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Differences Between Incarcerated and Nonincarcerated Youth in the English-Speaking Caribbean

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Abstract

Incarcerated youth across the English-speaking Caribbean engage in high levels of offending before their detention. However, we know little about whether youth detained in juvenile justice systems in the region are those with the highest offending levels. As in nations beyond the region, some groups of youth in the Caribbean may be disproportionately overrepresented in the system despite their offending levels, such as by race or gender. Using samples of secondary school students and incarcerated youth, the present study examines: (1) do incarcerated youth self-report engaging in more delinquency prior to being detained than those not incarcerated and (2) are there demographic or risk/protective factors differences between incarcerated and nonincarcerated youth? We find that, compared to nonincarcerated youth, incarcerated youth self-report higher levels of delinquency, in general, and across violent offending, property offending, and drug involvement. When we used propensity score matching to match youth by their involvement in delinquency, disparities in multiple demographic and risk/protective factors emerge between incarcerated and nonincarcerated youth. Our findings point toward racial disparities in the use of incarceration, with African descent youth more likely to be incarcerated. We contextualize our results for youth justice in the Caribbean.

Keywords

delinquency, incarceration, Caribbean, risk factors, race disparities

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Introduction

Homicide rates in the Caribbean are some of the highest in the world (Harriott & Katz, 2015), and youth involvement in crime and gangs contribute to the high rates of violence across the region (Foss et al., 2013).[1] In response, international organizations such as the United States Agency for International Development (USAID) and the United Nations Development Programme (UNDP) have increasingly supported crime prevention efforts, particularly those targeting youth violence. These investments and changing national agendas have resulted in a growing focus on rehabilitation opportunities for youth involved in delinquency across the region. For example, about half of English-speaking Caribbean countries have passed revised juvenile justice statutes since 2000 (for a review, see Freemon et al., 2020).

Despite this, prison systems overall lack the capacity and resources to respond to juvenile offending, whether through prevention, incarceration space, or reform efforts for incarcerated youth (Laurent et al., 2011). A growing academic movement exists focused on penal research in the Caribbean (e.g., Bailey & Coore-Desai, 2009; Bergman et al., 2020). Most of this work, however, has focused on adult populations. Overall, nations across the English-speaking Caribbean incarcerate few juveniles. Based on the most recent year of data availability, youth comprise approximately 2.5% of prison populations, ranging from about 1% in Antigua and Barbuda, Dominica, Grenada, and St. Lucia to 7.3% in St. Kitts and Nevis (World Prison Brief, 2021). Issues exist in the availability of appropriate space to house youth, ideally in separate facilities from adults (Laurent et al., 2011). Similarly, few rehabilitation programs or reentry services are available to detained youth (Laurent et al., 2011). Further, while some diversion programs exist across the region for youth, these programs are rare (Laurent et al., 2011).

While little prior literature has examined juvenile incarceration in the Caribbean, data suggest that incarcerated youth engage in high levels of offending before their detention (Freemon et al., 2020). A considerable body of literature highlights the importance of matching interventions to offenders—targeting those with the highest risk and needs to reduce offending (Andrews et al., 1990). However, little is known whether youth involved in juvenile justice systems in the Caribbean have higher offending levels than the general population. This is important because prior research outside the region has documented longstanding adverse effects on incarcerated youth (Gilman et al., 2015). For example, detained youth are more likely to be incarcerated later in life and less likely to get married or be employed, both protective factors against future offending (Aizer & Doyle, 2015; Pager, 2003; Voisin et al., 2017).

Further, racial disparities in police contact and incarceration have been documented in the Caribbean and beyond (Hockenberry & Puzzachera, 2020; Ministry of Justice, 2018). Specifically, youth of color are more likely to experience contact with juvenile justice systems in both the United States and the United Kingdom (Hockenberry & Puzzanchera, 2020; Ministry of Justice, 2018). Thus, racial disparities may contribute to disproportionate exposure to incarceration. Limited research, however, has explored the incarceration experiences of youth of color in the context of the English-speaking Caribbean.

Given the unique background of the region, the current study examines the difference between incarcerated and nonincarcerated youth across nine Caribbean nations. Specifically, using samples of secondary school students and incarcerated youth, we consider two questions: (1) do incarcerated youth self-report engaging in higher levels of delinquency prior to being detained than youth not incarcerated and (2) are there demographic or risk factors differences between incarcerated and nonincarcerated youth? This inquiry advances the growing body of literature on justice and incarceration in the Caribbean and documents policy-relevant findings on disparities in juvenile detention.

In what follows, we provide background on the impacts of incarceration on youth, both negative experiences during incarceration and lasting collateral consequences beyond incarceration. Then, we

discuss disparities present in juvenile justice systems and the risk factors for juvenile incarceration. As little prior research exists on these topics in the Caribbean, the prior two sections primarily provide context from outside regions. We present the data and methods used in the current study, followed by our findings. Last, we close by contextualizing our results for youth involved in the criminal justice system in the Caribbean and research and policy implications stemming from these results.

Negative Impacts of Incarceration on Youth

Adverse Detention Conditions

Juveniles are processed separately in the criminal justice system to acknowledge the importance of rehabilitation for young offenders. Given their stage of development, youth are assumed more malleable to interventions, and by engaging in effective interventions, the logic is that potentially long-term criminal careers can be cut short (Cauffman & Steinberg, 2012). Despite possible deterrence of future delinquency, there is a risk that youth will experience adverse conditions while detained. Two examples include housing juveniles with adults and victimization. The UNDP reported that while there are separate facilities for juveniles in several English-speaking Caribbean nations, juveniles are sometimes housed with adults. This was observed at the pre-trial detention stage and for convicted youth who posed security concerns (Munoz et al., 2012). Juveniles housed with adults have an increased risk of victimization, suicide, and recidivism (Bechtold & Cauffman, 2013; McGowan et al., 2007).

Housing youth with adults also exposes them to opportunities to learn from experienced offenders (Bechtold & Cauffman, 2013). This extends beyond housing youth with adults. Juveniles are frequently incarcerated for noncriminal matters in the Caribbean and are housed with serious, chronic offenders. For example, one study reported that about 60% of boys and 90% of girls were incarcerated for nonillegal acts in Trinidad and Tobago (Deosaran & Chadee, 1997). Youth who were detained for truancy or because they did not have a guardian were housed alongside violent offenders (Deosaran & Chadee, 1997). Prior research suggests a process of "peer contagion" can occur in detention settings where more delinquent-involved youth influence less involved or nonoffenders housed together (Dishon & McCord, 1999). Related juvenile detention facilities in the Caribbean are understaffed and lack adequately trained personnel. As a result, there have been problems associated with physical and sexual abuse in Caribbean juvenile detention centers (Munoz et al., 2012).

Further, victimization is a prevalent adverse condition of confinement. For instance, in the United States, approximately 7% of youth in juvenile criminal justice facilities anonymously reported that they were sexually victimized in 2018 (Smith & Stroop, 2019). Seeking more nuance, Dierkhising et al. (2014) examined direct, witnessed, and vicarious abuse during incarceration. They found that nearly all youth in their sample had experienced some type of abuse while incarcerated (97%), ranging from physical and sexual assault to psychological abuse, denial of food, and excessive use of solitary confinement. Peer physical assault and excessive use of solitary confinement were the most common. Experiencing abuse was associated with increased posttraumatic stress disorder symptoms, depressive symptoms, and continued criminal involvement post-release (Dierkhising et al., 2014). To date, however, little public information exists on youth victimization while incarcerated in the English-speaking Caribbean.

Future Offending

Prior literature outside the Caribbean has explored the negative collateral consequences of incarceration for youth. Incarcerated juveniles are often identified as high risk for engaging in future offending and reincarceration. A meta-analysis of 29 randomized controlled trials revealed that

formal processing of juveniles is associated with increased delinquency compared to diversion programs or doing nothing at all (Petrosino et al., 2010). For example, Gilman et al. (2015) used propensity score matching to compare incarcerated youth to youth who had not been incarcerated but had at least one contact with police. They found that youth who had been incarcerated were more likely to be incarcerated later in life. These youth were also more likely to abuse or be dependent on alcohol and receive public assistance.

While juvenile research in the Caribbean has not explicitly focused on this question, interviews with young female detainees in Trinidad and Tobago indicated this discrepancy might be present in the region; approximately half of the females interviewed in 2015 and 2017 indicated that they had spent time at an institution prior to their present stay (Peters, 2019). In addition, surveys of incarcerated adults in six Caribbean nations (i.e., Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago) revealed approximately 43% of them had been previously incarcerated, ranging from 21% in Jamaica to 60% in Barbados (Bergman et al., 2020). Further, 16% of those surveyed had been incarcerated previously in a juvenile facility (Bergman et al., 2020).

Other Collateral Consequences

Beyond future offending and criminal justice system involvement, incarceration is linked to differences in health, education, marriage, and employment outcomes. Prior literature outside the Caribbean has found that youth who experience incarceration face health problems and psychiatric disorders into adulthood (Forrest et al., 2000; Teplin et al., 2002; Voisin et al., 2017). Detained youth engage in more sexually risky behaviors, including sex earlier and having unsafe sex (Teplin et al., 2002; Voisin et al., 2017). These youth were also more likely to use cigarettes, alcohol, marijuana, and ecstasy (Voisin et al., 2017). This line of research has also explored different educational outcomes. For instance, incarceration disrupts school attention; youth incarcerated are less likely to complete their high school education (Aizer & Doyle, 2015). Further, incarcerated juveniles are less likely to return to school following their release (Aizer & Doyle, 2015). Incarceration also negatively impacts family relations, including the likelihood of getting married following incarceration (Braman, 2002). Similarly, employers are reluctant to hire someone with a criminal record (Pager, 2003). For some, youth incarceration lowers future earnings up to 15 years following release (Western & Beckett, 1999). Researchers have not yet explored these topics in the study nations.

Disparities in Juvenile Justice System Involvement

The harms of juvenile incarceration are particularly salient given that research outside the Caribbean documents inequalities in juvenile justice system involvement. People of color have disproportionately experienced the negative impacts of the criminal justice system. This is true for juvenile incarceration in the United States (Hockenberry & Puzzanchera, 2020) and the United Kingdom (Ministry of Justice, 2018). Most research in the United States on juveniles has focused on detention; however, disparities can arise across the many stages of criminal justice processing (Walker et al., 2016). A juvenile's involvement in the criminal justice system does not start in a detention facility. Police identify and target people of color at a greater rate, arrest more frequently, and engage in more troubling interactions with racial and ethnic minorities (Free Jr, 2001). In courts, people of color are more likely to be processed harsher than Whites (Mitchell, 2005). Beyond race, gender is another demographic characteristic associated with justice system involvement; males comprise most youth involved in the juvenile justice system, though this is typically explained by delinquency levels (Hockenberry & Puzzanchera, 2020).

To date, potential disparities across the criminal justice system have received little attention in the English-speaking Caribbean. This is despite lasting racial tensions across sections of the region. The

Caribbean was founded on colonialism, relying on slavery and indentured servants. This resulted in racially and ethnically diverse populations, including indigenous populations, White colonizers, enslaved Africans, and East Indian and Chinese indentured servants. Today, individuals of African and East-Indian descent comprise most of the citizenship across the English-speaking Caribbean, although there is variability within and between nations. Except for Guyana and Trinidad and Tobago, African descent or mixed-race individuals comprise most populations in our study nations, from 91% in Antigua and Barbuda to 97% in St. Lucia. In Guyana, approximately half of the population (49%) is of African descent or mixed race, 40% is of East Indian descent, and 11% is indigenous. In Trinidad and Tobago, about 61% of the population is of African descent or mixed race and 38% are East Indian.

Compared to other ethnic groups in the region, descendants of enslaved Africans have historically been denied opportunities and faced greater oppression. For instance, East Indians, many of who entered the region as indentured servants received contracts, and formal and informal restrictions were placed on their treatment, resulting in greater rights, privileges, and economic advantages compared to the experiences of enslaved Africans (Brown, 2020). These generational financial advantages and opportunities are still experienced today. No research to date, however, has examined how historical, political, and economic inequalities might impact contemporary racial and ethnic disparities associated with incarceration in the English-speaking Caribbean.

Risk Factors for Juvenile Justice System Involvement

A wide body of research examines predictors of youth delinquency. Fewer studies, in contrast, explore predictors of youth incarceration (Barnert et al., 2021). The literature examining the association between delinquency and incarceration has established a positive link between the two. For example, Barnert et al. (2021) found serious delinquent behavior served as a risk factor for incarceration onset and higher incarceration frequency using the National Longitudinal Study of Adolescent to Adult Health dataset in the United States. Prior research also documents factors beyond sociodemographic characteristics that affect the likelihood of both delinquency and incarceration. Some of the most tested theoretically relevant risk and protective factors in criminology are drawn from social control theory (Hirschi, 1969), self-control theory (Gottfredson & Hirschi, 1990), and social learning theory (Akers & Jensen, 2006).

First, social control theory includes the concepts of parental/family attachment, parental monitoring, and school commitment. Prior literature has linked the presence and strength of these social bonds to a lower likelihood of engagement in crime and delinquency (Kompf-Leonard, 2019). Second, impulsivity and risk-seeking are associated with self-control theory. In prior research, self-control has been found to directly and unconditionally affect involvement in crime (Pratt & Cullen, 2000). Finally, peer pressure, moral attitudes, and disengagement are drawn from social learning theory. Research documents broadly moderate to strong support for the relationship between social learning and delinquency (Pratt et al., 2010). Prior work supports that these theoretical concepts are associated with delinquency in the region (Cheon et al., 2022); however, their association with incarceration has not been explored.

The Current Study

As described in this background, limited prior research has examined juvenile incarceration in the English-speaking Caribbean. An exception is the work of Freemon et al. (2020), who outlined the prevalence of incarcerated youth, demographic characteristics, self-reported delinquency, and victimization among youth detainees in the Caribbean. The present study expands upon this work and compares self-report data collected from incarcerated and school-attending youth. In doing so,

we use hierarchical regression models and propensity score matching to explore the following questions: (1) do incarcerated youth self-report engaging in more delinquency prior to being detained than those not incarcerated and (2) are there demographic or risk factors differences between incarcerated and nonincarcerated youth?

Data and Methods

Data Sources

Data for this study are drawn from two sources: The Caribbean School Youth Survey (CSYS) and the Caribbean Youth Detention Survey (CYDS). Both instruments contained the same items; items in the CSYS used the prior 12 months as the reference period while the CYDS used the 12 months prior to their incarceration. The CSYS was administered between 2014 and 2015 to Form 5 secondary school-aged respondents (students primarily aged 15–18) who attended public schools across nine nations: Antigua and Barbuda, Barbados, Dominica, Grenada, Guyana, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. The study employed a survey instrument created by the Eurogang Working Group to collect data on the scope and nature of Troublesome Youth Group problems. All students present in their homerooms were provided with the survey instrument on the scheduled day.[2] Overall, of the 341 total schools approached, 306 agreed to participate with a school-level response rate of 90%. Of the 27,063 enrolled students, 18,312 completed a survey with an individual response rate of about 68%.

Similarly, the CYDS was administered from June 2014 to November 2015 in person by a trained research team. A total of 365 out of 386 youth agreed to participate in the study (a response rate of 95%) across all 14 detention facilities housing juveniles in the region. Surveyed youth had to have been detained for a minimum of one week to be eligible to participate. For more on the methodology for each survey, see Katz et al. (2022). Institutional Review Board approval for the study was granted by Arizona State University (reference numbers #1301008686 for the CSYS and #00001483 for the CYDS).

The current study focuses on youth aged 15–18 ($n = 17{,}581$ for the school sample and $n = 247$ for the incarcerated sample). We reviewed missing data on our dependent variable and found that 95% of cases were not missing any responses. Cases with missing data were removed ($n = 963$ for the school sample and $n = 13$ for the incarcerated sample). For the remaining control variables, <3% were missing responses; we excluded these from our analyses using listwise deletion ($n = 435$ for the school sample and $n = 2$ for the incarcerated sample).[3] A total of 16,415 cases remained for analysis.

Analysis Plan

Our analyses proceed in three steps. First, we provide descriptive statistics and bivariate comparisons between incarcerated and nonincarcerated youth using Pearson's chi-square tests and *t*-tests. We also calculate Cohen's *d* to present effect sizes. Second, to compare involvement in delinquency prior to incarceration between groups, a hierarchical negative binomial regression is run to examine variety in offending. Third, to explore inequalities in the characteristics of youth incarcerated, we use propensity score matching. Propensity score matching is a quasi-experimental technique used to retain comparable treatment and control groups, despite size differences in these groups—treatment groups are often smaller in comparison to nontreated groups (Apel & Sweeten, 2010).[4] The sample size discrepancy is actually advantageous when estimating average treatment effects on the treated (ATT) given the large group for comparison (Pan & Bai, 2015; Stuart, 2010). Prior research has employed the same approach when examining this question (Huizinga & Henry, 2008).

Nearest-neighbor propensity scores were generated using the logistic function with incarceration as the treatment variable with psmatch2 in STATA 17. Youth were matched on overall prior

delinquency variety scores, binary measures of prior violent, property, drug offending, and country of residence; this matching results in treatment and control groups with similar levels of offending in the 12 months prior to incarceration and the past 12 months, respectively. We report results from 1-to-1 and 3-to-1 greedy-matched groups using a caliper of 0.001, allowing replacement and dropping those without common support. We restricted our examination to 1-to-1 and 3-to-1 matching as these are standardly used for propensity score comparison, and we report both to assess consistent findings. We use *t*-tests to compare ATT differences in the matched samples.

Measures

Outcome Variables. We rely on 14 self-reported items to measure four types of delinquency: violent offending, property offending, drug involvement, and overall delinquency. Likert responses for each item included: never, once or twice, 3–5 times, 6–10 times, and more than 10 times. These variables are presented in two ways: by prevalence and variety scores. For each offense, we dichotomized responses to measure the last year's prevalence. Responses that indicated never engaging in the activity in the past 12 months were coded as "0." Responses that indicated engaging in the activity one or more times in the past 12 months were coded as "1." Variety scores for each respondent were created by summing the dichotomous scores for each item by offense type. Higher scores indicate greater variety in offending. We use variety scores because they are considered a more robust and reliable measure of offending (Hindelang et al., 1982; Moffitt et al., 2001).

Violent offending. The violent offense measures relied on five individual items that asked, "During the past 12 months, how often have you: (a) Hit someone with the idea of hurting them, (b) Carried a hidden weapon (of any kind) for protection, (c) Attacked someone with a weapon (of any kind), (d) Used a weapon (of any kind) or force to get money or things form people, and (e) Get involved in fights with other groups." The variety score ranges between 0 and 5.

Property offending. The property offense measures included six items that asked, "During the past 12 months, how often have you: (a) Avoided paying for something such as the movies, or the bus, (b) Purposely damaged or destroyed property that did not belong to you, (c) Illegally spray-painted a wall or building, (d) Stolen or tried to steal something worth LESS than EC$100, (e) Stolen or tried to steal something worth MORE than EC$100, and (f) Gone into or tried to go into a building to steal something." The variety score ranges between 0 and 6.

Drug involvement. The drug involvement measure included three items that asked, "During the 12 months prior to incarceration, how often have you (a) Used alcohol, (b) Used marijuana, and (c) Sold illegal drugs." The variety score ranges between 0 and 3.

Overall delinquency. We also include a variety of measures of overall delinquency. This measure was created by summing the binary measures of each violent offending, property offending, and drug involvement measure. The variety score ranges between 0 and 14.

Independent Variables. We examine the relationship between several demographic and risk factors and the likelihood of prior offending. In the following, we discuss the operationalization of each variable. Self-reported demographic characteristics were collected from each respondent, including gender, ethnicity, and age at the time of the survey. Gender response options included male and female. In the present study, ethnicity responses were coded into four groups: African descent, East-Indian descent, mixed, and other (e.g., White, European, Asian, Chinese, and American-Indian). At the request of local officials, the school sample in Barbados was not asked about their ethnicity.

We created scales for each remaining independent variable by averaging responses to each question included in the scale. Cronbach's alpha for each scale is reported in Table 1. The variable *parental monitoring* is comprised of four questions with higher values indicative of higher levels of

self-reported monitoring. Questions included "Your parents/guardians know where you are when you are not at home or at school" and "Your parents/guardians know who you are with if you are not at home." Respondents answered Likert responses ranging from none of the time to all the time. Similarly, *parental attachment* is a scale including six questions. Responses with higher values indicate higher levels of attachment. Individual questions included "You can talk to your parents/guardians about anything" and "Your parents/guardians always trust you." We also include a measure of *school commitment*. Our school commitment scale includes seven questions such as "You try hard in school" and "Homework is a waste of time" (reverse-coded).

We include two indicators of self-control: *impulsivity* and *risk-seeking*. The impulsivity scale comprises four items drawn from questions such as "I often act on the spur of the moment without stopping to think." Risk-seeking is a scale also composed of four items with questions asking, "I like to test myself every now and then by doing something a little risky" and "Sometimes I will take a risk, just for the fun of it." Higher values on each scale indicate higher impulsivity or risk-seeking.

Table 1. Descriptive Statistics and Bivariate Comparisons.

		Total ($n = 16{,}415$)	Incarcerated ($n = 232$)	Nonincarcerated ($n = 16{,}183$)		
	Range	*M* (SD)	*M* (SD)	*M* (SD)	x^2/t	*d*
Incarcerated	0–1	0.01 (0.12)	–	–	–	–
Country						
Antigua and Barbuda	0–1	0.04 (0.20)	0.06 (0.23)	0.04 (0.20)	1.35	0.02
Barbados	0–1	0.13 (0.33)	0.12 (0.33)	0.13 (0.33)	0.11	0.01
Dominica	0–1	0.04 (0.20)	0.02 (0.13)	0.04 (0.20)	3.44	0.03
Grenada	0–1	0.06 (0.23)	0.02 (0.15)	0.06 (0.23)	5.65*	0.04
Guyana	0–1	0.22 (0.41)	0.23 (0.42)	0.22 (0.41)	0.26	0.01
St. Kitts and Nevis	0–1	0.03 (0.16)	0.06 (0.23)	0.03 (0.16)	8.21**	0.05
St. Lucia	0–1	0.11 (0.31)	0.03 (0.16)	0.11 (0.32)	17.07**	0.07
St. Vincent and Grenadines	0–1	0.06 (0.24)	0.03 (0.17)	0.06 (0.24)	3.56	0.03
Trinidad and Tobago	0–1	0.32 (0.47)	0.44 (0.50)	0.32 (0.47)	16.13**	0.06
Sex (male)	0–1	0.42 (0.49)	0.75 (0.43)	0.41 (0.49)	106.25**	0.16
Age	15–18	16.17 (0.77)	16.18 (0.99)	16.17 (0.76)	−0.29	0.02
Race						
African descent	0–1	0.40 (0.49)	0.59 (0.49)	0.40 (0.49)	36.06**	0.09
East-Indian descent	0–1	0.21 (0.41)	0.13 (0.33)	0.21 (0.41)	9.45**	0.05
Mixed	0–1	0.13 (0.34)	0.09 (0.29)	0.13 (0.34)	3.76	0.03
Other	0–1	0.13 (0.34)	0.07 (0.26)	0.14 (0.34)	7.43**	0.04
No response (Barbados)	0–1	0.13 (0.33)	0.12 (0.33)	0.13 (0.33)	0.11	0.01
Parental/family attachment ($\alpha = 0.73$)	1–4	2.68 (0.67)	2.66 (0.73)	2.68 (0.67)	0.31	0.02
Parental monitoring ($\alpha = 0.66$)	1–5	3.18 (0.62)	2.58 (0.68)	3.19 (0.62)	14.91**	0.99
School commitment ($\alpha = 0.67$)	1–4.2	3.27 (0.49)	2.93 (0.51)	3.28 (0.48)	10.82**	0.72
Impulsivity ($\alpha = 0.51$)	1–4	2.32 (0.58)	2.60 (0.50)	2.32 (0.58)	−7.47**	0.49
Risk-seeking ($\alpha = 0.72$)	1–4	2.51 (0.69)	2.70 (0.56)	2.51 (0.69)	−4.29**	0.28
Peer pressure ($\alpha = 0.79$)	1–5	1.72 (0.91)	1.99 (1.07)	1.72 (0.90)	−4.51**	0.30
Moral attitudes/disengagement ($\alpha = 0.54$)	1–4	2.11 (0.72)	2.43 (0.62)	2.10 (0.72)	−6.95**	0.46

Notes: Chi-square and *t*-tests were conducted to identify significant differences; *$p < .05$; **$p < .01$.

Peer pressure is comprised of three questions asking how likely the respondent would still hang out with their friends if they were getting them into trouble (1) at home, (2) at school, and (3) with the police. Responses ranged from not at all likely to very likely. Higher values correspond with higher levels of negative peer influence. Finally, *moral attitudes/disengagement* relies on responses to the three questions. Questions included "It is okay to lie if it keeps your friends from getting into trouble with parents, teachers, or the police" and "It is okay to get into a physical fight with someone if they are threatening to hurt your friends or family." Higher values indicate higher levels of moral attitudes/disengagement.

Findings

The present study relies on a sample of 232 incarcerated youth and 16,183 nonincarcerated youth. As shown in Table 1, the majority of our sample was drawn from Trinidad and Tobago and Guyana (32% and 22%, respectively). Thirteen percent were from Barbados, 11% from St. Lucia, 6% from Grenada and St. Vincent and the Grenadines, 4% from Antigua and Barbuda and Dominica, and 3% from St. Kitts and Nevis. While there are significant differences in the proportion of youth by incarceration status for Grenada, St. Kitts and Nevis, St. Lucia, and Trinidad and Tobago, effect sizes differences between these groups were small (i.e., $d \leq 0.20$)

Forty-two percent of the entire sample was male, with 75% of the incarcerated sample being male and 41% of the nonincarcerated sample being male ($p < .01$, $d = 0.16$). Respondents ranged from 15 to 18 years old, with an average age of 16.18 years old for the incarcerated sample and 16.17 years old for the student sample ($p < .01$, $d = 0.02$). Approximately 60% of the incarcerated sample were of African descent compared to 40% of the student sample ($p < .01$, $d = 0.09$). A lower percentage of the incarcerated sample were East Indian (13% vs. 21%, $p < .01$, $d = 0.05$). About 9% of the incarcerated sample and 13% of the student sample ($p =$ n.s., $d = 0.03$) were mixed race. Seven percent of incarcerated youth self-reported being "other" race compared to 14% of the student sample ($p < .01$, $d = 0.04$). Race was not known for 13% of the sample, given that this question was not asked in Barbados.

Table 1 shows that there was not a significant difference in incarceration status for parental attachment; the average score was 2.68. Scores for parental monitoring were significantly lower for incarcerated youth than school-attending youth (2.58 vs. 3.18, $p < .01$, $d = 0.99$). Incarcerated youth scored significantly lower for school commitment than school youth (2.93 vs. 3.28, $p < .01$, $d = 0.72$). In contrast, for the impulsivity index, incarcerated youth scored significantly higher than the school youth (2.60 vs. 2.32, $p < .01$, $d = 0.49$), and incarcerated youth had statistically higher mean scores for risk-seeking (2.70 vs. 2.51, $p < .01$, $d = 0.28$). Incarcerated youth scored higher on the peer pressure scale than the school youth (1.99 vs. 1.72, $p < .01$, $d = 0.30$). Finally, the mean score for moral attitudes/disengagement for incarcerated youth was 2.43 compared to 2.10 for the school youth ($p < .01$, $d = 0.46$).

We compare the prevalence and variety of prior offending between incarcerated and nonincarcerated youth in Table 2. Incarcerated youth were significantly more likely to have self-reported at least one violent offense (90% vs. 71%, $p < .01$, $d = 0.10$), property offense (84% vs. 56%, $p < .01$, $d = 0.14$), and drug offense (86% vs. 72%, $p < .01$, $d = 0.08$) compared to nonincarcerated youth over the prior year. Similarly, incarcerated youth were more likely to have self-reported delinquent activity than nonincarcerated youth (95% vs. 88%, $p < .01$, $d = 0.05$). As noted above, while all of the differences in prevalence rates by incarceration status were significant regardless of offense type, the effect sizes of these differences were very small, ranging from $d = 0.08$ to $d = 0.14$. This gap by incarceration status remained when examining specific types of offenses (see Appendix A).

Likewise, when we examined variety scores, incarcerated youth engaged in greater amounts of violent offending (3.00 vs. 1.52, $p < .01$, $d = 1.03$), property offending (2.57 vs. 1.16, $p < .01$,

$d = 0.93$), and drug offending (1.86 vs. 1.04, $p < .01$, $d = 0.94$) compared to nonincarcerated youth. This held with the variety score for overall delinquency. Incarcerated youth engaged in an average of 7.43 offenses in the year prior to incarceration compared to nonincarcerated youth who engaged in 3.71 offenses in the previous year. This difference was statistically significant ($p < .01$, $d = 1.15$). The effect size differences in variety scores between incarcerated and nonincarcerated youth by offense type and overall delinquency were substantively large, ranging from $d = 0.93$ to $d = 1.15$.

Next, in Table 3, we present results from a hierarchical negative binomial regression predicting the association between incarceration and overall prior delinquency variety. We excluded Barbados in the model presented, which allowed us to include the race measure.[5] We also ran the model with Barbados without the race variable, finding similar results (analysis not shown). A Wald test indicated good model fit ($\chi^2_{(14)} = 7482.16$, $p < .01$) and a likelihood ratio (LR) test confirmed the negative binomial was preferable to a Poisson model (LR = 2195.05, $p < .01$). As shown, higher levels of violent offending were associated with a greater likelihood of being incarcerated ($b = 0.360$, $p < .01$). Additionally, being male ($b = 0.219$, $p < .01$) and older ($b = 0.058$, $p < .01$) were associated with greater delinquency. Compared to the youth of African descent, East-Indian descent ($b = -0.195$, $p < .01$), mixed ($b = -0.055$, $p < .01$), and "other" race ($b = -0.048$, $p < .01$) youth predicted lower delinquency variety. Similarly, higher levels of parental/family attachment ($b = -0.045$, $p < .01$), parental monitoring ($b = -0.212$, $p < .01$), and school commitment ($b = -0.206$, $p < .01$) predicted less delinquency. In contrast, higher levels of impulsivity ($b = 0.036$, $p < .01$), risk-seeking ($b = 0.197$, $p < .01$), peer pressure ($b = 0.091$, $p < .01$), and moral attitudes/disengagement ($b = 0.267$, $p < .01$) predicted higher levels of delinquency variety.

We also examined the relationship between incarceration and variety scores for violent offending, property offending, and drug involvement to explore whether a particular type of offending drives our results. These separate results (not shown in a table) were consistent with the overall delinquency model; incarceration was similarly positively and significantly associated with these outcomes ($b = 0.323$, 0.355, and 0.314, $p < .01$, for violent offending, property offending, and drug involvement variety scores, respectively)

While the regression results indicate prior delinquency is associated with an increased likelihood of incarceration, it is difficult to discern from these results whether some youth are disproportionately incarcerated, regardless of offending levels. Based on this and given that prior research documents incarcerated and nonincarcerated youth differ in many ways that make them difficult to compare directly, we employ propensity score matching to examine youth who engage in similar levels of

Table 2. Bivariate Differences in Delinquency Prevalence and Variety ($N = 16{,}415$).

Prevalence	Incarcerated ($n = 232$)	Nonincarcerated ($n = 16{,}183$)	x^2/t	*d*
Violent offending	0.90 (0.30)	0.71 (0.46)	42.34**	0.10
Property offending	0.84 (0.37)	0.56 (0.50)	75.20**	0.14
Drug involvement	0.86 (0.35)	0.72 (0.45)	22.99**	0.08
Delinquency involvement	0.95 (0.21)	0.88 (0.33)	11.98**	0.05
Variety				
Violent variety (range: 0–5)	3.00 (1.63)	1.52 (1.41)	−15.91**	1.03
Property variety (range: 0–6)	2.57 (1.85)	1.16 (1.45)	−14.68**	0.93
Drug involvement variety (range: 0–3)	1.86 (1.05)	1.04 (0.87)	−14.29**	0.94
Delinquency variety (range: 0–14)	7.43 (3.78)	3.71 (3.12)	−17.97**	1.15

Notes: Chi-square and t-tests were conducted to identify significant differences; *$p < 0.05$; **$p < .01$.

Table 3. Hierarchical Negative Binomial Regression Predicting Delinquency Variety in the English-Speaking Caribbean ($N = 14{,}316$).

	b (SE)	IRR
Incarceration	0.360 (0.04)**	1.43
Sex (male)	0.219 (0.01)**	1.25
Age	0.058 (0.01)**	1.06
Race		
African descent	ref	
East-Indian descent	−0.195 (0.02)**	0.82
Mixed	−0.055 (0.02)**	0.95
Other	−0.048 (0.02)**	0.95
Parental/family attachment	−0.045 (0.01)**	0.96
Parental monitoring	−0.212 (0.01)**	0.81
School commitment	−0.206 (0.01)**	0.81
Impulsivity	0.036 (0.01)**	1.04
Risk-seeking	0.197 (0.01)**	1.22
Peer pressure	0.091 (0.01)**	1.10
Moral attitudes/disengagement	0.267 (0.01)**	1.31

Notes: *$p < 0.05$; **$p < .01$; Barbados excluded in models; ref = reference; 8 groups; Wald $\chi^2_{(14)} = 7482.16$**; nonhierarchical $R^2 = 0.10$. IRR=incidence rate ratio; SE=standard error.

offending across both groups. Generated propensity scores ranged from 0 to 1, with an average score of 0.01 for the student sample and 0.09 for incarcerated youth. The area under the curve for our prediction model was good at 0.85 (Hosmer et al., 2013). Standardized bias for each included covariate and additional assessment measures were under 20% and *t*-test differences were nonsignificant (see Appendix B). We report our outcome results in Table 4.

When incarcerated and nonincarcerated youth are matched by propensity score, our findings indicate demographic disparities and risk factor differences in the use of incarceration across the English-speaking Caribbean. Incarcerated youth in the present sample's age range were more likely to be younger than nonincarcerated youth in the same age range. Youth of African descent were disproportionately incarcerated when matched by propensity score. When matched, 58% of the incarcerated youth sampled were of African descent, compared to approximately 46%–48% of the nonincarcerated sample. Our findings also revealed significant differences in parental monitoring, school commitment, impulsivity, and peer pressure. Incarcerated youth self-reported lower parental monitoring, school commitment, and peer pressure compared to nonincarcerated youth, and incarcerated youth scored higher on impulsivity than nonincarcerated youth. In our matched 3-to-1 sample, incarcerated youth were significantly more likely to be male and from the "other" racial/ethnic group than nonincarcerated youth. In the matched 1-to-1 sample, youth reported significantly less risk-seeking behavior than nonincarcerated youth. Parental attachment and moral attitudes/disengagement were not significantly different by incarceration status in either model.

Discussion

Very little research has examined youth incarceration in the Caribbean and even less has examined differences between incarcerated and nonincarcerated youth in the region. Much of the research that addresses these issues is the result of qualitative assessments conducted by human rights and international development organizations (Laurent et al., 2011; Munoz et al., 2012). The present study addressed this gap by comparing incarcerated and nonincarcerated youth across nine Caribbean nations. We did so by examining a sample of 232 incarcerated youth and 16,183 similarly aged school-attending youth.

Table 4. Propensity Score Matching Outcomes.

	Matched 1-to-1			Matched 3-to-1		
	Incarcerated	Nonincarcerated	*t*	Incarcerated	Nonincarcerated	*t*
Sex (male)	0.73	0.66	1.47	0.73	0.62	2.42*
Age	16.15	16.36	−2.54*	16.15	16.32	−2.04*
Race						
African descent	0.58	0.48	2.24*	0.58	0.46	2.69**
East-Indian descent	0.14	0.19	−1.57	0.14	0.18	−1.34
Mixed	0.09	0.13	−1.25	0.09	0.11	−0.73
Other	0.07	0.10	−1.20	0.07	0.14	−2.46*
No response (Barbados)	0.12	0.10	0.61	0.12	0.11	0.40
Parental/family attachment	2.67	2.54	2.01	2.67	2.58	1.34
Parental monitoring	2.59	2.85	−4.03**	2.59	2.90	−4.78**
School commitment	2.96	3.09	−2.53*	2.96	3.09	−2.66**
Impulsivity	2.61	2.45	3.18**	2.61	2.43	3.54**
Risk-seeking	2.70	2.82	−2.01*	2.70	2.74	−0.59
Peer pressure	1.94	2.19	−2.48*	1.94	2.17	−2.16*
Moral attitudes/ disengagement	2.42	2.50	−1.22	2.42	2.45	−0.53

Notes: *$p < .05$; **$p < .01$; 1-to-1-model-18 off support for treated; 3-to-1-model-18 off support for treated.

The study first sought to identify whether incarcerated youth self-report engaging in higher delinquency levels prior to incarceration than nonincarcerated youth. Our findings support past research showing that, in general, a high proportion of English-speaking Caribbean youth participate in delinquency. Compared to the general student body, however, detained youth self-reported significantly greater prevalence and varieties of delinquency in the year prior to incarceration overall and across violent offending, property offending, and drug involvement measures. Research on rehabilitation and reentry highlights the importance of matching interventions to offenders—targeting those with the highest risk and needs (Andrews et al., 1990). This is particularly relevant in the Caribbean, given resource scarcity. Our results bolster the idea that juvenile justice systems in the Caribbean appropriately engage many youth with the highest offending levels. However, we cannot speak to the extent that youth who are most in need of intervention receive it, the threshold when incarceration is needed, or, beyond this, the effectiveness of incarceration in response to offending. Future research is needed to address these specific issues.

The second goal of this study was to examine whether incarcerated and nonincarcerated youth who offend at similar levels are comparable in terms of demographic characteristics and risk factors. When matched by propensity scores, several differences between incarcerated and nonincarcerated youth emerged. Our findings indicated there might be racial disparities in incarceration, with the youth of African descent more likely to be incarcerated. Penal systems often are catching grounds for disadvantaged groups in societies. This is evident in the overrepresentation of indigenous populations in Australia and Canada (Cesaroni et al., 2019; Sheperd & Ilalio, 2016), people with mental illness across African detention facilities (Lovett et al., 2019), religious minorities in India (Ahmad & Siddiqui, 2017), and people of color in the United States, United Kingdom, and Brazil (Araujo, 2020; Hockenberry & Puzzanchera, 2020; Ministry of Justice, 2018). To be sure, disproportionate incarceration is not necessarily indicative of discrimination, which is not examined in the current study.

These disparities, however, do not occur solely in correctional systems but instead reflect practices of policing and court processes and underinvestment in social and economic protections for vulnerable populations. Changing overrepresentation would likely need to target these influencers.

Further, examining risk factors for incarceration, we found parental monitoring, school commitment, impulsivity, and peer pressure differ significantly between incarcerated and nonincarcerated youth. Our findings support the broad criminological research on these measures for predicting delinquency and incarceration (Forrest et al., 2019; Kompf-Leonard, 2019; Pratt & Cullen, 2000; Pratt et al., 2010). Although we cannot examine any causal role these factors may play in leading to incarceration based on the present data, given our findings and the theoretical importance of these concepts, they should serve as important factors to consider in future crime prevention programming and research. This may include efforts with parents to encourage monitoring of their children's behavior and discourage antisocial behavior, efforts with teachers to foster classroom engagement to increase commitment to school, and interventions designed to have youth think through their decisions, reducing impulsive decisions. While programs from outside the region may serve as models for these types of interventions, they must be developed or at least adapted to the cultural context of the Caribbean and evaluated to ensure they are effective.

Caribbean nations are historically, socially, and economically diverse, and crime prevention efforts may also need to be tailored by nation; however, broadly, the low effect sizes between nations' levels of youth incarceration in the current study suggest more similarities than differences may exist for youth in the region. Given the lack of prior programming in the region, there are opportunities to build and support promising noninstitutional criminal justice interventions. Intervening earlier, rather than at the detention stage, holds the potential to reduce incarceration's harms. For instance, Foster et al. (2004) found that investment in mental health services reduced youth's initial contact with the criminal justice system and subsequent involvement, especially for serious offenses. Providing resources and support at early stages, when risky behaviors are first noticed by parents, teachers, faith-based leaders, or others, may prove both more cost-effective and less harmful for youth. Beyond this, alternative forms of punishment need to be evaluated. There is some support that noninstitutional programming reduces recidivism more for serious juvenile offenders than institutional programs (Lipsey et al., 2000). Incarceration is costly, particularly for juveniles. If alternative responses to delinquency are more effective in the region, they may serve as more secure and less expensive responses. These interventions, however, have never been evaluated in the region.

While beyond the scope of the current study, our findings highlight that more research is needed on juveniles' experiences with criminal justice systems and the potential consequences of incarceration in the English-speaking Caribbean. This should include examining the extent to which adverse events occur to juveniles while incarcerated and the impact of incarceration on youths' future outcomes (e.g., employment, relationships, criminality, and health) to determine the costs and unintended consequences of youth incarceration. Some theorists have proposed that punishment, such as incarceration, can deter future offending (Nagin, 2013). Others, however, point to a "labeling" effect from incarceration, which pushes youth further into delinquency (Becker, 1963; Braithwaite, 1989). This process has not been examined in the region yet and deserves attention given the personal and policy implications. Future research should also continue to examine potential racial disparities in incarceration and differences in justice system experiences by race. Additionally, female involvement in delinquency in the Caribbean, though not surpassing males, is notably high. Despite this, few females are incarcerated, which results in a male-centric prison focus. Future research should examine if and why females are processed differently by criminal justice system actors leading to the observed lower incarceration rate and whether gender-specific programming is needed to address females' needs when incarcerated.

Limitations to the present study exist. First, due to the low numbers of detained youth in some of the study nations, data were aggregated at the regional level to allow for analysis. In the future, researchers

should collect data over time within each nation to examine between nation variation within the region. Second, only those detained at youth detention centers were examined. Any youth detained in an adult facility was not included in the present study. Future researchers should include these youth, which would provide important information on the number of youth housed in adult facilities and whether there is variation between these youth and those in the general school population and those housed at youth detention facilities. Third, our matched results revealed conflicting findings on risk-seeking, with either no effect or a negative effect on delinquency. This stands in opposition to theoretical expectations and deserves future inquiry. Further, the two data sources (the CSYS and CYDS) both measured 12 months prior, however, the CYDS measured the 12 months prior to incarceration which varied among incarcerated youth. Finally, we were limited in that we were not able to examine differences between youth who completed and did not complete both surveys.

Juvenile incarceration can result in longstanding adverse effects. Our findings suggest that while the English-speaking Caribbean incarcerates youth engaging in greater offending than youth attending schools, racial disparities might exist in the use of incarceration. This study highlights the importance of researching detained youth and serves as a starting point for future research and policy work.

Appendix A. Bivariate differences in delinquency prevalence by offense types ($N = 16,415$).

	Incarcerated ($n = 232$)	Nonincarcerated ($n = 16,183$)	x^2/t	Cohen's d
Violent offending				
Hit someone with the idea of hurting them	0.75 (0.43)	0.58 (0.49)	29.25**	0.08
Carried a hidden weapon (of any kind) for protection	0.70 (0.46)	0.33 (0.47)	136.84**	0.18
Attacked someone with a weapon (of any kind)	0.55 (0.50)	0.21 (0.41)	151.12**	0.19
Used a weapon or force to get money or things from people	0.29 (0.46)	0.06 (0.24)	206.65**	0.23
Get involved in fights with other groups	0.72 (0.45)	0.34 (0.47)	144.48**	0.19
Property offending				
Avoided paying for something such as the movies or the bus	0.50 (0.50)	0.30 (0.46)	43.47**	0.10
Purposely damaged or destroyed other's property	0.58 (0.50)	0.37 (0.48)	40.90**	0.10
Illegally spray-painted a wall or building	0.34 (0.48)	0.14 (0.35)	77.46**	0.14
Steal or try to steal something worth less than EC$100	0.35 (0.48)	0.18 (0.39)	38.98**	0.10
Steal or try to steal something worth more than EC$100	0.47 (0.50)	0.10 (0.30)	321.78**	0.28
Go into to try to go into a building to steal something	0.35 (0.48)	0.07 (0.25)	266.23**	0.26
Drug involvement				
Alcohol use	0.72 (0.45)	0.70 (0.46)	0.38	0.01
Marijuana use	0.70 (0.46)	0.25 (0.43)	250.33**	0.25
Drug selling	0.44 (0.50)	0.09 (0.29)	328.00**	0.29

Notes: Chi-square tests were conducted to identify significant differences; *$p < .05$; **$p < .01$.

Appendix B. Covariate balancing.

	Matched 1-to-1			Matched 3-to-1		
	Incarcerated	Nonincarcerated	Std. % Bias	Incarcerated	Nonincarcerated	Std. % Bias
Binary measures						
Violent offending	0.89	0.90	−2.4	0.89	0.89	0.80
Hit someone with the idea of hurting them	0.74	0.73	1.0	0.74	0.74	0.05
Carried a hidden weapon (of any kind) for protection	0.67	0.74	−14.0	0.67	0.71	−7.2
Attacked someone with a weapon (of any kind)	0.52	0.54	−4.1	0.52	0.55	−5.1
Used a weapon or force to get money or things from people	0.27	0.31	−11.6	0.27	0.27	−1.9
Get involved in fights with other groups	0.70	0.75	−12.1	0.70	0.74	−8.9
Property offending	0.83	0.85	−2.4	0.83	0.84	−2.9
Avoided paying for something such as the movies or the bus	0.48	0.50	−2.9	0.48	0.49	−2.1
Purposely damaged or destroyed other's property	0.57	0.64	−14.3	0.57	0.62	−9.9
Illegally spray-painted a wall or building	0.37	0.37	−1.1	0.37	0.38	−2.6
Steal or try to steal something worth less than EC$100	0.37	0.42	−10.8	0.37	0.39	−3.2
Steal or try to steal something worth more than EC$100	0.43	0.46	−7.9	0.43	0.44	−2.3
Go into to try to go into a building to steal something	0.32	0.34	−3.7	0.32	0.33	−2.9
Drug involvement	0.85	0.84	2.3	0.85	0.82	5.6
Alcohol use	0.74	0.78	−7.2	0.74	0.75	−0.3
Marijuana use	0.67	0.69	−4.2	0.67	0.68	−1.9
Drug selling	0.41	0.39	3.5	0.41	0.39	3.6

(continued)

(continued)

	Matched 1-to-1			Matched 3-to-1		
	Incarcerated	Nonincarcerated	Std. % Bias	Incarcerated	Nonincarcerated	Std. % Bias
Variety measures						
Violent offending	2.90	3.01	−11.7	2.90	3.00	−6.8
Hit someone with the idea of hurting them	1.64	1.77	−9.2	1.64	1.73	−6.2
Carried a hidden weapon (of any kind) for protection	1.68	1.91	−16.3	1.68	1.80	−8.8
Attacked someone with a weapon (of any kind)	1.15	1.21	−4.7	1.15	1.16	−0.1
Used a weapon or force to get money or things from people	0.55	0.77	−22.8	0.55	0.62	−7.4
Get involved in fights with other groups	1.70	1.55	11.5	1.70	1.51	14.5
Property offending	2.54	2.72	−11.0	2.54	2.65	−6.2
Avoided paying for something such as the movies or the bus	1.01	1.07	−4.5	1.01	1.05	−3.1
Purposely damaged or destroyed other's property	1.24	1.26	−1.1	1.24	1.32	−6.4
Illegally spray-painted a wall or building	0.74	0.74	0.0	0.74	0.77	−3.0
Steal or try to steal something worth less than EC$100	0.76	0.86	−10.2	0.76	0.78	−2.5
Steal or try to steal something worth more than EC$100	0.97	0.90	6.2	0.97	0.82	13.3
Go into to try to go into a building to steal something	0.67	0.64	3.0	0.67	0.62	4.8
Drug involvement	1.82	1.86	−10.2	1.82	1.82	0.5
Alcohol use	1.99	2.24	−15.5	1.99	2.23	−15.0
Marijuana use	2.07	1.81	17.1	2.07	1.79	18.5
Drug selling	1.11	1.02	7.1	1.11	1.02	7.3
Delinquency variety	7.26	7.66	−11.5	7.26	7.46	−5.8
Country						
Antigua and Barbuda	0.06	0.07	−2.2	0.06	0.07	−4.4
Barbados	0.12	0.10	5.7	0.12	0.11	3.8

(continued)

(continued)

	Matched 1-to-1			Matched 3-to-1		
	Incarcerated	Nonincarcerated	Std. % Bias	Incarcerated	Nonincarcerated	Std. % Bias
Dominica	0.02	0.03	−8.3	0.02	0.03	−6.9
Grenada	0.02	0.03	−7.2	0.02	0.03	−7.2
Guyana	0.25	0.27	−4.5	0.25	0.26	−2.1
St. Kitts and Nevis	0.06	0.04	9.5	0.06	0.05	4.7
St. Lucia	0.03	0.05	−7.5	0.03	0.04	−4.4
St. Vincent and Grenadines	0.03	0.02	6.8	0.03	0.03	3.0
Trinidad and Tobago	0.41	0.39	3.9	0.41	0.39	5.5

Notes: Std = standardized; *t*-tests indicated no significant differences between groups ($p > .05$).

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Notes

1. While variation exists across study nations, high rates throughout the region highlight the violent crime problem. Specifically for the study nations, the 2015 intentional homicide rates were 21 per 100,000 in Antigua in Barbuda and Barbados (2017), 13 in Dominica, 5 in Grenada, 19 in Guyana, 58 in St. Kitts and Nevis (2016), 16 in St. Lucia, 37 in St. Vincent and the Grenadines (2016), and 31 in Trinidad and

Tobago. Alternative years are noted when 2015 rates were not available. In comparison, the United States' intentional homicide rate was 5 homicides per 100,000 and the United Kingdoms' rate was 1 per 100,000 in 2015 (World Bank, n.d.).

2. We were not able to examine differences between students who completed versus did not complete the survey. This approach likely underestimates the student body's delinquency given truancy's link to delinquency (Rocque et al., 2017).
3. We do not use multiple imputation as this percentage falls under the 15% missing data threshold for which listwise deletion is acceptable (Allison, 2000).
4. We use propensity score matching rather than a regression approach because, given the small incarcerated sample, we are able to identify and remove cases without common support. As described by Apel & Sweeten (2010): "Standard regression…obscures this issue and can, in some situations, extrapolate treatment effect estimates based solely on functional form when treated and untreated groups are actually not comparable at all" (p. 8). At the suggestion of a reviewer, we also ran a rare events logistic regression model predicting incarceration and the results largely mirror the propensity score matching results.
5. Removing Barbados from the analyses led to an exclusion of 2,099 cases. We were unable to impute race for Barbados given country-level population differences; no students in Barbados provided their race to inform the imputation.

References

Ahmad, I., & Siddiqui, M. Z. (2017). Democracy in jail: Over-representation of minorities in Indian prisons. *Economic & Political Weekly, LII*(44), 98–106. http://dspace.stellamariscollege.edu.in:8080/xmlui/bitstream/handle/123456789/8758/Jails.pdf?sequence=1&isAllowed=y

Aizer, A., & Doyle, J. J. (2015). Juvenile incarceration, human capital, and future crime: Evidence from randomly assigned judges. *The Quarterly Journal of Economics*, *130*(2), 759–803. https://doi.org/10.1093/qje/qjv003

Akers, R. L., & Jensen, G. F. (2006). The empirical status of social learning theory of crime and deviance: The past, present, and future. In F. T. Cullen, J. P. Wright, & K. R. Blevins (Eds.), *Taking stock: The status of criminological theory* (pp. 37–76). Transaction Publishers.

Allison, P. D. (2000). Multiple imputation for missing data: A cautionary tale. *Sociological Methods & Research*, *28*(3), 301–309. https://doi.org/10.1177/0049124100028003003

Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior*, *17*(1), 19–52. https://doi.org/10.1177/0093854890017001004

Apel, R., & Sweeten, G. (2010). Propensity score matching in criminology and criminal justice. In A. Piquero, & D. Weisburd (Eds.), *Handbook of quantitative criminology* (pp. 543–562). Springer.

Araujo, R. (2020, November 9). Prisoners, family and the pandemic in Brazil. *Urban Violence Research Network*. https://urbanviolence.org/prisoners-family-and-the-pandemic-in-brazil/

Bailey, C., & Coore-Desai, C. (2009). Offender abuse history: Findings from Her Majesty's Prison, Barbados. *Caribbean Journal of Criminology and Public Safety*, *14*(1–2), 49–80. https://sta.uwi.edu/conferences/09/salises/documents/C%20Bailey.pdf

Barnert, E. S., Perry, R., Shetgiri, R., Steers, N., Dudovitz, R., Heard-Garris, N. J., Zima, B., & Chung, P. J. (2021). Adolescent protective and risk factors for incarceration through early adulthood. *Journal of Child and Family Studies*, *30*(6), 1428–1440. https://doi.org/10.1007/s10826-021-01954-y

Bechtold, J., & Cauffman, E. (2013). Tried as an adult, housed as a juvenile: A tale of youth from two courts incarcerated together. *Law and Human Behavior*, *38*(2), 126–138. https://doi.org/10.1037/lhb0000048

Becker, H. S. (1963). *Outsiders: Studies in the sociology of deviance*. Free Press Glencoe.

Bergman, M., Seepersad, R., Safranoff, A., & Cafferata, F. (2020). *Regional comparative report: Survey of individuals deprived of liberty: Caribbean 2016-2019*. Inter American Development Bank. http://dx.doi.org/10.18235/0002651

Braithwaite, J. (1989). *Crime, shame, and reintegration*. Cambridge University Press.

Braman, D. (2002). Families and incarceration. In M. Mauer & M. Chesney-Lind (Eds.), *Invisible punishment: The collateral consequences of mass imprisonment* (pp. 120–135). The New Press.

Brown, K. (2020). A brief history of race, politics and division in Trinidad and Guyana. *Caribbean Quilt*, *5*, 44–54. https://doi.org/10.33137/caribbeanquilt.v5i0.34377

Cauffman, E., & Steinberg, L. (2012). Emerging findings from research on adolescent development and juvenile justice. *Victims & Offenders*, *7*(4), 428–449. https://doi.org/10.1080/15564886.2012.713901

Cesaroni, C., Grol, C., & Fredricks, K. (2019). Overrepresentation of indigenous youth in Canada's criminal justice system: Perspectives of indigenous young people. *Australian & New Zealand Journal of Criminology*, *52*(1), 111–128. https://doi.org/10.1177/0004865818778746

Cheon, H., Katz, C. M., & Freemon, K. (2022). Validating social control, self-control, and social learning constructs among youth in nine English-speaking Caribbean nations [Unpublished manuscript].

Deosaran, R., & Chadee, D. (1997). Juvenile delinquency in Trinidad and Tobago: Challenges for social policy and Caribbean criminology. *Caribbean Journal of Criminology and Social Psychology*, *2*(2), 36–83. https://www.ojp.gov/ncjrs/virtual-library/abstracts/juvenile-delinquency-trinidad-and-tobago-challengessocial-policy

Dierkhising, C. B., Lane, A., & Natsuaki, M. N. (2014). Victims behind bars: A preliminary study of abuse during juvenile incarceration and post-release social and emotional functioning. *Psychology, Public Policy, and Law*, *20*(2), 181–190. https://doi.org/10.1037/law0000002

Dishion, T. J., & McCord, J. (1999). When interventions harm. *American Psychologist*, *54*(9), 755–764. https://doi.org/10.1037/0003-066X.54.9.755

Forrest, C. B., Tambor, E., Riley, A. W., Ensminger, M. E., & Starfield, B. (2000). The health profile of incarcerated male youths. *Pediatrics*, *105*, 286–291. https://doi.org/10.1542/peds.105.S2.286

Forrest, W., Hay, C., Widdowson, A. O., & Rocque, M. (2019). Development of impulsivity and risk-seeking: Implications for the dimensionality and stability of self-control. *Criminology; An Interdisciplinary Journal*, *57*(3), 512–543. https://doi.org/10.1111/1745-9125.12214

Foss, A., Laurent, B., de Garcia, D., Charles, H., Puucilowski, M., Hazel, N., Sahai, R., & McKenzie, S. (2013). *Eastern and Southern Caribbean Youth Assessment (ESCYA)*. USAID.

Foster, E. M., Qaseem, A., & Connor, T. (2004). Can better mental health services reduce the risk of juvenile justice system involvement? *American Journal of Public Health*, *94*(5), 859–865. https://doi.org/10.2105/AJPH.94.5.859

Free, M. D.Jr. (2001). Racial bias and the American criminal justice system race and presentencing revisited. *Critical Criminology*, *10*, 195–223. https://doi.org/10.1023/A:1015796321587

Freemon, K. R., Nuño, L. E., & Katz, C. M. (2020). The status of youth incarceration in the Caribbean. *Caribbean Journal of Criminology*, *2*(1), 48–74.

Gilman, A. B., Hill, K. G., & Hawkings, J. D. (2015). When is a youth's debt to society paid? Examining the long-term consequences of juvenile incarceration for adult functioning. *Journal of Developmental and Life Course Criminology*, *1*, 33–47. https://doi.org/10.1007/s40865-015-0002-5

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press.

Harriott, A., & Katz, C. M. (2015). *Gangs in the Caribbean: Responses of state and society*. University of the West Indies Press.

Hindelang, M., Hirschi, T., & Weis, J. (1981). *Measuring delinquency*. Sage.

Hirschi, T. (1969). *Causes of delinquency*. University of California Press.

Hockenberry, S., & Puzzanchera, C. (2020). Juvenile court statistics 2018. National Center for Juvenile Justice.

Hosmer, D. W., Lemeshow, S., & Sturdivan, R. X. (2013). *Applied logistic regression*, 3rd edn. John Wiley & Sons, Inc.

Huizinga, D., & Henry, K. L. (2008). The effect of arrest and justice system sanctions on subsequent behavior: Findings from longitudinal and other studies. In: A. M, Liberman (Ed.) *The long view of crime: A synthesis of longitudinal research* (pp. 220–254). Springer.

Katz, C. M., Cheon, H., Freemon, K., & Nuño, L. E. (2022). Delinquency, drug use, and gang membership in the English-speaking Caribbean [Unpublished manuscript].

Kempf-Leonard, K. (2019). The status of Hirschi's social control theory after 50 years. In J. C. Oleson & B. J. Costello (Eds.), *Fifty years of causes of delinquency: The criminology of Travis Hirschi*. (pp. 161–208). Routledge.

Laurent, B., Barnes, A., Chambers, T., & Gray, S. (2011). *Caribbean Basin Security Initiative juvenile justice assessment*. USAID Barbados.

Lipsey, M. W., Wilson, D. B., & Cothern, L. (2000). Effective intervention for serious juvenile offenders. Office of Juvenile Justice and Delinquency Prevention.

Lovett, A., Kwon, H. R., Kidia, K., Machando, D., Crooks, M., Fricchione, G., Thornicroft, G., & Jack, H. E. (2019). Mental health of people detained within the justice system in Africa: Systematic review and meta-analysis. *International Journal of Mental Health Systems*, *13*(31), 1–41. https://doi.org/10.1186/s13033-019-0273-z

McGowan, A., Hahn, R., Liberman, A., Crosby, A., Fullilove, M., Johnson, R., Moscicki, Price, L., Snyder, S., Tuma, F., Lowy, J., Briss, P., Cory, S., & Stone, G. (2007). Effects on violence of laws and policies facilitating the transfer of juveniles from the juvenile justice system to the adult justice system: A systematic review. *American Journal of Preventive Medicine*, *32*(4), 7–28. https://doi.org/10.1016/j.amepre.2006.12.003

Ministry of Justice. (2018). Youth justice statistics, 2016/17.

Mitchell, O. (2005). A meta-analysis of race and sentencing research: Explaining the inconsistencies. *Journal of Quantitative Criminology*, *21*(4), 439–466. https://doi.org/10.1007/s10940-005-7362-7

Moffitt, T. E., Caspi, A., Rutter, M., & Silva, P. A. (2001). *Sex differences in antisocial behavior: Conduct disorder, delinquency, and violence in the Dunedin Longitudinal Study*. Cambridge University Press.

Muñoz, H., Justiniano, F., Fabiancic, N., Mercado, L., Harriott, A., De Castro, M., Gittens, T., Gyles-McDonnough, M., Kashyap, A., Musa, K., & Lopez, C. L. F. (2012). *Caribbean human development report 2012: Human development and the shift to better citizen security*. United Nations Development Programme.

Nagin, D. S. (2013). Deterrence in the twenty-first century. *Crime and Justice*, *42*(1), 199–263. https://doi.org/10.1086/670398

Pager, D. (2003). The mark of a criminal record. *American Journal of Sociology*, *108*, 937–975. https://doi.org/10.1086/374403

Pan, W., & Bai, H. (2015). Propensity score analysis: Concepts and issues. In: W. Pan & H. Bai (Eds.) *Propensity score analysis: Fundamentals and developments* (pp. 3–19). Guilford Publications, Inc.

Peters, K. S. (2019). Characteristics of young females in need of state supervision in Trinidad and Tobago. In W. C Wallace (Ed.), *Caribbean Perspectives on criminology and criminal justice: Volume 1* (pp. 223–246). Westphalia Press.

Petrosino, A., Turpin-Petrosino, C., & Guckenburg, S. (2010). *Formal system processing of juveniles: Effects on delinquency*. Campbell Systematic Reviews.

Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology; An Interdisciplinary Journal*, *38*(3), 931–964. https://doi.org/10.1111/j.1745-9125.2000.tb00911.x

Pratt, T. C., Cullen, F. T., Sellers, C. S., Winfree, L. T.Jr., Madensen, T. D., Daigle, L. E., Fearn, N. E., & Gau, J. M. (2010). The empirical status of social learning theory: A meta-analysis. *Justice Quarterly*, *27*(6), 755–802. https://doi.org/10.1080/07418820903379610

Shepherd, S. M., & Ilalio, T. (2016). Maori and pacific islander overrepresentation in the Australian criminal justice system—what are the determinants? *Journal of Offender Rehabilitation*, *55*(2), 113–128. https://10.1080/10509674.2015.1124959

Smith, E. L., & Stroop, J. (2019). *Sexual victimization reported by youth in juvenile facilities, 2018*. Bureau of Justice Statistics.

Stuart, E. A. (2010). Matching methods for causal inference: A review and a look forward. *Statistical Science*, *25*(1), 1–21. https://doi.org/10.1214/09-STS313

Teplin, L. A., Abram, K. M., McClelland, G. M., Dulcan, M. K., & Mericle, A. A. (2002). Psychiatric disorders in youth in juvenile detention. *Archives Of General Psychiatry*, *59*(12), 1133–1143. https://doi.org/10.1001/archpsyc.59.12.1133

Voisin, D. R., Kim, D., Takahashi, L., Morotta, P., & Bocanegra, K. (2017). Involvement in the juvenile justice system for African American adolescents: Examining associations with behavioral health problems. *Journal of Social Service Research*, *43*(1), 129–140. https://doi.org/10.1080/01488376.2016.1239596

Walker, S., Spohn, C., & DeLone, M. (2016). *The color of justice: Race, ethnicity, and crime in America*. Cengage Learning.

Western, B., & Beckett, K. (1999). How unregulated is the US labor market? The penal system as a labor market institution. *American Journal of Sociology*, *104*(4), 1030–1060. https://doi.org/10.1086/210135

World Bank. (n.d.). Intentional homicides (per 100,000 people). https://data.worldbank.org/indicator/VC.IHR.PSRC.P5

World Prison Brief. (2021). https://www.prisonstudies.org/

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