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## Discrimination, Substance Use, and HIV Risk Among First-Time Juvenile Offenders

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DISCRIMINATION, SUBSTANCE USE, AND HIV RISK  
AMONG FIRST-TIME JUVENILE OFFENDERS

BY

BRITTNEY C. POINDEXTER

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE

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## ABSTRACT

Perceived discrimination is an important social determinant of mental and behavioral outcomes among adolescent populations. Research has found associations between perceived discrimination and increases in internalizing symptoms, such as depression and anxiety, as well as increases in a number of negative behavioral outcomes, including substance use, delinquent behavior, and HIV risk behaviors (e.g. multiple sexual partners and substance use during sex). There is a gap in the research examining how experiences of perceived discrimination impact substance use and HIV risk behaviors among more at-risk youth, such as juvenile offenders. Court Involved Non-Incarcerated (CINI) juveniles participate in substance use and sexual risk behaviors at high rates, similar to youth that are detained or incarcerated, but are less likely to have access to mental, behavioral, and health treatment options while in the community. This study aimed to assess the relationship between perceived discrimination, internalizing symptoms and substance use and HIV risk behaviors among this at-risk population.

Three hundred and fifty six CINI youth were recruited from the Juvenile Intake Department of a family court system in the northeast, as a part of an ongoing, prospective cohort study. In order to assess HIV risk, 139 first-time offenders that endorsed lifetime sexual activity were examined as a part of this study. Preliminary results showed that juvenile report of moderate to high frequency of perceived discrimination was significantly related to an increase in internalizing symptoms ( $r = .400, p < .0001$ ). Factorial MANCOVA analyses revealed that the interaction effect

between level of perceived discrimination and internalizing symptoms was significantly associated with HIV risk behavior [Wilks'  $\lambda = .878$ ,  $F(6, 222) = 2.49$ ,  $p = .024$ , partial eta squared = .063, power = .829]. Significant univariate main effects for the interaction effect were obtained for number of lifetime sexual partners [ $F(2, 123) = 5.00$ ,  $p = .008$ , partial eta square = .081, power = .805]. For juveniles in the moderate to high discrimination/non-clinically significant internalizing symptoms group the mean number of lifetime sexual partners was 1.71, versus a mean of 9.11 lifetime sexual partners for juveniles in the moderate to high discrimination/clinically significant internalizing symptoms group. Post-hoc tests revealed that the average number of lifetime sexual partners was significantly higher for juveniles reporting moderate/high discrimination and clinically significant internalizing symptoms. Additional factorial MANCOVA and logistic regression analyses did not reveal significant associations between the discrimination by internalizing symptoms interaction effect and other HIV risk or substance use behaviors. Findings from this study call for additional research examining the impact of discrimination on this at-risk population. Increased understanding of the impact of discrimination on high risk behaviors can better inform treatment services for at-risk CINI juveniles.

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# CHAPTER 1

## INTRODUCTION

An important social determinant of mental and behavioral health is perceived discrimination. Among adolescent populations, discrimination is associated with depressive symptoms and suicidality (Burton, Marshal, Chisolm, Sucato & Friedman, 2013; Lambert, Herman, Bynum, & Ialongo, 2009; Sanders-Phillips et al., 2014), and a number of negative behavioral outcomes, such as increased substance use (Brody, Kogan, & Chen, 2012; Madkour et al., 2015) and delinquent behavior (Bogart et al., 2013). Other studies indicate a significant relationship between perceived discrimination and adolescent report of multiple sexual partners and sexual risk taking (Stevens-Watkins, Brown-Wright, & Tyler, 2011; Roberts et al., 2012). However, there is a gap in the research examining how the frequency of experiences of perceived discrimination impacts HIV risk behaviors among youth belonging to more at-risk populations, such as juvenile offenders. To date, no studies have examined how discrimination impacts mental and behavioral health outcomes of youth involved in the juvenile justice system.

High rates of sexual risk behavior, substance use, and mental health problems among the juvenile justice population place these adolescents at an elevated risk for contracting HIV and other sexually transmitted infections (STIs). Compared to adolescents in the general population, juvenile offenders have higher STI rates (Belenko et al., 2008; Dembo, Belenko, Childs, Greenbaum & Warwham, 2010;

Dembo, Belenko, Childs, Warcham, & Schmeidler, 2009) and engage more frequently in HIV risk behaviors such as unprotected sexual activity, multiple sex partners and substance use during sex (Bryan, Rocheleau, Robins, & Hutchinson, 2005; Teplin, Mericle, McClelland, & Abram, 2003; Teplin et al., 2005; Tolou-Shams, Brown, Gordon, & Fernandez, 2007). Sixty percent of juvenile offenders are estimated to need substance use treatment (McClelland, Elkington, Teplin, & Abram, 2004), and disproportionate rates of mental health disorders, particularly substance use disorders, substantially increase the likelihood of engaging in HIV risk behaviors (Abram, Teplin, McClelland, & Dulcan, 2003; Teplin, Mericle, McClelland, & Abram, 2003; Teplin et al., 2005).

These findings largely focus on juvenile offenders who are detained or incarcerated. However, the vast majority of adolescents involved in the juvenile justice system are not incarcerated (Sickmund, Sladky, & Kang, 2015), and are therefore less likely to have access to mental health services, medical and sexual health screenings, or treatment services that may be more easily accessible to juveniles within detention and correctional facilities. Moreover, research on this population of Court Involved Non-Incarcerated (CINI) juveniles has found that these youth tend to participate in similar substance use and sexual risk behaviors as those youth who are detained or incarcerated (Hunter, Miles, Pedersen, Ewing, & D'Amico, 2014; Geri, Erin, Mary, & Wadiya, 2015; Tolou-Shams, Brown, Houck, & Lescano, 2007).

HIV prevention intervention efforts that target HIV risk reduction among juvenile offenders, and consider the impact of mental health, substance use, and socio-cultural factors are underdeveloped (Tolou-Shams, Stewart, Fasciano, & Brown,

2010). Given higher rates of mental health problems, substance use and HIV risk behavior amongst CINI youth, it is important to explore how socio-cultural factors such as discrimination, might impact these negative outcomes. Furthermore, exploring the impact of discrimination could better inform culturally sensitive interventions that may enhance risk reduction outcomes at the earliest point of court contact. The current study will explore the associations between perceived discrimination, internalizing symptoms (e.g. depression, anxiety, and somatization), HIV risk behaviors and substance use among CINI youth.

### **Research Questions/Hypotheses**

The following hypotheses were examined while testing the associations between demographic variables, perceived discrimination, internalizing symptoms, substance use, and HIV risk behaviors:

1. How do demographic variables vary according to frequency of discrimination and level of internalizing symptoms among CINI juveniles? In addition, how does type of juvenile charge and self-reported reason for perceived discrimination vary across these variables?
  - a. Minority adolescents (i.e. racial minority or sexual minority) are expected to report more perceived discrimination and associated internalizing symptoms than non-minority adolescents. Racism is the most frequently studied form of discrimination, thus it is hypothesized that race or skin color will be the most significantly reported reasons for greater perceived discrimination. The examination of the relationship between perceived discrimination and juvenile charge is

exploratory, but it can be hypothesized that delinquent juveniles will report more significant perceived discrimination and/or internalizing symptoms as their charges are more serious.

2. Is perceived discrimination related to internalizing symptoms among CINI juveniles?
  - a. This study hypothesizes that perceived discrimination will be significantly related to internalizing symptoms. Based on previous findings in adolescent and adult populations, increased perceived discrimination is expected to correlate with an increase in internalizing symptoms.
3. How do substance use and sexual risk behaviors relate to frequency of perceived discrimination? Moreover, how does the interaction between perceived discrimination and internalizing symptoms impact substance use and sexual risk outcomes?
  - a. Prior research has already established a relationship between these outcomes and mental health indicators (e.g. depressive symptoms; Tolou-Shams et al., 2007) among CINI juveniles. However, the relationship between frequency of perceived discrimination or furthermore, the interaction between perceived discrimination and internalizing symptoms, and these risk outcomes has not been explored. It is hypothesized that greater incidence of perceived discrimination and higher report of internalizing symptoms will significantly relate to an increase in substance use and HIV risk behaviors.

## CHAPTER 2

### REVIEW OF LITERATURE

Discrimination can be defined as differential treatment based on race or another unjustified factor that disadvantages members of a group (National Academy of Sciences (US), National Academy of Engineering (US), and Institute of Medicine (US) Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2004). Stemming from the biopsychosocial model, Clark et al. (1999) theorize that the stress of perceived discrimination produces a combination of psychological, social, and physiological effects that ultimately impact health outcomes. More specifically, the Biopsychosocial Model of Racism-related Stress (Clark et al., 1999), which is consistently referenced in the literature, posits that the perception of an environmental stimulus as being a racial stressor can be influenced by a number of factors, such as, physical factors (e.g. skin color), sociodemographic factors (e.g. family income), and psychological/behavioral factors (e.g. risk behaviors). If an individual perceives an environmental stimulus as a racial stressor, the reaction to this stress (e.g. substance use or sexual risk behaviors as avoidant coping methods) may in turn influence health outcomes (e.g. HIV infection).

#### ***The Impact of Perceived Discrimination***

Among African American and Hispanic youth, perceived racial and ethnic discrimination has been significantly linked with increases in mental health symptoms (Behnke, Plunkett, Sands & Bamaca-Colbert, 2011; Lambert et al., 2009; Delgado,

Updegraff, Roosa & Umana-Taylor, 2011). Longitudinal associations between perceived discrimination (i.e. perceptions of racism) and depressive symptoms were significant in a study of African American middle school students (Lambert et al., 2009). Other longitudinal studies with African American adolescents have also established that the relationship between perceived discrimination and future internalizing symptoms is more significant than the reverse association, where internalizing symptoms predict future perception of discrimination (Brody et al., 2006).

Behnke et al. (2011) found that among a group of Hispanic adolescents, societal discrimination significantly influenced reported depressive symptoms. Similarly, higher levels of perceived discrimination predicted more depressive symptoms in a sample of Mexican-origin adolescents. Authors also report that perceived discrimination predicted increases in delinquent behaviors (e.g. staying out late without parental permission) and affiliations with deviant peers (Delgado et al., 2011). Another study found perceived racial discrimination to be a significant predictor of violent behavior (Caldwell, Kohn, Schmeelk-Cone, Chavous, & Zimmerman, 2004). Research has also shown that minority adolescents, who experience greater racial discrimination, are more likely to commit delinquent offenses earlier in life and for delinquent behavior to persist throughout adolescence. The presence of behavior problems in adolescence is one of the most powerful predictors of adult crime, thus there is a need to further understand factors that determine behavior patterns during this developmental period (Evans, Simons & Simons, 2014).

This research suggests that perceived discrimination could in fact, already have made a detrimental impact on the lives of CINI juveniles by influencing their participation in delinquent behaviors. Therefore, it can be assumed that discrimination is also likely influencing their involvement in other high risk behaviors such as substance use and sexual risk behavior. All of which are behaviors that may persist throughout adolescence and adulthood.

### ***Perceived Discrimination and Adolescent Substance Use***

Few studies have examined how perceived discrimination influences substance use behaviors in adolescent populations. The experience of discrimination has significantly predicted cigarette smoking among adolescent girls (Guthrie, Young, Williams, Boyd, & Kintner, 2002), and longitudinally predicted heavy drinking behaviors among both adolescent boys and girls (Madkour et al., 2015). More specifically, the latter study found that perceived racial discrimination in adolescence predicted higher-than-average drinking in early adulthood.

Unlike the majority of studies testing the impact of discrimination, Madkour et al. (2015) examined how other forms of discrimination impacted study outcomes. Discrimination based on age or other physical appearance (i.e. not race or skin color) were not predictive of heavy drinking later in life. Nevertheless, other research has found significant associations between other types of discrimination and negative mental health outcomes (Bucchianeri, Eisenberg, Wall, Piran, & Neumark-Sztainer, 2014). A family-based substance use prevention study examined the impact of perceived discrimination on alcohol and marijuana use over time. For adolescent boys,

perceived discrimination was longitudinally related with increases in use of both substances (Brody, Kogan & Chen, 2012). However, no studies have examined the relationship of perceived discrimination with relation to substance use outcomes among a juvenile justice population.

### ***Perceived Discrimination and Adolescent HIV Risk***

There is a dearth of research examining the impact of discrimination on adolescent HIV risk. However, recent studies have found associations between perceived racial discrimination and African American adolescents' engagement in sexual risk behaviors including number of sexual partners, condom use, and concurrent substance use and sexual activity (Roberts et al., 2012; Stevens-Watkins et al., 2011). In a cross-sectional study of African American High school students, results showed that after controlling for socioeconomic status and age at first intercourse, adolescents who reported greater perceived discrimination also reported a higher number of sexual partners (Stevens-Watkins, et al., 2011). In another study focused on African American youth, the impact of racial discrimination was examined longitudinally. Results showed that the experience of discrimination in adolescence predicted unprotected sexual acts in adulthood (eight years later and only among men); which suggests that early experience of discrimination has harmful implications on sexual health behaviors later in life (Roberts et al., 2012).

These studies highlight the importance for understanding how CINI juveniles' participation in HIV risk and substance behaviors are related to their experiences of perceived discrimination. Given that CINI juveniles demonstrate significant substance

use and sexual risk behavior rates (Belenko, Dembo, Rollie, Childs & Salvatore, 2009; Dembo, Belenko, Childs & Wareham, 2009; Tolou-Shams et al. 2012), there is a need for investigation into how discrimination may be related to mental health and behavioral outcomes among this high risk population.

## CHAPTER 3

### METHODOLOGY

#### *Research Design*

CINI youth were recruited from the Juvenile Intake Department of a family court system in the northeast. The Juvenile Intake Department is responsible for all juvenile offenders involved in the family court, and processed referrals for more than 2,700 juveniles in 2014 (Rhode Island Family Court, 2015). Juveniles and caregivers were recruited as part of an ongoing, federally funded, prospective cohort study (total anticipated N = 400 juveniles and N = 400 caregivers followed for two years; assessed every 4 months at 7 separate assessments). This work was supported by the National Institute of Health/National Institute of Drug Abuse R01DA034538 (PI Tolou-Shams). However, the current study analyzed only baseline adolescent data collected through February 2016.

Eligible youth included first-time offenders, between 12 and 18 years old, with an involved primary caregiver (i.e. not in the legal custody of the Department of Children, Youth and Families (DCYF)) who were willing to participate. Primary caregivers that spoke a language other than English or Spanish were ineligible for participation. Families that were interested in study participation were required to enroll in the study within one month of initial court contact. This timeframe was selected in order to enroll youth and families at the point of first-ever contact with the

juvenile justice system, and to inform intervention study and strategy at the earliest point of court contact. All study protocols were approved by the Rhode Island Hospital institutional review board.

### ***Participants***

At the time of data analysis, 356 adolescents had completed the baseline assessment. Fourteen cases were removed due to substantial incomplete data; these cases did not have complete data for measures of internalizing symptoms, perceived discrimination, and/or substance use or HIV risk outcomes. Given that the primary outcome was HIV risk behaviors, this study focused on the subsample of adolescents who endorsed having had sexual intercourse in their lifetime, which included about 41% of the remaining sample (n=139). Participants (79 males, 60 females) had a mean age of 15.43 ( $SD = 1.24$ , range = 12 – 18). The sample was comprised of youth self-identifying as 37% (n = 52) Hispanic, 36% (n = 50) White, non-Hispanic, 13% (n = 17) Black, 11% (n = 15) mixed-race, and less than 4% (n=5) reported being American Indian or of an unidentified race. Seventy-nine percent of the participants self-identified as heterosexual, 4% identified as homosexual, 13% as bisexual, and 4% questioning/unidentified sexual orientation. Nearly 63% of juveniles reported that their family received some form of public assistance (e.g. food stamps, SNAP, SSI).

### ***Procedure***

Eligible families were approached by study staff at Juvenile Intake Departments and truancy court hearings that took place within various schools throughout the state. Truancy court hearings are held within schools for teens that

have been found truant (i.e. substantial absenteeism or tardiness to school which has resulted in a formal charge of truancy), in order to increase school attendance and allow for magistrates to monitor their performance and behavior. A research assistant (RA) was available to court staff for study referral and recruitment during intake and truancy court hearings. Prospective participants were approached after the family received a letter from the Family Court, Intake Department indicating that they may be approached for recruitment in a research study. Families that expressed interest in participating provided study staff with their contact information. Prior to scheduling the first appointment, the RA conducted screener questions with the caregiver to assess whether the juvenile was eligible for the study. Screener questions assessed juvenile participant age, involvement of primary caregiver (i.e. legal signing rights for juvenile), and whether the juvenile had accrued any previous charges.

Adolescents that were 18 years old provided informed consent. Child assent and parental consent were obtained for juveniles from 12 to 17 years of age. After participant consent and assent, surveys were conducted using study tablets either in participants' homes, at the research lab, at the Family Court, or other community locations (e.g. library or coffee shop), depending on the family's preference and available privacy. Surveys were administered electronically via an audio-assisted computerized assessment (ACASI). RAs monitored the assessment process in case the family had any questions or concerns throughout the survey. Because the juvenile and caregiver were assessed simultaneously, RAs were responsible for ensuring that neither juvenile nor caregiver became aware of each other's survey responses. Upon completion of the surveys, juveniles and caregivers each received monetary gift cards

to compensate for time spent. Both the juvenile and the caregiver received a \$50.00 gift card for the baseline assessment.

### ***Measures***

*Demographic Information.* Adolescent participants provided self-report demographic information including age, gender, race (American Indian, Asian, Black, African or Haitian, Native Hawaiian or other Pacific Islander, White, Mixed or Multi-Racial, or other), ethnicity (Hispanic or Non-Hispanic), and sexual orientation. Sexual orientation is assessed by the following item: “Which best describes your sexual orientation?” (Heterosexual or Straight; Homosexual or Gay, Lesbian, Queer; Bisexual; Undecided or Questioning; or Other). Self-reported receipt of public assistance such as food stamps, SNAP, EBT, WIC or SSI (yes/no), will serve as an indicator of socioeconomic status, given that nearly 52% of the adolescent sample did not know their family’s household yearly income.

*Juvenile Charge Type.* Whether the adolescent participant was a status or delinquent offender was recorded by study staff at the time of recruitment. By definition, a status offense includes charges that are only in violation of the law due to being a minor, such as truancy or running away, while a delinquent offense includes more serious offenses such as assault and battery, shoplifting, etc.

*Perceived Discrimination.* The Everyday Discrimination Scale (EDS) (Williams, Yu, Jackson & Anderson, 1997) assesses the experience of common forms of mistreatment and the participant’s perceived association of this mistreatment with types of social discrimination (i.e. race, gender, sexual orientation, class, etc.). Participants

indicated how often they experienced unfair treatment in their day-to-day lives on a 6-point Likert-type scale (1 = almost every day, 2 = at least once a week, 3 = a few times a month, 4 = a few times a year, 5 = Less than once a year, 6 = never). The ten items included in the expanded EDS (Williams et al., 2008) are questions such as “You are treated with less courtesy than other people are”, “People act as if they are afraid of you”, “You are threatened or harassed” and “You are followed around in stores”. Respondents that reported that they have experienced any form of mistreatment “a few times a year” or more, were asked to report what the main reason for those experiences may be (e.g. race, skin color, religion, income level, sexual orientation, etc.). After the items were recoded to reflect higher scores as indication of more perceived discrimination, the items were summed to create an overall score for perceived discrimination (range = 10-60), with higher scores indicating greater perceived discrimination. Among adolescents the EDS has shown reliability coefficients between .83 and .87 (Clark, Coleman & Novak, 2004). Strong internal consistency ( $\alpha = .92$ ) was demonstrated among this juvenile justice population.

In addition, a bivariate variable indicating two different levels of discrimination (i.e., low vs. moderate/high) was created. Similar to Hall et al. (2015), a bivariate cutoff was created by quantifying all scores  $\geq 1$  SD above the sample mean of 23.03 (SD = 11.55) as moderate/high perception of discrimination. Nearly 19% of the juvenile population (n=26) met criteria for moderate/high perceived discrimination.

*Internalizing Symptoms.* The Behavior Assessment System for Children Second Edition Self Report of Personality-Adolescent (BASC-2 SRP-A), is a standardized behavioral assessment tool that assists in the differential diagnosis and

classification of emotional and behavioral disorders of adolescents ages 12 to 18 (Reynolds & Kamphaus, 2004). The BASC-2 SRP-A includes 176 items and yields 12 clinical scales (e.g., anxiety, depression, hyperactivity), 4 adaptive skills scales (e.g., interpersonal relations, self-reliance) and 5 composite scales (e.g. internalizing symptoms, emotional symptoms index). Youth respond to statements in either a “true or false” format or on a four-point Likert scale: 0 (never), 1 (sometimes), 2 (often), and 3 (almost always). Raw scores were entered into the BASC-2 ASSIST software program, which is used to yield combined gender-normative T-scores for each subscale and composite scale. Internal consistency estimates range from .67 to .88 for the subscales and .84 to .95 for the composite scores; test-retest reliability ranged from .63 to .84 (Reynolds & Kamphaus, 2004). A T-score of 70 or more indicates a clinically significant score, a T-score between 60 and 69 indicates an at-risk score, and T-scores below 60 are considered non-clinically significant on the problem behavior symptom scales. The BASC-2 SRP-A also includes 5 validity scales, F or “Faking Bad” (infrequently endorsed items among the norm population), Response Pattern (consecutive similar responses), Consistency (internal discrepancies among responses), V (endorsement of clearly nonsensical items), and L (denial or minimization of behavioral/emotional problems to adults) which provide important insight into the reliability of responses. Validity of each scale was quantified as either (1) acceptable, (2) low caution or caution, or (3) extreme caution. Data from respondents that flag on either scale as extreme caution was examined further.

For the purposes of this study, the internalized problems composite scale T-score, which indicates the level of inwardly directed psychological distress (i.e. depression, anxiety, and somatization), is used for data analysis.

*HIV Risk.* Participants reported on lifetime and recent sexual behavior by answering items from the AIDS Risk Behavior Assessment (ARBA) (Donenberg, Emerson, Bryant, Wilson & Weber-Shifrin, 2001). Respondents were asked about number of lifetime sexual partners and condom use at last sexual encounter (yes/no). Participants reported how often they or their partner had used alcohol, marijuana, or other drugs when engaging in any type of sexual activity in the past 4 months; responses ranged from never (0) to always (4). Lastly, adolescents were asked about lifetime HIV testing and incidence of sexually transmitted infections (chlamydia, gonorrhea, trichomonas and herpes). The latter variable was not included in the primary analyses as the endorsement rate of STIs at baseline was substantially low (n=6).

*Substance Use.* This data also derived from the AIDS Risk Behavior Assessment (ARBA) (Donenberg et al. 2001). Recent substance use was determined by asking adolescents to report the frequency (number of days) of alcohol use and marijuana use in the past 4 months. Lifetime use of other drugs including, synthetic marijuana (e.g. K2, Black Mamba, or Spice), cocaine, club or psychedelic drugs (e.g. ecstasy, molly, acid, or mushrooms), tranquilizers (e.g. xanibars, klonopins, GHB, ketamine, or Special K) and illicit use of prescription medications (e.g. OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin or Xanax) was dichotomized to indicate any other lifetime drug use (yes/no), due to overall low endorsement.

## CHAPTER 4

### RESULTS

#### *Statistical Plan*

Unadjusted bivariate analyses (t-tests,  $X^2$ ) were used to identify differences in level of perceived discrimination (low vs. moderate/high) and severity of internalized symptoms (non-clinically significant vs. at-risk vs clinically significant) across demographic characteristics. Bivariate correlations were calculated to determine the relationship between demographics, perceived discrimination, internalizing symptoms, substance use and HIV risk variables. In order to incorporate a multivariate approach and examine the relationship between perceived discrimination, internalizing symptoms, substance use and sexual risk behavior amongst CINI youth, two factorial multivariate analysis of covariance (MANCOVA) models, that controlled for demographic variables found to be significantly related to study outcomes, were conducted. In addition, dichotomous sexual risk and substance use variables were tested using binomial logistic regression. An alpha level of .05 was used for all statistical tests and SPSS 22 was used to conduct all analyses.

#### *Data Preparation*

Prior to conducting analyses, the normal distribution of the variables was examined. All variables met the assumptions of univariate normality (i.e., skewness and kurtosis estimates  $\pm 2$ ; Tabachnik & Fidell, 2006), with the exception of number of lifetime sexual partners (skewness = 7.745; kurtosis = 72.522) and number of days

alcohol used in past four months (skewness = 2.598; kurtosis = 6.803). Each of these variables was transformed using logarithmic transformation. Normality of number of lifetime sexual partners (skewness = .923; kurtosis = .774) and number of days alcohol used in past four months (skewness = 1.196; kurtosis = .158), improved substantially after transformation. Multivariate tests for Homogeneity of Variance and collinearity were also conducted. Levene's test, used to test equality of variances, and analysis of variance (ANOVA) did not indicate significant heteroscedasticity. Multicollinearity statistics indicated that the variables were not overly related to one another, given that tolerance scores for each variable were greater than .20. Missing data was minimal (<5%) on all variables (with the exception of receipt of public assistance, which was missing 8% of responses), thus missing responses were excluded list-wise from analyses.

### ***Preliminary Analyses***

A majority (66%) of the juveniles were recorded as being delinquent offenders. Juveniles that reported more frequent experiences of discrimination, provided an array of primary reasons for their perceived discrimination including, race or skin color (19%), age (24%), other physical appearance (31%; e.g. height, weight, "looks"). Other reasons such as religion, sexual orientation, gender, and education were reported at a much lesser rate, and accounted for the remaining 26% of responses.

Means, standard deviations (SD) and frequencies of demographic characteristics across levels of perceived discrimination (low vs. moderate/high) and severity of internalizing symptoms reporting (as determined by clinical significance; non-clinically significant vs. at-risk vs. clinically significant) are presented in Table 1

and Table 2, respectively. Chi square tests of independence revealed that there were no significant differences between racial/ethnic groups across levels of perceived discrimination or internalizing symptoms. After dichotomizing the variable as minority or non-minority (58% minority), still no significant differences between the groups were detected. While there were no significant differences by gender and report of perceived discrimination [ $\chi^2 (1, 132) = 0.12, p = .77$ ], adolescent females reported significantly higher levels of internalizing symptoms [ $\chi^2 (2, 139) = 5.93, p = .05$ ]. Sexual minorities reported significantly greater perceived discrimination [ $\chi^2 (4, 131) = 11.60, p < .05$ ] and internalizing symptoms [ $\chi^2 (8, 138) = 26.18, p = .001$ ], when compared to the heterosexual majority. No significant differences were revealed between those who received public assistance and those who did not, juveniles with status versus delinquent charges, reported reason for perceived discrimination, or age, across levels of perceived discrimination or internalizing symptoms.

**Table 1**  
*Comparison of Demographic Variables Across Levels of Perceived Discrimination.*

Variable	Low Discrimination Mean (SD) or n (%)	Moderate/High Discrimination Mean (SD) or n (%)	Difference
Age	15.46 (1.22)	15.62 (1.17)	$t = -0.58, ns$
Gender			$\chi^2 = 0.12, ns$
Male	61 (58%)	14 (54%)	
Female	45 (42%)	12 (46%)	
Race/Ethnicity			$\chi^2 = 3.89, ns$
White (Non-Hispanic)	39 (63%)	9 (35%)	
Black	12 (37%)	4 (16%)	
Hispanic	41 (63%)	8 (31%)	
American Indian	2 (37%)	0	
Mixed	9 (63%)	5 (18%)	
Other	2 (37%)	0	
Sexual Orientation			$\chi^2 = 11.60, p < .05$
Heterosexual/Straight	87 (83%)	16 (62%)	
Homosexual/Gay/Lesbian	3 (3%)	2 (8%)	
Bisexual	12 (11%)	5 (18%)	
Questioning/Undecided	3 (3%)	1 (4%)	
Other	0	2 (8%)	
Public Assistance (SES)			$\chi^2 = 1.01, ns$
Yes	66 (63%)	12 (52%)	
No	38 (37%)	11 (48%)	
Juvenile Charge			$\chi^2 = 2.09, ns$
Status	33 (31%)	12 (46%)	
Delinquent	73 (69%)	14 (54%)	
Reason for Perceived Discrimination <sup>a</sup>			$\chi^2 = 11.30, ns$
Gender	2 (3%)	0	
Race or Skin Color	7 (12%)	9 (38%)	
Age	16 (26%)	5 (21%)	
Religion	2 (3%)	1 (3.5%)	
Height/Weight	9 (15%)	1 (3.5%)	
Other Physical Appearance	11 (18%)	5 (21%)	
Sexual Orientation	1 (2%)	0	
Education or Income	2 (3%)	0	
Tribe	3 (5%)	0	
Other	8 (13%)	3 (13%)	

Notes: SD = Standard Deviation.

<sup>a</sup>Responses only from participants that reported perceived discrimination once a year or more frequently.

**Table 2**  
*Comparison of Demographic Variables Across BASC-2 Internalizing Problems T-Score Groups.*

Variable	Normal Mean (SD) or n (%)	At-Risk Mean (SD) or n (%)	Clinical Mean (SD) or n (%)	Difference
Age	15.44 (1.23)	15.24 (1.22)	15.59 (1.33)	$t = 0.67, ns$ (normal vs. at-risk) $t = -0.52, ns$ (normal vs. clinical)
Gender				$\chi^2 = 5.93, p = .05$
Male	61 (64%)	8 (36%)	10 (54%)	
Female	35 (36%)	14 (64%)	12 (46%)	
Race/Ethnicity				$\chi^2 = 6.99, ns$
White (Non-Hispanic)	32 (34%)	11 (52%)	7 (32%)	
Black	11 (12%)	4 (19%)	2 (9%)	
Hispanic	37 (39%)	5 (24%)	10 (45%)	
American Indian	2 (1.5%)	0	0	
Mixed	11 (12%)	1 (5%)	3 (14%)	
Other	2 (1.5%)	0	0	
Sexual Orientation				$\chi^2 = 26.18, p = .001$
Heterosexual/Straight	83 (87%)	11 (52%)	5 (42%)	
Homosexual/Gay/Lesbian	2 (2%)	2 (9.5%)	1 (8%)	
Bisexual	8 (9%)	6 (29%)	4 (33%)	
Questioning/Undecided	2 (2%)	2 (9.5%)	0	
Other	0	0	2 (17%)	
Public Assistance (SES)				$\chi^2 = 0.68, ns$
Yes	35 (38%)	7 (39%)	7 (35%)	
No	58 (62%)	11 (61%)	13 (65%)	
Juvenile Charge				$\chi^2 = .95, ns$
Status	30 (31%)	8 (38%)	9 (41%)	
Delinquent	66 (69%)	13 (62%)	13 (59%)	
Reason for Perceived Discrimination				$\chi^2 = 22.39 ns$
Gender	0	1 (5%)	1 (5%)	
Race or Skin Color	7 (13%)	5 (30%)	5 (25%)	
Age	18 (35%)	0	4 (20%)	
Religion	1 (2%)	1 (5%)	1 (5%)	
Height/Weight	6 (12%)	2 (11%)	2 (10%)	
Other Physical Appearance	8 (15%)	7 (40%)	3 (15%)	
Sexual Orientation	1 (2%)	0	0	
Education or Income	2 (4%)	0	0	
Tribe	1 (2%)	1 (5%)	1 (5%)	
Other	8 (15%)	0	3 (15%)	

Notes: SD = Standard Deviation.

<sup>a</sup>Responses only from participants that reported perceived discrimination once a year or more frequently.

Pearson and point-biserial correlations were conducted to assess the strength of relationships among the demographic variables, perceived discrimination, internalizing symptoms and the substance use and HIV risk outcomes; results are presented in Table 3. Juvenile charge type (Status or Delinquent) was not significantly related to any study variables. With regard to demographic variables, alcohol use ( $r = .177$ ,  $p = .037$ ) and marijuana use ( $r = .189$ ,  $p = .034$ ) were each associated with older age. Gender was related to partner substance use at sex ( $r_{pb} = .199$ ,  $p = .02$ ), marijuana use in the past 4 months ( $r_{pb} = .199$ ,  $p = .026$ ), and having ever received HIV testing ( $r_{pb} = .217$ ,  $p = .011$ ); Indicating that females were more likely to have participated in these behaviors than males. Race/ethnicity was found to have significant correlations with receipt of public assistance ( $r_{pb} = .330$ ,  $p < .0001$ ) and to lifetime use of other drugs ( $r_{pb} = -.235$ ,  $p = .006$ ), after dichotomizing the variable as minority/non-minority. Minority status was also associated with increased perceived discrimination ( $r_{pb} = .177$ ,  $p = .043$ ). Receipt of public assistance was negatively correlated to lifetime use of other drugs ( $r_{pb} = -.221$ ,  $p = .012$ ), but was not related to any other variables of interest. Lastly, sexual orientation was significantly correlated with a number of variables: perceived discrimination ( $r = .187$ ,  $p = .032$ ), internalizing symptoms ( $r = .200$ ,  $p = .019$ ), marijuana use in the past 4 months ( $r = .241$ ,  $p = .007$ ), and lifetime HIV testing ( $r_{pb} = .219$ ,  $p = .010$ ). Age, gender, minority status, and sexual orientation will be included as covariates in subsequent analyses.

Perceived discrimination was significantly related to an increase in internalizing symptoms ( $r = .400$ ,  $p < .0001$ ) among juvenile offenders. Additionally, other drug use ( $r_{pb} = .243$ ,  $p = .005$ ) and marijuana use ( $r = .181$ ,  $p = .038$ ) were positively associated

with perceived discrimination. Internalizing symptoms were associated with partner substance use during sex ( $r = .172$ ,  $p = .045$ ), marijuana use ( $r = .268$ ,  $p = .003$ ), and other drug use ( $r_{pb} = .212$ ,  $p = .013$ ). There were also a number of significant correlations between sexual risk and substance use variables. Number of lifetime sexual partners had a positive association with frequency of alcohol use in the past 4 months ( $r = .432$ ,  $p \leq .001$ ), frequency of marijuana use in the past 4 months ( $r = .305$ ,  $p \leq .001$ ), substance use at recent sexual encounter by the participant ( $r = .310$ ,  $p \leq .001$ ) and their partner ( $r = .299$ ,  $p \leq .001$ ), and other lifetime drug use ( $r_{pb} = .276$ ,  $p \leq .001$ ). Use of other drugs was also associated with receipt of an HIV test ( $r_{pb} = .216$ ,  $p = .045$ ). There was a strong positive correlation between substance use at sex by self and by partner ( $r = .781$ ,  $p < .001$ ). This correlation is taken into consideration for interpretation of multivariate analyses.

**Table 3**  
*Bivariate Correlations Among Demographics, Perceived Discrimination, Internalized Symptoms, Sexual Risk and Substance Use Variables.*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	1															
2. Gender	.060	1														
3. Racial/Ethnic Minority Status	.097	.095	1													
4. Sexual Orientation	-.076	.434***	.029	1												
5. SES	-.063	.062	.330***	.047	1											
6. Juvenile Charge	-.107	.101	.070	.079	.018	1										
7. Perceived Discrimination	-.051	-.073	.177*	-.187*	.089	.080	1									
8. Internalizing Symptoms	.013	.192*	-.041	.200*	-.038	-.076	.400**	1								
9. Substance Use at Sex (Self)	.029	.124	-.059	.166	-.071	-.009	-.105	.112	1							
10. Substance Use at Sex (Partner)	.010	.199*	-.113	.145	-.112	.003	-.120	.172*	.781***	1						
11. No. Days Alcohol Use (Past 4 months)	.177*	.130	-.001	.150	-.115	-.081	-.181*	.045	.319***	.294***	1					
12. No. Days Marijuana Use (Past 4 months)	.189*	.199*	-.086	.241**	-.120	-.085	-.098	.268***	.471***	.381***	.282***	1				
13. Other Drug Use (Lifetime)	.094	.087	-.235**	.116	-.221*	-.102	-.243**	.212*	.300***	.349***	.388***	.504***	1			
14. No. Partners (Lifetime)	.122	-.068	.017	.085	-.044	.020	-.036	.035	.310***	.299***	.432***	.305***	.276***	1		
15. HIV Test (Lifetime)	.073	.217*	.013	.219*	-.004	-.154	-.103	.069	.104	.061	.146	.085	.216*	.041	1	
16. Condom Use at Last Sex	-.132	-.144	-.110	-.130	-.166	-.092	-.034	-.056	-.178*	-.148	-.004	-.232**	-.051	-.088	.040	1

Note: SES = Family receipt of public assistance (e.g. food stamps, EBT, WIC). Perceived discrimination = Everyday Discrimination Sum Score.

Internalizing Symptoms = BASC-2 SRP-A Internalizing Problems composite T-score.

\* $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$

The following analyses were conducted both with and without BASC validity scores, which were used to identify any biased or unreliable response patterns (Reynolds & Kamphaus, 2004). Primary analyses were conducted with and without cases that flagged for extreme caution (F scale,  $n = 3$ ; Consistency scale,  $n = 2$ ). Results did not differ when these cases were excluded. Therefore, these cases were included to further improve statistical power.

### ***Factorial Multivariate Analysis of Covariance (Factorial MANCOVA)***

Factorial MANCOVA was used to assess the relationship of the interaction effect (between perceived discrimination and internalizing symptoms) and substance use and sexual risk behaviors. Advantages to using this statistical test include its ability to control for Type I error. The overall omnibus test protects against inflated error probability if the null hypothesis is true. MANCOVA also accounts for intercorrelations between dependent variables. This is an important consideration with regard to the strong correlation between the substance use at sex variables (self or partner) discussed previously. Utilizing a factorial design allows for examination of the joint effect of independent variables, in this case, internalizing symptoms and perceived discrimination. The interaction effect refers to the effect of one independent variable on given dependent variables, as different across levels of another independent variable. Complete results of both factorial MANCOVAs can be found in Table 4.

Model1 tested the impact of the interaction effect on the following continuous sexual risk outcomes: number of lifetime sexual partners, participant substance use at

sex (past 4 months), and partner substance use at sex (past 4 months). Age, gender, minority status, and sexual orientation were entered as covariates into the model. Tests for multivariate normality of the interaction effect are considered first. Box's M test was not significant [Box M = 39.18,  $F = 1.38 (2514.07)$ ,  $p = .103$ ], therefore there was no evidence for heterogeneity of variance. The two-way MANCOVA revealed a significant multivariate main effect for the covariate gender, Wilks'  $\lambda = .923$ ,  $F (3, 111) = 3.09$ ,  $p = .03$ , partial eta squared = .077. Power to detect the effect was .709. A significant main effect was also revealed for the perceived discrimination by internalizing symptoms interaction effect, Wilks'  $\lambda = .878$ ,  $F (6, 222) = 2.49$ ,  $p = .024$ , partial eta squared = .063, power = .829. These findings confirm the hypothesis that levels of perceived discrimination and internalizing symptoms interact to influence HIV risk outcomes.

Given the significance of the overall test, the next step was to examine the univariate main effects on sexual risk outcomes. Significant univariate main effects for the interaction effect were obtained for number of lifetime sexual partners [ $F (2, 123) = 5.00$ ,  $p = .008$ , partial eta square = .081, power = .805]. The mean number of sexual partners was 3.96 for juveniles belonging to the low discrimination/non-clinically significant internalizing symptoms group versus 2.97 for juveniles in the low discrimination/clinically significant internalizing symptoms group. Alternatively, juveniles in the moderate to high discrimination/non-clinically significant internalizing symptoms group, the mean number of lifetime sexual partners was 1.71 versus a mean of 9.11 lifetime sexual partners for juveniles in the moderate to high discrimination/clinically significant internalizing symptoms group. Figure 1 depicts the

estimated marginal means of lifetime sexual partners across the interaction effect groups. Juveniles that reported non-clinically significant or at-risk T-scores on the internalizing symptoms scale and low levels of perceived discrimination, reported slightly more lifetime sexual partners than juveniles with clinically significant T-scores. However, those that reported clinically significant T-scores and moderate to high levels of perceived discrimination reported much higher numbers of lifetime sexual partners than juveniles reporting non-clinically significant or at-risk T-scores. Post-hoc analyses were conducted to examine whether combinations of the interaction effect significantly differed on mean differences of lifetime sexual partners.

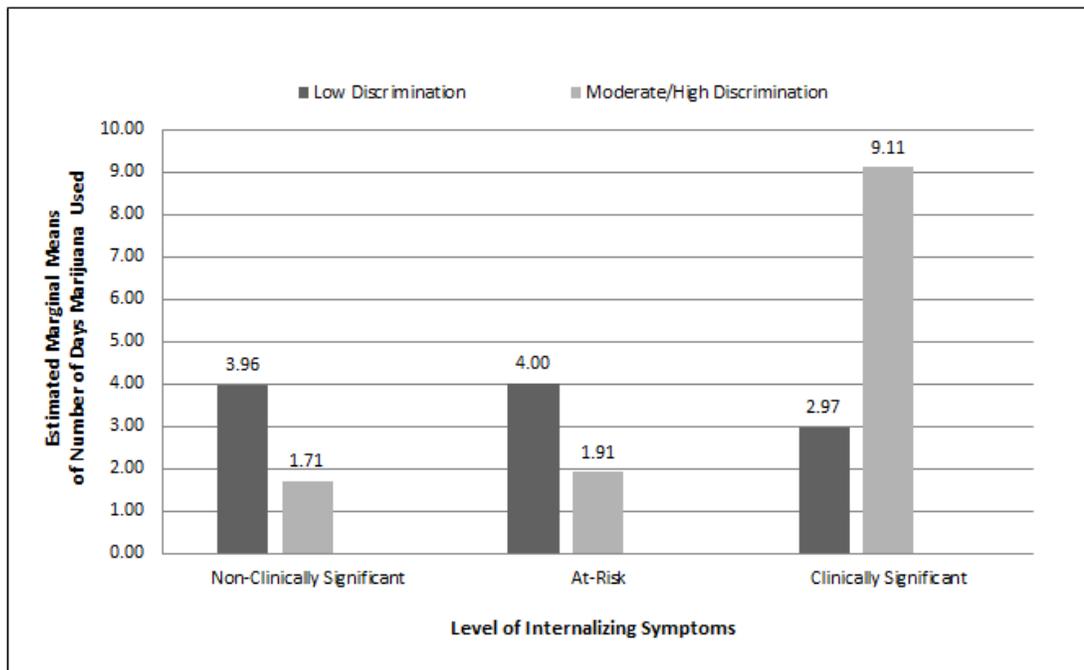


Figure 1. Estimated marginal means of lifetime sexual partners across two-way interaction between perceived discrimination and internalizing symptoms. Non-transformed means displayed for ease of interpretability.

**Table 4**  
*Factorial MANCOVA Comparing HIV Risk and Substance Use Outcomes Across Internalizing Symptoms and Perceived Discrimination Interaction Effect*

Variable	Low Perceived Discrimination			Moderate to High Perceived Discrimination			Multivariate F, <i>p</i>
	Normal Internalizing Problems T-Score M (SD)	At-Risk Internalizing Problems T-Score M (SD)	Clinically Significant Internalizing Problems T-Score M (SD)	Normal Internalizing Problems T-Score M (SD)	At-Risk Internalizing Problems T-Score M (SD)	Clinically Significant Internalizing Problems T-Score M (SD)	
<b>Sexual Risk Model</b>							
Number of Lifetime Sexual Partners	3.96 (0.55)	5.37 (1.48)	2.97 (1.42)	1.71 (1.43)	1.95 (1.82)	9.11 (1.87)	F = 5.00, <i>p</i> = .008*
Substance Use, Self	0.62 (0.12)	0.76 (0.32)	0.72 (0.30)	0.57 (0.31)	0.27 (0.39)	0.54 (0.39)	F = .28, <i>ns</i>
Substance Use, Partner	0.65 (0.12)	1.03 (0.32)	0.60 (0.32)	0.62 (0.32)	0.12 (0.40)	0.89 (0.40)	F = 1.29, <i>ns</i>
<b>Substance Use Model</b>							
No. of Days Alcohol Used (Past 4 Months)	2.12 (0.49)	2.80 (1.37)	2.12 (1.25)	1.79 (1.40)	0.23 (1.61)	4.44 (1.65)	F = 2.15, <i>ns</i>
No. of Days Marijuana Used (Past 4 Months)	27.32 (4.61)	49.71 (12.89)	38.97 (11.81)	7.13 (13.15)	4.70 (15.21)	60.76 (15.53)	F = 3.79, <i>ns</i>

Note: Means and SDs of no. of Lifetime sexual partners and no. of days alcohol used displayed with non-transformed scores for ease of interpretability.  
 \**p* < .01

To test the influence of the interaction effect on substance use outcomes, a second two-way MANCOVA was conducted. Number of days alcohol used (past 4 months) and number of days marijuana used (past 4 months) served as the dependent variables. As with Model 1, age, gender, minority status and sexual orientation were entered as covariates into Model 2. Box's M test was significant [Box M = 56.669,  $F = 3.4$  (15, 5656.598),  $p < .001$ ], therefore the assumption of homoscedasticity was violated. Although Wilks'  $\lambda$  is a more commonly used test statistic, Pillai's Trace was used to detect significant main effects for this analysis. This is because Pillai's Trace is typically more robust against violations of assumptions than other test statistics (Pillai & Sudjana, 1975). After controlling for age, gender, sexual orientation, and minority status, the results of the MANCOVA revealed a non-significant multivariate main effect for all covariates in the model, including bivariate perceived discrimination, internalizing symptoms, and the interaction effect between the two [Pillai's Trace = .071,  $F$  (4, 218) = 2.02,  $p = .093$ , partial eta squared = .036, power = .598]. The test statistic Roy's Largest Root was found to be significant [Roy's Largest Root = .073,  $F$  (2, 109) = 3.96,  $p = .022$ , partial eta squared = .0682, power = .700]. However, Roy's Largest Root tends to estimate the lower bound of the probability of  $F$  (Carey, 1998) and given that the other test statistics were non-significant (i.e. Wilks' Lambda, Pillai's Trace and Hotelling's Trace), this significance was disregarded. As the overall omnibus test was not significant, no univariate main effects were examined.

Table 4 presents means and MANCOVA results for both models. The mean number of days marijuana was used for juveniles belonging to the low discrimination/non-clinically significant internalizing symptom group was 27.32, while

juveniles that reported low experience of discrimination and higher internalizing symptoms used marijuana an average of 49.71 days (at-risk juveniles) and 38.97 days (clinical juveniles). In comparison, juveniles in the moderate to high discrimination/clinically significant internalizing symptoms group reported a mean of 60.76 days of marijuana use in the past four months. This average was much higher than those that reported moderate/high perceived discrimination and non-clinically significant ( $M = 7.13$ ) and at-risk ( $M = 4.70$ ) internalizing symptoms.

The mean number of days alcohol was used by juveniles reporting low perceived discrimination was similar across levels of internalizing symptoms (Non-clinically significant,  $M = 2.12$ ; At-risk,  $M = 2.80$ ; Clinically significant,  $M = 2.12$ ). Alternatively, juveniles that reported moderate to high discrimination and non-clinically significant internalizing symptoms reported an average of 1.79 days, which was less than those with clinically significant internalizing symptoms ( $M = 4.44$ ). Although these differences across the interaction effect were not found to be statistically significant, that may be mostly attributable to a covariate (i.e. participant age) that was included in the model. Figure 2 and Figure 3 show the plotted estimated marginal means of days marijuana used and days alcohol used across the interaction effect groups.

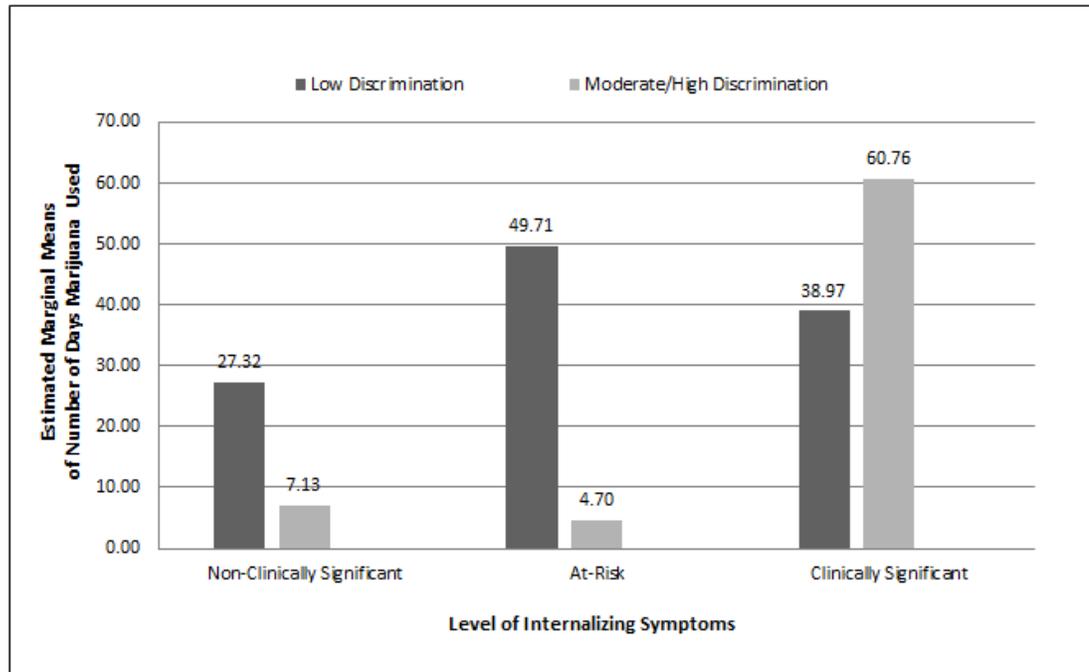


Figure 2. Estimated marginal means of number of days marijuana used in the past 4 months across two-way interaction between perceived discrimination and internalizing symptoms.

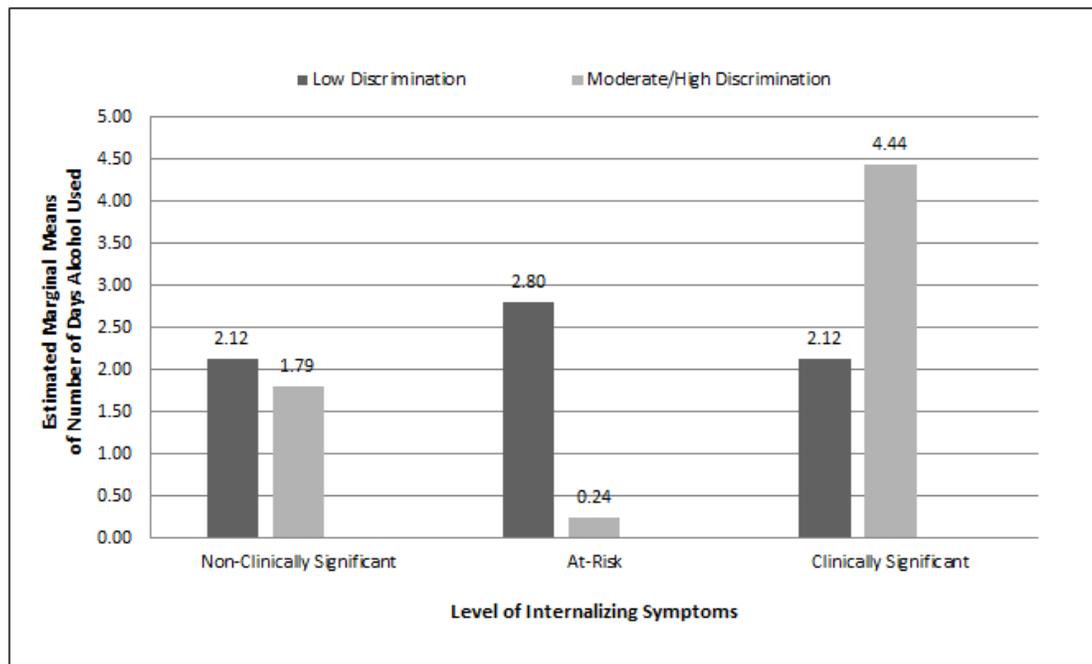


Figure 3. Estimated marginal means of number of days alcohol used in the past 4 months across two-way interaction between perceived discrimination and internalizing symptoms. Non-transformed means displayed for ease of interpretability.

### ***MANCOVA Post Hoc Analyses***

To discern which combinations of the perceived discrimination and internalizing symptoms interaction were significantly related to lifetime sexual partners, a one-way analysis of variance (ANOVA) test was conducted using a new variable comprised of six combinations of the independent variables as the predictor. Each score on the new variable was indicative of group membership across both independent variables. For example, a score of one included juveniles with low discrimination scores and non-clinically significant internalizing problems T-scores, while a score of six included juveniles that reported moderate to high perceived discrimination scores and clinically significant internalizing problems T-scores.

Results showed that the interaction between perceived discrimination and internalizing symptoms was significantly related to number of lifetime sexual partners [ $F(5, 124) = 2.49, p = .014$ ]. Scheffe post hoc tests for significance revealed that the average number of lifetime sexual partners was significantly higher for juveniles reporting moderate/high discrimination and clinically significant T-scores, when compared to juveniles that reported moderate/high discrimination but lower internalizing problems T-scores (i.e. non-clinically significant or at-risk range). This finding confirms the hypothesis that the interaction effect between perceived discrimination and internalizing symptoms was significantly related to HIV risk behavior, specifically an increase in lifetime sexual partners.

### *Logistic Regression Analyses*

First, a multinomial logistic regression model predicting internalizing symptoms group membership from a set of predictors (i.e., frequency of perceived discrimination, age, gender, race/ethnicity, SES) showed that overall model fit was good,  $\chi^2(12) = 31.36, p = .002$ , and 76% of the cases were correctly classified. The only statistically significant predictor of level of internalizing symptoms was perceived discrimination (-2 Log Likelihood of Reduced Model = 143.16,  $\chi^2(2) = 8.26, p = .016$ ). Results indicated that juveniles who reported moderate to high discrimination in comparison to low discrimination, had greater odds of reporting at-risk (OR = 4.71, 95% CI [.19, 18.61], SE=.701,  $p=.03$ ) or clinically significant (OR = 4.68, 95% CI [1.36, 16.12], SE=.63,  $p=.01$ ) internalizing symptoms. While the ORs reported are statistically significant, it should be noted that the wide confidence intervals indicate some level of uncertainty with regard to the precise odds ratio values. Nevertheless, this significant finding resulted in the use of an interaction effect between perceived discrimination and internalizing symptoms in the subsequent binary logistic regression models predicting different HIV risk and substance use outcomes.

In order to test the association between dichotomous sexual risk and substance use variables and the interaction between perceived discrimination and internalizing symptoms, a series of binomial logistic regression analyses were conducted with level of discrimination (low vs. moderate/high) by level of internalizing symptoms (non-clinically significant vs. at-risk; non-clinically significant vs. clinically significant) as the predictor variables. Age, gender, minority status, and sexual orientation were

controlled for in each model. Receipt of public assistance was also accounted for in the model testing predictors of lifetime use of other drugs.

The logistic regression performed to predict lifetime use of other drugs was statistically significant,  $\chi^2(11) = 22.24, p = .02$ . The model provided 23.7% (Nagelkerke  $R^2$ ) improvement in fit for predicting other drug use compared to a null model with no predictors, and correctly classified 74.8% of the cases. The model showed statistically significantly good fit when tested with the Hosmer-Lemeshow goodness of fit test ( $\chi^2=13.29, 8, p<0.102$ ). Non-Minority status was associated with an increase in use of other drugs (OR=2.87, 95% CI [1.09, 7.56], SE=.49,  $p=.03$ ), suggesting that non-minority juveniles had 2.87 times greater odds of using other drugs in their lifetime than minority juveniles. No other variables significantly predicted other drug use, including the interaction effects between perceived discrimination and internalizing symptoms (Table 5).

The model predicting HIV testing was also statistically significant,  $\chi^2(9) = 18.48, p = .03$ , Nagelkerke  $R^2 = .23$ , and 86.8% of the cases were correctly classified, and the Hosmer-Lemeshow test revealed that the model fit the data well ( $\chi^2=8.96, 8, p<0.345$ ). Only sexual orientation (OR=7.39, 95% CI [1.82, 29.93], SE=.72  $p=.005$ ) was associated with lifetime HIV testing. Bisexual juveniles had 7.39 times more odds of reporting ever having received an HIV test than heterosexual adolescents (Table 6). The logistic regression model predicting condom use at last sex was not statistically significant,  $\chi^2(9) = 16.26, p = .06$ . Table 7 presents demographic comparisons of juvenile report of condom at last sexual intercourse, no significant group differences were detected. Overall, these findings suggest that although perceived discrimination

significantly predicted internalizing symptoms, non-minority status and sexual minority status were better predictors of other drug use and HIV testing, respectively.

**Table 5**  
*Demographic Comparisons and Logistic Regression Analyses Examining Predictors of Other Lifetime Drug Use*

Variable	No Other Drug Use Mean (SD) or n (%)	Other Drug Use Mean (SD) or n (%)	OR [95% CI]
Age	15.37 (1.24)	15.63 (1.20)	1.20 [.81, 1.77]
Gender			
Male (ref)	59 (60%)	19 (50%)	
Female	40 (40%)	19 (50%)	1.40 [.54, 3.65]
Minority Status			
Non-Minority (White, Non-Hispanic)	34 (35%)	23 (61%)	2.87 [1.09, 7.56]*
Minority (ref)	64 (65%)	15 (39%)	
Sexual Orientation			
Heterosexual/Straight (ref)	81 (81%)	27 (71%)	
Homosexual/Gay/Lesbian	3 (3%)	2 (5%)	1.76 [.19, 16.60]
Bisexual	10 (10%)	7 (18%)	3.87 [.95, 15.71]
Questioning	3 (3%)	1 (3%)	.82 [.07, 10.08]
Other	1 (1%)	1(3%)	1.48 [.04, 55.41]
Public Assistance			
Yes	28 (30%)	20 (54%)	.44 [.17, 1.09]
No (ref)	64 (70%)	17 (46%)	

Note: SD = Standard Deviation; OR = Odds Ratio; CI = Confidence Interval.

\*  $p < .05$

**Table 6**  
Demographic Comparisons and Logistic Regression Analyses Examining Predictors of Lifetime HIV Testing

Variable	No HIV Test Mean (SD) or n (%)	HIV Test Mean (SD) or n (%)	OR [95% CI]
Age	15.39 (1.28)	15.64 (1.00)	1.37 [.85, 2.71]
Gender			
Male (ref)	71 (61%)	7 (32%)	
Female	45 (39%)	15 (68%)	2.17 [.67, 7.06]
Minority Status			
Non-Minority (White, Non-Hispanic)	49 (43%)	9 (41%)	1.17 [.39, 3.54]
Minority (ref)	66 (57%)	13 (59%)	
Sexual Orientation			
Heterosexual/Straight (ref)	96 (83%)	12 (55%)	
Homosexual/Gay/Lesbian	4 (3%)	1 (4%)	2.23 [.18, 28.04]
Bisexual	10 (9%)	8 (37%)	7.39 [1.82, 29.93]*
Questioning	3 (3%)	1 (4%)	1.99 [.16, 24.17]
Other	2 (2%)	0	

Note: SD = Standard Deviation; OR = Odds Ratio; CI = Confidence Interval.

\*  $p < .05$

**Table 7**  
Demographic Comparisons of Juvenile Condom Use at Last Sex

Variable	No Condom Use Mean (SD) or n (%)	Condom Use Mean (SD) or n (%)	Difference
Age	15.67 (1.34)	15.33 (1.17)	$t = 1.53, ns$
Gender			$\chi^2 = 2.79, ns$
Male	23 (48%)	54 (63%)	
Female	25 (52%)	32 (37%)	
Minority Status			$\chi^2 = 1.60, ns$
Non-Minority (White, Non-Hispanic)	16 (34%)	39 (45%)	
Minority	31 (66%)	47 (55%)	
Sexual Orientation			$\chi^2 = 7.60, ns$
Heterosexual/Straight	33 (69%)	72 (85%)	
Homosexual/Gay/Lesbian	4 (8%)	1 (1%)	
Bisexual	9 (19%)	8 (9%)	
Questioning/Undecided	1 (5%)	3 (4%)	
Other	1 (5%)	1 (1%)	
Public Assistance (SES)			$\chi^2 = 3.55, ns$
Yes	13 (28%)	36 (35%)	
No	34 (72%)	45 (55%)	

Notes: SD = Standard Deviation.

\* $p < .05$

## CHAPTER 5

### DISCUSSION

The current study explored how perceived discrimination and internalizing symptoms are related to an array of substance use and HIV risk behaviors among a sample of CINI juveniles. Considering prior research findings that illuminate how perceived discrimination can negatively impact mental and behavioral health outcomes among adolescents in the general population, research examining these associations among youth at increased risk for poorer mental and behavioral health outcomes, such as juvenile justice youth, is necessary. Consistent with prior general adolescent sample findings (Behnke et al., 2011; Lambert et al., 2009; Delgado et al., 2011), this study found that juveniles reported greater internalizing symptoms if they also reported more frequent experiences of discrimination. This suggests that the stress associated with frequent perceived experiences of discrimination could be increasing psychological distress, such as depression and anxiety, among CINI youth. Given that mental health diagnoses are particularly high among juvenile justice populations (Shufelt and Coccozza, 2006; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Teplin, Welty, Abram, Dulcan, & Washburn, 2012), this study suggests perceived discrimination as an influential social determinant of psychological distress, which has a demonstrated association with increased substance use and sexual risk behaviors among CINI juveniles (Brown et al., 2006; Tolou-Shams et al., 2008).

Results showed that among CINI youth, the interaction effect between perceived discrimination and internalizing symptoms was significantly related to an increase in lifetime sexual partners. More specifically, juveniles reporting moderate to high levels of perceived discrimination and clinically significant internalizing symptoms, on average reported having more lifetime sexual partners than juveniles that reported less perceived discrimination and/or at-risk or non-clinically significant levels of internalizing symptoms. Stevens-Watkins et al. (2011), found similar findings among a sample of African American adolescents, where race-related stress significantly predicted number of sexual partners. Although no main effects were detected with regard to race or ethnicity in this sample, it is clear that there is a significant relationship between the experience of discrimination and this specific adolescent sexual behavior, whether perceived discrimination is specific to race or otherwise.

In line with the Biopsychosocial Model or stress-coping model (Clark et al., 1999), these findings suggest that CINI juveniles with increased internalizing symptoms, possibly influenced by the perception of discrimination (and its associated stress), are more inclined to participate in sexual activity with numerous partners, perhaps as a means of coping with stressful discriminatory experiences. Sexual relationships with numerous partners may serve as means of closeness or misguided social support that aides in dealing with discriminatory experiences and psychological distress.

There were no significant associations between the perceived discrimination by internalizing symptoms interaction effect and other HIV risk behaviors including, substance use by the participant or their partner during sex, lifetime HIV testing and

condom use at last sex. The lack of findings may be attributable to the inclusion of relevant covariates in the statistical models, such as participant age. Substance use was positively correlated with older age, which likely accounted for a significant proportion of the variance in outcomes, leaving less variance in the outcome to be detected through other independent variables (e.g., the interaction effect under study).

Consistent with prior research (Tolou-Shams, Conrad, Louis, Hart-Shuford, & Brown, 2015), there was a low endorsement of lifetime HIV testing in this juvenile justice population ( $n = 22$ ; 16%). However, sexual minority juveniles reported having received tested more so than heterosexual/straight juveniles. Sexual minorities were also reporting greater frequency of perceived discrimination. Perhaps due to their knowledge of the greater impact of HIV/AIDS on Lesbian/Gay/Bi-Sexual/Transgender (LGBT) communities or more aggressive testing campaigns aimed at LGBT adolescents, sexual minority juveniles were more vigilant about receiving HIV testing, despite their heightened experiences of discrimination. This suggests that perceived discrimination did not negatively influence the decision to receive an HIV test. Future studies could examine how experiences of heterosexism, or sexual-orientation-based discrimination specifically impacts HIV testing behaviors among this population.

Multivariate analyses revealed that substance use outcomes were not significantly related to the interaction effect between perceived discrimination and internalizing symptoms. Again, controlling for age may have impacted the ability to assess any significant relationship to the interaction between perceived discrimination and internalizing symptoms. Bivariate correlations showed that juveniles reported less

alcohol use when the frequency of perceived discrimination was higher. This contradicts previous studies that reported opposite findings among a community sample of adolescents (Madkour et al., 2015). This may suggest that CINI juveniles are perhaps less likely to deal with discrimination-related stress by consuming alcohol. Internalizing symptoms were significantly related to an increase in marijuana use, which is consistent with previous findings among a juvenile justice population (Tolou-Shams et al., 2008).

Use of other drugs besides alcohol and marijuana, was best predicted by non-minority status. Non-minority (White) juveniles had much greater odds of reporting other drug use than minority juveniles. This finding is consistent with recent literature that found non-Hispanic white offenders (juveniles followed for 12 years after detention) were more likely to use hard drugs, such as cocaine and hallucinogens, than minority offenders. White offenders were also found to be 30 times more likely to be diagnosed with cocaine-use disorder than African American juvenile offenders (Welty et al., 2016). These findings add to the discussion of why African American and Hispanic adolescents are disproportionately represented in the juvenile justice system (Hartney & Vuong, 2009), specifically with relation to drug related crimes (Dumont, Allen, Brockmann, Alexander, & Rich, 2013; Moore & Elkavich, 2008), but are not using or selling these substances at the same rate as white juveniles.

### ***Study Limitations***

This study is novel and provides valuable insight into how perceived discrimination serves as a social determinant of mental health problems, substance use, and HIV risk behaviors among CINI juveniles. Nevertheless, there are a number of limitations to this study that should be taken into consideration. First, the use of cross

sectional data limits the ability to infer causality. Using longitudinal analyses to examine HIV risk development and substance use over time may reveal a more significant relationship to perceived discrimination. As these youth grow older, they may develop a greater ability to recognize discriminatory experiences and discern how they choose to handle those experiences. The range of age among the participants also served as a limitation, given the fact that primarily older participants were participating in substance use behaviors, which greatly co-varied with study outcomes. Re-analyzing these data with a more homogenous age sample, may reveal more significant associations between perceived discrimination and substance use outcomes.

Sample size limited the ability to conduct more robust and sophisticated multivariate analyses, such as structural equation modeling (SEM). Given the emphasis on sexual risk behavior outcomes, we chose to limit the sample to only those who endorsed any sexual activity, which limited our power and ability to perform certain statistical tests. Testing the ability for internalizing symptoms to mediate the relationship between perceived discrimination and substance use/HIV risk outcomes using SEM, would have yielded more overarching results. In addition, within each of the models, there was a significant amount of variance which was not accounted for. Future research should identify additional conceptually driven factors that may help to better explain the outcome variables including discrimination-related stress, peer influences, neighborhood factors, substance use/sexual risk behavior attitudes, beliefs and/or motivations.

Additionally, the current study did not incorporate intersectionality as a theoretical framework, which would have greatly informed study results. The concept

of intersectionality (Crenshaw, 1991) denotes the ways in which pervasive power structures, and systems of privilege and oppression (i.e. racism, sexism and heterosexism), interlock with one another to influence the individual life experience. Intersectionality is a theoretical framework that explores the many ways in which multiple axes of oppression shape the human experience. This framework is used to better understand how multiple social identities such as race, gender, socioeconomic status (SES), and sexual orientation, interconnect at the individual level to reveal the impact of systems of oppression and societal inequities at the socio-structural level (Bowleg, 2012).

These juveniles do not have singular identities or experiences within social structures, but rather, they have intersecting identities. Unfortunately, the current study did not collect data that would optimally measure intersectional experiences. Future studies would need to consider not only the “main” or primary reason for perceived experiences of discrimination, but would need to allow for participants to input multiple reasons or qualitative explanations for their reported experiences. Incorporating a qualitative component would specifically address the intersectional experiences of this juvenile justice population.

### ***Implications for Future Research***

In total, the findings from this study show that discrimination, with relation to internalizing symptoms has important implications for CINI juveniles. This research further confirms previous findings on adolescent samples, by highlighting the negative impact frequent perceived discrimination has on juvenile mental health. The interaction between perceived discrimination and internalizing symptoms and its

significant relation to increased report of lifetime sexual partners, puts forth the assertion that some youth who come into contact with the justice system for the first time are reporting high levels of perceived discrimination, and this important and understudied socio-cultural factor may be negatively affecting their sexual health, thereby contributing to further health disparities for these at-risk youth. Therefore, perceived discrimination should be considered in the conceptualization and practice of HIV prevention and intervention programs targeting juvenile offenders.

The larger-scale prospective cohort study, from which this study's data is derived, will examine future experience of racial discrimination, incidence of HIV/STI diagnoses and the practice of substance use and sexual risk behaviors. Collecting this longitudinal information will elucidate the trajectories of these risk behaviors and their causal relationship to perceived discrimination. With these data, future research could examine other risk trajectories of CINI youth and their relationship to perceived discrimination. For example, the longitudinal relationship between perceived discrimination and CINI juvenile recidivism would be a novel investigation, that could explore how discrimination impacts re-entry into the juvenile justice system, juvenile detention, and incarceration, that may ultimately influence adult criminal behavior.

Future studies should also consider including parent report of discrimination as an additional layer of discrimination measurement. Ford et al. (2013) found that caregiver experience of discrimination had a negative impact on adolescent psychological functioning. Inclusion of these data would support a generational impact of discriminatory experiences that could lend to the creation of family-based treatment programs for juvenile justice-involved families. Familial protective factors that

combat the effects of perceived discrimination, such as ethnic/racial identity strength or parent/adolescent communication would also serve as interesting contributions. For minority status (racial/ethnic and/or sexual orientation) CINI youth, understanding the role of discrimination on HIV risk behavior and substance use may be critical to the development of intervention and prevention strategies. Specifically, teaching these youth more adaptive coping strategies to manage discrimination-related stress and mental health symptoms, could serve as a useful behavioral intervention to prevent substance use and risky sexual behavior.

This study has shed light on the understudied implications of experiences of perceived discrimination on CINI youth. By identifying the risk outcomes for juveniles exposed to discrimination, further development of more successful and targeted prevention and treatment programs can take place. Furthermore, increased knowledge about how perceived discrimination impacts CINI juveniles could have profound public health implications. The implementation of both integrated and culturally competent public health interventions within the juvenile court system and throughout the community, would provide the necessary education and support to those youth most in need.

## Appendix

### Frequency Distribution of Primary Independent and Dependent Variables

Variable	Frequency (%)
<b>Number of Lifetime Sexual Partners</b>	
1-2	70 (50%)
3-5	32 (23%)
6-10	18 (13%)
11-20	9 (6%)
21+	2 (1%)
Unknown/Refused	8 (7%)
<b>Substance Use, Self</b>	
Never	90 (65%)
Less than ½ the time	26 (19%)
About ½ the time	12 (9%)
More than ½ the time	6 (4%)
Always	3 (2%)
Unknown/Refused	2 (1%)
<b>Substance Use, Partner</b>	
Never	89 (64%)
Less than ½ the time	22 (16%)
About ½ the time	13 (9%)
More than ½ the time	9 (6%)
Always	4 (3%)
Unknown/Refused	2 (2%)
<b>Ever tested for HIV</b>	
Yes	22 (16%)
No	116 (83%)
Unknown/Refused	1 (1%)
<b>Condom Use at Last Sex</b>	
Yes	86 (62%)
No	48 (35%)
Unknown/Refused	5 (3%)
<b>Other Drug Use</b>	
Yes	38 (27%)
No	99 (71%)
Unknown/Refused	2 (2%)

No. of Days Marijuana Used (Past 4 months)	
0	40 (29%)
1-10	37 (27%)
11-30	14 (10%)
31-60	11 (8%)
60-120	24 (17%)
Unknown/Refused	13 (9%)

No. of Days Alcohol Used (Past 4 months)	
0	83 (60%)
1-5	38 (27%)
6-10	10 (7%)
11-20	7 (5%)
Unknown/Refused	1 (1%)

Internalizing Symptoms	
Non-Clinically Significant	96 (69%)
At-Risk	21 (15%)
Clinically Significant	22 (16%)

Perceived Discrimination Sum Score (Range 10-60)	
<b>Low Discrimination</b>	<b>106 (80%)</b>
10-20	62 (45%)
21-34	44 (32%)
<b>Moderate/High Discrimination</b>	<b>26 (20%)</b>
35-45	20 (14%)
46-60	6 (4%)
Unknown/Refused	7 (5%)

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