0.114	0.279	0.165	.	.
	ATE			0.086	.	.
Re-Offense at Two Years	Unmatched	0.128	0.254	-0.126	0.028	-4.58
	ATT*	0.135	0.143	-0.008	0.061	-0.13
	ATU	0.222	0.306	0.084	.	.
	ATE			0.033	.	.

* ATT is the Average Treatment Effect for the Treated. In this case, the treated participants are those who received Diversion.

correcting for selection bias. Recall that prior to matching, selection bias was evident in our sample. Thus the *t*-statistic in the unmatched sample may show a significant result where none exists. The ATT is the average treatment effect for the treated and is calculated after the data were balanced and selection bias was addressed.

A significant *t*-statistic for the ATT indicates that program participation accounts for a significant difference between the treatment and control groups in terms of the dependent variable. The commonly accepted critical value for a *t*-statistic is 1.96. Any *t*-value above 1.96 is significant. While the relationship between recidivism and participation in Early Assessment vs. Juvenile Diversion was examined at three time periods (12 months, 24 months, and long-term/any recidivism), a significant difference existed only at time period three: long-term recidivism. As shown in Table 3, the *t*-statistic for long-term recidivism was significant after matching ($t = 3.79$). In sum, youth who participated in Early Assessment, when compared to youth who participated in Juvenile Diversion, were less likely to recidivate over the long term.

The difference in recidivism patterns was not due to referral patterns. For example, one might

consider the fact that youth who complete Early Assessment still have an opportunity to complete Juvenile Diversion. Thus, by definition, these youth should have a lower number of charges filed by the county attorney. However, to reiterate, youth were excluded from the sample if they had been referred to both programs—we considered only youth who had gone through one program or the other. Consequently, we know that differences in recidivism were not related to subsequent referrals to Juvenile Diversion. There was no difference in the recidivism rates of youth in each group when measured at 12 months or 24 months.

Limitations of this Study

Because the propensity score is estimated only from known, observed covariates, it may be that important variables were omitted from these analyses. It is possible that the inclusion of different covariates in the analyses could change our results. For example, where a youth lives (youth ZIP Code) or the location of the crime could conceivably affect a youth's recidivism. However, we could match only on covariates that were included in both the Early Assessment dataset and the Juvenile Diversion dataset.

Omitting these hypothetical variables could result in hidden bias that might account for the significant relationship between long-term recidivism and Early Assessment participation (Guo & Fraser, 2010; Morgan & Winship, 2007). Therefore, we conducted a sensitivity analysis to determine how much hidden bias would be necessary before the relationship between recidivism and Early Assessment participation became nonsignificant.

In this analysis, gamma, which represents the degree to which hidden biases change the odds of belonging to the treatment group (Guo & Fraser, 2010) became significant at approximately 3.4. Thus, it is likely that these results are fairly resistant to hidden bias. In other words, our results are not primarily due to any hidden bias; it is likely that youth referred to Early Assessment are, in fact, significantly less likely to recidivate than their peers in Juvenile Diversion.

Discussion

The Early Assessment Process implemented in Lancaster County appears to reduce recidivism when participating youth are compared to youth in Juvenile Diversion. These effects are significant for recidivism beyond 24 months after program completion. These results present an unexpected pattern, as juvenile justice programs often find pronounced immediate effects that dwindle over time. That is, juveniles may improve behaviors while enrolled in a program, but the effects decrease over time. For example, in Juvenile Diversion programs researchers often report that youth refrain from committing new law violations while enrolled. This effect may last for months after program completion, but recidivism rates often increase the longer a youth is out of the program. It may be that the inclusion of covariates that include time in the analyses could explain the pattern of longitudinal success.

Future research should incorporate additional individual-level variables. Although the sensitivity analysis indicates that our results are fairly

robust, it is conceivable that the inclusion of different individual-level covariates in the analyses could change our results. For example, where a youth lives (youth ZIP Code, location of crime) could conceivably affect a youth's recidivism. However, we could only match on covariates that were included in both the Early Assessment dataset and the Juvenile Diversion dataset.

Our study found less intervention resulted in better outcomes for youth over time. Similar to the study of Petrosino et al. (2010), we found that formal processing may increase delinquency. Consequently, there may be system-level variables that contribute to this finding as well. That is, youth who were referred to formal Juvenile Diversion had higher rates of recidivism 2 years after they completed the program than youth who were screened out by a phone call. Lower recidivism may be related to informal processing and speaking with an actual person, instead of receiving a letter from the county attorney in the mail. The human interaction may increase positive perceptions of juvenile justice professionals, including law enforcement, thus resulting in lower rates of new law violations. Future research should include juveniles' perceptions of the juvenile justice system before and after diversion programming. In addition, surveying family members' perceptions of the legal system could be advantageous given research regarding social modeling and the adoption of violent attitudes (Akers & Jennings, 2009).

Although there is minimal contact between youth involved in the Early Assessment Process and the juvenile justice system, these brief but deliberate contacts appear to demonstrate positive effects. Although the higher dosage interventions involved in the diversion process are well intentioned, it is possible that these classes, assessments, and community service time, among other requirements, may produce few gains, and even iatrogenic outcomes. Juvenile justice practitioners may benefit from collaborative problem solving across disciplines (e.g., social work, mental health, law) in order to

create the most comprehensive Early Assessment screening process for low-risk youth.

Although interpretation of these results may suggest that minimal intervention is more effective, we urge practitioners to exercise caution before extending these initial results to all youth. This study, however, does highlight the importance of accurate assessment early in a youth's exposure to the juvenile justice system. Not all the aspects of diversion programming may be necessary for youth who have minor law violations. It may also be beneficial to perform an outcome evaluation of diversion program elements, to determine which interventions are proven effective, and to modify or eliminate interventions that do not generate promising results. The same procedure could be completed for the various aspects of the Early Assessment process in order to determine precisely the most effective method for contacting and screening out young offenders. When effective factors are identified, youth could be required to complete several diversion activities that have been deemed effective.

Recent research has also emphasized that providing individuals with choices can lead to increases in perceived control (Insei, Botti, DuBois, Rucker, & Galinsky, 2011). Adolescents could also be allowed to choose activities from an empirically validated pool of interventions that are most appropriate for their needs. Finally, the Early Assessment process should also be evaluated in

larger, more diverse contexts in order to further validate our findings.

Overall, Early Assessment appears to preliminarily offer an effective method of screening out those youth who (a) require minimal intervention and (b) are unlikely to recidivate. In this era of dwindling budgets and cutbacks, programs that are both efficacious and cost effective are critical. Future research could include matching across a greater number of variables and a follow-up longitudinal study to confirm recidivism findings. In the meantime, efforts should be made to promote this straightforward and cost effective model as an evidence-based practice.

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APPENDIX

Table A: *Coding of Offense Type*

Person	Sexual Assault, Domestic Assault, Child Neglect, Assault, Sexual Abuse, Assault and Weapons Discharge, Assault and Vandalism, Disturbing the Peace, Disturbing the Peace and Vandalism, Disturbing the Peace and Trespassing, Disturbing the Peace by Fighting, Disturbing the Peace and Indecent Exposure, Indecent Exposure and in a Park After Hours, Disturbing the Peace by Phone, Disturbing the Peace and Assault, Assault by Mutual Consent, Robbery, Intimidation by Phone Call, Public Indecency
Property	Forgery, Negligent Burning, Aid and Abet Shoplifting, Shoplifting, Arson, Aid and Abet violation of city code 9.04.010, Steal Money or Goods, Aiding a Theft, Attempted Theft, Burglary, Aid and Abet Burglary, Concealed Merchandise, Larceny, Theft of Services, Theft from a Building, Theft by Deception, Theft by Receiving, Theft by Unlawful Taking, Unauthorized Use of Financial Device, Unauthorized Use of Motor Vehicle, Vandalism, Criminal Mischief, Aid and Abet Criminal Mischief, Possession of Stolen Property
Weapons	Use of a Destructive Device, Vandalism/Carry Concealed Weapon, Discharge Weapon, Bomb Threat, Carry Concealed Weapon, Discharge BB Gun in City Limits, Discharge Weapon in City, Explosives Threats
Drugs/Alcohol	Minor in Possession, Possession of Narcotic with Intent to Deliver/Robbery, Possession of a Legend Drug, Possess or Attempt to Obtain Legend Drugs, Possession with Intent to Deliver a Controlled Substance, Provide Tobacco to Minor, Sale of Prescription Drug, Consuming Alcohol in Public Open Container, Maintain Disorderly House and Possession of Marijuana and Paraphernalia, Possession of a Controlled Substance, Possession of Drug Paraphernalia, Possession of Marijuana, Possession of Tobacco
Traffic	Careless Driving/No Operator's License/No Seatbelt, Driving Without a License, POP Violation/Traffic Signal Violation
Other	Trespassing, Trespassing/False Information, Littering, Obstruct Government Operations, Obstructing Driver, Open Burning/Trespassing, Possession of Fireworks, Possession of Illegal Fireworks, Discharge Fireworks Where Prohibited, Enter a Park After Hours, Failure to Comply, False Information, Inmate of a Disorderly House, Resisting Arrest, Switch Tags, Urinate in Public, Body Art Practitioner Permit Required - No Parental Consent for Body Art on Minor

A Jury of Your Peers: Recidivism Among Teen Court Participants

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Abstract

Teen court programs have gained widespread popularity throughout the United States over the past 30 years. The rapid growth of teen courts has outpaced the rate of research, resulting in a knowledge gap concerning best practices and overall effectiveness of teen court programs. This study contributes to the existing literature by identifying variables associated with recidivism among 478 teen court participants in Duval County, Florida, between 2009 and 2011. In this study, 20.1% of program participants recidivated within 1 year of program completion, and males were four times more likely to recidivate than females. Although males recidivated at a significantly greater rate than females, there was no significant difference in the number of days it took males and females to recidivate. The number of sanctions imposed on youth in our study was not associated with recidivism. Limitations and policy implications of this study are explored.

Introduction

In 2009, approximately 1.9 million people under the age of 18 were arrested in the United States. The number of arrests of juveniles in 2009 was

17% lower than the number of arrests in 2000. In 2009, the number of juvenile arrests for violent index crimes was the lowest since 1980 (Puzzanchera & Adams, 2011). In spite of an overburdened juvenile justice system, juvenile arrest rates continue to decline. One explanation could be the increasingly popular use of diversion programs such as teen courts.

Teen courts are typically overseen by an adult judge but run by youth. The attorneys, jurors, and bailiffs are youth who work under the supervision of adult volunteer attorneys. Defendants are usually first-time, low-risk offenders referred to teen court by police, prosecutors, or school authorities (Garrison, 2001). Teen courts have experienced exponential growth since the 1990s. In 1991, there were 50 teen courts in operation in the United States; by 2006, there were 1,100 teen courts in operation. In 2000, traditional juvenile justice courts handled more than 1.6 million cases. During that time, teen courts handled 85,000 cases, alleviating traditional juvenile courts of 12% of their cases (Norris, Twill, & Kim, 2011).

Aside from lightening the burden of traditional courts, teen courts have other goals as well. Teen courts strive to teach juveniles accountability.

Theoretical bases stem from labeling theories, social control, restorative justice, and, to some degree, reintegrative shaming. When agreeing to be diverted to teen court and complying with the imposed sanctions, usually given by a jury of youth peers, a juvenile offender can avoid establishing a criminal record.

Sanctions commonly imposed by teen courts are community service, apology letters, essays and book reports, teen court jury duty, educational workshops, restitution, jail tours, and curfews. The most widely used sanctions are community service, used by 99% of teen courts; apology letters, used by 86% of teen courts; and essays, used by 59% of teen courts (Dick, Geertsen, & Jones, 2003).

Teen courts vary as to how they operate. The most common model is the adult model, in which the roles of attorneys, jurors, and bailiffs are filled by youth, but the judge is an adult volunteer. The youth judge model is similar to the adult model, but the judge is a youth. The peer jury model is a more informal one in which there is no judge and no attorneys. Instead, youth jurors question the defendant and then impose sanctions. Finally, the tribunal model does not use a jury, but instead utilizes youth attorneys who argue before youth judges. The judges then impose sanctions (Garrison, 2001).

The Duval County Teen Court Program (DCTCP) utilizes the adult model. Teen participants are referred to DCTCP by the state attorney's office, school officials and school resource officers, and the Jacksonville Sheriff's Office (JSO). JSO officers may use their discretion to issue a civil citation to a juvenile rather than make a formal arrest. Unlike arrests, civil citations do not become part of a juvenile's permanent record. Civil citations, and subsequent referral to DCTCP, are issued only to first-time offenders.

DCTCP utilizes many of the most common types of sanctions, among which are three educational programs: Focus on Females (FOF), Consequences of Crime, and Next Generation.

Focus on Females is a class for female juveniles and their parents. Issues that are often gateways to delinquent or socially deviant behavior, such as drug use, fighting, improper use of social media, and even negative body image and sexual concerns, are discussed. Representatives from Planned Parenthood and inmates from the Duval County Jail are present in these classes to add information, insight, and authenticity to the discussions (Plotkin, n.d.). Consequences of Crime is the male-oriented counterpart of FOF, covering issues specific to boys and young men. Next Generation, a class for both genders, teaches parenting skills.

Although teen courts have become widely used diversion programs across the United States, few studies have been conducted on the effectiveness of specific sanctions and the overall effectiveness of these programs on recidivism. This study attempts to add to the body of existing literature on teen courts by examining variables associated with recidivism among teen court participants.

Literature Review

The studies reviewed in this paper attempt to shed light on the degree to which teen courts are effective tools of intervention with juveniles. The studies are organized into four sections: (a) the impact of sentence completion on recidivism; (b) how the recidivism rates of teen court participants compare to the recidivism rates of teens who participated in traditional juvenile courts or other alternative intervention programs; (c) the relationship of sanction type to recidivism; and (d) the relationship of extralegal factors (e.g., gender, age, race, socio-economic status, prior offenses) to recidivism.

The Impact of Sentence Completion on Recidivism

Most of the literature about the impact of sentence completion on recidivism has defined recidivism as re-arrest after sentence completion. The period in which re-arrests have been

Table 1. Summary Findings from Previous Teen Court Research

Author	Year	N	Includes Only First-Time Offenders	Sentence Completion	Measure of Recidivism (Mos. after Completion)	Rate of Recidivism Among Completers	Rate of Recidivism Among Non-Completers	Overall Rate of Recidivism
Dick et al.	2003	120	—	100% (n=120)	Self-Report	49% (n=59)	N/A	49% (n=59)
Forgays & DeMilio	2005	26	No	92% (n=24)	Re-arrest to 18y/o	13% (n=3)	100% (n=2)	19% (n=5)
Garrison	2001	71	Yes	63% (n=45)	Re-arrest 12mos.	6% (n=7)	58% (n=15)	31% (n=22)
Harrison et al.	2000	478	—	63% (n=300)	Re-arrest to 18y/o	26% (n=79)	32% (n=40)	25% (n=119)
Irons & Jones	2001	574	—	83% (n=475)	--	--	—	—
Logalbo & Callahan	2001	111	No	100% (n=111)	Re-arrest 5mos.	13% (n=14)	N/A	13% (n=14)
Minor et al.	1999	226	No	71% (n=160)	Re-arrest 12mos.	30% (n=48)	36% (n=24)	32% (n=72)
Norris et al.	2011	635	Yes	95% (n=603)	Re-arrest 1999-2006	—	—	20% (n=127)
Rasmussen	2004	648	No	92% (n=572)	Re-arrest 12mos.	—	—	12% (n=78)
Rasmussen & Diener	2005	38	—	62% (n=23)	Any negative contact w/police of at least the severity that would be referred to teen court	—	—	22% (n=8)
Seyfrit et al.	1987	52	No	100% (n=52)	Re-offense No specified time	10% (n=5)	N/A	10% (n=5)
Stickle et al.	2008	56	No	85% (n=48)	Re-offenses 18mos. from referral date	32% (n=18)	—	32% (n=18)

monitored for the purpose of operationalizing recidivism have varied from 5 months to 1 year after participants left the program, either with or without successful sentence completion (Garrison, 2001; Logalbo & Callahan, 2001). Two studies have monitored re-arrests from the time participants left their programs until they turned 18 years old (Forgays & DeMilio, 2005; Dick et al., 2003). One study used self-reports from teen court participants who completed the program. Specifically, researchers asked program participants if they had “broken the law since [they] were sent to teen court” (Dick et al., 2003, p. 39).

In every case, teens who completed their sentences recidivated at a lower rate than teens who did not complete their sentences (see Table 1). Minor, Wells, Soderstrom, Bingham, & Williamson (1999) reported a 36% (n = 24) recidivism rate among noncompleters compared to a 30% (n =

48) recidivism rate among completers (N = 226). Forgays and DeMilio (2005) found the recidivism rate among noncompleters was 100% (n = 2), compared to a rate of 13% (n = 3) among completers. However, a limitation of the study by Forgays and DeMilio (2005) was its small sample size (N = 26). Dick et al. (2003) reported a 49% recidivism rate among completers (n = 59). This is likely due to recidivism being measured by self-reports of any delinquent behavior rather than by re-arrests (Dick et al., 2003).

Rasmussen (2004), on the other hand, did not find that sentence completion had any significant association with recidivism. Studying 648 participants of a teen court in a rural part of Illinois, Rasmussen (2004) found that race, type of referral agent (e.g., police, state’s attorney, municipal attorney), and length of time between referral and sentencing were variables associated

with recidivism, whereas prior offense, severity of offense, and sentence completion were not. One explanation for the lack of significance between sentence completion and recidivism could be that this particular teen court allowed one, two, and even three time extensions for sentence completion (Rasmussen, 2004).

Recidivism Rates of Teen Courts Versus Traditional Juvenile Courts

One of the most prevalent criticisms of existing literature on teen courts is the lack of studies that have used comparison groups or nonequivalent comparison groups (Forgays & DeMilio, 2005). Most studies included in this review did not include a comparison group (Garrison, 2001; Harrison, Maupin, & Mays, 2001; Minor et al., 1999; Rasmussen, 2004). Two studies included comparison groups that were much smaller in number than the treatment groups: Logalbo and Callahan (2001) used a treatment group of 111 teen court participants and a comparison group of 65 self-selected local junior high school and high school students; Norris et al. (2011) used a treatment group of 635 teen court participants and a comparison group of randomly selected participants in preteen court diversion programs.

However, two studies did use appropriate comparison groups. Seyfrit, Reichel, & Stutts (1987) conducted a study using 52 teen court participants from a county in Georgia and a comparison group of 50 participants in a traditional juvenile court from a similar county, also in Georgia. The major difference was the racial composition of each population. The percentage of White participants in the experimental group was 92%; the percentage in the comparison group, 68%. Other characteristics of the groups were similar. Seyfrit et al. (1987) found no significant difference in the recidivism rates of the two groups, although the rates are distinct. The recidivism rate of teen court participants was 3% and that of the traditional court participants was 10%.

Stickle, Connell, Wilson, & Gottfredson (2008) utilized a sample group of teen court participants

($n = 56$) and a comparison group of traditional juvenile court participants ($n = 51$). This study is unique in design because the researchers used randomized assignment when placing offenders into each group. The groups were demographically matched. Recidivism was used as an outcome measure and was defined as any new offense within 18 months of referral to either court system. Repeat offenders were allowed into the study. Teen court participants recidivated at a higher rate (32%) than did the traditional court participants (26%).

Logalbo and Callahan (2001) could not address recidivism rates between the treatment and comparison groups because members of the comparison group had no history of delinquency. Differences in attitudes toward authority and knowledge of law-related matters were measured and analyzed between the two groups (Logalbo & Callahan, 2001). Norris et al. (2011) found that the sentence completion rate for teen court participants was 95% ($n = 603$), with an overall recidivism rate of 20% ($n = 127$). The comparison group experienced a sentence completion rate of 86% ($n = 160$) with an overall recidivism rate of 18% ($n = 33$).

Forgays and DeMilio (2005) used a comparison group with an equal number of samples as the treatment group, but the sample size of each was very small ($N = 26$). The treatment group consisted of teen court participants; the comparison group consisted of randomly selected offenders who were processed through traditional juvenile court. Results show that among the 92% ($n = 24$) of teen court participants who successfully completed their sentences, three (13%) reoffended. Only 50% ($n = 13$) of the comparison group completed their sentences and, of those who completed their sentences, 38% ($n = 5$) reoffended (Forgays & DeMilio, 2005).

The studies utilizing comparison groups have yielded inconsistent results regarding recidivism rates of teen court participants and those of traditional juvenile court participants. Norris et

al. (2011) found little difference between sentence completion and recidivism rates between the treatment and comparison groups, whereas Forgays & DeMilio (2005) found striking disparities in both completion and recidivism rates between groups.

The Relationship of Sanction Type to Recidivism

Several sanctions are common to almost any teen court. They are restitution, community service, teen court jury duty, apology letters, essays, curfews, and correctional facility tours (Greene & Weber, 2008; Williamson, Chalk, & Knepper, 1993; Zehner, 1997). The most popular sanctions are community service, used by 99% of teen courts; apology letters, used by 86% of teen courts; and essays, used by 59% of teen courts (Dick et al., 2003). Although several previous studies have examined whether teen court participants recidivate at lower rates than juveniles who are processed through traditional courts, few studies have explored which sanctions, or combination of sanctions, are associated with lower recidivism rates. Those studies that have explored such questions focus almost entirely on community service, perhaps due to the fact that community service is the most popular sanction.

Rasmussen (2004) found that teen court participants who were sentenced to community service had higher recidivism rates than participants not sentenced to community service. Dick et al. (2003) concluded participants who were sentenced to community service and/or writing assignments—either apology letters or essays—were significantly more likely to recidivate than participants who were not assigned these sanctions. Minor et al. (1999) found that participants sentenced to community service were less likely to complete their sentences. Although community service was not significantly related to recidivism, sentence completion has been found to be associated with lower recidivism rates (Minor et al., 1999; Forgays & DeMilio, 2005). Contrary to literature showing a positive relationship between community service and recidivism,

two studies concluded that individuals assigned community service were less likely to reoffend than were individuals not assigned community service (Garrison, 2001; Harrison et al., 2001). Furthermore, Norris et al. (2011) found that the number of sanctions imposed on an individual was positively related to the individual's likelihood of reoffending. Minor et al. (1999) found that youth who had a curfew imposed on them were 2.7 times more likely to reoffend than youth who did not have a curfew. One possible explanation is that curfews are not as directly related to an individual's offense as are writing essays, apology letters, restitution, or community service.

Lipsey (1999) conducted a meta-analysis of studies on the effectiveness of rehabilitation with juveniles who committed serious offenses. The sample included 117 studies on the effects of intervention with noninstitutionalized juvenile offenders. Relevant selection criteria for sample studies were the following: juveniles had to have been ages 12 to 21 and received some sort of intervention; a comparison group, or at the very least a pretest-posttest method, had to have been used; juvenile participants had to have a record of serious offenses or a history of violent behavior; and referrals had to have come from a juvenile justice source. Sample groups of selected studies were made up mostly of males, with an average age range of 13 to 16 years, whose participation in the programs was mandatory. Programs were typically 10 to 30 weeks long and provided 10 or fewer contact hours per week.

The types of sanctions that Lipsey (1999) found to be associated with reduced recidivism were individual counseling, interpersonal skills, and behavioral programs. Sanctions that had the least effect were wilderness or challenge programs, early release from probation or parole, deterrence programs, and vocational programs. In fact, deterrence programs (mainly "shock incarceration") and vocational programs (mainly vocational training, career counseling, interview

skills, and job search) were found to have negative effect sizes (-0.06 and -0.18 respectively).

The Relationship of Extralegal Factors to Recidivism

Unfortunately, few studies have addressed extralegal factors in regard to teen court and recidivism. Studies that did address extralegal factors found that males recidivate at a higher rate than do females (Harrison et al., 2001; Norris et al., 2011). Age and race have also been shown to be related to recidivism; younger offenders recidivate at a higher rate than older ones, and Blacks are re-arrested at a higher rate than Whites (Rasmussen, 2004). Of interest is the finding by Harrison et al. (2001) that household income and those with whom a juvenile lived had no significant relation to recidivism.

Worth mentioning is the process by which jurors deliberate sentences. Greene and Weber (2008) and Beck (1997) found that jurors remain largely consistent in the structure of sanctions imposed on defendants regardless of differences between individual defendants. Variations of evidence presented or defendants' statements and performance during the trial were not frequently reflected in variations in sentencing. Jurors put even less emphasis on extralegal factors.

Forgays, DeMilio, & Schuster (2004) concluded that jurors considered factors and sentences likely to be tailored by case. The sample group of jurors used in this study, however, was somewhat atypical in that they were high school students recruited by teachers. Of the 110 participants, only 6% ($n = 7$) had ever been adjudicated in a teen court. The participants of other, similar studies were teen court defendants who were serving on peer juries as part of their sentences.

In summary, existing literature on teen courts is scant. The studies that have been conducted vary widely in their methodology and type. While some examined sentence completion, others looked at the nature and severity of sanctions. Overall, the findings from past studies have been inconsistent; thus, more research is needed to

better understand the relationship between participation in teen court and recidivism. This study focused on a teen court in Duval County, Florida, in the southeast region of the country. Using secondary data, variables associated with recidivism among teen court participants are analyzed and policy implications explored.

Method

Participants

The sample includes 478 juveniles who participated in the DCTCP between 2009 and 2011. More than one-half (69%) of the participants were males ranging in age from 11 to 18 years ($M = 14.97$, $SD = 1.63$). The majority of participants were Black (54%); the remaining participants were White (38.9%), Hispanic (4.4%), Asian (1%), or Other (1.7%). The offense for which the majority of participants were convicted was possession of less than 20 grams of marijuana (24.9%), followed by assault/battery (16.5%), affray/criminal mischief (13.6%), and petit theft (13.8%). All participants resided in Duval County, Florida for the duration of their DCTCP participation and study follow-up period.

The sanction imposed most often on participants was community service (97.9%). The number of hours assigned ranged from 0 to 55 ($M = 16.38$, $SD = 9.97$). Counseling was assigned in 24.3% of cases and drug tests were administered in 15.9% of cases. The sanction imposed least often was tutoring (2.5%).

Measures

Independent variables of interest included gender, age, race, school grade level, the type of offense for which the juvenile was referred to DCTCP, the type of sanction imposed (and, when applicable, length of the sentence, such as the number of community service hours assigned), and time at risk.

The study included two dependent variables. Recidivism, defined as any arrest for a new

Table 2. Demographic Characteristics of the Participants

Characteristic	N	%
Gender		
Male	330	69.0
Female	148	31.0
Age at Intake		
11	10	2.1
12	28	5.9
13	62	13.0
14	70	14.6
15	107	22.4
16	109	22.8
17	79	16.5
18	13	2.7
Mean (SD)	14.97 (1.63)	
Race		
Black	258	54.0
White	186	38.9
Hispanic	21	4.4
Asian	5	1.0
Other	8	1.7
Offense Type		
Possession <20g Marijuana	119	24.9
Assault/Battery	79	16.5
Affray/Criminal Mischief	65	13.6
Petit Theft	66	13.8
Use of Drug/Alcohol/Tobacco	50	10.5
Multiple Class II Offenses	34	7.1
Truancy	12	2.5
Trespassing	9	1.9
Vandalism	2	0.4
Other	42	8.8
Sanctions		
Community Service	468	97.9
Consequences of Crime	428	89.5
Jury Duty	413	86.4
Essay	264	55.2
Apology	223	46.7
Book Report	185	38.7
Counseling	116	24.3
Drug Test	76	15.9
Curfew	66	13.8
Focus on Females	46	9.6
Next Generation	21	4.4
Tutoring	12	2.5

charge within 1 year after the participant's release date, served as the primary dependent variable. The second dependent variable was time to failure. Time to failure is defined as the number of days between the offender being released from the program until the day the offender is rearrested. In this study, time to failure was used as the dependent variable when testing for a significant difference in time to failure across categories of gender.

Procedure

Data for this project were obtained from the DCTCP, Florida Department of Juvenile Justice, and the state attorney's office. DCTCP files were examined during the fall of 2012, resulting in coded records for 478 teen court cases from January 2009 to January 2011. All participants successfully completed the teen court program, meaning they complied with all imposed sanctions, appeared at all court dates, and had not been re-arrested on new charges. Rejected cases were not included because the reasons for rejection were not available; thus, we were unable to determine whether rejected youth recidivated, did not have parental consent to participate in DCTCP, failed to comply with imposed sanctions and/or program rules, or were not accepted into the program for other reasons.

We obtained recidivism data for youth who had not yet turned 18 during the 1-year follow-up from the Florida Department of Juvenile Justice. We obtained recidivism data for those who turned 18 during the 1-year follow-up from the state attorney's office because any new charges for these participants would have been processed in adult courts.

Upon satisfactory completion of a defendant's sanctions, a DCTCP caseworker signed a certificate of completion. The certificate was dated, and that date became the defendant's official release date from the program. The time at risk was calculated on an individual basis using the defendant's official release date from the program as the beginning of the 1-year follow-up.

Results

Of the 478 program participants, 96 (20.1%) reoffended at least once during the year following the completion of DCTCP. Chi-square tests were conducted for demographic variables and offense type, in which recidivism was the identified dependent variable. The results suggest that gender is the only categorical variable associated with recidivism ($\chi^2 = 5.766$, $df = 1$, $p = .016$). Males were nearly four times as likely to recidivate than females ($n = 76$ vs. $n = 20$).

The number of sanctions per teen court participant ranged from 0 – 10 ($M = 5.00$, $SD = 1.735$). The number of sanctions assigned was not associated with likelihood of recidivism. Figure 1 shows the allocation of sanctions by gender. Jury duty, community service, and consequences of crime were the sanctions most commonly assigned to males and females. Despite the disparity in recidivism rates by gender, a closer look at the number of sanctions assigned by gender indicate that males ($M = 5.43$, $SD = 1.697$) received the same number of sanctions as females ($M = 5.30$, $SD = 1.819$).

Table 3 depicts the results for logistic regression analysis of sanction type and recidivism. Participation in Focus on Females and Next Generation were the only significant predictors of recidivism. The negative B coefficient for Focus on Females indicates participants were less likely to recidivate than subjects not assigned to Focus

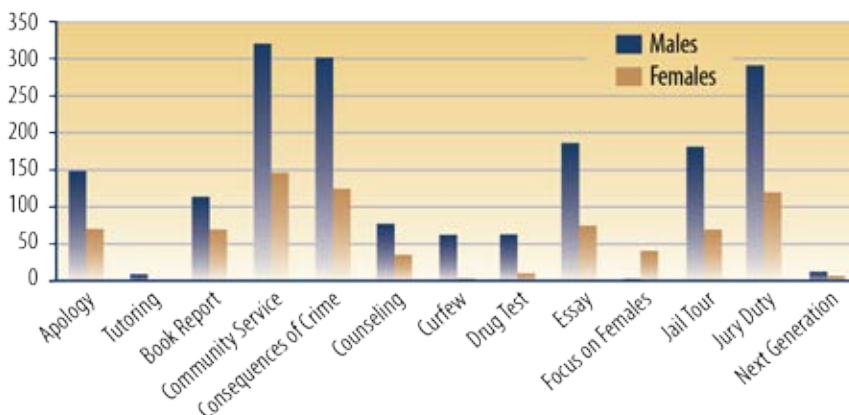
Table 3. *Logistic Regression for Sanctions and Recidivism*

Predictor	B	S.E.	Wald	p	Exp(B)
Tutoring	-.527	.830	.402	.526	.591
Apology	.061	.246	.061	.804	1.063
Drug Test	.183	.322	.325	.569	1.201
Book Report	-.059	.252	.055	.814	.943
Essay	.092	.258	.128	.720	1.097
Jail Tour	-.007	.252	.001	.979	.993
Focus on Females	-1.356	.621	4.778	.029*	.258
Consequences of Crime	-.941	.549	2.93	.086	.390
Curfew	.322	.325	.983	.321	1.380
Counseling	.338	.274	1.520	.218	1.402
Next Generation	1.042	.495	4.421	.036*	2.834
Community Service	.244	.839	.085	.771	1.277
Jury Duty	.510	.519	.963	.326	1.665
Constant	-1.405	.841	2.792	.095	.245
Model Chi-Square (df)	18.115 (13)				
-2 Log Likelihood	460.478				
Cox and Snell R2	.037				
Nagelkerke R2	.059				

* $p < .05$

on Females. The positive B coefficient for Next Generation suggests participants were more likely to recidivate than those who did not participate in Next Generation.

Figure 1. Use of Available Teen Court Sanctions by Gender



A survival analysis and t -test for independent samples were conducted to determine whether there was a significant difference in the mean number of days it would take for males and females to recidivate. The results from the survival analysis are outlined in Table 4 and suggest patterns of reoffending among males and females. Just over 22% (22.4%) of all males in

Table 4. Life Table for Sample and by Gender

Exposure Months	Full Sample			Males			Females		
	Risk Set N	Failed N	Proportion Recidivated	Risk Set N	Failed N	Proportion Recidivated	Risk Set N	Failed N	Proportion Recidivated
1	96	10	.10	76	8	.11	20	2	.10
2	86	12	.14	68	9	.13	18	3	.17
3	74	4	.05	59	3	.05	15	1	.07
4	70	5	.07	56	4	.07	14	1	.07
5	65	13	.20	52	10	.19	13	3	.23
6	52	7	.13	42	6	.14	10	1	.10
7	45	2	.04	36	1	.03	9	1	.11
8	43	9	.21	35	8	.23	8	1	.13
9	34	7	.21	27	6	.23	7	1	.14
10	27	8	.30	21	8	.38	6	0	.00
11	19	10	.53	13	7	.54	6	3	.50
12	9	9	1.00	6	6	1.00	3	3	1.00

the sample ($n = 76$) reoffended within 60 days of release compared to 25% of the females ($n = 20$). Whereas 21% of male recidivists reoffended 120 to 180 days post-release, 30% of females reoffended 300 to 360 days post-release. Results of the *t*-test reveal no significant difference between males ($M = 177$, $SD = 108.96$) and females ($M = 182.65$, $SD = 118.28$), $t(96) = 2.03$, $p = .840$ with respect to time to fail.

Discussion

There are three important findings from this study. First, gender is a significant predictor of recidivism among teen court participants, with males being four times more likely to recidivate than females. This finding is consistent with previous teen court research (Harrison et al., 2001; Norris et al., 2011). Interestingly, despite the discrepancy in rate of recidivism, there is no significant difference in the time to fail between genders. This implies that aftercare services need not be based on gender, but should focus on the risks/needs of the individual (Listwan, Cullen, & Latessa, 2006). Second, the number of sanctions imposed is not associated with the likelihood of recidivism. This finding may indicate that juveniles are being assigned sanctions based

on availability rather than on the individual's risk/needs (Vincent, Paiva-Salisbury, Cook, Guy, & Perrault, 2012). Finally, few of the sanctions imposed are associated with recidivism. As such, the available sanctions should be reviewed and the list of sanctions imposed should include only treatments that have been empirically demonstrated to reduce the likelihood of recidivism (see Lipsey, 1999).

Limitations

Perhaps the most significant limitation of this study is the lack of a control group with which the participants of DCTCP can be compared. Without such a group, conclusions cannot be made regarding the effectiveness of teen court compared to other juvenile justice programs. The proposed benefits of teen courts, such as the reduction of labeling and the social control of being adjudicated by teen peers, cannot be as meaningfully examined without a control group whose participants were not exposed to programs that offered similar considerations.

Attempts to establish a control group encountered several obstacles. The first was an overarching concern with confidentiality due to the fact that the study involved juveniles. Agencies

dealing with juveniles appeared reluctant to grant access to data. The second obstacle was a scarcity of suitable comparison groups. The county in which the study took place is demographically unique compared to others in the region. Duval County is made up almost entirely by one city, Jacksonville. Jacksonville has a population of approximately 880,000 and covers a geographical area of 762 square miles. The city with the next largest population is Miami, home to approximately 414,000 people, less than half the number of residents in Jacksonville. Miami covers only 36 square miles, presenting a more ecologically dense environment. The cities differ by racial composition as well. Jacksonville, in brief, has a population that is 55.1% White, 30.7% Black, 7.7% Hispanic, and 6.5% other races. Miami's population is largely Hispanic. Approximately 70% of its residents are Hispanic and 19.2% are Black. The racial compositions of Jacksonville and Miami are not comparable (United States Department of Commerce, 2013).

The one agency in Duval County from which suitable comparisons could have been drawn was faced with the third obstacle: the lack of electronically stored data. The majority of data collected for this study came from hard copies of records. Unfortunately, no system existed whereby one agency could electronically share data relevant to this study with another agency.

Data on juveniles who did not complete DCTCP were not available. Therefore, completion of the program had to be treated as a constant, eliminating opportunities to analyze which variables influence successful program completion. Likewise, data on participants' offense history or other misconduct were unavailable, except for the offense that resulted in the juvenile's DCTCP referral. Literature has shown that one of the greatest risk factors for delinquent behavior is a history of antisocial behavior (Cottle, Lee, & Heilbrun, 2001; Olver, Stockdale, & Wong, 2011; Vieira, Skilling, & Peterson-Badali, 2009).

Finally, for this study recidivism was defined as any arrest for a new charge within 1 year of the participant's release date. A study of particular interest in regard to recidivism rates was conducted by Dick et al. (2003), in which participants self-reported any reoffending within a 6 to 12 month time period post-teen court completion. Although only 12% of participants had been re-arrested during this time period, 49% admitted to some form of reoffending. Considering this finding, it is possible that DCTCP's recidivism rates, which were measured only by re-arrests, would have been higher with a self-reported measure of any new offenses during the follow-up period.

Policy Implications

The rate of recidivism for DCTCP participants compares favorably to the recidivism rates reported in other studies of teen courts (Dick et al., 2003; Minor et al., 1999). Even so, the lack of association between the number of sanctions imposed and recidivism, and the fact that most sanctions were not associated with recidivism, gives cause for concern. Therefore, we suggest the adoption of an empirically validated risk/needs assessment instrument such as the Youth Level of Service Case Management Inventory (YLS/CMI) to aid in identifying the risk/need factors of program participants (see Hoge & Andrews, 2003).

Implementing a standardized risk/need instrument has been shown to influence the supervisory and treatment decisions of criminal justice practitioners. Vincent et al. (2012) concluded that use of a standardized risk assessment reduced the number of youth whom probation officers identified as likely to recidivate. Furthermore, the study found that use of risk-assessment instruments influences how youth are assigned to treatment services. Specifically, the use of risk-assessment instruments prompted practitioners to assign youth to services that matched their individual risk factors rather than assigning them

to a smattering of available services that may or may not address their individual risks and needs (Vincent et al., 2012). Ultimately, the information provided by risk/needs assessment instruments can help criminal justice practitioners to more effectively and efficiently manage criminal justice resources (Borum, 2003; Hope, 2002).

In addition, teen courts should consider eliminating sanctions that have not been shown to reduce recidivism and implement treatment options based on best practices. Underwood, Sandor von Dresner, and Phillips (2006) thoroughly describe a number of effective treatment options for youth in the community, including but not limited to Multi-Systemic Therapy, Functional Family Therapy, and Big Brothers/Big Sisters of America. Moreover, Lipsey's (1999) meta-analysis provides solid empirical support for cognitive-behavior programs and fails to find support for deterrence-based programs.

Finally, the DCTCP has an established network of local resources (e.g., criminal justice agencies, schools, community organizations, and volunteers). We recommend the program continue to foster and maintain relationships with local entities to maximize treatment options. Delivering the proper dosage of multi-modal treatment in the community based on individual risk/need factors will teach program participants pro-social skills and improve decision making (Gendreau, 1996; Van Voorhis, Braswell, & Lester, 2009).

Collectively, these tools should be instrumental in helping youth desist from further criminal activity and reduce incidents of recidivism.

Conclusion

The growth in the number of teen court programs in the United States over the course of the last 30 years is indicative of the need for myriad community treatment options to serve and manage the juvenile offender population. The number of juveniles entering the juvenile justice system, coupled with the limited availability of criminal justice resources, requires policy makers, program administrators, and criminal justice practitioners to be judicious in their allocation of funding, oversight of program operations, and case management planning. To this end, implementing policies and procedures based on best practices is imperative for the delivery of effective treatment and reducing recidivism among juvenile offenders.

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Commentary: Place-Based Delinquency Prevention: Issues and Recommendations

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Abstract

Communities experiencing problems with delinquent youth often expect their local police agencies to solve them. In response, police sometimes use place-focused solutions (e.g., “hot spots” policing) that focus law enforcement resources on small, problematic geographical areas. Important differences between juvenile and adult crime, however, may influence the effectiveness of place-based strategies for addressing juvenile delinquency. This paper critiques hot spots policing as a means of delinquency prevention and makes recommendations for adapting the features of such efforts to young offenders. More specifically, this article notes possible problems when applying hot spots policing to juvenile delinquency and makes recommendations for avoiding potential pitfalls when using place-focused techniques.

Introduction

In recent years, police agencies have implemented a variety of place-focused efforts that are collectively known as “hot spots” policing. These tactics, which focus law enforcement resources on small, problematic geographical areas, have become popular. In one recent survey, 83% of police executives claimed they had

mostly or completely implemented hot spots policing; fewer than 1% stated that they had not implemented these methods (Kochel, Mastrofski, Maguire, & Willis, 2006 as cited in Kochel, 2011). Place-focused policing is grounded in a robust body of evidence indicating that crime tends to occur in geographic clusters. For example, an assessment by the National Academy of Sciences concluded that place-focused policing has the strongest evidence base of any law enforcement approach (Weisburd, Morris, & Ready, 2008).

There is substantially less research regarding the geographic concentration of juvenile crime (Weisburd, Morris, & Groff, 2009; Weisburd, Groff, & Morris, 2011). Similarly, few studies have examined the effectiveness of preventing juvenile delinquency through place-based policing (Weisburd et al., 2008). Nevertheless, Weisburd et al. (2009) contend that “the concept of crime hot spots is also salient for juvenile crime” (p. 448).

The Crime–Place Connection

In his 2003 presidential address to the American Society of Criminology, John Laub praised criminological pioneers Clifford Shaw and Henry McKay for their work in illuminating the role of environmental factors in the etiology

of delinquency (Laub, 2004). As early as 1942, Shaw and McKay noted that the residences of delinquents clustered in particular areas of Chicago. Since that time, scholars have continued to explore the relationship between crime and place, particularly among adults. There is now a large body of evidence suggesting that certain locations experience more crime than others (Groff, Weisburd, & Yang, 2010). Not only does crime occur in geographic clusters, but there is general consensus that a large majority of crimes occur in a small number of places (Weisburd, 2011). The evidence supporting this claim is so strong that Bichler, Christie-Merrall, and Sechrest (2011) concluded that there is “irrefutable evidence” that understanding crime patterns requires considering situational factors particular to specific locations (p. 490).

The geographic location of a crime cluster is often specific; even locations within the same neighborhood can have widely divergent crime rates (Groff et al., 2010). Because evidence indicates crime is closely associated with micro-geographic locations such as street segments or single addresses, recent research on the crime-place relationship has advanced the concept of “micro-places” (Weisburd, 2011, p. 154). For example, Sherman, Gartin, and Buerger (1989) found that only 3% of the addresses in Minneapolis produced 50% of the calls for police service. Similarly, Braga, Papachristos, and Hureau (2010) suggested that gun violence trends in Boston could best be understood by analyzing trends at street segments and intersections rather than larger units such as neighborhoods, police districts, or census tracts. These researchers noted that much of the spatial research on gun violence does not account for the possibility of variation between particular blocks and street corners within larger geographic units (Braga et al., 2010).

The distinction between places and micro-places has important implications for applying hot spots policing to juvenile problems, particularly because this distinction may contradict

traditional ideas about high-crime communities (Braga & Weisburd, 2010). Although particular neighborhoods have a (sometimes justifiable) reputation for high crime rates, police activity that focuses on entire communities ignores the relationship between micro-places and crime. Evidence indicates that not every block in high-crime neighborhoods has high levels of crime; some blocks have a great deal of crime while others are relatively crime free (Braga et al., 2010). Groff et al. (2010) concur that crime rates vary even within neighborhoods. In brief, “bad neighborhoods” can contain “good streets,” and “good neighborhoods” may be home to “bad streets” (Groff et al., 2010). Thus, place-focused delinquency prevention should focus on these “bad streets” rather than on entire neighborhoods.

An analysis of the clustering of gun violence in Boston illustrates the importance of considering micro-places (Braga et al., 2010). Using street segments as the unit of analysis, these researchers found that a small number of micro-places in disadvantaged urban neighborhoods had a major effect on citywide trends in gun violence (Braga et al., 2010). Notably, although crime did cluster within disadvantaged communities, entire neighborhoods did not constitute gun violence hot spots. Overall, the authors found that only 5% of street segments and intersections in Boston were responsible for 74% of serious incidents of gun assault during the 29 years that the study examined, even after controlling for prior levels of gun violence (Braga et al., 2010). They also found that the location of these hot spots was very consistent over time (Braga et al., 2010).

Although there is less research on the geographic clustering of juvenile delinquency than on adult crime, evidence supports that juvenile delinquency is also concentrated in micro-places. Weisburd et al. (2009) examined juvenile arrests in Seattle, Washington over a 14-year period to assess the degree to which juvenile crime was clustered in particular places. They found that 50% of juvenile arrests occurred in less than 1% of street segments, and approximately 3% to 5%

of street segments accounted for all incidents in a given year (Weisburd et al., 2009; Weisburd et al., 2011). Furthermore, during the course of the study, one-third of the arrests occurred on just 86 street segments, and the concentration of these arrests was significantly different from what would be expected by chance for each year (Weisburd et al., 2009; Weisburd et al., 2011). Not only did juvenile arrests cluster in a small number of places each year, but the location of delinquency was largely stable over time, meaning that arrests recurred in the same few places year after year (Weisburd et al., 2009; Weisburd et al., 2011).

The Nature of Delinquency Hot Spots

Two factors strongly influence the location of juvenile crime hot spots. First, because there is evidence that most offenders commit crimes close to activity centers (Cromwell, Olson, & Avary, 1991 as cited in Kautt & Roncek, 2007), the activity patterns of juveniles will shape the clustering of delinquency. Second, the characteristics of the built environment can impact the spatial distribution of juvenile crimes (Groff et al., 2010).

Youth generally have limited resources and some (particularly younger juveniles) have less access to transportation than do adults; therefore, youth are likely to visit a limited number of areas routinely (Weisburd et al., 2009). Thus, the routine activities of an area's juveniles will influence the places where delinquency is concentrated (Weisburd et al., 2009). Young people, however, do travel considerably within urban spaces, and their activities generally take them well beyond their own neighborhoods (Wikstrom, Ceccato, Hardie, & Treiber, 2010). Such evidence suggests that locations with high rates of juvenile activity may be different from areas with many juvenile residents, and that place-focused delinquency prevention should focus on the former. In general, the lives of juveniles center around two occupations: going to school, and socializing or "hanging out." The impact of these activities on the location of delinquency is significant, and thus they are each considered in turn.

Because schools require youth to be at particular places at specific times, they have an immense influence on the routine activities of juveniles. Schools are also places where juvenile offenders and potential victims can come into contact (Weisburd et al., 2009; Weisburd et al., 2011). Addressing crime problems within the school setting is beyond the scope of this paper. Outside of school, several studies have found that neighborhoods near public high schools have higher crime levels than other residential neighborhoods. For example, Roncek and Lobosco (1983) found higher crime rates for city blocks near public high schools. Similarly, Roncek and Faggiani (1985) found that city blocks within a one-block radius of public high schools experienced more crime than did city blocks further away. Interestingly, in Roncek and Lobosco's (1983) research, private schools were not associated with this effect on nearby areas, perhaps because their grounds (e.g., basketball courts) were not available for use by the general public during non-school hours. In addition, some researchers suggest that relatively unsupervised travel routes mean that youth are free to offend as they commute to and from school (Felson, 1993 as cited in Kautt & Roncek, 2007).

Elementary schools also have been found to impact crime in nearby areas. Kautt and Roncek (2007) found that the presence of an elementary school (grades K-5) was associated with an increase in the number of burglaries on neighborhood residential blocks. The authors suggest that the playground equipment and recreational spaces at elementary schools may attract youth to the area, even during summer months or after school hours (Kautt & Roncek, 2007). Police should thus consider the possibility that local schools can serve as geographic hubs for delinquency and evaluate specific changes, such as increased supervision, that might prevent it.

Outside of school, youth often seek opportunities for unstructured socializing, or "hanging out." Weisburd (2011) speculated that places where juveniles gather for this activity will be

delinquency hot spots, and suggested that lack of supervision may be one explanation for high juvenile crime in particular areas. Youth are attracted to certain kinds of activities, and so choose specific kinds of places for socialization (Felson, 2006 as cited in Weisburd et al., 2009). These locations commonly include malls, movie theaters, fast food restaurants, parks, and similar places (Weisburd et al., 2009; Weisburd et al., 2011). Bichler et al. (2011) described such places as “juvenile crime magnets” (p. 478), and research by Roman (2002) supports this contention. In this study, blocks containing youth hangouts experienced a 63% increase in violent crime during after school hours (Roman, 2002). Interestingly, the relationship between youth hangouts and crime was not found during morning commuting hours or on weekends (Roman, 2002). Notably, spaces that foster juvenile activity are not found on every block, but are located on a limited number of street segments in a city (Weisburd et al., 2009). Thus, some neighborhoods are primarily exporters of juvenile crime whereas others are importers, and variation between neighborhoods can be linked to the distribution of juvenile activity centers (Chamard, 2007 as cited in Bichler et al., 2011).

In sum, the existence of crime hot spots is clearly supported by the literature. Often these sites are specific locations that are centers for the routine activities of a population. For juveniles, these routine activities are dominated by school and socializing. Agencies can take advantage of this research by focusing a variety of delinquency prevention efforts in particular locations. That is, “if police become better at recognizing the ‘good streets’ in the bad areas, they can take a more holistic approach to addressing crime problems” (Groff et al., 2010, p. 25).

Key Issues in Hot Spots Delinquency Prevention

Police who target delinquency prevention efforts in particular places should be aware that place-based policing of youth has a number of potential pitfalls. For example, there may be a

temptation to apply traditional police tactics to delinquency, which is unlikely to be effective. Some critics contend that focusing law enforcement efforts on micro-places of delinquency may increase labeling of youth and have a negative impact on police legitimacy and community relations, as well as cause racial tension. Finally, some scholars question whether place-based policing reduces crime or simply displaces it to other areas.

Issue One: Overreliance on Traditional Tactics

After hot spots of juvenile delinquency are identified, what actions should police take in those areas? Police often respond using traditional tactics such as random patrols and increasing arrests. Based on the literature, Kochel (2011) concluded that, in general, police use enforcement-focused techniques in criminal hot spots. Such efforts might include saturating the area with police and maintaining zero-tolerance for public disorder. Weisburd (2011) concurs that enforcement and arrest remain the primary tools used by police, even in hot spots policing efforts. For example, in a series of focus groups recently conducted within a police department, enhanced patrols and the use of citations were the two crime-reduction tactics officers recommended most frequently (Bichler & Gaines, 2005).

The use of anti-loitering legislation is another enforcement approach to addressing delinquency. For example, a 1997 law permitted police in New South Wales, Australia, to remove youth under the age of 16 from public places without charging them if they are unsupervised, or if the police believe they are at risk of committing a crime (White, 2004). Similar legislative attempts have been made in the United States, but in many cases such laws have been ruled unconstitutional by the U.S. Supreme Court (White, 2004).

Agencies considering the application of place-based tactics to juvenile problems in delinquency hot spots are advised against employing patrol and arrest as their primary tools, despite their long history of use by law enforcement

officers. Kochel (2011) points out the ineffectiveness of using short-term, aggressive approaches to address problems that are rooted in the routine activities and built environment of a particular place. More significantly, research indicates that arrest and prosecution of juveniles are not the best approaches for preventing juvenile crime in hot spots (Petrosino, Turpin-Petrosino, & Guckenburg, 2010).

In addition, enforcement-focused approaches may lead to further problems by labeling youth. Unnecessary labeling and stigmatizing of young people can have long-term negative consequences (Weisburd et al., 2009). Such labeling may be avoided through hot spots policing that focuses on altering the supervision and structure of juvenile activities, rather than on enforcing laws strictly (Weisburd et al., 2009).

Issue Two: Effect on Community Relations

Another potential hazard of place-based policing is that it may reduce citizen perceptions of police legitimacy. Overall, there has been a lack of inquiry into how hot spots policing affects citizens' perceptions of police legitimacy (Kochel, 2011), but the effects may be particularly problematic when harsh or zero-tolerance methods are used. Reduced police legitimacy is associated with less willingness to report crimes, assist the police, participate in neighborhood watches, and attend community meetings (Kochel, 2011). Thus, hot spots policing that reduces police legitimacy can decrease the community involvement that may help prevent delinquency.

Closely related to reduced police legitimacy is the possibility of weakened relationships between the community and law enforcement when hot spots policing is practiced. Yarwood (2007) notes that in high-crime communities, "aggressive patrolling and policing, particularly of certain social groups, have contributed to poor police-public relations" (p. 453). Furthermore, the removal of police from non-hot spot areas can lead to increased fear of crime and demands that police distribute their resources more evenly (Yarwood, 2007).

Not only can relationships with the community be weakened through hot-spots policing, but in some cases racial tension may also be increased. Sanchez and Adams (2011) warn that the aggressive policing of minority youth from disadvantaged neighborhoods may cause disrespect for police and funnel already disadvantaged youth into the criminal justice system. They describe how aggressive policing of hot spots can lead to the "hypercriminalization" of minority youth, since disadvantaged minorities are more likely to live in high-crime areas (Sanchez & Adams, 2011, p. 333).

Issue Three: Displacement

A more practical criticism of place-based policing approaches is the contention that they displace crime to other areas rather than reducing crime overall. The previously described study by Braga and Bond (2008) assessed this possibility using pre- and post-tests to compare calls for service and reported crime in the areas surrounding treatment and control units. Although the areas surrounding the treatment units experienced increases in calls, these increases were not statistically significant, indicating that displacement effects were small if they existed at all (Braga & Bond, 2008). The authors concluded that overall, the displacement of crime is never complete and is often inconsequential (Braga & Bond, 2008). Weisburd (2011) applied these ideas to the policing of delinquency, arguing that the uneven distribution and limited number of spaces in which juveniles congregate means that delinquency is not easily moveable at a micro-geographic level. In sum, he argues that if hot spots for juvenile crime were addressed, it may be difficult for youth to conduct their delinquent activities in new locations.

Recommendations

Fortunately, many of the potential problems described in previous sections can be mitigated with careful implementation. The following recommendations highlight several ways to improve hot spots delinquency prevention and avoid some of the more common criticisms it is likely to face.

Recommendation One: Analysis Before Action

Before applying hot spots policing to delinquency it is essential to engage in a thorough analysis to identify clusters of delinquent activity. As Taylor (1998) warned, lack of analysis can lead to “overmedicating’ a hot spot that is only ‘warm’ or ‘undermedicating’ a ‘red-hot’ hot spot” (p. 13). Such analysis should be formal and data-driven, since informal procedures such as asking police officers to identify troublesome locations can be problematic. Bichler and Gaines (2005) conducted focus groups with members of a medium-sized police department and asked officers to identify high-crime locations within their districts. The authors found a general lack of consensus among officers about high-crime sites, indicating a problem with their reliability in identifying hot spots (Bichler & Gaines, 2005). They concluded that officer perceptions are insufficient for developing an accurate list of problematic locations (Bichler & Gaines, 2005).

One advantage of using a formal hot spot identification process is that it may address some of the criticisms of place-based approaches. Residents of non-hot spot areas may feel neglected by police, and the populations of hot spots may become increasingly skeptical and less trusting of police (Kochel, 2011). Agencies can increase their legitimacy by demonstrating they have used standardized, fair procedures for the distribution of resources (Sunshine & Tyler, 2003 as cited in Kochel, 2011). Essentially, a data-driven approach to hot spot identification may be viewed as fairer and may help to promote police legitimacy (Kochel, 2011).

Recommendation Two: Target Opportunities, Not Offenders

The perils of applying zero-tolerance methods in hot spots policing have already been mentioned. It is essential that police focus their efforts on reducing opportunities for delinquency in hot spots, rather than on arresting offenders after crimes occur (Weisburd, 2011). This does not mean that police should neglect traditional

activities such as arrest and patrol, but it does suggest that the emphasis should be on modifying conditions in the areas that favor delinquency (Cherney, 2008). Taylor (1998) notes the potential utility of focusing on the persistent traits of crime-prone sites. Similarly, Weisburd (2011) argues that the primary goal should not be deterring juveniles with threats of punishment, but altering the context of the place so that the activities of juveniles are better supervised and more structured.

Law enforcement leaders should be aware that when situational improvements are favored over enforcement-centric approaches, success cannot be measured in terms of increased arrests. Rather, the success of situational improvements must be measured in terms of whether the hot spots become safer for the people who live, visit, or work there (Weisburd, 2011). Success on these terms can be achieved; research suggests that the benefits of strong crime prevention activities can result from situational strategies that modify the nature of opportunity at criminal hot spots (Braga & Bond, 2008).

Recommendation Three: Utilize Partnerships

The use of partnerships has been described as “central” to the development of successful youth violence prevention efforts (Payne & Button, 2009, p. 530). Despite the importance of partnerships, they sometimes receive disproportionately little attention from police. In the focus groups conducted by Bichler and Gaines (2005), the authors asked officers to recommend solutions for the crime problems in their districts, and found that only 16% of the suggestions involved the use of partnerships (Bichler and Gaines, 2005). When police utilize partnerships for delinquency prevention, they may find the community quite willing to participate. Community members in Payne and Button’s (2009) research supported the development of a youth violence prevention plan for the area and described the need for community stakeholders such as churches, schools, welfare agencies, and businesses to work

together to prevent delinquency. For example, businesses can be involved by helping young people to find employment opportunities, which can be scarce in certain areas of a city (Payne & Button, 2009).

In addition, it is sensible to include youth themselves in the process of developing delinquency prevention efforts (Payne & Button, 2009). Several years ago the city of Arlington, Texas, was experiencing problems caused by “cruising”—hundreds of youth driving around and socializing from within their cars, causing traffic jams and hindering emergency services (Felson, 2002). A city councilman talked to these youth and found that they primarily wanted places for unstructured socializing and available restrooms (Felson, 2002). The city was then able to rent a parking lot from the University of Texas on weekends and channel the “cruising” youth to this smaller, safer area (Felson, 2002). Thus, engaging young people in discussions about the problem contributed to the development of a solution.

In addition to partnering with the community, police can also benefit from the creation of place-focused partnerships with other agencies. In Great Britain, Waters (2007) assessed partnerships between police and teams of civilian youth justice workers, and suggested that police involvement in community justice work “adds a certain robustness or credibility to interventions” (p. 646). Police can play a practical role in these partnerships by providing information such as maps of delinquency hot spots. They can also play a symbolic role by publicly demonstrating law enforcement support for the efforts of social workers (Waters, 2007). In Great Britain, the social workers felt that police brought unique and practical benefits to the partnership, including a different operational perspective, a more balanced team, and the opportunity for young people to have positive interactions with police (Waters, 2007).

Recommendation Four: Engage Place Managers in Supervision

Many of the factors that permit or encourage delinquency are in areas that have little to do with the police directly; rather, they are rooted in the inability of persons in other institutions and settings to assert effective social control (Cherney, 2008). It follows, then, that efforts to address delinquency can leverage those persons, or “place managers,” to increase the supervision of socializing young people (Weisburd et al., 2009). Given the high concentrations of juvenile offending at micro-places, using place managers in a few strategic locations may have significant crime prevention benefits (Weisburd et al., 2009).

Cherney (2008) contends that it is clearly in the interest of police to mobilize place managers to alter the situations and conditions that lead to criminal opportunities, particularly because of the delinquency-reducing potential of increased supervision at hot spots. For example, the police can encourage employees of local businesses to take a more active role in supervising nearby vacant areas. In addition, school principals can encourage school staff to be present along walking routes to and from school during commuting hours.

The importance of equality in these partnerships cannot be overemphasized, since attempts to coerce place managers into asserting more control over spaces may harm community relations and lead to negative outcomes (Cherney, 2008). Because harnessing the crime prevention capacity of place managers may unintentionally overburden these citizens, police may consider whether they need to provide assistance or training to help these persons effectively supervise the places that attract delinquency (Cherney, 2008). In addition, communication between partners and police will likely be necessary to determine acceptable levels of responsibility so that these partners are not overburdened (Cherney, 2008).

Recommendation Five: Use Multi-Modal Interventions

In 2002, British parliamentarian Lord Warner stated that “youth crime is not a phenomenon that we can simply police our way out of” (Waters, 2007, p. 635). The implication for place-focused policing of juveniles is that effective prevention should target a variety of risk factors across multiple domains (Weisburd et al., 2008). Offending by young people is rooted in a variety of problems traditionally handled by different agencies (Waters, 2007), which supports the importance of using multiple forms of intervention at particular high-crime locations. Essentially, preventing delinquency requires a combination of strategies, not improved enforcement alone (White, 2004). Efforts should not be exclusively coercive, but should involve targeting services and opportunities in particular locations so that pro-social alternatives are available (White, 2004). For example, Braga et al. (2010) suggested that if gun violence is concentrated at hot spots, then a variety of violence prevention programs involving both criminal justice and social service agencies should also be concentrated at those locations.

Recommendation Six: Communicate Via the Media

Agencies utilizing hot spots policing in delinquency reduction efforts are advised to leverage the media throughout the process. As noted above, police can address problems of decreased legitimacy, weakened community relations, and racial tensions by using broad-based approaches and community partnerships rather than enforcement-centered tactics. Police can further mitigate these problems by using the media to inform the public about a data-driven process for hot spot identification so that communities do not feel unfairly targeted or neglected.

News media campaigns and other public relations efforts can also be used to educate citizens about how to protect themselves (Payne & Button, 2009), and how to prevent delinquency in their own neighborhoods by providing greater supervision of youth. Other uses for the media include promoting positive images of youth in

the community and increasing awareness of programs available for the area’s youth (Payne & Button, 2009). The latter may be useful, as some research indicates that residents may be unaware of the programs available to young people in their community (Payne & Button, 2009).

Risk-Focused Policing at Places

There are few examples in the literature of place-focused policing targeting delinquency; most hot spots policing has targeted adults and includes juvenile crime only as it relates to adult crime (Weisburd et al., 2008). An exception is the Risk-Focused Policing at Places (RFPP) program, which was implemented in Redlands, California and reviewed by Weisburd et al. (2008). The RFPP program took a place-based approach to reducing youth problem behaviors and delinquency by focusing on at-risk census blocks (Weisburd et al., 2008). The program was broad-based and focused on a variety of factors that crime prevention research indicated would impact an area’s risk for delinquency problems (Weisburd et al., 2008).

At the program’s initiation, police conducted a community survey on a broader range of risk and protective factors than are traditionally included in police data (Weisburd et al., 2008). They used this data to identify particular census blocks at high risk for juvenile crime. Police then took a proactive approach to delinquency and crime reduction in half of the identified problem areas, implementing the program under experimental conditions for about 2 years (Weisburd et al., 2008).

Many of these risk-focused police activities sought to increase positive contact between officers and juveniles living in the at-risk areas (Weisburd et al., 2008). For example, officers would organize and host recreational events within the targeted census blocks (Weisburd et al., 2008). Efforts to increase positive interactions with youth extended into the schools, where officers would have lunchtime meetings with students from the treatment areas (Weisburd et al., 2008). Because the literature indicates that

education is an important protective factor for delinquency, education-related risk factors were also targeted. Tutoring and other school-based activities were used with youth from the experimental group in an attempt to decrease academic failure, strengthen commitment to school, and increase opportunities for pro-social involvement (Weisburd et al., 2008).

Despite these measures, the researchers found few positive results at the end of the evaluation period — a surprising discovery, given the program's strong foundation in delinquency prevention research (Weisburd et al., 2008). Overall, there was little evidence that the RFPP program had any significant impact on youth in the targeted areas (Weisburd et al., 2008). There were neither consistent changes in student perceptions of risk and protective factors, nor reductions in problematic behavior (Weisburd et al., 2008).

There are several possible explanations for these findings, and agencies implementing similar approaches in the future are advised to be aware of these them. First, despite living in at-risk areas, the youth did not participate in deviant activities at high rates prior to the program and had generally positive attitudes toward police (Weisburd et al., 2008). Thus, the possible margin for improvement was small for many of the outcome measures used (Weisburd et al., 2008). The lesson for similar programs is to ensure that truly at-risk youth are targeted.

Another explanation is that the project was limited by targeting census blocks (which can contain multiple city blocks) instead of micro-places (Weisburd et al., 2008). The authors note that evidence on place-based policing indicates the importance of focusing on compact areas such as very small groups of street blocks (Weisburd et al., 2008). Weisburd et al. (2008) argue that successful place-based, risk-focused delinquency prevention should focus on micro-places so that interventions can be more precisely tailored to the particular risk factors of that location.

Conclusion

The relationship between adult crime and place is heavily supported by the literature, (Shaw & McKay, 1942; Sherman et al., 1989; Weisburd, 2011; Bichler et al., 2011; Groff et al., 2010), as is a connection between crime and micro-places (Braga et al., 2010; Groff et al., 2010). This association likely holds for youth crime as well (Weisburd et al., 2009). Probable hot spots of delinquency include schools and locations for unsupervised socializing such as malls and movie theaters.

Given this crime-place relationship, it is reasonable for police to address delinquency with place-focused approaches. However, agencies should use caution when doing so, since traditional enforcement-focused tactics can increase labeling of youth (Weisburd et al., 2009), decrease police legitimacy (Kochel, 2011), harm community relations (Yarwood, 2007) and increase racial tensions (Sanchez & Adams, 2011). These problems can be mitigated by using formal analysis to identify hot spots (Kochel, 2011) and by focusing on reducing opportunities for delinquency at particular locations, rather than on arresting offenders (Weisburd, 2011; Cherney, 2008).

Partnerships with other agencies and the community are also essential, both to maintain community relations and because police cannot maintain a presence in all places (Waters, 2007; Weisburd et al., 2009). Use of the media will help police communicate with the general public and allay fears that areas will be either unfairly targeted or neglected (Payne & Button, 2009). The example of the Risk-Focused Policing at Places program illustrates how police can collaborate with schools and the community to proactively target high-risk areas, although future programs are advised to target micro-places rather than census blocks (Weisburd et al., 2008).

Future research in this area is also necessary. The literature is in need of studies (such as that of Weisburd et al., 2008) that specifically examine hot spots of delinquency. An additional

under-researched phenomenon is the influence of travel routes on the spatial distribution of juvenile crime. Bichler et al. (2011) suggest that examining trends in delinquents' travel may assist in efficiently targeting police resources and improve crime prevention across jurisdictions. Finally, time-place interactions also require further research attention. Roman (2002) found that the strength of the place-delinquency connection varied based on the time of day and day of the week. Thus, future research should examine the relationship between time, place, and juvenile crime.

Admittedly, there are a variety of potential problems associated with place-based

policing strategies for addressing delinquency. Nevertheless, the strong connection between crime and micro-places cannot be ignored. Additional research initiatives that use the Risk-Focused Policing at Places program as a guide are essential. Law enforcement must discover how to take advantage of the crime-place relationship for delinquency prevention while avoiding the potential pitfalls of place-based approaches.

About the Author

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Table 1. *Summary of Issues and Recommendations*

Issues:

- #1 Overreliance on Traditional Tactics
- #2 Effect on Community Relations
- #3 Displacement

Recommendations

- #1 Analysis Before Action
- #2 Target Opportunities, Not Offenders
- #3 Utilize Partnerships
- #4 Engage Place Managers in Supervision
- #5 Use Multi-Modal Interventions
- #6 Communicate Via the Media

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