

Developing an Alternative Juvenile Programming Effort to Reduce Detention Overreliance

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Abstract

The assumption underlying juvenile detention alternatives is that youth on probation receiving programming or treatment are less likely to recidivate, whereas youth in detention will be more likely to recidivate. Under a coordinated justice reform effort, a juvenile justice court system serving two southeastern counties in Washington state developed a program (the FAST program) for probation violators that offered 2 sessions of accountability skill development to address targeted criminogenic needs in lieu of a formalized hearing and a subsequent stay in detention. The goal of the FAST program for participating youth was to reduce future probation violations and detention stays. This paper presents an evaluation of the FAST program using propensity score modeling of 434 juvenile probation violators. A comparison of matched groups shows the program does not reduce recidivism or future probation violations among participants, though it does produce the same result as those who received detention. Our explanation makes the case for increasing the dosage (number of sessions) of violator programs, which may be what is necessary to provide a more effective alternative to detention.

Introduction

Secure detention for juvenile delinquents has long been a systematic and cyclical method for states to manage unruly youth. Though its general distension in the “get tough” movement of the 1980s and 1990s has recently ebbed, detention still remains a serious issue, and it is often associated with an increased likelihood of later recidivism (Holman & Ziedenberg, 2006; Mendel, 2009). Combined with increased probation dispositions and higher frequencies of subsequent violations (Puzzanchera, Adams, & Sickmund, 2010; Steinberg, 2009), detention is a viable and common means of controlling violators. In the context of community supervision, detention is a tool that many probation officers find invaluable. The long-held belief that using detention serves as a deterrent effect or that it helps to structure and “set straight” the juvenile offender where probation failed thrives in such a context, making a philosophical shift to divert youth from detention difficult at best. Consequently, counties across the United States have reported that more than 50% of their juvenile detention population has been held due to probation violations (Mendel, 2009).

Increased pressures on the juvenile justice system, however, have forced officials and policymakers to re-examine the prevalent use of detention. New research on adolescent brain development, and the importance of using risk-needs-responsivity (RNR) to guide case management in juvenile programming, pushed many juvenile courts and probation departments to consider community-based alternatives (Andrews, Bonta, & Hoge, 1990; Barnoski, 2004; Howell, Lipsey, & Wilson, 2014). Focused on relieving the overreliance on detention as well as on implementing greater use of community-based sanctions, a national movement to reform juvenile detention has emerged. To support these efforts, numerous private foundations, including the Annie E. Casey Foundation and the MacArthur Foundation, became involved with assisting states in developing alternatives to detention, “right sizing” the system by removing the mandatory filing by age requirements, and addressing issues such as disproportionate minority contact (DMC; Maggard, 2013). Specifically addressing the use of detention for probation violators, the Office of Juvenile Justice and Delinquency Prevention and private interests have initiated programs to keep technical violators from serving unnecessary time in detention. The assumption underlying such alternative detention programs is that additional programming or treatment will supply youth with needed skills that will help decrease recidivism more effectively than detention will.

A juvenile justice court system serving two southeastern counties in Washington state created one such alternative detention program for probation violators that included a 2 session course of accountability skill development. Called Fast Accountability Skills Training (FAST), the program was operated by trained juvenile probation staff and focused on having participants explore concepts around cognitive change and problem solving to reduce future recidivism and probation violations. This study is an evaluation of the FAST program and subsequent participant outcomes. Propensity score modeling of 434

probation violators from the juvenile court was utilized, in which those who received detention were matched to violators who received the FAST intervention.

After comparing the matched groups, we concluded that the program appeared to yield the same result as detention. In light of this finding, we conducted a second analysis in which we aimed to test if the program was in fact not different from detention. Upon conducting a test of equivalence and a propensity score weighting scheme, we confirmed that violators receiving the FAST program were indeed no better or worse than those in detention with regard to the supervision outcomes.

In spite of the program failure to reduce criminal recidivism and future probation violations, and considering the extant research on the impacts of incarceration for juveniles, a core question of detention alternative programming is raised: What is the usefulness of detention for juvenile probation violators? In our explanation of the program’s failures, we make the case for an increased dosage of programming and decreased incarceration of violators; in other words, for it to be effective violators should receive more sessions of programming.

Literature Review

The Shifting Paradigm of the Juvenile Court

Although the philosophical foundation of the juvenile court is steeped in rehabilitation, over the past 100 years most states have vacillated over whether to embrace rehabilitation, deterrence, or retribution as a paradigm in processing youth offenders. By the early 1990s, many state juvenile courts made a complete shift to deterrence and retribution approaches. States responded to their citizens’ moral panic and fear of dangerous youth (Dilulio, 1995) and the corresponding “get tough movement” by drastically restructuring juvenile statutes, dispositions, and program availability (Steinberg, 2009). These statutory and programmatic changes resulted in

an increasing number of youth being adjudicated delinquent and more likely to serve longer probation and detention sentences (Steinberg, 2008). This paradigmatic shift was a harsh departure from the original intent of the juvenile court system. Further, it stemmed from flawed assumptions regarding the deterrent and dosage effects of incarceration as employed in the adult criminal justice system (Piquero & Blumstein, 2007).

With close to 2 million juveniles arrested per year, mostly for minor offenses, the shift was especially concerning, given the potential for harsh processing and deeper system penetration (Puzzanchera & Adams, 2011). Recent research findings on the impact of further penetration into the juvenile system and the use of detention on youth suggest iatrogenic effects may result: In their review of 29 randomly assigned diversion programs (a total of 7,304 juveniles), Petrosino, Guckenburg, & Turpin-Petrosino (2010; Petrosino, Turpin-Petrosino, & Guckenburg, 2013) found that processing youth through formal court channels actually increased delinquency. The researchers concluded that low-risk youth should receive a minimal to simple warning intervention from the court or access to family-based services (Petrosino et al., 2010, 2013).

Detriment of Detention

The importance of establishing the connection between formalized processing and later delinquency is particularly important when considering detention. As with research on adult offenders, research on juvenile offenders has shown that one of the greatest predictors of recidivism for juvenile offenders is prior commitment to detention (Benda & Tollet, 1999). As youth progress through the juvenile justice system, the potential for formal processing and subsequent likelihood of being ordered additional detention increases drastically. For example, Holman and Ziedenberg (2006) found that reoffense rates are higher for youth who serve time in detention, and other research has highlighted the negative and lasting impacts youth experience

after incarceration, including a disconnect from school and family, trauma, depression, negative peer association, and an increased likelihood of further juvenile system involvement (Chung, Little, & Steinberg, 2005; Holman & Ziedenberg, 2006; Mendel, 2009).

Research from the Pathways to Desistance study revealed important findings that juvenile courts should consider. For example, Loughran et al. (2009) questioned the effect of incarceration dosage on youth as it correlates with subsequent recidivism and found that longer periods of stay in detention had no impact on subsequent recidivism. In their study of 1,171 adolescent males over a 7-year period, Dmitrieva, Monahan, Cauffman, and Steinberg (2012) found that the use of short-term confinement had a temporary impact on the psychosocial development of the incarcerated youth. Essentially, these youth were less likely to display responsible behavior and less likely to curb impulsive and negative behavior. Although the impact was only short term, it was more significant for older adolescents than younger detainees.

Further analysis of the Pathways to Desistance data set by Sweeten, Piquero, and Steinberg (2013) focused on testing Hirshi and Gottfredson's (1983) age and crime theory, which argued that age has a direct correlation with crime and maintained that most youth will simply "age out of crime." Sweeten et al. (2013) conducted multi-level modeling on 1,300 Pathway participants to determine if the effects of age on outcomes were reduced when applying various theories such as social control, procedural justice, social learning, strain, and psychosocial maturity. Although the findings varied across the theories, up to 69% of the drop in crime was explained by the culmination of these theories, with social support theory, at 49%, holding the largest impact (Sweeten et al., 2013). The findings surrounding social learning are critical to the debate regarding the use of detention with juvenile justice-involved youth, given the increased levels of association between detained youth and their high risk/need peers

within the walls of a detention facility. Such findings lend support for the notion that any programming that defers supervision violators from detention may provide a more productive alternative.

Community-Based Alternatives to Detention

When attempts are made to divert delinquents away from formal court processing and detention, probation is the standard practice utilized. Probation, a community-based alternative to detention, is the most common disposition of delinquency cases seen in juvenile courts and it enables courts to maintain supervision over youth in the community setting (Puzzanchera, Adams, & Hockenberry, 2012). Juvenile probation “is the oldest and most widely used vehicle through which a range of court-ordered services is rendered” (Torbet, 1996, p. 1), and it is commonly utilized at the point of diversion, community-based supervision, and even aftercare. However, wherever probation is used, it invariably employs a system of violations and associated sanctions in an attempt to punish and deter misbehavior.

Most violations that youth commit are noncriminal, and the majority of offenders receive graduated responses ranging from verbal reprimand to detention. In the effort to keep juveniles out of formal court processing and detention, having an alternative for young violators is becoming a great concern. One method is directly dealing with juveniles’ criminogenic needs (Andrews & Bonta, 2010). However, probation officers must work with a wide range of offender types, so it is difficult for them to meet and address all their clients’ criminogenic needs. Another method involves combining services and supervision. As probation is primarily supervision, it does not provide services and treatment, and many jurisdictions have opted for different methods of combining probation with other community-based interventions (e.g., drug treatment or educational programs).

Research on such methods of dealing with probationers and violators is mixed. Most studies and systematic reviews have shown that the

combination of treatment or services and formal probationary supervision can prove to be more beneficial at reducing recidivism and violating behavior than just supervision without services (e.g., Abrams, Terry, & Franke, 2011; Lipsey, 2009; Wilson & Hoge, 2013). However, others have found no difference in recidivism rates between statistically matched informal probationers (i.e., diversion programming plus supervision) and formal probationers (i.e., probation and court appearances; Onifade, Wilkins, Davidson, Campbell, & Petersen, 2011). Still other researchers indicate that to be effective at reducing recidivism, the services provided to youth probationers should include an emphasis on family intervention and restorative justice (Schwalbe, Gearing, MacKenzie, Brewer, & Ibrahim, 2012). Altogether, these findings suggest that the approach to juvenile probationers must be more calibrated and research driven than arbitrarily combining programs with supervision.

More community-based programs have been developed and implemented for juvenile probationers. For example, the Juvenile Detention Alternatives Initiative (JDAI), founded in 1992 by the Annie E. Casey Foundation, focuses on reducing the frequency of juvenile detention and length of stay per use by emphasizing alternatives to incarceration as well as community collaboration (Mendel, 2009). JDAI has been shown to significantly decrease both the rate of pre-dispositional detention and the average length of stay for those admitted (Maggard, 2013). These findings emphasize how community-based initiatives can prevent unnecessary system penetration of accused and sentenced youth.

Detention alternatives such as JDAI continue to grow in popularity in numerous jurisdictions nationwide. However, many of these jurisdictions don’t understand the alternatives’ program design or how to implement them. Many shortcomings are due to limited evaluations of initiatives smaller than JDAI. Particularly important for evaluation research of community-based detention alternatives is the notation of initiative impacts in

relation to traditional probation and detention. This study extends prior and current research in significant ways. Few studies use a quasi-experimental design with adequate comparison groups. The current study investigates the use of a community-based detention alternative for probation violators in Washington state through a quasiexperimental design using propensity score matching (PSM).

Methodology

Setting

Barlow and Hartford counties¹ are in southeastern Washington. Both counties are served by a joint judicial district. The combined area is primarily an urban/rural mix, with a population of 253,280, according to the 2010 U.S. Census; more than half of Hartford County's population is Latino (51%). Together, the two counties experienced a 25% percent increase in population over the prior decade, in large part due to the continued availability of agricultural employment as well as growing industry.

Even with a strong economy, juvenile crime rates were well above the state average; Barlow and Hartford counties consistently ranked among the top counties in the state for juvenile arrests. According to the 2010 Kids Count Data (Annie E. Casey Foundation, 2010), an average of 41 youth per 1,000 were arrested in Washington for criminal offenses. Eighty youth per 1,000 were arrested in Hartford County, and 79 youth per 1,000 were arrested in Barlow County. Additionally, these counties were also well above the state average in drug/alcohol offenses and juvenile violent crime. The Washington average for youth drug/alcohol offenses in 2010 was 9 offenses per 1,000, whereas Hartford County experienced 17 offenses per 1,000, and Barlow County experienced 16 offenses per 1,000 youth (Annie E. Casey Foundation, 2010).

¹ Due to the sensitive nature of the findings, the counties in this article will be referred to by using the fictitious names of Barlow and Hartford counties.

The Barlow/Hartford Juvenile Court (BHJC) handles all criminal and civil matters involving youth ages 8 to 18 and handles approximately 2,866 referrals for misdemeanor and felony offenses a year (Washington State Partnership Council on Juvenile Justice [WA-PCJJ], 2010). The court employs approximately 80 staff, including detention officers (one 40-bed facility is located on site), probation counselors, diversion counselors, clerks, and mid- to upper-management. The BHJC administration was highly regarded across the state as a true leader in innovative juvenile reform because the court was quick to implement the statewide Positive Achievement Change Tool (PACT) in 1998, which helped solidify the further use of the risk-need-responsivity tool across the state.

The combination of population growth in the area, the vision of the BHJC administration, and a strong push from the Washington state legislature to continually employ evidence-based and data-informed practices, paved the way for the welcomed involvement of the Annie E. Casey and MacArthur Foundations at the court. Specifically, in 2008 the BHJC applied for and was awarded grant funding to participate in the Models for Change initiative within Washington, and state funding (in 2007) was made available so that BHJC could participate with the Annie E. Casey Foundation. These two foundations had committed significant resources in Washington in support of juvenile justice reforms that minimized the use of detention, reduced disproportionate minority contact, and revised truancy procedures. BHJC administrators understood and embraced these reforms by working closely with these foundations as well as with numerous outside research and technical assistance entities brought in to support the Models for Change project at various levels. Research partners included the University of California, Irvine (UCI); the University of Washington (UW); and Washington State University (WSU). The role of these academic partners was to provide data analysis support, to explore best and promising practices with the reform team, and to guide program implementation efforts.

A first order of business under the BHJC's Models for Change initiative was to take advantage of UCI and WSU's academic and technical support to measure potential race bias at various decision points in its juvenile system, including at arrest, filing of the charge, intake, disposition, detention, and at the filing of probation violations. Specific to exploring potential issues of DMC at the point of probation violations, the court provided UCI with a sample of 100 Latino and 100 White youth (and a matched control group of no probation violations). Surprisingly, UCI researchers found no significant differences in the amount of detention time served between Latino and White youth, once prior criminal history, age, and gender were controlled for (Cauffman, Monahan, & Bechtold, 2009). Some important findings did emerge, however, that warranted closer attention. First, on misdemeanor charges, Latino youth appeared to be coming into contact with and entering the juvenile justice system earlier than White youth. Second, the data revealed that in 85% of the probation violation cases analyzed, detention was ordered/used. Essentially, BHJC lacked the early interventions and alternatives to detention necessary under these circumstances.

Prior to the Models for Change initiative, BHJC had limited options for addressing youth violating probation; these included community service hours, work crew, or detention. Although juvenile courts across Washington reduced their use of detention by 31% between 2000 and 2010, BHJC actually experienced a 4% increase in the amount of youth booked into detention (WA-PCJJ, 2010). Creating more opportunities for skill building, mentoring, and positive cognitive development at earlier stages in the system became an established goal under the Models for Change reform initiative. The BHJC administration was committed to restructuring its limited resources to address youth needs through promising practices. Further, the court sought to move away from using ineffective programs and over using detention.

To achieve this, in 2009 the BHJC created the Fast Accountability Skills Training (FAST) program,² an alternative to a formal probation-violation hearing program. Although the program was a court-based service, it entailed a strong community component in which various agencies offered their services and programs to youth. The FAST developers aimed to employ a strengths-based approach that sought to assist participants in exploring concepts around change, problem solving, acceptance, resiliency, and short- and long-term goal setting. The overall goal of the program was to address violations and increase participants' accountability and self-awareness to boost resiliency, which staff maintained would yield more positive outcomes. Staff, including Juvenile Probation Officers (JPOs) and Probation Supervisors, built the FAST program to specifically target both youth with antisocial attitudes toward authority and change and those with negative peer associations.

Two months prior to the FAST program launch, the JPO team spent considerable time developing course materials, including an instruction manual (curriculum), a handbook for participants, and worksheets.

Juvenile probation officers (JPO) referred youth to the program. The probation unit supervisor monitored caseload data and referrals to ensure that eligible youth were referred. The referral process included a review of the nature of the juvenile's violation, and JPOs identified youth criminogenic needs via the Positive Assessment Change Tool (PACT) risk/needs/responsivity system. Youth who scored moderate to high risk (for re-offense) on the PACT tool and specifically displayed high criminogenic needs scores on PACT Domain 6 (Relationships), Domain 10 (Attitudes/Beliefs), and Domain 12 (Skills) were referred to FAST.

Each FAST class was limited to eight, mixed-gender juvenile participants and was facilitated by two probation officers (the FAST team) who

² This program was locally built and named and should not be confused with the Family and Schools Together (McDonald, 1987) model.

had significant experience in offering other cognitive-behavioral intervention programs such as Aggression Replacement Training and coordinated case services. Participants in the FAST program met twice a week, from 3 to 5 p.m., for a total of 4 hours, and covered a wide range of culturally relevant topics, including skills building, goal attainment, and effective situation management.

Each of the two sessions began with a review of expectations, an agenda, and an opening ice-breaker activity. For the first session, the FAST team led the group through a “looking within” exercise aimed at creating a discrepancy between the participants’ personal values and their underlying court violations through various hands-on activities. This was followed by a “check yourself” activity, in which the participants focused on identifying whether or not their actions coincided with their personal values. This allowed the FAST team to introduce the concept of making identified changes. The program built experiential activities into the curriculum to demonstrate setbacks and obstacles youth face, with opportunities to problem solve and strategize around their challenges individually and as a group.

In the second session, the facilitators asked the participants to complete a strengths inventory to identify their existing strengths and to list potential new strengths they would like to develop while on probation. Over the 2 sessions the FAST team worked with participants to set short-term goals, incorporating items they had included in their strength inventory. Youth then returned to their probation officers with these short-term goals developed from the FAST program, and while serving their remaining time on probation, they would reassess the goal(s) in the context of working toward achieving longer-term goals. JPOs could refer their clients to one or multiple classes of FAST, and the FAST team made detailed notes on each client’s class participation and provided them to his or her JPO for followup and to reinforce accountability.

Probation staff updated their clients’ changes in behavior around the identified PACT domains, specifically domains 10 and 12, 3 months after they completed the FAST program, or when their clients exited from probation. Although FAST’s intent was to serve as an alternative to detention, staff were also concerned with “moving the needle” on criminogenic needs, given the BHJC’s general focus on the PACT.

Analytical Plan

The current study ultimately had two aims. First, we sought to determine the FAST program’s overall effectiveness at reducing participants’ later violations and recidivism compared with youth who received detention when they violated probation. To evaluate FAST, we used a retrospective, quasiexperimental design by way of statistical matching and established an adequate comparison group to minimize selection bias that occurs upon the violation of probation. When the “gold standard” (a randomized controlled design) cannot be employed in a treatment study, any and all possible efforts should be made to eliminate selection bias (Guo & Fraser, 2010). To address this, we used propensity score matching (PSM) to balance the two study groups on all available measures that have the potential to systematically bias study findings. PSM is a statistical method that allows the user to simulate randomization by balancing the two study groups on preintervention characteristics. We employed a PSM technique of one-to-one, nearest-neighbor matching to pair those in the comparison group to those who participated in the FAST program.

Measures used in the match were those identified as significant predictors of a case being placed into the FAST group by way of logistic regression; this created predicted probabilities or a propensity score. This score was then used to identify cases receiving incarceration who had similar characteristics as the FAST (treatment) group depicted through similar propensity scores. The post-match analysis included cross-tabulations, chi-square, and regression tests to note the

differences between the groups regarding later recidivism and violation behavior. In addition to these analyses, we also sought to further verify the findings using a double-robust estimator. The double-robust estimators are based on the work of Robins and colleagues (Bang & Robins, 2005; Robins, Rotnitzky, & Zhao, 1995). Such estimators use a combination of propensity scores and regression modeling to protect against misspecification and to provide an unbiased estimate of the average causal effect of the treatment (for further detail on this analysis, see Emsley, Lunt, Pickles, & Dunn, 2008). When both models (PSM and regression) are correctly specified, the product is interpreted as the “true effect” of the treatment.

The study’s second focus was to determine if the FAST program was equivalent to detention in terms of effectiveness on the outcomes of interest. To do this, we conducted two additional tests—equivalence and noninferiority—and a second propensity score analysis using all of the detention cases as the “treatment” group. Equivalence and noninferiority tests are ways to assess whether a treatment is just as effective or not inferior to the standard condition using confidence intervals. Equivalence tests are essentially two-sided tests that allow for the treatment to be determined as no-better or no-worse in comparison to the standard condition, whereas noninferiority tests are a one-sided test to determine if the treatment is simply not worse than the standard (Greene, Morland, Durkalski, & Frueh, 2008). Such tests are often used in the mental health field in randomized control trials to test the effectiveness of various forms of therapy (e.g., Hedman et al., 2011).

To maintain the quasiexperimental comparison between the groups, we completed a second propensity score analysis, this time focusing on detention as the “treatment” group. Unfortunately, we did not have additional cases for this study due to various issues regarding the source of the data from the court and limited staff availability to continuously pull data.

This prevented us from creating a large enough sample to conduct another one-to-one nearest neighbor match and still encompass all FAST and detained violators. Instead, we applied a propensity score-weighting procedure to make comparisons on the outcomes between the groups. Rather than matching cases based on the characteristics of the FAST participants, we balanced the cases on their propensity to be incarcerated upon violating. Given that FAST participation had no impact on later recidivism or violations, by matching characteristics of FAST participants to the characteristics of all those incarcerated, we could essentially evaluate the effectiveness of detention compared with the effectiveness of a diversion program.

Weighting on the propensity score uses an algorithm to isolate the average treatment effect in observational research (Guo & Fraser, 2010). Guo and Fraser (2010) recommend creating two weighting variables using the propensity score. One is to estimate the average treatment effect (ATE) for both the treated and the untreated cases. According to Guo and Fraser (2010:161, citing Hirano & Imbens, 2001; Hirano, Imbens, & Ridder, 2003; Rosenbaum, 1987), this weight is calculated using

$$\omega(W, \chi) = \frac{W}{PS} + \frac{1 - W}{1 - PS},$$

where W is the treatment measure (1 for treated cases, 0 for untreated), and PS is the propensity score. This is also known as the inverse-probability-of-treatment, or IPTW (Hirano & Imbens, 2001; Hirano et al., 2003; Robins, Hernan & Brumback, 2000). The IPTW allows for untreated cases to be weighted in relation to how similar they are to the treatment group cases. IPTW estimation has been shown to be the better method when the treatment group has far more cases than the comparison group, as is the case here (Kurth et al., 2006; Stuart, 2010).

Sample and Measures

Between May 2010 and October 2012, 124 youth participated in FAST. Of this group, 58% ($n = 72$) were Latino, 37% ($n = 46$) were White, and 5%

($n = 6$) were African American. The youth ranged in age from 14 to 18 and predominately possessed moderate (30%) and high (61%) risk and need PACT score. The FAST program displayed a successful 82% completion rate among participants. Although this alone is important, the BHJC wanted to determine if the program did, in fact, reduce future probation violations as well as have an impact on FAST participants' recidivism in contrast to a matched comparison group. We were given access to measures collected by the counties on both FAST participants and incarcerated violators.

These measures consisted of some demographic information (age, race/ethnicity, county of residence, and sex). Common measures between the FAST and incarcerated groups included initial violation type ranging across 10 supervision conditions. These violation types included failure to complete treatment (drug/alcohol, Aggression Replacement Training, community-based or other ordered services), truancy, and curfew violations. Failure to complete community service work, violation of court-imposed gang conditions, and failure to remain in contact with a probation officer were violations that were not common among FAST participants and were gathered under "other" violations. Similarly, the violation type committed by the majority of the comparison group consisted of failure to pay fines and victim reparations, which was also included in the "other" violation category. Other common measures collected by the counties on both FAST participants and incarcerated violators included counts of recidivism and new violations for up to 1 year following the FAST period. Lastly, the counties provided additional information that was specific to the FAST participants, such as completion rate and the number of times and the number of days a participant was ordered to the program. Table 1 shows data for the comparison and treatment group, both before and after the match. Recidivism events that were used as outcome measures for this evaluation included any rearrest and conviction (disposition) for felonies

and/or misdemeanors. Probation violation served as an intermediate outcome and consisted of a dichotomous measure of no new violations and at least one new violation.

Results

After we completed PSM, we conducted chi-square and t -tests where appropriate. From these bivariate analyses, it can be reasonably concluded that the groups were well matched and mostly without bias. However, there were a few measures upon which the matched groups still significantly differed and maintained wide standardized differences. The FAST group possessed a significantly reduced proportion of cases that were age 18 and older ($p < .01$). After further examination of this age group, it appears that only eight cases were assigned to FAST who were older than age 17. The differences between those older than age 17 and the rest of the sample were concentrated to certain violation types that would be expectedly different from most juveniles younger than age 17. For instance, the largest and most statistically significant contrasts were in fewer violations of truancy (32% for ages 18+ and 46.2% for ages 17 and younger, $p < .05$), more violations for financial penalties such as restitution (50% for ages 18+, and 30.2% for ages 17 and younger, $p < .001$), and more cases that contained multiple probation violations (49.1% of ages 18+ and 35.5% of ages 17 and younger had three or more violations, $p < .05$).

Apart from age, the FAST group had fewer violations of custody care ($p < .01$), JPO contact ($p < .001$), and community service ($p < .001$), and fewer cases who possessed more than one violation of any type ($p < .001$). With there being so few cases who possessed these types of violations, the types were collapsed into one violation category, "Other": These violations also encompassed gang and restitution violations, which were not statistically different across the groups. Additionally, the FAST group had a higher proportion of drug and alcohol violators ($p < .05$). In spite of these differences, only age was found to

Table 1. Propensity Score Matching Descriptives (N = 434)

Measure	Before PSM				After PSM			
	n	Com%	FAST%	%STD Diff	n	Com%	FAST%	%STD Diff
Total	434	71.4	28.6		245	49.4	50.6	
Male	339	77.1	80.6	8.6	197	80.2	80.7	1.3
Age								
≤ 14	42	8.4	13.8	17.3	27	9.1	13.8	14.8
15	76	15.8	*23.3	19.0	47	16.5	23.3	17.1
16	86	18.1	*25.9	18.9	55	20.7	25.8	12.1
17	114	25.5	30.2	10.5	69	28.1	30.1	4.4
18+	108	32.3	***7.0	67.5	39	25.6	***7.0	52.0
Race								
White	158	35.8	37.9	4.4	91	36.4	37.9	3.1
Hispanic	274	59.0	57.3	3.4	141	57.9	57.3	1.2
Black	16	3.2	4.8	8.2	11	4.1	4.8	3.4
Risk								
Low	60	15.8	*9.2	20.1	29	14.8	9.2	17.3
Moderate	89	17.4	**29.2	28.2	67	26.4	29.2	6.3
High	281	66.8	61.3	11.5	145	58.7	61.6	5.9
Residence								
City One	163	41.4	*30.9	22.0	77	33.1	31.0	4.5
City Two	45	8.6	*15.4	21.0	36	14.4	15.5	3.1
City Three	143	28.5	***46.3	37.4	97	33.9	46.3	25.5
Other	74	21.5	***7.3	41.3	31	18.6	**7.3	34.1
Violation								
Curfew	64	14.5	15.3	2.2	37	14.9	15.3	1.1
Truancy	189	40.3	*51.6	22.8	136	59.5	51.6	15.9
Drug/Alcohol	143	28.1	***45.2	36.1	112	46.3	45.2	2.2
Failed Treatment	47	10.0	12.9	9.1	33	14.1	13.0	3.2
Other	150	47.1	***3.2	117.3	105	66.1	***20.2	104.6
Violation Count								
>1	233	75.2	***36.3	85.1	129	69.4	***36.3	70.3

*p < .05 **p < .01 ***p < .001; Pre-Match AUC = .90; Post-Match AUC = .50

be the significant factor in predicting the potential of falling into the FAST group prior to the match.³ It can then be safely assumed that these differences do not substantially influence the case propensity scores. Our multivariate assessment (e.g., the area under the curve statistic [AUC]) also suggest that the match had sufficiently balanced

the groups (pre-match AUC = .92; post-match AUC = .50).

To address the question of whether FAST participants possessed lower proportions of recidivism events (probation violations and criminal history) compared to nonparticipants, chi-square tests were executed on the matched samples, and a final regression was completed to assess the performance of FAST on supervision outcomes.

³ Age was also assessed for matching and in the final analyses as continuous, which yielded no difference, or in some cases, an increase in bias in the match.

Given the initial intent of the FAST program, it was expected that youth would assimilate skills and techniques provided throughout the course, which should result in lower rates of probation violations and a reduction in future crimes after program completion. Table 2 summarizes the tabulated breakdown of supervision outcomes after the match.

Table 2. Comparison of Supervision Outcomes Between Study Groups

Supervision Outcome	Comparison %	FAST %	Total %
Any New Probation Violation	76.0	71.0	73.5
1 to 3 Violations	81.5	70.5	76.1
4 to 6 Violations	18.5	29.6	24.0
Any New Crime	76.0	71.0	73.5

Probation violation: $\chi^2(1) = 5.145, p < .273$
 New crime: $\chi^2(1) = 0.185, p < .667$

Post-match analyses show that there was virtually no distinction between the treatment and comparison groups on any of the outcome measures. As shown in Table 2, there was no statistically significant difference found between the two groups for either probation violations or new offenses. These results suggest that the FAST program was ineffective at reducing both later violations and commission of a new crime. However, given that significant differences remained between the matched groups, we determined that using other post-match analyses was warranted in an effort to account for these differences. As suggested in the literature (e.g., Guo & Fraser, 2010), there are some methods that can be used following a PSM that allow for a sound comparison while accounting for differences among measures and potential confounding effects. One method is using a binary logistic regression to predict the primary outcome variable while using the strongest correlates as independent measures (Kurth et al., 2006). In this case, we use a binary logistic regression to account for the potential predictive strength in each of the variables that were significantly

different following the matched groups. This model is depicted in Table 3.

Table 3. Binary Logistic Regression (Post-Match) Predicting Recidivism

Measures	Std. Err.	Odds Ratio
Model 1: FAST Participation Only		
Constant	0.212	1.117
FAST Participation	0.287	1.161
Model 2: With Unbalanced Covariates		
Constant	0.445	0.950
FAST participation	0.252	0.725
Resides in other outlying areas	0.660	1.389
Older than 17 years	0.028	***0.042
Other violation	0.214	0.545
More than one violation	0.407	1.788

Model 1: Nagelkerke $R^2 = .001$
 Model 2: Nagelkerke $R^2 = .164$
 *** $p < .001$

Our dependent variable was a dichotomous measure of “new crime,” including any new felony or misdemeanor (0 = none recorded, 1 = any new crime). The independent variables in this model include dichotomous measures of cases age 18 and older (0 = no, 1 = yes), other violation (0 = no, 1 = yes), and dichotomous measure of having more than one violation of any type (0 = no, 1 = yes). As shown here, the logistic regression suggests that there are no significant predictors of new crime among these groups. Had any of these measures, including participation in the FAST program, shown an odds ratio above 1 and was statistically significant, then it could be argued that the measure poses a problem for the evaluation conclusions. Using double-robust estimation, the findings of the above match were verified. The estimation revealed that there are no significant effects of FAST participation on either recidivism (effect size = -.07, standard error = .05) or probation violations (effect size = -.25, standard error = .05).

In light of the conclusion that the FAST program yields no better effects on supervision outcomes

on probation violators than incarcerating probation violators did, we recognized that this should be tested further. Due to the seeming equivalence between a nonconfinement option for violators and a confinement option, we applied a second analysis of propensity score weighting in the opposite direction as well as an equivalence test. The critical aspect of the test was the choice of noninferiority margins. This was the difference we hypothesized was a “meaningful difference.” Although there is no precise method of identifying this, a common expectation is that the treatment should be *at least* 80% to 90% as effective as the standard method, which in this case is detention (Greene et al., 2008). If we hypothesized that the FAST intervention should be at least 85% as effective as detention with regard to reducing recidivism, then the margin should be set at $(\pm).15$ with a 95% confidence interval (CI). Therefore, if the CIs of the difference in proportions between the two groups were estimated to be within this margin, we could reject the null hypothesis of “nonequivalence” and declare that the FAST and confinement conditions were equal. Upon conducting the analysis using Stata,⁴ the difference in proportions between the two groups was $-.005$, with CIs of $-.127$ and $.118$. According to this test, the CIs were within the margin of indifference, which allowed us to reject the null hypothesis and declare the FAST group to be therapeutically equivalent and noninferior to detention. However, given that the match still possessed some bias between the groups, it could be argued that such a test of equivalence is not as trustworthy, as it relies on the quasiexperimental design simulated by the match.

Table 4 shows the balance breakdown of the second propensity score analysis. Using IPTW or ATE weights, a good way to assess whether the groups were balanced was by placing all of the covariates into appropriate regression models

⁴ Stata has multiple user-written programs that conduct this analysis. We used the command *rdci*, which was specifically written to conduct equivalency tests with 2 x 2 proportions using four different methods, reporting the CIs for each: Agresti-Caffo, Newcombe Method 10, Wallenstein, and Miettinen-Nurminen. All of the estimates were the same, except for the Newcombe Method, which estimated CI limits of .001 less in each direction.

as the dependent variable, with the study group variable as the sole predictor. If the study group variable was shown to be a significant predictor (in any direction) of the covariate, there is imbalance between the groups on that covariate (Guo & Fraser, 2010). Table 4 shows the degree of imbalance between the two groups, both before and after weighting.

Table 4. *Covariate Imbalance After Propensity Score Weighting (N = 434)*

Measure	p Value of Odds Ratio or B in Regression	
	Before	After
Age		
≤ 14	.106	.867
15	.068	.154
16	.084	.295
17	.290	.242
18+	.000***	.008**
Risk		
Low	.073	.163
Moderate	.009**	.813
High	.352	.254
Residence		
City One	.057	.752
City Two	.044*	.774
City Three	.001**	.276
Other	.001**	.406
Violation		
Curfew	.792	.156
JPO Contact	.000***	.001**
Custody Care	.001**	.529
Gang Relations	.319	.831
Drug/Alcohol	.001**	.723
Failed Treatment	.399	.811
Truancy	.034*	.591
Community Service	.000***	.321
Other	.000***	.198
Violation Count		
>1	.000***	.061

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

As demonstrated in Table 4, using the IPTW, we were able to balance the two groups on all but two covariates. Similar to before, any confounding effects of these two covariates could be accounted for in the subsequent logistic regression.⁵ When modeled in a weighted logistic regression using the IPTW, shown in Table 5, both to account for these two items in and removed from the model, detention was not shown to be a significant predictor of either recidivism or probation violation. Only being younger than age 18 appeared to be a significant predictor of both new crime and probation violations; however, no particular age younger than 18 (i.e., 17 years old versus 16 years old) was a significant predictor in and of itself. According to this analysis, when all covariates were equally balanced between the groups, confinement did not predict recidivism any more than it did in the FAST group.

Table 5. *Weighted Binary Logistic Regression Predicting New Crime and Violations*

Covariates	Estimated Odds Ratios (Robust SE)			
	Predicting Recidivism		Predicting Violations	
Model 1: Confinement only				
Detention	1.177	(.56)	1.38	(.69)
Model 2: Confinement and Unbalanced Covariates				
Confinement	1.944	(.97)	1.72	(.86)
Age 18+	.046	(.02)***	.315	(.13)**
Violation JPO Contact	1.321	(.44)	1.329	(.40)

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

Note. Notable differences involving unbalanced covariant predictors in separate models are presented in text.

In spite of these differences, there were still no significant differences between the groups at the bivariate level with regard to new crimes or new probation violations. To control for confounding measures and to account for the impact of those measures that were still different between the groups, a binary logistic regression was

⁵ Although it is suggested that covariates should not be included if they are used in the creation of the propensity score (see Freeman & Berk, 2008), it can be justifiable in the cases where there is strong theoretical importance to those covariates in the model and a high degree of covariate imbalance.

employed. Similar to the results of the previous analysis, the logistic regression found no significant predictors in the post-weighted data set for either outcome. This suggests that even when balancing on characteristics of incarcerated violators, there was still no difference between the two groups.

Discussion

Meta-analyses on the effectiveness of the general use of community-based alternatives to detention indicate that the calculated application of therapeutic diversion is important to the desistance of juvenile recidivism (e.g., Farrington & Welsh, 2005; Lipsey, 2009; Howell et al., 2014). Such research has provided a clear guide into the use of “what works” in juvenile justice, particularly regarding juvenile delinquency and especially with probationers. Lipsey (2009) reviewed close to 600 studies and concluded that therapeutic community-based programming was an effective tool for addressing behavior change in youth while reducing recidivism overall. Over the past two decades, many juvenile court systems have moved to using standardized risk and need assessment tools to not only understand the risk level of youth but also appropriately “match” youth to programs and services based on criminogenic needs (Andrews & Bonta, 2010; Lipsey, 2009). This movement has created a new study area in the juvenile corrections field that centers on determining the correct type and dosage of programs needed to achieve positive outcomes.

In a recent report on what is needed to improve the overall effectiveness in juvenile programming, Lipsey, Howell, Kelly, Chapman, and Carver (2010) list and discuss the field’s empirical status in this area. Deriving most of their conclusions from Lipsey’s (2009) meta-analysis on juvenile interventions, the authors emphasize key program characteristics that have been shown to provide the greatest effectiveness, such as focusing on providing high-risk delinquents with therapeutic treatment rather than on controlling them (e.g., deterrence and discipline).

Referencing the specific types of therapeutic programming, Lipsey et al. (2010) suggest that priority should be given to those that are multifaceted (e.g., multisystemic therapy), multilevel (i.e., including the individual and the family, such as in Functional Family Therapy), and cognitive-behavioral.

Conjoined with the recommended types of programming, Lipsey et al. (2010) also discuss the importance of quality and dosage in programs' effectiveness at reducing recidivism. Quality assurance is often emphasized almost synonymously with program type, and dosage is equated to the amount of a certain type of intervention (e.g., the number of total hours, sessions, or weeks from start to finish). The report (Lipsey et al., 2010) and findings in Lipsey's (2009) meta-analysis illustrate that the dosage of a program likely matters in its overall effectiveness. However, the research on how much of a specific type of program is needed for the program to be deemed effective is more limited. This is largely because not all evaluations include a measure of duration and intensity of the intervention, and when they do, the measure often varies widely (e.g., hours per day compared with number of sessions per week or month).

Although well intended, it is highly plausible that the short duration of the FAST program (4 hours total) diminished its effectiveness in impacting future violations and recidivism. In addition, although probation counselors collected and updated information regarding skills participants learned in the PACT tool, we did not have access to this data for this study. It is plausible that program participants experienced positive changes within the various domains, but this did not ultimately correlate with an overall reduction in violation behavior.

We evaluated the program after only 18 months of operation, and FAST program staff informed us that they made several modifications to the program during the first 2 months of operation to fine-tune the developed curriculum and materials in hopes of increasing referral rates from JPOs.

Unfortunately, we were unable to complete a process evaluation of the FAST program, which could have provided important insights to ascertain the strengths of the program materials and curriculum based on what works with juvenile offenders (Lipsey, 2009). With regard to dosage within the FAST participation, the number of times a juvenile was put through the program was modeled with covariates in the logistic regression, although it is not reported in the same model above due to collinearity with the binary measure of study group participation. When replacing the participation variable with two others—"number of days completed" and "participated in the program more than once"—there was no change in the results. Under no circumstances involving the covariates, including the double-robust estimation, were there changes in FAST's influence on recidivism or later probation violations.

What is most important to note here, however, is that there were no differences in violations and reoffending between the two groups. In other words, youth who spent time in FAST appeared to have the same outcomes as those who spent time in detention, according to the above analysis.

Given the null effects found in two separate scenarios and given what is known about the detriment of incarceration among the juvenile population, we conclude that the court should consider actually expanding FAST rather than using costly detention services (\$160 a day in Barlow/Hartford counties), as detention clearly does not impact future behaviors. These findings are consistent with those found elsewhere in the juvenile probation and detention literature, namely in the work of Loughran and colleagues (2009). In their study of longitudinal data from the Pathways to Desistance Study, the researchers investigated the effect of incarceration and probation on recidivism. After the two groups of probation ($n = 502$) and detained ($n = 419$) cases were propensity score grouped or stratified, the researchers' analysis showed no difference in recidivism between the use of probation and detention.

When considering these findings together, each noting that the probation and community-based alternative approaches perform just as well as detention at reducing recidivism, it invariably begs the question: What is the purpose and use of juvenile detention in addressing probation violations? At its core, this question is a classic penological debate; the intention is to reduce the unfavorable behavior of the individual (punishment) while procuring societal safety in the process. However, in light of other studies (e.g., Loughran et al., 2009), confining probation violators does not appear necessary. Considering the extant research on how much of a detriment detention can be and the general strides systemic entities have made in reducing the number of youth who are exposed to the formal processing and commitments, unnecessarily incarcerating violators could be replaced with more effective alternatives. Although it would be premature to draw a conclusion about the FAST program and an equivalent detrimental effect of detention, further research of the FAST program, combining the current data set with data from the PACT tool, may yield further insights.

Limitations

There is methodological and analytical strength to this study, but there are also notable limitations that require the findings to be interpreted with caution. First, though using PSM allows for a quasiexperimental design, this study is limited by the number of measures available to the researchers. As was noted above, we had limited access to PACT data. Further, for this study, the criminal history was limited to an overall total criminal history score, and other static variables of the sample cases were restricted to the PACT risk score. Matching participants and comparison subjects based on the score rather than the actual item did not provide the strongest match possible. However, even if the items were available, this limitation is largely unavoidable, as there were so few subjects in the treatment group. It was determined that the use of other matching techniques

would neither remedy this situation nor provide it a stronger design than the one-to-one technique.

Second, there are limitations that involve theoretical measures of context. Examples include both the participants and practitioners. For the participants, the measures available do not account for the specific type of neighborhood, family, or peers that the juvenile is exposed to on a regular basis. Similarly, issues regarding chemical dependency also cannot be controlled. However, it can be argued that these issues are partially accounted for by items in the PACT assessment. One issue that cannot be accounted for through the PACT is the differences with regard to age, specifically, those participants who were older than age 17. Upon closer inspection of the differences between those older participants and all others involved with FAST, we identified a few things that were particularly notable. First, those who are referred to FAST appear to be younger and are sent on their first or second violation. Older participants appear to be held to a different expectation regarding their supervision, which perhaps has more to do with individual responsibility. Those older than age 17 accounted for the majority of the initial violations that fell into the “other” category, which included JPO contact violations, failure to complete community service, and not paying legal/financial obligations. It is not surprising, given their age and the likelihood that the state would expect those age 18 and older to be responsible for their fines. Second, these differences also suggest that FAST may have been devised and saved for those younger juveniles. With this in mind, we examined the option of removing the 108 cases (8 FAST, 100 comparison) of youth older than age 17 for the initial match and assessment of the FAST program, as such a decision could be justified. However, as the removal of these cases created greater bias after the match, we left them in the analysis. Though it could be argued that leaving these cases in, in spite of their age differences, is not an accurate representation of the participants this study was designed to target, the fact remains that these

youth still participated in the program. Thus, they were still treatment participants, albeit with a single year of age difference from the rest.

The goals and strengths materials that the youth developed and the JPOs allegedly enforced also cannot be incorporated into this study, as such issues involve the implementation of cognitive behavioral components. Almost every form of cognitive behavioral programming requires that the staff administering it receive a certain level of training and specific implementation to be effective. Though it is plausible that the effects seen here, or lack thereof, could be related to the improper deployment of such programming, it is nevertheless unlikely. Cognitive behavioral programming also typically requires that the dosage meets or exceeds a certain number of exposure hours. For instance, for some programming to be effective, it must be implemented three times as often as what FAST offers. As a result, we note that it is likely that the FAST program's shorter duration and intensity, or dosage, may affect this study's findings.

Conclusion

Given the important findings on the deleterious effects that detention can have on youth, including disruption from school and family, trauma, depression, negative peer association, and an increased likelihood of further juvenile system involvement from it, it is of critical importance that juvenile court systems create and use a wide range of detention alternatives (Chung et al., 2005; Holman & Ziedenberg, 2006; Mendel, 2009).

Through empirical evidence, it appears that the key for potential alternatives involves the critical areas of emphasis in familial therapy, multifaceted individualized treatment, and increased dosage of virtually all approaches (see Lipsey et al., 2010; Holman & Ziedenberg, 2006; Schwalbe et al., 2012). Although well intentioned, the FAST program most likely failed to generate positive outcomes due to a lack of sufficient dosage; yet rather than dismiss such efforts, the court should consider retooling the dosage and curriculum offerings under researcher guidance.

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