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# Using the Massachusetts Youth Screening Instrument–Version 2 on a Community Sample of African American and Latino/a Juvenile Offenders to Identify Mental Health and Substance Abuse Treatment Needs

Kendell Coker

*University of New Haven, kcoker@newhaven.edu*

Jamie Wernsman

*The Chicago School of Professional Psychology*

Uduakobong N. Ikpe

*Lansing Correctional Facility*

Jeannie S. Brooks

*private practice*

Lynn Bushell

*Turning Point Youth Services*

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**Authors**

Kendell Coker, Jamie Wernsman, Uduakobong N. Ikpe, Jeannie S. Brooks, Lynn Bushell, and Barbara Kahn

Using the Massachusetts Youth Screening Instrument-Version 2 (MAYSI-2) on a Community Sample of  
African American and Latino/a Juvenile Offenders to Identify Mental Health and Substance Abuse  
Treatment Needs

Kendell L. Coker, Ph.D., J.D.<sup>1</sup>  
Jamie Wernsman, Ph.D.<sup>2</sup>  
Uduakobong N. Ikpe, Ph.D., J.D.<sup>3</sup>  
Jeannie S. Brooks, Psy.D.<sup>4</sup>  
Lynn Bushell, MSW<sup>5</sup>  
Barbara Kahn, J.D.<sup>6</sup>

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<sup>1</sup> Postdoctoral Fellow, Yale University School of Medicine, Department of Psychiatry, New Haven, CT.

<sup>2</sup> Assistant Professor, The Chicago School of Professional Psychology, Department of Forensic Psychology, Chicago, IL.

<sup>3</sup> Psychologist, Lansing Correctional Facility, Lansing, KS.

<sup>4</sup> Psychologist, Independent Practitioner, Delray Beach, FL.

<sup>5</sup> Clinical Supervisor, Youth Justice Services, Turning Point Youth Services, Toronto, ON.

<sup>6</sup> Director, Northwestern University, Cook County Juvenile Court Clinic (CCJCC), Chicago, IL.

### **Abstract**

The Massachusetts Youth Screening Instrument-Version 2 (MAYSI-2) is a brief screening tool used to identify youth in the juvenile justice system that are at-risk for mental health related difficulties. The MAYSI-2 was administered to 5,205 African American and Latino/a youth throughout Chicago, Illinois who were on probation and residing in the community. This study investigated differences (i.e., legal status, gender, age, race/ethnicity) in reporting of mental health symptoms and substance use on the MAYSI-2. Females scored above the clinical cutoffs more frequently than males and there were few differences found between diverted and adjudicated youth. Age comparisons revealed mixed results. Overall, youth in the current sample scored above the clinical cutoffs less often than youth in the MAYSI-2 norm reference groups. Nonetheless, during the first phase of this study the MAYSI-2 demonstrated effectiveness by accurately identifying a substantial portion of youth in need of mental health and/or substance abuse treatment.

## **Introduction**

The expanding body of research on juvenile delinquency suggests a relationship between the development of psychopathology and involvement in the juvenile justice system (Cruise & Ford, 2011; Vincent, Grisso, Terry, & Banks, 2008; Cauffman, Piquero, Kimonis, Steinberg, Chassin & Fagan, 2007; Ford, Chapman, Mack, & Pearson, 2006) with youth involved in the juvenile justice system experiencing significantly higher rates of mental health symptoms than their non-involved counterparts (Vincent et al., 2008). Indeed, the prevalence of mental disorders among juvenile offenders is between 40% - 60%, a rate that is quite striking when compared to a prevalence of approximately 17% - 22% among non-involved adolescents (Cauffman & Grisso, 2005).

The substantially high rates of mental health problems among juvenile offenders have important implications for juvenile justice processing. Psychopathology can impact a youth's ability to engage in the court process, necessitates management of treatment needs while in custody, and is often related to the youth's offending behavior and must be considered when imposing sanctions (Grisso, 2005). As such, a primary focus of research and practice has been developing and examining methods for identifying juvenile justice-involved youth with mental and substance use disorders.

One of the most widely used tools is the Massachusetts Youth Screening Instrument – Version 2 (MAYSI-2; Kerig, Arnzen-Moedell, & Becker, 2011; Ford, Chapman, Pearson, Borum, & Wolpaw, 2008; Vincent et al., 2008). Studies examining the MAYSI-2 have demonstrated the instrument's reliability, validity, and clinically utility in alerting staff to the possibility that a youth is in distress and/or warrants clinical attention (Kerig et al., 2011; Archer, Simonds-Bisbee, Spiegel, Handel, & Elkins, 2010; Ford et al., 2008; Grisso, Barnum, Fletcher, Cauffman, & Peuschold, 2001). Research has

also found important gender and racial/ethnic differences in the rates of endorsement of mental health symptoms as measured by the MAYSI-2 (Vincent et al., 2008).

### **Gender and Racial/Ethnic Differences in Mental Health Symptom Reports**

In a meta-analysis of a national sample of MAYSI-2 scores from 283 juvenile probation, detention, and corrections programs, Vincent and colleagues (2008) found significant differences in symptom report based on gender and race/ethnicity. Specifically, girls were more likely to report experiencing symptoms of mental disorders than boys, but less likely to report symptoms of substance abuse. White youth were more likely than African-American or Latino youth to report suicidal ideation and alcohol and drug use; however, there were no racial/ethnic differences found in reporting symptoms of depression, anxiety, or thought disturbance.

These findings are largely consistent with extant research. That gender differences exist in symptom reporting is well established (Grand et al., 2012; Cauffman, Lexcen, Goldweber, Shulman & Grisso, 2007; Cruise, Marsee, Dandreaux & DePrato, 2007; Stewart & Trupin, 2003; Teplin, Abram, McClelland, Dulcan, Mericle, 2002). Likewise, differences in symptom report based on race/ethnicity has been found in multiple studies (McCoy, 2011; Vincent et al., 2008; Cauffman & MacIntosh, 2006; Harris, Edlund, & Larson, 2005; Cauffman, 2004; Abram, Teplin, McClelland, & Dulcan, 2003; Grisso & Barnum, 2006; Dalton, Evans, Cruise, Feinstein, & Kendrick, 2009; Harris et al., 2005; Abram et al., 2003; McCoy, 2011; Teplin et al., 2002; Caldwell, Sturges & Silver, 2007). However, according to Vincent and colleagues (2008), the relationship between symptom report and race/ethnicity is complex. Namely, racial/ethnic differences appear to occur for certain symptoms (i.e., suicidal ideation and substance use) and not others (i.e., depression, anxiety, and thought disturbance). Racial/ethnic differences vary across site, suggesting that contextual factors may influence how these disparities are

expressed among juvenile offenders in different jurisdictions. Moreover, there is a paucity of studies which examined these gender and racial/ethnic differences among a community sample of juveniles on probation.

### **African American and Latino Juvenile-Justice Involve Youth**

Identifying and exploring symptom reporting disparities based on race/ethnicity have been an important step in furthering our understanding of juvenile justice-involved racial/ethnic minorities. Such an understanding is crucial given the well-established fact that these youth are disproportionately represented in the juvenile justice system while also representing the most underserved population in the mental health system (Grisso, 2005).

Texas developed a Special Needs Diversionary Program (SNDP) which was a specialized juvenile probation program designed to minimize removal from the home and juvenile justice involvement for youth with mental health needs (Schwank, Espinosa, & Tolbert, 2003). Out of the 764 juveniles enrolled in the program, 67% of them were African American or Latino (Schwank et al., 2003). There is also evidence that, during their involvement in the juvenile justice system, racial/ethnic minority youth are less likely to receive services for mental health or substance use disorders than are White youth. For example, Dembo and colleagues (1994) conducted a study in which they used the Problem Oriented Screening Instrument for Teenagers (POSIT) to assess symptoms of mental and substance use disorders among 243 youth at the Juvenile Assessment Center in Tampa, Florida. The study demonstrated that, among youth with mental health problems, 38% of White youth received treatment while 19% of Black youth received treatment. There was a similar pattern with substance use problems, where 18% of White youth but only 6% of African American youth received services. This issue is compounded by systemic barriers. Some authors have argued that the juvenile justice system is



not prepared or equipped to manage the needs of youth with mental health problems and this primarily affects both minorities and females (Hubner & Wolfson, 2000).

### **Juvenile Justice-Involved Youth Residing in the Community**

Certainly, the extant research has been advantageous in advancing juvenile justice policy and practice. Specifically, much has been learned about juvenile offenders' mental health needs and mental health screening has become routine practice across jurisdictions. To date, however, much of the research on juvenile justice populations has focused primarily on detained youth. The state of Texas administered the MAYSI-2 to a large sample of youth which included youth whose legal status was "supervisory caution, deferred probation, adjudicated probation, committed to the Texas Youth Commission (TYC), and certified as adult" (Schwank et al., 2003). Despite the results being purely descriptive and no consistent patterns by disposition emerging, youth in the deferred prosecution category typically had lower percentages of scores on the MAYSI-2 above *caution* or *warning* than youth in the other categories (Schwank et al., 2003). These percentage difference trends suggest that perhaps youth who are diverted may report fewer mental health symptoms than other justice-involved youth.

Few studies incorporate community samples, and those that do include these youth, retain correctional and detained youth as well. These studies provide important knowledge relevant to the juvenile justice population overall; however, they are unable to provide specific knowledge regarding juvenile justice-involved youth residing in the community. Given that these youth comprise 79% of the juvenile justice population, such knowledge is important to ensure that we are effectively identifying and addressing their mental health needs (Knoll & Sickmund, 2012). Thus, examining the accuracy of

screening instruments, such as the MAYSI-2, in identifying possible mental health needs among a community sample of juvenile offenders is an important research direction.

Though there is a dearth of research regarding juvenile justice-involved youth in the community, it is reasonable to speculate that there may be important differences in mental health needs when compared to detained youth. For instance, multiple factors are considered upon a decision to maintain a juvenile offender in the community. Decisions vary across jurisdiction, but in general, the court may consider whether the youth poses a threat to the community, is at risk if returned to the community, or is likely to appear at court hearings (Knoll & Sickmund, 2012). Accordingly, the court has determined that youth, who are maintained in the community, are a low risk across multiple factors. Conversely detained youth have been established as a high risk in at least one of these areas. Given the relationship between multiple risk factors and mental health and substance use problems, it seems likely that juvenile justice-involved youth who reside in the community would possess fewer and less severe symptoms of mental and substance use disorders.

### **The Current Study**

The screening process is considered a necessary tool to identify mental health and substance abuse problems among delinquent youth at various stages of the adjudicative process (Wasserman et al., 2003). Currently, the MAYSI-2 is one of the most widely utilized and extensively researched screening tools applied in juvenile justice. Research indicates that the MAYSI-2 is an effective and reliable screening instrument for youth involved in the juvenile justice system; however, as mentioned previously contextual factors such as adjudication phase may influence symptom reporting (Cauffman, 2004).

As previously mentioned, some studies have found a significant difference in mental health symptom reporting between detained and incarcerated girls (Archer et al., 2010) whereas Cauffman and colleagues (2007) found that detention status impacted the presence of mental health symptoms. Thus, further exploration into various facets and motivating factors that might or might not be present at various stages of the adjudicative process (including geographic-specific factors) would appear worthy of further study. For example, some might argue that youth in the later stages of the adjudicative process could possess less motivation to report on the actual nature and extent of their mental health symptoms due to their perception any services received would likely be ineffectual. Conversely, it can be suggested that juveniles in the earlier stages of the adjudicative process might experience heightened levels of motivation to disclose mental health symptoms in the hopes that same could increase access to mental health services and work to divert sanctions into the community.

Studies have explored differences in symptom report based on gender and race/ethnicity. Overall, females typically report greater degrees of mental health symptoms than males, and minority youth tend to report fewer mental health symptoms than Caucasian youth (Vincent et al., 2008; Cauffman et al., 2007; Teplin et al., 2002). Meanwhile, age differences in mental health symptom reporting have yielded mixed results (Cauffman, 2004; Teplin et al., 2002). The reasons for differences in reporting patterns based on gender, age, and race/ethnicity *within a justice-involved community sample* are unknown and would further our understanding regarding use of the MAYSI-2. Additionally, exploration of such differences in the context of legal status, such as diverted or adjudicated status, is minimal. Few studies conducted to date have specifically examined reporting patterns among youth who reside in the community and possess adequate awareness of their legal disposition (i.e., diverted or adjudicated).

The current study explores mental health symptom and substance use reporting differences using the MAYSI-2 among Black/African-American and Latino/a justice-involved youth who reside in the community, while also considering the influence of various demographic factors such as legal status and gender. The following hypotheses were tested:

1. On the MAYSI-2, diverted youth would not score above the *warning* or *caution* cutoff more often than adjudicated youth.
2. On the MAYSI-2, females would score above the *warning* or *caution* cutoff more frequently than males.
3. Among the current sample, the results of the MAYSI-2 would have a high rate of agreement with the results of full assessments conducted by community-based providers in identifying youth with mental health and substance abuse treatment needs.

## **Method**

### **Participants**

In 2007, Juvenile Probation and Court Services (Juvenile Probation) in Chicago, Illinois began administering the MAYSI-2 in the interest of identifying mental, emotional or behavioral disturbances and to provide referral or follow-up services as needed for youth involved with Juvenile Probation. Between June 1, 2007 and July 10, 2009, a nonrandom consecutive admission sample of youth were administered the MAYSI-2 as part of the intake procedures at Juvenile Probation. This study specifically examined African-American and Latino/a youth, which consisted of 90% of all youth in Juvenile Probation, who were administered the MAYSI-2 during this time period.

The initial sample, which did not contain any duplicate administrations, consisted of 5,205 African-American and Latino/a youth whose legal status was classified as either diverted or adjudicated. Diverted youth were referred for immediate intervention programs without Court involvement at the discretion of the Office of the State Attorney. Adjudicated youth were found delinquent by the Court, and were ordered to be supervised by Juvenile Probation.

A total of 786 youth were excluded from analysis due to invalid response styles. Types of invalid response styles were invalid scales (N=13), all “No” response set (N=718), and MAYSI-2 completion times of two minutes or less (N=270). Review of the literature revealed these factors constituted positive indicators of invalid responding (Grisso & Barnum, 2006; Maney, 2011). There was considerable overlap among the various categories of excluded participants. For instance, some of the youth that provided an all “No” response set might have also completed the MAYSI-2 in less than two minutes. Youth were also excluded from analysis if they were younger than 12 years of age or older than 17 years (N=13). Youth between 12 and 17 years of age were deemed to be the predominant age range of youth in Juvenile Probation as well as in the MAYSI-2 normative sample (Grisso & Barnum, 2006). The final sample included 4,419 youth with a mean age of 15 years. A full description of the sample is available in Table 1, and it should be noted that all youth resided in the community at the time of administration.

## **Procedure**

The Institutional Review Board (IRB) of Northwestern University provided approval for the current study. Dr. Antoinette Kavanaugh, the Midwest representative for the use and administration of the MAYSI-2, trained screening officers within Juvenile Probation on MAYSI-2 administration. For approximately four months following conclusion of the training process, the screening officers piloted

the instrument and procedures for data collection, and formal data collection began on June 1, 2007. The Department's intake screening officers administered the MAYSI-2 in a consistent fashion to all participants. All youth completed the MAYSI-2 as part of either the diversion or post-adjudication process. Diverted youth were not involved in juvenile court proceedings. Instead, they were notified that their case was "diverted" from juvenile Court by the State Attorney's office and that they were referred to programs monitored by Juvenile Probation. Typically, youth were administered the MAYSI-2 on the same day they were informed their case was diverted. Conversely, adjudicated youth were assigned to Juvenile Probation following a delinquency finding. Subsequent to the delinquency finding, the MAYSI-2 was administered. In other words, court decisions were made and then the youth were administered the MAYSI-2. Typically, the MAYSI-2 was administered to an adjudicated youth within two weeks of the delinquency finding. Both adjudicated and diverted youth were residing in the community during MAYSI-2 administration.

The screening officers administered and scored the MAYSI-2 via a computerized program entitled "MAYSIWARE". The administration protocol required only the presence of the screening officer and the youth. Prior to administering the MAYSI-2, the screening officer gathered and entered identifying and demographic information for the youth such as their identification number, date of administration, disposition, charges, race/ethnicity, age, gender, and language. Youth were instructed to listen to the questions through headphones while each question was visually presented on a screen in front of them. The program directed the youth to answer each question by selecting "yes" or "no" using the keyboard provided, or via a click of the mouse. MAYSIWARE also provided the youth with instructions on how to receive repetition of item presentation as well as how to change responses. The program would automatically score the MAYSI-2, and identify whether each youth met pre-specified criteria for clinical cutoffs.

Although the MAYSI-2 protocol manual provides scoring guidelines, it allows probation departments to develop their own screening methods and procedures in identifying youth who warrant clinical attention and triaging them to services (Grisso & Barnum, 2006). Juvenile Probation utilized a Decisional Grid to implement specific responses depending on youths' scores on MAYSI-2 scales. Youth were categorized as being at "high" or "imminent risk" if they met one of the following criteria: 1) they scored above the *warning* cutoff on one scale; 2) they scored above the *warning* cutoff on one scale and above the *caution* cutoff on one or more scales; or 3) they scored higher than the *caution* cutoff on the suicide ideation scale. The youth who fell into one of these "high" or "imminent risk" categories received an immediate secondary screening that consisted of follow-up questioning conducted by the screening officer to ascertain the severity of the youth's mental health issues. After conducting the secondary screening and consulting with his/her supervisor, the screening officer determined the appropriate follow-up response. Youth confirmed as being at "high" or "imminent risk" for mental health issues were referred directly for a full assessment conducted by community-based service providers.

In addition to the aforementioned, youth whose scores placed them in the at-risk category were also referred to community-based service providers for a full assessment of service needs. The criteria for placement in the at-risk category were above the *caution* cutoff on any two scales (with the exception of the Suicide Ideation scale). In the event that a youth scored above the *caution* cutoff on the Suicide Ideation scale, the screening officer completed the secondary screening questions and subsequently sought immediate assistance from an external outpatient clinical services provider who intervened and provided emergency care. Any youth placed at or above the at-risk category were referred for a full assessment. The full assessment referral for all youth generally occurred within seven days of administration, with variation in scheduling being impacted as a function of Court and

probationary requirements, agency waiting lists and resources, and scheduling problems for the youth and his/her family. Full assessment results were only collected during the first six months of the study, from June 1, 2007 through December 31, 2007, as part of a pilot study, funded by the John D. and Catherine T. MacArthur Foundation. The pilot study specifically aimed to assess whether the MAYSI-2, as a screening instrument identifying youth who were in need of mental health or substance use treatment was in agreement with a secondary evaluation that was completed by a service provider in the community. The community service providers were not told whether the youth took the MAYSI-2. The youth were simply referred by probation to providers for a full assessment. Juvenile Probation adapted the intake form to track youth with elevated MAYSI-2 scores and these youth were referred for a full assessment.

## **Measure**

*The Massachusetts Youth Screening Instrument Second Version.* The MAYSI-2 is a 52-item self-report screening tool used to alert staff about a youth's potential mental and emotional distress and specific behaviors that might warrant immediate attention. Youth provide responses of either "yes" or "no" to items to indicate whether each item has been true for them within the past few months. The instrument includes seven scales. The seven scales and the alpha coefficients for this study's sample are reported as follows: Alcohol/Drug Use ( $\alpha = .78$ ), Angry-Irritable ( $\alpha = .80$ ), Depressed-Anxious ( $\alpha = .66$ ), Somatic Complaints ( $\alpha = .63$ ), Suicide Ideation ( $\alpha = .77$ ), Traumatic Experiences (males:  $\alpha = .60$ ; females:  $\alpha = .58$ ), and Thought Disturbance ( $\alpha = .43$ ). It is important to note the Thought Disturbance scale is only used for males (Grisso & Barnum, 2006). These alpha coefficients are not dissimilar from those reported in other studies (Butler, Loney, & Kistcutner, 2007; Grisso & Barnum, 2006; Cauffman, 2004). Scoring is based on the total number of positive responses endorsed by each youth, and the



measure provides cutoff thresholds of *caution* and *warning* indicating endorsement of clinically significant responses.

## **Analyses**

Data were analyzed using Cochran-Mantel-Haenszel statistics, in which a series of two-by-two tests of independence that also produced Odds Ratios (ORs) were utilized to determine whether there were group differences in scoring above the *caution* or *warning* cutoff on each of the MAYSI-2 scales. However, the Traumatic Experiences scale, which is a non-clinical scale measuring a youth's reported exposure to potentially traumatic events, was excluded from analyses because it does not describe youths' mental health symptoms (Vincent et al., 2008). Separate comparisons were conducted based on legal status (e.g., diverted vs. adjudicated delinquent), race/ethnicity (e.g., African American vs. Latino/a), gender (i.e., male vs. female), and age group (i.e., 12-14 years versus 15-17 years). To control for the inflated family-wise type I error rate due to the multitude of comparisons, a more conservative, stringent alpha level was used to determine significance ( $p = .005$ ). Confidence intervals at a 95% level were also calculated for each analysis.

## **Results**

The means and standard deviations from the MAYSI-2 scales are presented in Table 2. Among both males and females, the scale with the overall lowest score was Suicide Ideation with a mean of .11 (SD=.51) for males and a mean of .35 (.99) for females. Similarly, both males and females overall scored highest on the Angry-Irritable scale with a mean of 2.37 (2.27) for males and a mean of 3.1 (2.60) for females. Additional results obtained from all conducted comparisons are displayed in Tables 3 and 4. Comparisons were first made between diverted ( $n= 3,621$ ) and adjudicated delinquent ( $n= 798$ )

youth. Collectively, results indicated that the two groups did not significantly differ in terms of their individual likelihood to score above the MAYSI-2 scale cutoffs. The only significant difference found between the two legal status groups was on the Alcohol/Drug Use scale,  $\chi^2(1) = 10.08, p = .002$ . On average, adjudicated youth were more than twice as likely as diverted youth to score above the *warning* cutoff on this scale ( $OR = 2.15; 95\% CI = 1.35, 3.42$ ). There were no additional significant differences found on the MAYSI-2 between diverted and adjudicated youth. Comparisons based on race/ethnicity revealed that on the Alcohol/Drug Use scale Latino/as ( $N = 889$ ) were significantly more likely than African-Americans ( $N = 3,530$ ) to score above the *caution* cutoff,  $\chi^2(1) = 19.15, p = .000$ , as well as above the *warning* cutoff,  $\chi^2(1) = 17.70, p = .000$ . More specifically, Latino/as were almost twice as likely as African-Americans to score above the *caution* cutoff on this scale ( $OR = 1.83; 95\% CI = 1.40, 2.40$ ). Furthermore, they were more than twice as likely as African-American participants to score above the *warning* cutoff on this scale ( $OR = 2.58; 95\% CI = 1.66, 4.01$ ). There were no additional significant differences found between Black/African-Americans and Latino/as.

Speaking to identified age differences, older youth (ages 15-17,  $N = 3,089$ ) were twice as likely as their younger counterparts (i.e., those between 12-14 years of age,  $N = 1,330$ ) to score above the *caution* cutoff on the Alcohol/Drug Use scale,  $\chi^2(1) = 16.85, p = .000$  ( $OR = .52; 95\% CI = .38, .71$ ). However, younger youth were significantly more likely than older youth to obtain scores above the *caution* cutoff on the Angry-Irritable scale,  $\chi^2(1) = 9.05, p = .003$  ( $OR = 1.27; 95\% CI = 1.09, 1.49$ ), and on the Depressed-Anxious scale,  $\chi^2(1) = 10.12, p = .001$  ( $OR = 1.31; 95\% CI = 1.11, 1.54$ ).

Comparisons were also conducted between males ( $N = 3,734$ ) and females ( $N = 685$ ), revealing several significant differences. Although there is extant literature on gender differences on the MAYSI-2, few studies have investigated gender differences with a sample like the one used in this study

(predominately ethnically diverse community-based youth apprised of their legal status). Males and females differed significantly in scoring above the *caution* cutoff on the Angry-Irritable scale,  $\chi^2(1) = 48.05, p = .000$ , Depressed-Anxious scale,  $\chi^2(1) = 28.95, p = .000$ , Somatic Complaints scale,  $\chi^2(1) = 36.30, p = .000$ , and the Suicide Ideation scale,  $\chi^2(1) = 54.02, p = .000$ . More specifically, females scored above the MAYSI-2 cutoffs more often than males. Females, on average, were almost twice as likely as males to score above the *caution* level on the Angry-Irritable scale ( $OR = .53; 95\% CI = .44, .63$ ), the Depressed-Anxious scale ( $OR = .59; 95\% CI = .49, .71$ ), and the Somatic Complaints scale ( $OR = .58; 95\% CI = .49, .70$ ). Females were more than three times as likely as males to score above the *caution* level on the Suicide Ideation scale ( $OR = .29; 95\% CI = .21, .41$ ). Similarly, females were also almost three times more likely than their male counterparts to score above the *warning* cutoff on the Angry-Irritable scale,  $\chi^2(1) = 39.34, p = .000$  ( $OR = .37; 95\% CI = .26, .50$ ) and on the Depressed-Anxious scale,  $\chi^2(1) = 21.67, p = .000$  ( $OR = .38; 95\% CI = .25, .54$ ). Females were also more than three times more likely than males to score above the *warning* level on the Somatic Complaints scale,  $\chi^2(1) = 19.84, p = .000$  ( $OR = .24; 95\% CI = .12, .46$ ). Interestingly, and unlike findings from other comparisons, there were no significant differences found between males and females on scores for the Alcohol/Drug Use scale. In other words, neither gender was more likely than the other to score above the *caution* level,  $\chi^2(1) = .19, p = .664$  or the *warning* cutoff,  $\chi^2(1) = 1.24, p = .266$  on this scale.

### **Level of Agreement: Decisional Grid and Full Assessment**

As previously mentioned, for the first six months of data collection ( $N=1,772$ ; June 1, 2007 to December 31, 2007), this study examined the degree to which the MAYSI-2, as implemented by Juvenile Probation's Decisional Grid, correctly identified youth as needing mental health and/or substance-related services. This was done by calculating the percentage of agreement between the

MAYSI-2 identified problems and the problems identified by a full assessment conducted by a community-based provider. Of the 1,714 youth included in this analysis, there were 466 youth (27.2%) that were identified by the MAYSI-2 as potentially having a mental health or substance abuse problem requiring a full assessment. Based on group comparisons, females were significantly more likely than males to be identified as needing a full assessment,  $\chi^2(1) = 8.94, p = .003$  ( $OR = .64$ ; 95%  $CI = .48, .85$ ). Also, adjudicated youth were significantly more likely than diverted youth to be identified as requiring a full assessment,  $\chi^2(1) = 9.45, p = .002$  ( $OR = 1.45$ ; 95%  $CI = 1.15, 1.82$ ). The groups did not differ in this regard based on race/ethnicity or age group. Out of the 466 youth identified as needing a full assessment, 50 referred youth (10.7%) did not appear for their full assessment. Due to the fact that all studied youth were residing in the community, there was no consistent available data documenting why these youth did not appear for their full assessment.

Of the 416 youth who appeared for their full assessment, 244 (58.7%) were found to be in need of mental health treatment, 60 (14.4%) were identified as being in need of substance abuse treatment, 48 (11.5%) were in need of mental health and substance abuse treatment, and 10 (2.4%) were identified as being in need of some other type of intervention. In sum, out of the 416 youth identified as requiring follow up assessments based on results of the MAYSI-2, 362 of these youth (87%) were actually in need of some type of treatment or intervention. As a screening tool utilized with the current sample, the MAYSI-2 was found to be very good at flagging true positives and thus, correctly classified youth that required some form of treatment or intervention.

### **Comparison of Study Sample to the Midwest Norm Gates**

Youth in the current study were compared to the three norm gates (Intake Probation, Detention, and Correction), which constitute the MAYSI-2 normative sample. The norm data used for the

comparisons were gathered from the MAYSI-2 manual (Grisso & Barnum, 2006). Because the youth in the current study resided in Illinois, they were compared to the Midwest norms region, which includes Illinois (Grisso & Barnum, 2006). The intake probation norms were comprised of youth that resided in the community, but whom typically lacked knowledge as to their legal status which is different from the current sample of youth who resided in the community *and* knew their legal status. Further, the detention norms were detained youth whose legal status was not yet determined, and the correctional norms were detained youth whose legal status was determined. As previously indicated, unlike any of these three MAYSI-2 norm gates, the current sample of youth *were not only apprised of their legal status but also resided in the community* (i.e., diverted versus adjudicated delinquent) when they were administered the MAYSI-2.

Figure 1 illustrates the entire sample of the current study, separated by legal status, compared to *all* youth in their three respective gates. The results revealed the current sample consistently reported fewer mental health difficulties and symptoms of substance-related disorders in comparison to youth comprising the MAYSI-2 Midwest Region Study (n=30,719) which included youth from intake probation, detention and corrections. On the Alcohol/Drug Use scale of the MAYSI-2, the percentage of diverted and adjudicated youth who scored above the *caution* level (6% and 8%, respectively) was less than the percentages seen in intake probation (13%), detention (27%), and correctional gates (16%). Similarly, on the Angry-Irritable scale, the percentage of diverted and adjudicated youth who scored above the *caution* level (20% and 21%, respectively) was less than the percentages seen in intake probation (36%), detention (40%), and correctional gates (57%). On the Depressed-Anxious scale, fewer diverted and adjudicated youth scored above the *caution* level (18% and 20%, respectively) as compared to those in intake probation, detention, and correctional gates (29%, 36%, and 50%, respectively). A similar pattern was noted on the Somatic Complaints scale, where the percentage of

diverted and adjudicated youth who scored above the *caution* level (25% and 24%, respectively) was less than percentages identified in the intake probation (39%), detention (45%), and correctional gates (41%). The percentage of diverted and adjudicated youth who scored above the *caution* level (3% and 4%, respectively) on the Suicide Ideation scale was also less than percentages identified among those in intake probation, detention, and correctional gates (21%, 29%, and 28%, respectively). Lastly, on the Thought Disturbance scale, the percentage of diverted and adjudicated youth who scored above the *caution* level (20% and 23%, respectively) was less than the percentages seen in the intake probation (30%), detention (43%), and correctional gates (50%).

Figures 2 and 3 illustrate these same comparisons separated by gender. These figures represent nearly identical patterns of differences among the current sample of diverted and adjudicated youth and the three norm gates. Although based on these percentages the youth in the current sample primarily resemble the intake probation gate, they consistently scored above the *caution* level at lower rates than the intake probation, detention, and corrections gates as a whole.

### **Race Specific Comparisons to the National Norms**

Due to the fact that the current sample was comprised of all African American and Latino youth, the sample was also compared to gender-specific race/ethnicity specific norms. The results already revealed that the current sample was quite different from the Midwest norms region so these gender-specific race/ethnicity specific comparisons were made to the National Norm sample which also adds to the generalizability of this study's findings. As shown in Figure 4, the results revealed this study's sample of African American and Latino males consistently reported fewer mental health difficulties and symptoms of substance-related disorders in comparison to other African American (n=18,580) and Latino (n=13,042) males from the MAYSI-2 national norms which included youth from all three gates.

On the Alcohol/Drug Use, the percentage of African American (n=2,976) and Latino (n=758) males from the current sample who scored above the *caution* level (5% and 10%, respectively) was less than the percentages seen for the African American (21%) and Latino (30%) male norms. Similarly, on the Angry-Irritable scale, the percentage of African American and Latino males from the current sample who scored above the *caution* level (19% and 17%, respectively) was less than the percentages seen in the African American (33%) and Latino (29%) male norms. On the Depressed-Anxious scale, fewer African American and Latino males in the current sample scored above the *caution* level (17% and 14%, respectively) as compared to the African American and Latino male norms (31% and 31%, respectively). A similar pattern was noted on the Somatic Complaints scale, where the current sample's percentage of African American and Latino males who scored above the *caution* level (23% and 24%, respectively) was less than percentages identified in the African American (33%) and Latino male norms (35%). The percentage of African American and Latino males from the current sample who scored above the *caution* level (2% and 3%, respectively) on the Suicide Ideation scale was also less than percentages identified among the African American and Latino male norms (12% and 14%, respectively). Lastly, on the Thought Disturbance scale, the percentage of the current sample's African American and Latino males who scored above the *caution* level (20% and 17%, respectively) was less than the percentages seen in the norm sample's African American (37%) and Latino (36%) males.

Figure 5 shows strikingly similar patterns among the African American (n=554) and Latin (n=131) females in the current sample to their race/ethnicity specific counterparts from the national norms (African Americans, n=4,612; Latinas, n=3,700). On the Alcohol/Drug Use, the percentage of African Americans and Latin females from the current sample who scored above the *caution* level (5% and 8%, respectively) was less than the percentages seen for the African American (14%) and Latin (17%) female norms. Similarly, on the Angry-Irritable scale, the percentage of African American and

Latin females from the current sample who scored above the *caution* level (31% and 27%, respectively) was less than the percentages seen in the African American (46%) and Latin (41%) female norms. On the Depressed-Anxious scale, fewer African American and Latin females in the current sample scored above the *caution* level (26% and 21%, respectively) as compared to the African American and Latin female norms (45% and 42%, respectively). A similar pattern was noted on the Somatic Complaints scale, where the current sample's percentage of African American and Latin females who scored above the *caution* level (35% and 32%, respectively) was less than percentages identified in the African American (44%) and Latin female norms (48%). Lastly, the percentage of African American and Latin females from the current sample who scored above the *caution* level (8% and 8%, respectively) on the Suicide Ideation scale was also less than percentages identified among the African American and Latin female norms (24% and 28%, respectively).

### **Conclusion**

This study supplements the current literature on mental health and substance use symptoms among youth within the juvenile justice system by focusing on Black/African-American and Latino/a youth residing in the community. To date, much of the research has focused on detained or incarcerated youth rather than those in the community despite the fact that the majority of youth involved with the juvenile justice system typically remain in the community (Knoll & Sickmund, 2012). Moreover, highly specific research focusing in the utility of assessment tools as the MAYSI-2 on large urban samples of African-American and Latino/a youth involved in the juvenile justice system appears scarce. However, such investigative attention appears necessary given disproportionate representation of these youth within the juvenile justice system (Hsia, Bridges, & McHale, 2004). Thus, this study focuses on a distinct and significant population of youth involved with the juvenile justice system, which enhances



current knowledge regarding mental health and substance use symptoms among youth in this system. Furthermore, with the advent of diversion programs and growing pressure to reduce disproportionate minority confinement, there may be increasing numbers of minority youth on probation residing in the community. Therefore, it is critical to gain additional insight into using the MAYSI-2 on ethnically diverse youth who are not incarcerated, thus residing in the community, and know their legal status.

In the present study, the authors initially conducted preliminary analyses to determine any significant demographic differences on the MAYSI-2 among a community-based sample of youth on probation. Study results suggest there are differences in patterns of symptom reporting across age and race/ethnicity, which appears largely consistent with current research (Vincent et al., 2008, Cauffman et al., 2007). There were significant differences discovered across age, with younger youths reporting more symptoms on the Angry-Irritable and Depressed-Anxious scales, albeit fewer symptoms were endorsed on the Alcohol-Drug Use scale in comparison to older youths. Ethnic differences also emerged, suggesting Latino/as reported more symptoms on the Alcohol-Drug Use scale as opposed to response patterns among African-American youth. Surprisingly, there were no significant differences found between Latino/as and African-Americans regarding reporting patterns across other mental health domains. This pattern is inconsistent with research that suggests Latino/a youth demonstrate higher rates of mental health problems across multiple mental health domains than African-American youth (Teplin et al., 2002). The aforementioned might possibly be due to differences between this study's sample characteristics (ethnically diverse community-based diverted and adjudicated youth) and those in the extant research which are demographically similar to the MAYSI-2 norms.

Consistent with the initial hypothesis, findings were negative for significant differences in mental health symptom reporting ranges for diverted and adjudicated youth. More specifically that specific legal status did not appear strongly related to reporting of mental health symptoms. This finding

is not surprising, given the fact that all youth involved in the present study were aware of their legal disposition status and were returned to the community, which lessens uncertainty and anxiety that is often inherently felt by youth with juvenile justice system involvement and perhaps most pronounced during the mental health screening process. However, individual legal status did appear to be related to reports of substance use, with adjudicated youth being more likely than diverted youth to endorse these symptoms. Without anticipation, this finding appears congruent with research suggesting rates of substance use among youth with juvenile justice system involvement tend to be higher among those that are more deeply involved in this system (Chassin, 2008). Additionally, while mental health symptoms might be affected by reduced levels of uncertainty related to personal knowledge of one's legal status, it is reasonable to posit that reported symptoms of substance use disorders would not be similarly affected.

Study findings indicate that females were more likely than their male counterparts to score above the MAYSI-2 cutoffs, which is consistent with current literature. These findings supplement the current literature by demonstrating that even amongst a diverse *community-based* sample of youth on probation who are aware of their legal status, these gender differences remain. Specifically, females reported having more mental health symptoms on the Angry-Irritable, Depressed-Anxious, Somatic Complaints, and Suicide Ideation scales; however, no gender differences on the Alcohol-Drug Use scale were noted. These results are consistent with research suggesting there are higher rates of mental health symptoms, and similar rates of substance use among delinquent females as compared to delinquent males (Caffman et al., 2007).

In the present study, the authors also sought to determine the effectiveness of the MAYSI-2 in identifying youth in need of mental health and substance abuse treatment. Findings supported the third hypothesis, and were indicative of a high degree of agreement regarding the need for services as indicated by the MAYSI-2 and by full assessment results. Specifically, a high rate of youth identified as

being in need of mental health and substance abuse treatment by the MAYSI-2 was also identified as requiring treatment via results of a full assessment by independent, community-based treatment providers who were not told the youth the referral was based on MAYSI-2 scores, indicating a very low rate of false positives.

Perhaps the most striking finding in the current study is the overall lower rates of reported mental health and substance use symptoms among this study's population, as compared to rates suggested in the MAYSI-2 National Norms Study (Grisso & Barnum, 2006) as well as much of the research to date (Teplin et al., 2002). The notably low rates of reported symptoms can be attributed in large part to characteristics of the study sample. Particularly, the current study sample consisted of youth residing in the community and who was notified of their legal status. There are a number of possible reasons these youth would have fewer reported mental health symptoms and/or substance-related difficulties in comparison to detained youth. As previously above, the participants in the present study possessed knowledge of their legal disposition status and were returned to the community, which likely decreased feelings of uncertainty and anxiety that many detained youth are likely to experience. Moreover, research indicates youth with mental health and substance abuse problems are at greater risk for recidivism (Trulson, Marquart, Mullings, & Caeti, 2005). It is postulated that youth who tend to become more deeply involved in the juvenile justice system experience higher rates of psychopathology and substance use disorders in comparison to youth whose disposition was back to the community.

It is important to emphasize the current study was comprised of Black/African-American and Latino/a youth. Although the MAYSI-2 seemed effective in identifying youth who were in need of treatment, the lower number of youth identified as at-risk in comparison to the norms raises concerns about false negatives. Youth who under-report were not referred for an evaluation despite the possibility that these youth may actually be at-risk for mental health and/or substance use problems. Research

suggests these youth typically report mental health and substance use symptoms at lower rates in comparison to Caucasian youth (Vincent et al., 2008). As documented by Vincent and colleagues (2008), Black/African-American youth tend to obtain lower scores than Hispanic and Caucasian youth on multiple scales. This study's findings not only supports this notion but also demonstrated that a community-based sample of ethnically diverse youth on probation obtained even lower scores than African American and Latino youth in the MAYSI-2 norms. This finding may further suggest that youth on probation who *reside in the community and know their legal status* may report fewer mental health symptoms than youth who are in one of the MAYSI-2 norm gates. The literature has shown that the MAYSI-2 is an effective screening tool widely used in probation departments across the country. With the proliferation of diversion programs and the growing emphasis on reducing juvenile incarceration rates and disproportionate minority confinement (Skowrya & Powell, 2006; Shelden, 1999), the MAYSI-2 may prove to be a useful screening tool on juvenile probationers residing in the community and future studies may reveal some evidence for developing diversion and/or adjudicated juvenile community-based norms. The current study can serve as the foundation and initial framework for understanding reporting patterns of mental health issues and substance use problems among community-based youth on probation.

There are a number of limitations to the current study that must be noted. This study only has data on youth "screened in" by the MAYSI-2 and thus was able to only assess the possibility of true and false positives based on MAYSI-2 scores, but was unable to assess true and false negatives. Nonetheless, to the authors' knowledge the rate of agreement on the MAYSI-2 with independent evaluations has not been discussed in the literature and the findings of this study on true and false positives provide considerable value to the literature. Future studies should consider examining rates of true and false negatives with youth on probation in various jurisdictions. Additional studies perhaps

should be conducted to confirm such reporting patterns and to comprehend etiological factors for these noted differences. These studies may want to consider using a longitudinal within subjects design to determine whether youth answer questions differently at different stages in the adjudication process.

In addition, over 10% (N=51) of the youth referred for a full assessment failed to attend the assessment, resulting in missing outcomes for over 50 youth, which might have impacted the agreement rate between the MAYSI-2 and full assessment. Finally, additional studies should be conducted with similar populations to determine whether these findings are generalizable to populations outside of Chicago, Illinois.

Irrespective of the aforementioned limitations, the current study identifies some important issues related to mental health screening processes among a Black/African-American and Latino/a population of community-based youths that have involvement with the juvenile justice system. Namely, these youth typically report notably lower rates of mental health and substance abuse symptoms than those identified in the current literature. Whether these lower reporting rates accurately represents the needs of community youth involved in the juvenile justice system is beyond the scope of the current study and represents an important area for future research. Additional research is also needed to determine the extent to which mental health and substance use screening measures accurately identify symptoms among Black/African-American and Latino/a youth residing in the community with simultaneous involvement in the juvenile justice system.

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Table 1

*Demographic Characteristics as a Percentage of the Sample*

	Total N = 4419 (%)	African American/Black n = 3530 (%)	Latino/a n = 889 (%)
Gender			
Male	3734 (84.5)	2976 (84.3)	758 (85.3)
Female	685 (15.5)	554 (15.7)	131 (14.7)
Age			
Mean	15.01	15.02	14.99
12 – 14	1330 (30.1)	1049 (29.7)	281 (31.6)
15 – 17	3089 (69.9)	2481 (70.3)	608 (68.4)
Offense			
Person	1283 (29.0)	1036 (29.4)	247 (27.8)
Property	1249 (28.3)	1053 (29.8)	196 (22.0)
Drug Offense	802 (18.1)	698 (19.8)	104 (11.7)
Driving Offense	192 (4.3)	160 (4.5)	32 (3.6)
Obstructing Justice	104 (2.4)	75 (2.1)	29 (3.3)
Sex Offense	62 (1.4)	45 (1.3)	17 (1.9)
Weapon	221 (5.0)	164 (4.6)	57 (6.4)
Other*	506 (11.5)	299 (8.5)	207 (23.3)

\*This category includes, but is not limited to, offenses such as “crimes against the state,” violence to animals, obstruction of justice, violation of probation, and various types of status offenses.

Table 2

*MAYSI-2 Scale Means*

Scale	Males (n=3734) <i>M (SD)</i>	Females (n=685) <i>M (SD)</i>
Alcohol/Drug Use	.72 (1.39)	.55 (1.31)
Angry-Irritable	2.37 (2.27)	3.1 (2.60)
Depressed-Anxious	1.21 (1.48)	1.71 (1.88)
Somatic Complaints	1.54 (1.39)	1.94 (1.61)
Suicide Ideation	.11 (.51)	.35 (.99)
Thought Disturbance*	.25 (.58)	--
Traumatic Experiences	1.31 (1.29)	1.17 (1.27)

\*Note. The Thought Disturbance scale is for Boys only.

Table 3

*Comparisons of Youth Scoring Above Caution on the MAYSI-2 Scales Across Legal Status, Race/Ethnicity, Age Group, and Gender*

MAYSI-2 Scale	Legal Status		Race/Ethnicity		Age Group		Gender	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Alcohol-Drug Use	1.50	[1.13, 2.01]	1.83	[1.40, 2.40]**	0.52	[0.38, 0.71]**	1.10	[0.77, 1.56]
Angry-Irritable	1.05	[0.87, 1.26]	0.88	[0.70, 1.07]	1.27	[1.09, 1.49]**	0.53	[0.44, 0.63]**
Depressed-Anxious	1.16	[0.96, 1.41]	0.76	[0.62, 0.93]	1.31	[1.11, 1.54]**	0.59	[0.49, 0.71]**
Somatic Complaints	0.92	[0.37, 1.10]	1.02	[0.86, 1.21]	1.12	[0.96, 1.29]	0.58	[0.49, 0.70]**
Suicide Ideation	1.38	[0.93, 2.04]	1.20	[0.81, 1.78]	1.49	[1.06, 2.09]	0.29	[0.21, 0.41]**
Thought Disturbance*	1.22	[1.02, 1.47]	0.77	[0.64, 0.93]	1.07	[0.92, 1.26]		

*Note.* OR = odds ratio; CI = confidence interval

\*Thought Disturbance scale is for Boys only

\*\*p < .005

Table 4

*Comparisons of Youth Scoring Above Warning on the MAYSI-2 Scales Across Legal Status, Race/Ethnicity, Age Group, and Gender*

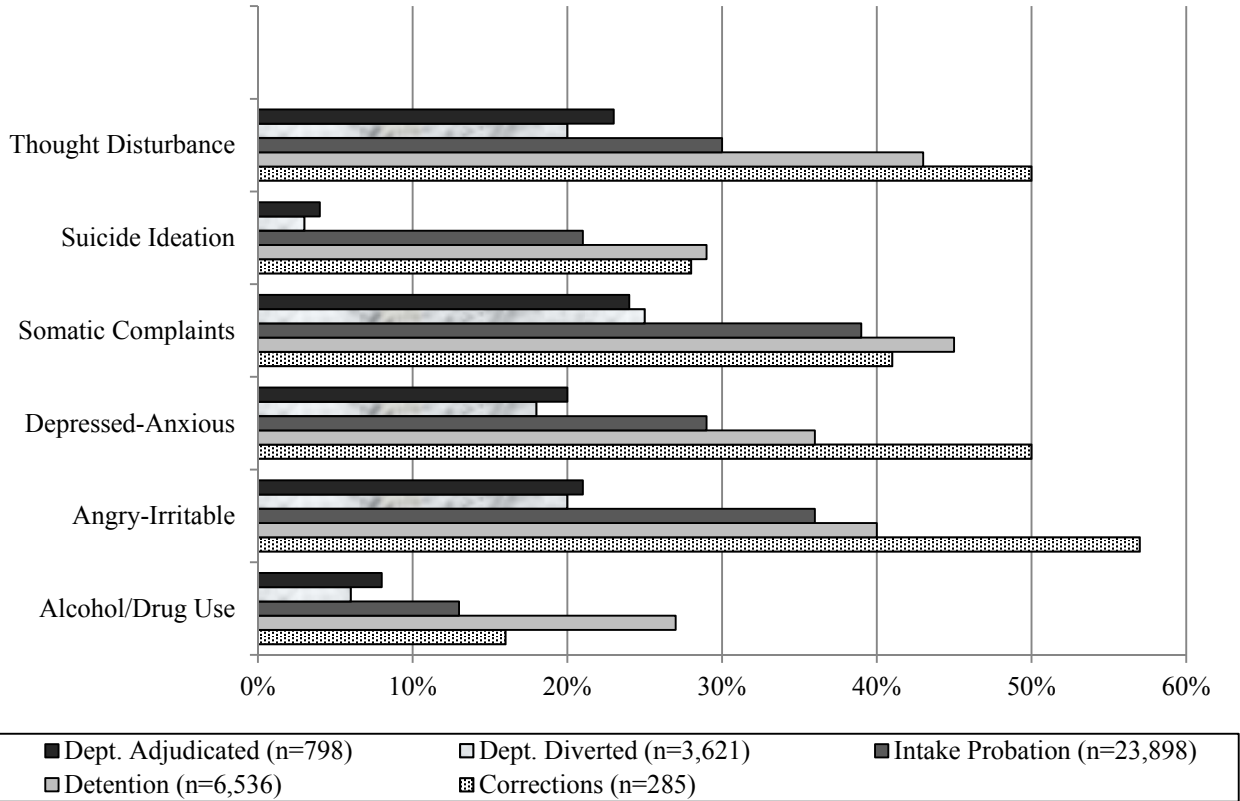
MAYSI-2 Scale	Legal Status		Race/Ethnicity		Age Group		Gender	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Alcohol-Drug Use	2.15	[1.35, 3.42]**	2.58	[1.66, 4.01]**	0.62	[0.37, 1.05]	1.56	[0.78, 3.13]
Angry-Irritable	1.28	[0.89, 1.84]	0.93	[0.63, 1.36]	1.21	[0.88, 1.66]	0.36	[0.26, 0.50]**
Depressed-Anxious	1.35	[0.86, 2.12]	0.72	[0.43, 1.22]	1.09	[0.72, 1.63]	0.38	[0.25, 0.57]**
Somatic Complaints	1.06	[0.46, 2.42]	0.93	[0.41, 2.12]	1.59	[0.82, 3.08]	0.24	[0.12, 0.46]**
Suicide Ideation	1.19	[0.69, 1.04]	0.74	[0.41, 1.35]	1.66	[1.06, 2.59]	0.21	[0.14, 0.33]**
Thought Disturbance*	1.34	[0.95, 1.88]	0.77	[0.53, 1.14]	1.52	[1.13, 2.03]		

Note. OR = odds ratio; CI = confidence interval

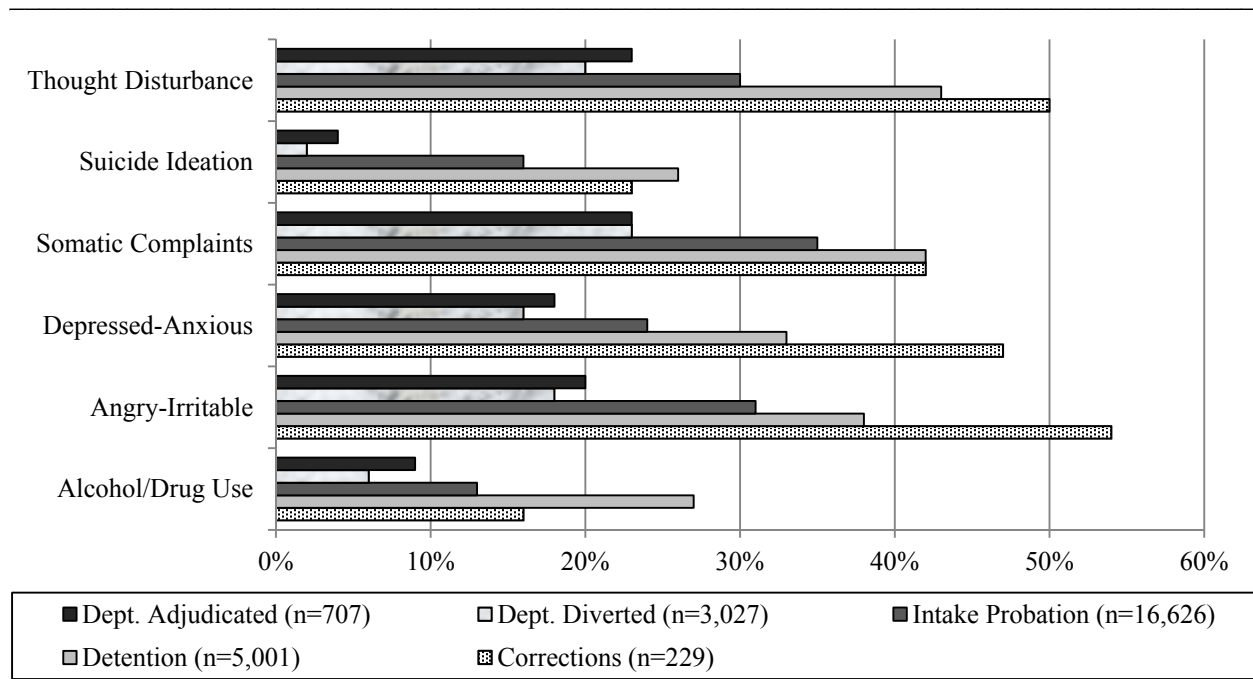
\*Thought Disturbance scale is for Boys only

\*\*p < .005

**Figure 1. Percentage of Youth Who Scored Above Caution on the MAYSI-2 Subscales: Comparisons of the Department's Youth to Midwest Norm Gates**

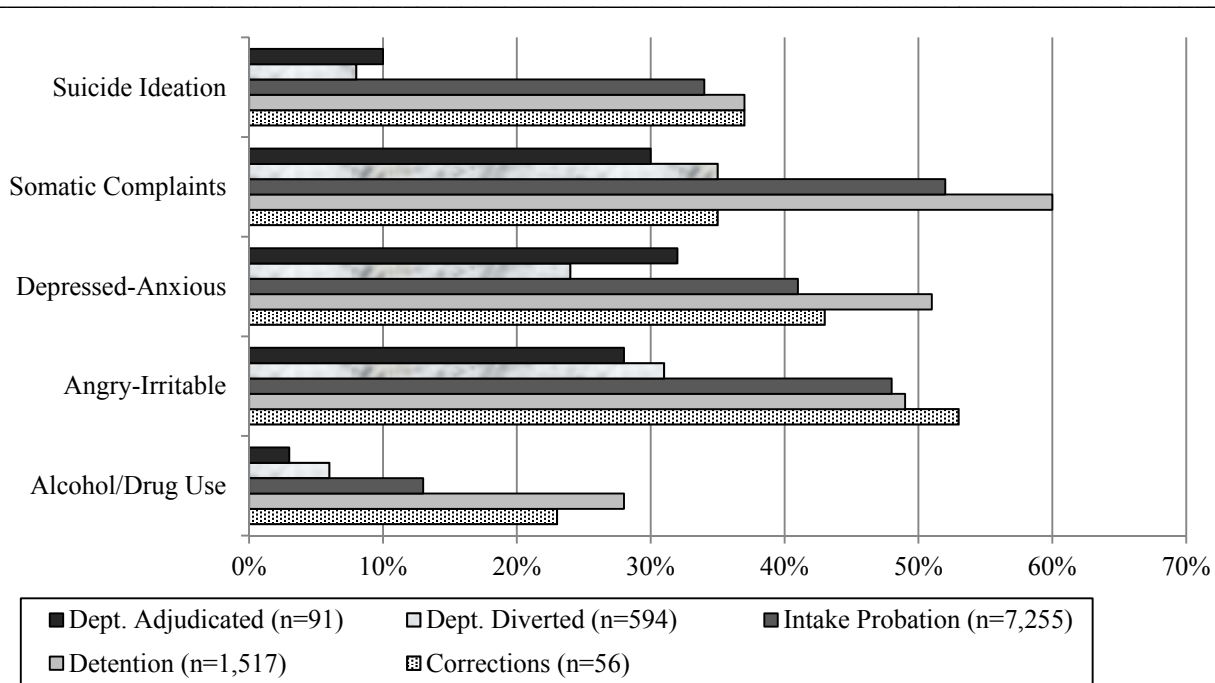


**Figure 2: Percentage of Males Who Scored Above Caution on the MAYSI-2 Subscales: Comparisons of the Department’s Males to Midwest Males Norm Gates**

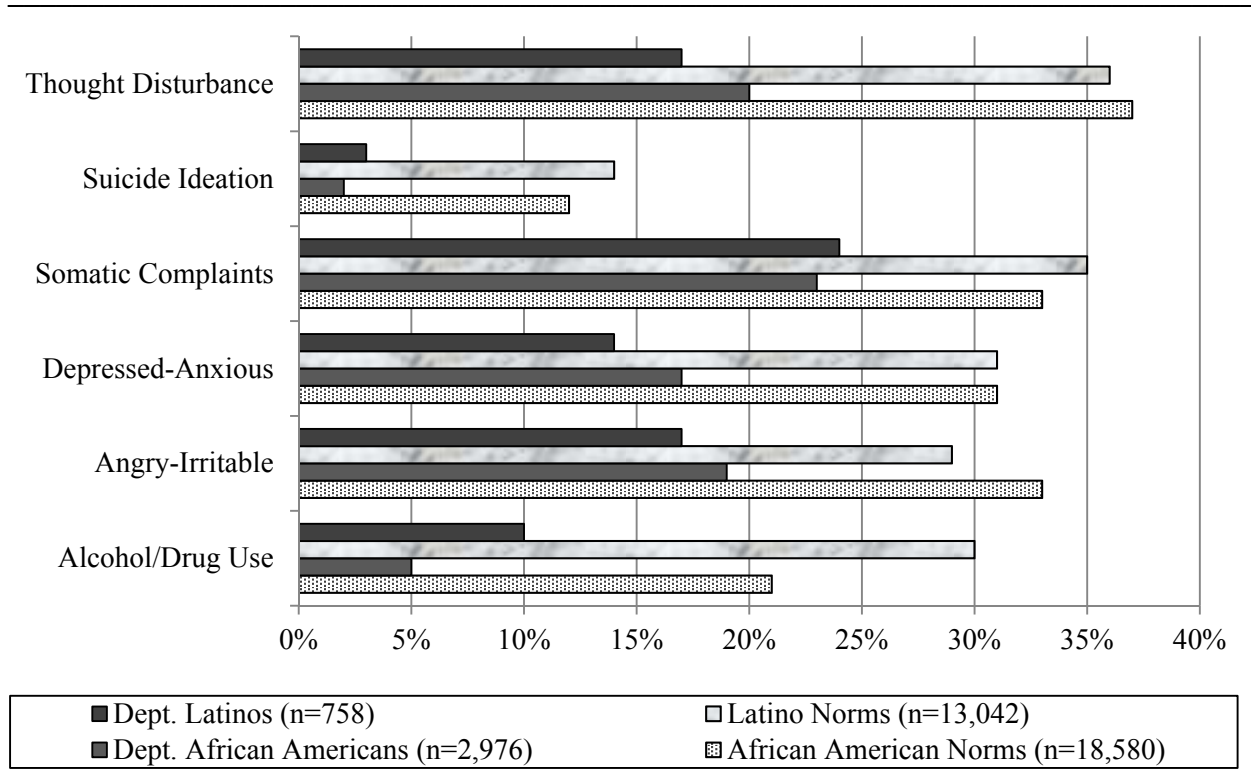




**Figure 3. Percentage of Girls Who Scored Above Caution on MAYSI-2 Subscales: Comparisons of the Department’s Girls to Midwest Girls Norm Gates**



**Figure 4. Percentage of Boys Who Scored Above Caution on the MAYSI-2 Subscales: Comparisons of the Department’s African Americans and Latinos to Norm African Americans and Latinos**



**Figure 5. Percentage of Girls Who Scored Above Caution on the MAYSI-2 Subscales: Comparisons of the Department’s African Americans and Latinas to Norm African Americans and Latinas**

