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# THE MASSACHUSETTS YOUTH SCREENING INSTRUMENT AS A PREDICTOR OF INSTITUTIONAL MALADJUSTMENT IN SEVERE MALE JUVENILE OFFENDERS

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The Massachusetts Youth Screening Instrument–Version 2 (MAYSI-2) is a brief triage tool designed to pinpoint youth in the juvenile justice system at risk for mental health–related difficulties. The current study investigated the relation between the MAYSI-2 and institutional maladjustment at a residential treatment facility specializing in the rehabilitation of severe male juvenile offenders. Institutional maladjustment data were collected during the first 90 days of commitment for 104 male juvenile offenders who also completed the MAYSI-2 during orientation to the facility. The Angry-Irritable subscale of the MAYSI-2 uniquely predicted severe rule violations and intensive supervision placement. However, hit rate analyses revealed a high level of false negatives for the published subscale cut scores. Implications of these and related findings are discussed.

**Keywords:** MAYSI; risk assessment; institutional maladjustment; delinquency

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There is increasing attention being paid to the mental health needs of youth in the juvenile justice system (Grisso, Vincent, & Seagrave, 2005). The estimated prevalence of mental health disorders of children and adolescents involved in the juvenile justice system is high, reaching upward of 80% (Grisso, Barnum, Fletcher, Cauffman, & Peuschold, 2001; Kazdin, 2000; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). This is problematic given the potential impact of these mental health concerns on the rehabilitation process. Emotional and behavioral problems (e.g., anger and irritability) are generally suspected to impede rehabilitation and treatment progress, presenting a considerable challenge to mental health professionals employed in forensic settings (Loney & Counts, 2005). This is particularly true for the most chronic and severe juvenile offenders who are likely to experience the greatest intensity of mental health concerns (Stewart & Trupin, 2003).

Accurate assessment and identification of mental health needs on transition to juvenile justice facilities could greatly assist in identifying those youth at greatest risk for mental health–related difficulties. However, this is a difficult task given (a) limited staff resources (e.g., absence of trained and experienced clinical staff), (b) difficulty reaching and obtaining information from family members and prior records, and (c) the time-consuming nature of some psychiatric assessment instruments that are commonly administered to youth entering the juvenile justice system (Grisso et al., 2001). The Massachusetts Youth Screening Instrument–Version 2 (MAYSI-2; Grisso & Barnum, 2003) is one of the newest and most promising mental health screening instruments designed for use in the juvenile

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justice system. It was developed to address the aforementioned concerns and is a self-described triage tool used to identify incoming juvenile offenders who report feelings and behaviors that may be indicative of more severe mental disorders. Elevations on various MAYSI-2 subscales are used to notify correctional staff of youth who may be in need of further psychiatric evaluation (e.g., administration of psychiatric interview and more comprehensive rating scale instruments). The MAYSI-2 is a brief 52-item instrument that is easy to administer, score, and interpret. Youth read brief behavioral statements and indicate if these statements are generally true or false of their typical behavior. The true responses are tallied within separate subscales tapping the mental health categories that research suggests are most likely to predict institutional maladjustment (Cornell, Peterson, & Richards, 1999). For example, the MAYSI-2 contains separate subscales tapping affective/mood difficulties, anger/irritability, substance use, and suicidal ideation. In general, the MAYSI-2 has been viewed as a promising new screening measure that overcomes many of the limitations of other instruments (e.g., excessive length, complicated scoring/interpretation).

Despite its apparent strengths, there is limited research assessing the utility of the MAYSI-2 in predicting institutional maladjustment and overall response to rehabilitation. Initial research on the MAYSI-2 has focused primarily on establishing basic psychometric properties, including convergence with conceptually related subscales on other psychiatric assessment instruments, such as the Millon Adolescent Clinical Inventory (MACI; Millon, 1993) and the youth self-report version of the Child Behavior Checklist (CBCL; Achenbach, 1991). This research is outlined in the MAYSI-2 manual and provides adequate evidence of convergent validity for all of the subscales. Regarding clinical utility, Wasserman et al. (2004) also documented adequate correspondence between select MAYSI-2 subscales and clinical diagnoses. For example, these researchers found that youths who reported substance abuse disorders on the Diagnostics Interview Schedule for Children—Fourth Version (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) produced significant elevations on the MAYSI-2 Alcohol/Drug Use subscale. Similarly, elevations on the Suicide Ideation subscale accurately identified youth who reported recent suicide attempts. Stewart and Trupin (2003) also found that youth generally endorsing high levels of mental health concerns on the MAYSI-2 are likely to experience more restrictive rehabilitative settings than comparison offenders, despite no overall differences in referral history.

Currently, there is a need for research assessing the predictive validity of the MAYSI-2 with respect to specific indices of institutional maladjustment (Grisso et al., 2001). The current study was designed to meet that need by assessing how well the MAYSI-2 subscales predict institutional maladjustment among severe and chronic juvenile offenders (i.e., youth with felony adjudications and/or multiple commitments to residential facilities). Prospective investigations of the MAYSI-2 are generally lacking, particularly in severe juvenile offender samples and with direct measures of behavioral functioning, such as documented behavioral infractions. Furthermore, there remains limited research assessing the clinical utility of published subscale cut scores described in the MAYSI-2 manual. For example, although there are discrete cut points associated with subscale elevations, to what extent does an elevation on the MAYSI-2 Angry-Irritable subscale predict risk for aggression toward peers and staff during initial transition to a given facility? The current study investigated the clinical utility of these cut scores for subscales demonstrating significant relations to the institutional maladjustment variables. This type of research has the potential to improve accuracy of risk assessment and to help in distributing limited financial and

staff resources to youth most likely to experience maladjustment during the rehabilitation process.

First, the convergent validity of the MAYSI-2 was assessed by attempting to replicate significant associations between the MAYSI-2 and conceptually related MACI subscales documented in prior studies focused on more diverse and less chronic juvenile offenders (e.g., Cauffman, 2004; Espelage et al., 2003). Next, the MAYSI-2 subscale scores were used to predict the following documented behavioral infractions during the first 90 days of transition to the facility: (a) severe rule violations, such as aggression toward staff/peers; (b) placement in intensive supervision involving separation from staff/peers and one-on-one monitoring; and (c) placement on suicide watch. The 90-day interval was selected given an expressed focus of the MAYSI-2 on predicting acute mental health needs during transition and initial adjustment to the juvenile justice system (Cauffman, 2004). It was predicted that the MAYSI-2 Angry-Irritable subscale would uniquely predict severe behavioral infractions given that it has been described by the developers as a prominent risk factor for getting into physical fights and for injury to self and/or others during incarceration (Grisso & Barnum, 2003). Specifically, it was hypothesized that this subscale would correlate significantly and uniquely with behavioral infractions and that established cut scores would tease out youth with substantially higher rates of overall behavioral disturbance. In addition, it was predicted that the Suicide Ideation scale would predict offenders placed on suicide watch during the initial 3-month period.

## METHOD

### PARTICIPANTS

The data for the current study were archival information from the institutional files of 127 adjudicated male juvenile offenders ages 12 to 19 ( $M = 15.9$  years,  $SD = 1.3$ ). These juvenile offenders represented consecutive admissions (August 2003 to September 2004) to a Department of Juvenile Justice residential treatment facility located in the southeastern United States. The average length of stay at the facility was 15 months, during which the youth received academic and vocational training, mental health treatment services, and medical/dental care. This particular facility specializes in the rehabilitation of severe and chronic juvenile offenders (e.g., history of prior felony adjudications and/or multiple commitments). The ethnic composition of the sample was 51% African American, 45% European American, and 4% Other.

### MEASURES

*The Massachusetts Youth Screening Inventory-Version 2 (MAYSI-Version 2).* The MAYSI-2 (Grisso & Barnum, 2003) is a 52-item self-report measure designed to be administered to youth ages 12 through 17 on entry to the juvenile justice system. It contains seven subscales assessing (a) history of substance use (Alcohol/Drug Use scale; "Have you been drunk or high at school?"), (b) irritability and frustration (Angry-Irritable scale; "Have you thought a lot about getting back at someone you have been angry at?"), (c) experience with nervousness or depressed mood (Depressed-Anxious scale; "Have you given up hope for your life?"), (d) physiological symptoms of anxiety (Somatic Complaints scale; "When you

have felt nervous or anxious, has your heart beat very fast?"), (e) self-harm (Suicide Ideation scale; "Have you felt like killing yourself?"), (f) detachment from reality (Thought Disturbance scale; "Have you seen things other people say are not really there?"), and (g) exposure to traumatic events (Traumatic Experiences scale; "Have you had a lot of bad thoughts or dreams about a bad or scary event that happened to you?"). The Thought Disturbance subscale is only applicable to males.

The MAYSI-2 manual provides separate caution and warning cut scores for each subscale based on extensive normative data obtained on youth at juvenile justice detention and assessment centers. The *Caution* thresholds approximate elevations on conceptually related subscales on the MACI (base rate score  $\geq 75$ ; Millon, 1993) and the CBCL-Youth Self Report ( $t$  score  $> 67$ , Achenbach, 1991). Receiver operating characteristics analyses were used to determine cutoff scores on the MAYSI-2 that were empirically associated with similar elevations on the related MACI and CBCL subscales. The *Warning* cut-off scores are indicative of more severe dysfunction and were developed by selecting the score on each subscale that approximates the 90<sup>th</sup> percentile of the normative sample. The MAYSI-2 has demonstrated adequate psychometric properties in preliminary investigations (Grisso et al., 2001; Lexcen, Vincent, & Grisso, 2004; Wasserman et al., 2004). For example, Grisso and Barnum (2003) documented internal consistency estimates ranging from .61 to .86 for the subscales in the normative sample. Internal consistency estimates in the current sample ranged from .50 to .86. Of note, the lowest internal consistency estimates were for the *Thought Disturbance* (alpha = .50) and *Traumatic Experiences* (alpha = .53) subscales, and these subscales are characterized by the least number of items (five items each). The remaining subscales were characterized by alpha coefficients greater than or equal to .60, with the Alcohol/Drug Use (alpha = .86), Angry-Irritable (alpha = .82), and Suicide Ideation (alpha = .87) subscales displaying particularly strong internal consistency. Recent research supports the convergent validity of the MAYSI-2 subscales (Grisso & Barnum, 2003; Grisso et al., 2001). The Alcohol/Drug Use, Suicide Ideation, and Depressed-Anxious subscales have exhibited strong relations to conceptually related subscales on the MACI (Grisso & Barnum, 2003). Likewise, the Angry-Irritable subscale has displayed strong convergence with the conceptually related MACI Impulsive Propensity subscale and the Aggressive Behavior, Externalizing, and Delinquent Behavior subscales on the CBCL-YSR (Archer, Stredny, Mason, & Arnau, 2004; Grisso & Barnum, 2003).

*MACI* (Millon, 1993). The MACI is a 160-item true/false self-report inventory assessing various personality features, psychosocial concerns, and clinical problems (McCann, 1999). The MACI includes seven Clinical Syndrome scales that tap symptoms of psychiatric dysfunction. Six of the seven Clinical Scales (Substance-Abuse Proneness, Delinquent Predisposition, Impulsive Propensity, Anxious Feelings, Depressive Affect, and Suicidal Tendency) are conceptually related to the MAYSI-2 subscales and have been used in previous MAYSI-2 investigations (e.g., Grisso et al., 2001). These subscales were used in the current study for convergent validity purposes, as well as three additional subscales tapping personality features specifically related to the Angry-Irritable subscale on the MAYSI-2. These are the Unruly (antisocial), Forceful (dominates others), and Oppositional (labile mood) subscales. These subscales were introduced given the focus of the study on the Angry-Irritable subscale and the absence of MACI clinical scales tapping analogous content. All MACI protocols were computer scored using a program developed by the publishers of

the instrument. The scoring program generates standardized base rate scores for each subscale, with scores of 60 or higher being viewed as an elevation (Millon, 1993). Moderate to strong internal consistency (.61 to .91) and test-retest reliability (.63 to .92) have been reported across normative and cross-validation samples for all of the MACI subscales (Loney, 1999; McCann & Dyer, 1996). However, support for the validity of individual subscales is more variable, with some MACI subscales displaying greater convergence with associated clinician ratings and other similar ratings scales (e.g., Substance-Abuse Proneness and Depressive Affect) than other MACI subscales (e.g., Anxious Feelings) (see McCann, 1999).

The MACI contains multiple validity indices that are used to establish the integrity of responding (i.e., defensiveness, malingering, and irrelevant responding). This includes a Reliability index assessing endorsement of two extremely low base rate items (e.g., "I flew across the Atlantic thirty times last year.") and a Disclosure index assessing openness to endorsing positive and negative life events. As recommended by Millon (1993), any offender who (a) endorsed the two reliability items; (b) received an extreme score on the Disclosure index, suggesting overreporting or underreporting of symptoms; and/or (c) had missing values for 10 or more MACI items generated an invalid computer protocol ( $n = 5$ ). Invalid MACI reports were removed from study analyses.

*Daily Incident Reports (DIR).* The selected residential facility maintains a behavior modification program that provides systematic feedback to youth for displays of positive and negative behavior. The behavior program follows a hierarchy of feedback in which the correctional staff document displays of defiance, rule violation, and/or aggression toward self or others. The number of severe behavioral infractions are documented and classified into: (a) Majors, which include serious rule violations or disregard for the rights of others, such as a refusal to participate in activities or aggression toward a peer, and (b) Intensive Supervised Placement (ISP) for behavior characterized as an acute and severe threat to self or others. The residential facility primarily uses ISPs for persistent aggression and/or rule violation that could compromise the rehabilitation process and safety of the youth and staff. These behaviors place the greatest demands on staff in terms of separation of youth from ongoing rehabilitation activities and allocation of limited staff resources to one-on-one supervision. Suicidal behavior rarely constitutes an ISP, unless it is accompanied by aggression and/or severe rule violation. Of note, the Majors and ISP categories overlap given that the vast majority of ISPs are cross-listed as Majors. However, the reverse is not true, as behaviors coded in the Majors category typically do not result in an ISP. All treatment staff received extensive training in the behavior program and provided daily written documentation of the number of behaviors displayed within each category. These feedback forms were compiled by data entry personnel who entered the number of Majors and ISPs into a database.

In addition to the aforementioned categories, the juvenile justice facility recorded whether an adolescent was placed on suicide watch during the first 90 days of rehabilitation. Placement on suicide watch includes varying degrees of direct observation and potential placement in intensive supervision. As previously indicated, the current study focused on behavioral data obtained during the first 90 days at the treatment facility. Twenty-three adolescents were removed from analyses because they did not have at least 3 months of DIR data starting within the first 2 weeks of admission to the facility (i.e., orientation period). Of note, all five of the participants with invalid MACI protocols also had insufficient DIR data.



*Intellectual functioning.* The residential facility administered an intelligence test to all youth who had not received an intelligence test in the year prior to admission (i.e., 93% of the sample). Depending on the age of the offender (less than 16 versus 16 or older) and his date of arrival to the facility (i.e., prior to or after the release of the newest edition of the Wechsler Intelligence Scale for Children [WISC]), staff at the residential facility administered either the WISC–3rd edition (Wechsler, 1991), the WISC–4th edition (Wechsler, 2003), or the Wechsler Adult Intelligence Scale–3rd edition (Wechsler, 1997). Youth in the current sample who arrived to the facility with a current estimate of intellectual functioning were all tested using the Wechsler Abbreviated Scale of Intelligence (The Psychological Corporation, 1999). Standardized full-scale intelligence quotients were used in the present study as an estimate of overall intellectual functioning.

*Criminal history.* Criminal history data were obtained from the official criminal record located in the institutional files. The criminal records consisted of the age at arrival to detention facility, age at first referral (or arrest), and the number of prior referrals for criminal offenses, total felony adjudications, total misdemeanor adjudications, and total commitments to juvenile detention facilities. These criminal history variables were primarily used for descriptive purposes (i.e., highlighting the nature/severity of the current sample).

## PROCEDURE

Each offender received a comprehensive psychiatric evaluation during an initial 8- to 10-week orientation period. This initial evaluation included the administration of the study rating scales and the initiation of DIR data. The MAYSI-2 was administered in pencil-and-paper format individually or in small groups (i.e., two to four offenders) in a private testing room. The youths read the items to themselves and answered the items without any assistance from staff. At the end of the orientation period, all youth were assigned to a residential cottage and rehabilitation services were initiated. Of note, the MAYSI-2 was administered by orientation staff who were not directly involved in the day-to-day care of the youth. Furthermore, staff members responsible for dispensing the daily behavioral infractions did not have access to the MAYSI-2 results.

## RESULTS

### PRELIMINARY ANALYSES

Following the removal of 23 participants with insufficient DIR data (5 of whom also had invalid MACI protocols), 104 participants were included in the main study analyses (82% of the overall sample). These participants did not differ from the removed participants with respect to age at first referral,  $t(119) = -1.26, p = .21$ , total referrals,  $t(107) = 0.33, p = .74$ , total felony adjudications,  $t(120) = 0.05, p = .96$ , total misdemeanor adjudications,  $t(120) = -0.04, p = .97$ , or total commitments,  $t(120) = 0.19, p = .85$ . Table 1 contains descriptive statistics for these participants on the demographic, criminal history, and DIR variables. It is notable that the majority of offenders were characterized by multiple prior referrals/felony convictions and multiple commitments to a juvenile justice facility. The youth were also characterized by a young age of first referral ( $M = 12.4$  years,  $SD = 2.35$ ) and low average

**TABLE 1: Descriptive Statistics for Demographic, Criminal History, and Daily Incident Report Variables**

	<i>M</i>	<i>SD</i>	<i>Range</i>
Age of arrival	15.99	1.15	13 to 18
Intelligence <sup>a</sup>	87.29	10.92	65 to 112
Criminal history			
Age of first referral <sup>b</sup>	12.44	2.35	6 to 17
Prior referrals	14.4	10.01	1 to 47
Total felony adjudications	2.86	2.58	0 to 16
Total misdemeanor adjudications	3.64	3.23	0 to 13
Total commitments	1.63	0.88	1 to 4
Daily incident reports			
Majors	45.41	54.32	0 to 261
ISP	1.56	2.18	0 to 10

*Note.* Age of arrival = age of offender at the time of admission to facility; intelligence = Composite Full-Scale IQ; ISP = the number of intensive supervision placements within the first 3 months of current commitment.

a.  $n = 87$ .

b.  $n = 103$ .

**TABLE 2: Descriptive Statistics for Rating Scale Measures**

	<i>M</i>	<i>SD</i>	<i>Range</i>
MAYSI-2 subscales			
Alcohol/Drug Use	2.02	2.4	0 to 8
Angry-Irritable	2.42	2.5	0 to 9
Depressed-Anxious	1.16	1.46	0 to 7
Somatic Complaints	1.77	1.8	0 to 6
Suicide Ideation	0.32	0.99	0 to 5
Thought Disturbance	0.23	0.6	0 to 3
Traumatic Experiences	1.01	1.11	0 to 4
MACI Subscales			
Substance-Abuse Proneness	45.37	28.43	4 to 115
Delinquent Predisposition	69.05	18.20	16 to 111
Impulsive Propensity	50.68	23.56	12 to 115
Depressive Affect	46.84	27.22	7 to 110
Anxious Feelings	60.46	20.61	1 to 114
Suicidal Tendency	24.96	18.65	1 to 95
Unruly	61.20	18.23	17 to 113
Forceful	32.24	22.01	1 to 107
Oppositional	54.15	17.64	21 to 91

*Note.* MAYSI-2 = The Massachusetts Youth Screening Instrument—Version 2; MACI = The Millon Adolescent Clinical Inventory.

intellectual functioning ( $M = 87.29, SD = 10.92$ ). In terms of institutional maladjustment, the DIR data indicated a high frequency of Majors ( $M = 45.41, SD = 54.32$ ), and approximately half of the sample (55%) received at least one ISP during their first 90 days in the facility ( $M = 1.56, SD = 2.18$ ). In contrast, a much smaller percentage of the participants (12%) were placed on suicide watch during the same time period.

Table 2 contains descriptive statistics for the MAYSI-2 and MACI rating scale measures. Similar to prior MAYSI-2 investigations (e.g., Grisso & Barnum, 2003; Stewart & Trupin, 2003), the adolescents were generally characterized by their greatest elevations on the Angry-Irritable and Alcohol/Drug Use subscales and their lowest score on the Thought Disturbance



subscale. On the MACI, the sample similarly exhibited the highest elevations on the Delinquent Predisposition ( $M = 69.05$ ,  $SD = 18.2$ ) and Unruly ( $M = 61.2$ ,  $SD = 18.23$ ) subscales. Overall, the sample was characterized by lower subscale scores than might be expected given the treatment setting and criminal history information. The majority of the sample did not exhibit MAYSI-2 subscale scores in the *Caution/Warning* range or MACI subscale scores in the clinically significant range (base rate scores  $> 60$ ).

### CORRELATIONAL ANALYSES

The convergent validity of the MAYSI-2 was assessed by correlating the MAYSI-2 subscales with conceptually related MACI clinical syndrome subscales (see Table 3). Consistent with prior research (Grisso & Barnum, 2003), the Alcohol/Drug Use, Depressed-Anxious, and Suicide Ideation subscales were significantly correlated with parallel MACI subscales. Similarly, the Angry-Irritable subscale exhibited significant associations with the MACI Impulsive Propensity subscale ( $p < .001$ ). Additional analyses also documented significant associations between the Angry-Irritable subscale and the three MACI personality subscales included in the current study (i.e., Unruly,  $r = .26$ ,  $p = .01$ ; Forceful,  $r = .29$ ,  $p < .01$ ; Oppositional,  $r = .37$ ,  $p < .001$ ). It is interesting that the MAYSI-2 subscales displayed a number of significant intercorrelations suggestive of meaningful overlap in item content. For interpretive purposes, the size of documented correlations will be discussed using Cohen's (1992) established effect size parameters: small,  $r = .10$ ; medium,  $r = .30$ ; large,  $r = .50$ . For example, a large effect was documented for the association between the Angry-Irritable and Depressed-Anxious subscales. These subscales also bore similar relations to the Depressive Affect, Suicidal Tendency, and Oppositional subscales of the MACI (all  $p$  values  $< .01$  except for the relation between the Depressed-Anxious and Oppositional subscales,  $p = .01$ ). In general, the results indicated good convergent validity, albeit modest discriminant validity, for each of the MAYSI-2 subscales.

Table 4 documents the bivariate associations between the MAYSI-2 subscales and the DIR indices. Consistent with prediction, the Angry-Irritable subscale was the only subscale that was significantly correlated with severe behavioral infractions indexed by DIR Majors,  $r = .20$ ,  $p = .04$ , and ISPs,  $r = .28$ ,  $p < .01$ . Given the strong association between the Majors and ISP variables,  $r = .81$ ,  $p < .001$ , unique associations between the Angry-Irritable subscale and these variables were subsequently assessed by simultaneously regressing the Angry-Irritable subscale scores onto the ISP and Majors variables,  $R^2 = .08$ ,  $p = .02$ . An inspection of the regression coefficients indicated that only the ISP variable accounted for unique variance in the Angry-Irritable subscale scores, unstandardized beta coefficient ( $B$ ) = .38,  $sr = .19$ , constant = 1.97,  $p = .047$  ( $B = .00$  and  $sr = -.04$  between Angry-Irritable and Majors,  $p = .70$ ). Finally, as predicted, the Suicide Ideation subscale exhibited a significant medium-sized correlation with placement on suicide watch during the 90-day time period,  $r = .31$ ,  $p < .01$ . However, placement on suicide watch was also significantly associated with the Angry-Irritable, Depressed-Anxious, and Somatic Complaint subscales. Given the intercorrelation of MAYSI-2 subscales, a partial correlation analysis was conducted assessing the association between the MAYSI-2 Suicide Ideation subscale and suicide watch placement when covarying the Angry-Irritable, Depressed-Anxious, and Somatic Complaint subscale scores. The results confirmed a unique contribution of the Suicide Ideation subscale to suicide watch placement,  $pr = .20$ ,  $p = .05$ .

TABLE 3: Correlations Among MAYSI-2 and MACI Clinical Syndrome Subscales

Subscale	1	2	3	4	5	6	7	8	9	10	11	12	13
1. MAYSI-2 Alcohol/Drug Use	1.00												
2. MAYSI-2 Angry-Irritable	0.25*	1.00											
3. MAYSI-2 Depressed-Anxious	0.12	0.60**	1.00										
4. MAYSI-2 Somatic Complaints	0.21*	0.47**	0.50**	1.00									
5. MAYSI-2 Suicide Ideation	0.05	0.35**	0.39**	0.27**	1.00								
6. MAYSI-2 Thought Disturbance	0.18	0.34**	0.54**	0.37**	0.37**	1.00							
7. MAYSI-2 Traumatic Experience	0.12	0.21*	0.46**	0.35**	0.03	0.35**	1.00						
8. MACI Substance-Abuse Proneness	0.66**	0.29**	0.18	0.23*	0.10	0.29**	0.09	1.00					
9. MACI Delinquent Predisposition	0.42**	0.09	-0.16	-0.03	-0.27**	0.01	-0.07	0.63**	1.00				
10. MACI Impulsive Propensity	0.24*	0.41**	0.18	0.17	0.05	0.16	-0.02	0.71**	0.55**	1.00			
11. MACI Depressive Affect	-0.06	0.43**	0.43**	0.27**	0.47**	0.30**	0.11	0.17	-0.38**	0.23*	1.00		
12. MACI Anxious Feelings	-0.49**	-0.08	0.11	-0.05	0.13	-0.02	0.05	-0.74**	-0.79**	-0.55**	0.23*	1.00	
13. MACI Suicidal Tendency	0.00	0.40**	0.42**	0.26**	0.57**	0.22*	0.06	0.28**	-0.15	0.37**	0.74**	0.09	1.00

Note. MAYSI-2 = The Massachusetts Youth Screening Instrument-Version 2; MACI = The Millon Adolescent Clinical Inventory.

\* $p < .05$ . \*\* $p < .01$ .

**TABLE 4: Correlations Among MAYSI-2 Subscales and Daily Incident Report Indices**

<i>MAYSI-2 Subscales</i>	<i>Majors</i>	<i>ISP</i>	<i>Suicide Watch</i>
1. Alcohol/Drug Use	-0.04	-0.02	0.12
2. Angry-Irritable	0.20*	0.28**	0.40**
3. Depressed-Anxious	0.12	0.10	0.25*
4. Somatic Complaints	-0.05	-0.07	0.38**
5. Suicide Ideation	0.18	0.17	0.31**
6. Thought Disturbance	0.11	0.12	0.11
7. Traumatic Experience	-0.04	-0.07	-0.00

Note. MAYSI-2 = The Massachusetts Youth Screening Instrument–Version 2.

\* $p < .05$ . \*\* $p < .01$ .

#### EVALUATION OF SELECT MAYSI-2 CUT SCORES

It was predicted that published cut scores for the Angry-Irritable subscale would designate offenders who exhibited the greatest evidence of behavioral difficulties. The utility of these cut scores was examined in two ways. First, group analyses and corresponding effect sizes were investigated comparing youth high and low on the Angry-Irritable subscale on the ISP and Majors variables. In the MAYSI-2 manual, Angry-Irritable subscale scores of 5 to 7 are designated as *Caution*, and Angry-Irritable subscale scores of 8 and higher are designated as *Warning*. In the current sample, the majority of youth scored in the normal range ( $n = 78$ ). Twenty-two participants scored in the *Caution* range, and four participants scored in the *Warning* range. Given the relatively small number of participants scoring in the warning range, the caution and warning categories were collapsed and labeled an elevated group. Consistent with prediction, an independent measures  $t$  test indicated that youth in the elevated group displayed significantly more Majors ( $M = 71.12$ ,  $SD = 61.54$ ) than the normal group ( $M = 36.85$ ,  $SD = 49.19$ ),  $t(102) = -2.88$ ,  $p = .01$ . The ISP comparisons required the use of a corrected variance estimator given a violation of the homogeneity of variance assumption (Levene's test;  $p = .02$ ). The subsequent group comparison using a separate variance estimator  $t$  test revealed a significant difference between the elevated ( $M = 2.77$ ,  $SD = 2.57$ ) and normal ( $M = 1.15$ ,  $SD = 1.89$ ) groups on the ISP variable,  $t(34.53) = -2.95$ ,  $p = .01$ . Similar to the correlational analyses, interpretation of the size of group differences followed conventions established by Cohen (1992): small,  $d = .20$ ; medium,  $d = .50$ ; large,  $d = .80$ . Using these parameters, the effect size calculations revealed a large effect ( $d = .79$ ) for differences on the ISP variable and a medium-to-large effect for Majors ( $d = .66$ ).

The second way in which the utility of the Angry-Irritable cut scores were examined was via hit rate analyses. These analyses were only conducted for the ISP data because they could be readily transformed into a dichotomous outcome.<sup>1</sup> Consistent with other recent investigations (e.g., Caperton, Edens, & Johnson, 2004; Edens, Buffington-Vollum, Colwell, Johnson, & Johnson, 2002), youth were divided into two ISP groups using a cutoff score of one or more ISPs. This resulted in 47 youth with no ISPs during the first 90 days of rehabilitation and 57 youth with one or more ISPs during the first 90 days of rehabilitation. Subsequent hit rate analyses assessed the extent to which elevations on the Angry-Irritable subscale correctly identified youth exhibiting one or more ISPs during the first 90 days of rehabilitation. Table 5 details the number of youth who were correctly versus noncorrectly

**TABLE 5: Accuracy of Predicting Intensive Supervised Placement from Cut Scores for the Angry-Irritable Subscale**

<i>Angry-Irritable Subscale</i>	<i>Intensive Supervised Placement</i>		<i>Total</i>
	<i>No</i>	<i>Yes</i>	
"Normal" range	41	37	78
"Caution/Warning" range	6	20	26
Total	47	57	104

Note. Values presented in the table are the number of participants satisfying each condition.

**TABLE 6: Accuracy of Predicting Placement on Suicide Watch From Cut Scores for the Suicide Ideation Subscale**

<i>Suicide Ideation Subscale</i>	<i>Placement on Suicide Watch</i>		<i>Total</i>
	<i>No</i>	<i>Yes</i>	
"Normal" range	88	8	96
"Caution/Warning" range	4	4	8
Total	92	12	104

Note. Values presented in the table are the number of participants satisfying each condition.

classified by the Angry-Irritable subscale. As indicated in Table 5, 59% of youth displaying ISPs were correctly classified based on the published cut scores. Further analysis indicated that the vast majority of errors in prediction were related to false negatives for the Angry-Irritable subscale. Specifically, there was a false-negative rate of .47 ( $37/41 + 37$ ) and negative predictive power (i.e., probability that child without an elevation on Angry-Irritable subscale did not display an ISP) of .53 ( $41/41 + 37$ ). This is in contrast to a much lower false-positive rate of .23 ( $6/6 + 20$ ) and higher positive predictive power (i.e., probability that child with elevation on Angry-Irritable subscale actually displayed one or more ISPs) of .77 ( $20/6 + 20$ ).

Similar analyses were then conducted for the Suicide Ideation subscale. As described in the MAYSI-2 manual, scores of 2 to 3 are designated as caution, and scores of 3 and above are designated as warning. This resulted in the majority of participants being classified in the normal range ( $n = 96$ ). Only two participants scored in the *Caution* range, and six participants scored in the *Warning* range. Participants scoring in the caution and warning categories were collapsed into an elevated group and were compared to the remaining participants on the suicide watch variable ( $n = 8$ ). An initial chi-square analysis indicated that the groups differed significantly in the proportion of participants being placed on suicide watch,  $X^2(1, N = 104) = 12.56, p < .001$ , with a greater proportion of participants in the elevated group being placed on suicide watch. Subsequent examination of classification accuracy (see Table 6) indicated that 88% of participants were correctly classified based on the published Suicide Ideation cut scores. However, in contrast to the preceding Angry-Irritable subscale analyses, errors in prediction were more likely to be false positives. There was a false-positive rate of .50 ( $4/4 + 4$ ) and positive predictive power (i.e., probability that child with elevation on the Suicide Ideation subscale would be placed on suicide watch) of .50

(4/4 + 4). This is contrasted with a false-negative rate of .08 (8/88 + 8) and negative predictive power (i.e., probability that child without an elevation on the Suicide Ideation subscale would not be placed on suicide watch) of .92 (88/88 + 8).

## DISCUSSION

The current study assessed the utility of the MAYSI-2 for predicting institutional maladjustment in a severe male juvenile offender sample. Prior research on the instrument has focused primarily on establishing basic psychometric properties. Given the widespread use of the MAYSI-2 (Grisso & Quinlan, 2005), there is a pressing need for research investigating its predictive validity. Consistent with prediction, the Angry-Irritable subscale was significantly associated with displays of rule violation and aggression toward staff/peers (i.e., Majors and ISPs) during the first 90 days of adjustment to the residential treatment facility. Similarly, the Suicide Ideation subscale displayed a significant association to placement on suicide watch during the same time period. In terms of clinical validity, published cut scores for these subscales correctly identified youth with a greater likelihood of behavioral infractions and suicide watch placement. However, the cut scores for these subscales differed in terms of overall classification accuracy and the ratio of false positives to false negatives. The Angry-Irritable subscale was prone to a high rate of false negatives, and it functioned the strongest with respect to positive predictive power (i.e., elevations correctly identifying youth placed in ISP). In contrast, the Suicide Ideation subscale was prone to a high rate of false positives and functioned the strongest with respect to negative predictive power (i.e., lack of elevation correctly identifying youth who were not placed on suicide watch).

It has been estimated that various practical constraints on mental health assessment in the juvenile justice system can result in as little as 10 to 15 min to screen for psychiatric issues during intake and orientation to rehabilitation facilities (Grisso & Underwood, 2003). This is problematic given that delinquent youth often experience significant emotional and behavioral difficulties that could interfere with rehabilitation progress and place treatment staff at risk for harm. Comprehensive and lengthy rating scale instruments such as the MACI (Millon, 1993) are often used in juvenile justice facilities to assess self-reported mental health concerns. However, these types of instruments require significant administration time (i.e., approximately 20 to 30 min) and expertise in scoring/interpretation by mental health technicians. Instruments that are briefer and require less training to administer have been developed recently to address these concerns.

The results of the current study are encouraging with respect to the ability of a brief screening instrument to pinpoint youth at risk for institutional maladjustment. Although the correlations between the MAYSI-2 subscales and behavioral indices were modest (i.e., small-to-medium effect sizes with significant correlations ranging from .20 to .40), they were generally similar in magnitude or stronger than correlations documented for risk variables in other similar investigations. For example, Cornell et al. (1999) documented a modest association between a rating scale measure of anger propensity (i.e., State-Trait Anger Expression Inventory; Spielberger, 1988) and staff reports of verbal ( $r = .35$ ) and physical aggression ( $r = .28$ ) among juvenile inmates. Similarly, Gendreau, Goggin, and Law (1997) conducted a meta-analysis of adult offender investigations and documented correlations of .07 to .21 between various personality indices specific to antisocial attitudes/behaviors and

institutional misconduct. In general, available research suggests that individual emotional and behavioral risk factors typically account for a relatively small amount of variance in adjustment indices. This has supported the use of actuarial methods of risk prediction that form linear composites of risk factors to maximize the prediction of adjustment difficulties (Dawes, Faust, & Meehl, 1989). Future research should consider how the MAYSI-2 Angry-Irritable and Suicide Ideation subscales might combine with other established predictors of aggression and criminal behavior (e.g., psychopathy features; Grisso et al., 2005) in enhancing institutional risk modeling.

In contrast to the correlational analyses, the available cut scores for the Angry-Irritable subscale were associated with prominent group differences on the DIR variables (e.g., large effect size for comparison of Angry-Irritable groups, normal vs. elevated, on the number of ISPs). This is promising given the emphasis that has been placed on the use of cut scores for clinical decision making in the MAYSI-2 manual. Although preliminary and in need of replication, these cut score analyses have some important potential clinical implications that could guide future research in this area. Juvenile justice staff should be aware of the potential differences in the MAYSI-2 subscales in terms of potential for false-negative and false-positive designations. Future research should continue to investigate the clinical utility of subscale elevations, while not assuming that the subscales will perform similarly in predicting relevant criterion measures. One important implication of the current study is the potential need to be cautious in viewing a lack of elevation on the Angry-Irritable subscale as indicative of low risk for institutional maladjustment. Incidentally, this does not necessarily imply methodological concerns with the scale given that anger propensity is just one of various potential risk variables for severe behavioral infractions. Nevertheless, the hit rate analyses suggested a high rate of false negatives (47%) for this subscale, suggesting that almost half of the youth lacking an elevation on the Angry-Irritable subscale subsequently engaged in severe rule violation and/or persistent aggression during their transition to the facility. In contrast, the rate of false positives was much lower for this subscale (23%), suggesting that more confidence can be placed in a subscale elevation. If replicated, juvenile justice staff should consider using an elevation on this subscale to trigger more comprehensive psychiatric assessment, a higher level of monitoring, and potential allocation of cognitive-behavioral treatment techniques designed to manage anger escalation.

The cut scores for the Suicide Ideation subscale performed much differently than the Angry-Irritable cut scores. Specifically, elevations on the Suicide Ideation subscale were characterized by a high rate of false-positive designations (50%) for subsequent suicide watch placement. Given the obvious safety concerns associated with suicidal behavior, this could be viewed as an acceptable false-positive rate, and facility staff may wish to put in place risk prevention services for all youth with subscale elevations. However, future research should attempt to replicate this finding and assess for improvement in classification accuracy associated with additional screening of youth on suicide assessment measures. False negatives were much lower for the Suicide Ideation subscale (8%), suggesting that the vast majority of youth scoring low on this measure were not at risk for suicide watch placement. However, again, given the severity of this behavior, continued attempts to improve on prediction of suicide risk by including additional predictors are needed. In general, the cut score analyses further support the primary purpose of the MAYSI-2 as a screening measure. The MAYSI-2 is a brief rating scale measure that was not designed to be an endpoint of mental health assessment. Rather, it was designed to pinpoint youth at



elevated risk for mental health difficulties, youth who may be in need of more comprehensive psychiatric assessment. Given the aforementioned constraints on psychiatric assessment in juvenile facilities (i.e., limited time and staff resources), future research must continue to explore and discuss acceptable error rates for the individual subscale cut-scores.

The current findings are preliminary and should be interpreted cautiously. In terms of sample characteristics, the current sample consisted exclusively of severe male juvenile offenders. Although this is definitely an important sample for MAYSI-2 research, future research should assess the generalizability of study findings to more varied juvenile justice youth, including first-time offenders with less severe criminal histories. This research should also seek to recruit a female comparison group given that female juvenile delinquency is underresearched and a pressing societal concern. For example, the rate of juvenile justice referrals for adolescent women has increased dramatically in recent years despite a paucity of research on gender-specific classification, assessment, and treatment issues (e.g., Dixon, Howie, & Starling, 2004; Goldstein et al., 2003; Loney & Lima, 2003; Timmons-Mitchell et al., 1997).

Additional limitations pertain to the study methodology. It was intriguing that a minimal number of youth in the current study were actually characterized by clinical elevations on the MAYSI-2 (i.e., *Caution/Warning* designation) or the MACI subscales (i.e., base rate scores > 60). This brings up two potential concerns with the use of the MAYSI-2 in similar juvenile justice settings. First, the distribution of MAYSI-2 scores could suggest that response biases such as defensive responding affected the study findings. Skepticism regarding the use of self-report in juvenile justice settings is warranted given that deceitfulness and poor judgment/insight are often associated with chronic antisocial behavior (Grisso & Underwood, 2003; Lilienfeld & Andrews, 1996; Loney & Counts, 2005). Although the removal of participants who generated invalid MACI protocols from analyses operated against this response bias concern, inaccurate responding is still a concern and may have artificially attenuated subscale scores. Future research should attempt to integrate and evaluate the utility of brief response bias measures for enhancing the MAYSI-2 assessment such as the Lie scale on the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978) or the Marlowe-Crowne Social Desirability Scale (Andrews & Meyer, 2003; Crowne & Marlow, 1960). In addition to potential response bias, the relative lack of clinical elevations on the MAYSI-2 could be a result of substantive differences between the study participants and youth in the normative sample. Normative data for the MAYSI-2 were derived from youth who largely completed the measure in intake probation departments and pretrial detention centers. The stress of the initial transition to these juvenile justice facilities may have led to inflated and less stable MAYSI-2 subscale scores, compared to the youth in the current study who have had more time to adjust to restrictive placements. Future research may wish to further investigate the robustness of the established normative data to different juvenile justice settings.

To further address the aforementioned self-report concerns, future risk assessment research should consider combining the MAYSI-2 with other similar parent and staff rating scale measures (e.g., Child and Adolescent Functional Assessment Scale; Hodges, 2000). A self-report format was selected for the MAYSI-2 for various reasons, including the difficulty contacting and obtaining information from other informants during various stages of the rehabilitation process (Loney & Counts, 2005). For example, it has been documented that a majority of juvenile offenders are visited infrequently by parental figures,

regardless of the length of incarceration (Wasserman et al., 2004). Nevertheless, youth can behave markedly different in a variety of contexts and multiple perspectives on a youth's behavior and emotional functioning has the potential to provide distinct but complementary assessment information (Loney & Lima, 2003).

Finally, future research could investigate if there are other brief screening measures that could be combined with the MAYSI-2 to enhance the prediction of institutional maladjustment. Most of the actuarial modeling research in this area has focused on prediction of community violence (Quinsey, Harris, Rice, & Cormier, 1998; Wang & Diamond, 1999). For example, Harris, Rice, and Quinsey (1993) have developed a 12-item actuarial instrument called the Violence Risk Appraisal Guide (VRAG) for violence prediction among serious offenders. This instrument has performed well in follow-up and cross-validation studies of adult male samples (Harris, Rice, & Cormier, 2002; Rice, 1997), but data are limited regarding the use of actuarial instruments in younger samples (Grisso et al., 2005). The results of the current study suggest that it may be beneficial to combine the MAYSI-2 subscales with other established measures, possibly a modified VRAG and other documented risk variables such as criminal history information (Cottle, Lee, & Heilbrun, 2001; Tollett & Benda, 1999) to increase the accuracy of prediction. However, the practical constraints on mental health assessment need to be reiterated and should continue to guide refinements to the risk assessment process.

In summary, the current study highlights the promise of the MAYSI-2 in predicting severe rule violations in juvenile justice facilities. Juvenile justice staff are likely to benefit from the results of this type of research, as it could inform decisions that are made regarding the most efficient, cost-effective, and reliable means of assessing for mental health concerns. The MAYSI-2 is a promising frontline screening measure that could reduce the work demand on juvenile justice staff, while still providing critical information to mental health professionals working with juvenile offenders. Given the high rates of behavioral and emotional disorders among this population, the identification of youth at risk for severe behavioral infractions during commitment is an important first step in the rehabilitation process.

### NOTE

1. Given the much greater frequency and variability of Majors (i.e., number and type of behavioral infractions) relative to ISPs (see Table 1), arbitrary division of Majors into low and high categories would introduce substantial interpretive difficulties. The failure to document a unique association between Majors and the Angry-Irritable subscale in the preceding correlational analyses further supported removal of Majors from the hit rate analyses.

### REFERENCES

- Achenbach, T. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 profile*. Burlington: University of Vermont Department of Psychology.
- Andrews, P., & Meyer, R. G. (2003). Marlowe-Crowne Social Desirability Scale and Short Form C: Forensic norms. *Journal of Clinical Psychology, 59*, 483-492.
- Archer, R. P., Stredny, R. V., Mason, J. A., & Arnau, R. C. (2004). An examination and replication of the psychometric properties of the Massachusetts Youth Screening Instrument-Second Edition (MAYSI-2) among adolescents in detention settings. *Assessment, 11*, 1-13.
- Caperton, J. D., Edens, J. F., & Johnson, J. K. (2004). Predicting sex offender institutional adjustment and treatment compliance using the personality assessment inventory. *Psychological Assessment, 16*, 187-191.

- Cauffman, E. (2004). A statewide screening of mental health symptoms among juvenile offenders in detention. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*, 430-439.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Cornell, D. G., Peterson, C. S., & Richards, H. (1999). Anger as a predictor of aggression among incarcerated adolescents. *Journal of Consulting and Clinical Psychology, 67*, 108-115.
- Cottle, C. C., Lee, R. J., & Heilbrun, K. (2001). The prediction of criminal recidivism in juveniles: A meta-analysis. *Criminal Justice and Behavior, 28*, 367-394.
- Crowne, D. P., & Marlow, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*, 349-354.
- Dawes, R. M., Faust, D., & Meehl, P. E. (1989). Clinical versus actuarial judgment. *Science, 243*, 1668-1674.
- Dixon, A., Howie, P., & Starling, J. (2004). Psychopathology in female juvenile offenders. *Journal of Child Psychology and Psychiatry, 45*, 1150-1158.
- Edens, J. F., Buffington-Vollum, J. K., Colwell, K. W., Johnson, D. W., & Johnson, J. (2002). Psychopathy and institutional misbehavior among incarcerated sex offenders: A comparison of the Psychopathy Checklist-Revised and the Personality Assessment Inventory. *International Journal of Forensic Mental Health, 1*, 49-58.
- Espelage, D., Cauffman, E., Brody, L., Piquero, A., Mazerolle, P., & Steiner, H. (2003). A cluster-analytic investigation of MMPI profiles of serious male and female juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*, 770-777.
- Gendreau, P., Goggin, C. E., & Law, M. A. (1997). Predicting prison misconducts. *Criminal Justice and Behavior, 24*, 414-431.
- Goldstein, N. E., Arnold, D. H., Weil, J., Mesiarik, C. M., Peuschold, D., Grisso, T., et al. (2003). Comorbid symptom patterns in female juvenile offenders. *International Journal of Law and Psychiatry, 26*, 565-582.
- Grisso, T., & Barnum, R. (2003). *Massachusetts Youth Screening Instrument-Version 2: User's manual and technical report*. Sarasota, FL: Professional Resource Press.
- Grisso, T., Barnum, R., Fletcher, K. E., Cauffman, E., & Peuschold, D. (2001). Massachusetts Youth Screening Instrument for mental health needs of juvenile justice youths. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*, 541-548.
- Grisso, T., & Quinlan, J. C. (2005). Massachusetts Youth Screening Instrument-Version 2. In T. Grisso, G. Vincent, & D. Seagrave (Eds.), *Handbook of mental health screening and assessment for juvenile justice* (pp. 99-111). New York: Guilford.
- Grisso, T., & Underwood, L. (2003). *Screening and assessing mental health and substance use disorders among youth in the juvenile justice system* (research and program brief). Delmar, NY: National Center for Mental Health and Juvenile Justice.
- Grisso, T., Vincent, G., & Seagrave, D. (2005). *Mental health screening and assessment in juvenile justice*. New York: Guilford.
- Harris, G. T., Rice, M. E., & Cormier, C. A. (2002). Prospective rehabilitation of the Violence Risk Appraisal Guide in predicting violent recidivism among forensic patients. *Law and Human Behavior, 26*, 377-393.
- Harris, G. T., Rice, M. E., & Quinsey, V. L. (1993). Violent recidivism of mentally disordered offenders: The development of a statistical prediction instrument. *Criminal Justice and Behavior, 20*, 315-335.
- Hodges, K. (2000). *Child and Adolescent Functional Assessment Scale* (3rd ed.). Ypsilanti: Eastern Michigan University.
- Kazdin, A. (2000). Adolescent development, mental disorders, and decision making of delinquent youths. In T. Grisso & R. G. Schwartz (Eds.), *Youth on trial: A developmental perspective on juvenile justice* (pp. 33-65). Chicago: University of Chicago Press.
- Lexcen, F. J., Vincent, G. M., & Grisso, T. (2004). Validity and structure of a self report measure of youth psychopathy. *Behavioral Sciences and the Law, 22*, 69-84.
- Lilienfeld, S. O., & Andrews, B. P. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. *Journal of Personality Assessment, 66*, 488-524.
- Loney, B. R. (1999). The MACI: A review of the Millon Adolescent Clinical Inventory. *Child Assessment News, 7*, 9-12.
- Loney, B. R., & Counts, C. A. (2005). Scales for assessing attention-deficit/hyperactivity disorder. In T. Grisso, G. Vincent, & D. Seagrave (Eds.), *Handbook of mental health screening and assessment for juvenile justice* (pp. 166-184). New York: Guilford.
- Loney, B. R., & Lima, E. N. (2003). The classification and assessment of conduct disorders. In C. A. Essau (Ed.), *Conduct and oppositional defiant disorders: Epidemiology, risk factors, and treatment* (pp. 3-31). Mahwah, NJ: Lawrence Erlbaum.
- McCann, J. (1999). *Assessing Adolescents with the MACI*. New York: John Wiley.
- McCann, J., & Dyer, F. (1996). *Forensic assessment with the Millon inventories*. New York: Guilford.
- Millon, T. (1993). *MACI manual*. Minneapolis, MN: National Computer Systems.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (1998). *Violent offenders: Appraising and managing risk*. Washington, DC: American Psychological Association.
- The Psychological Corporation. (1999). *Wechsler Abbreviated Scale of Intelligence*. San Antonio, TX: Author.
- Reynolds, C. R., & Richmond, B. O. (1978). *Revised Children's Manifest Anxiety Scale manual*. Los Angeles: Western Psychological Services.

- Rice, M. E. (1997). Violent offender research and implications for the criminal justice system. *American Psychologist, 52*, 414-423.
- Shaffer, D. M., Fisher, P. W., Lucas, C., Dulcan, M. K., & Schwab-Stone, M. E. (2000). NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): Description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 28-38.
- Spielberger, C. D. (1988). *State-Trait Anger Expression Inventory-Revised research edition: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Stewart, D. G., & Trupin, E. W. (2003). Clinical utility and policy implications of a statewide mental health screening process for juvenile offenders. *Psychiatric Services, 54*, 377-382.
- Teplin, L. A., Abram, K. M., McClelland, G. M., Dulcan, M. K., & Mericle, A. A. (2002). Psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry, 59*, 1133-1143.
- Timmons-Mitchell, J., Brown, C., Schulz, S. C., Webster, S. E., Underwood, L. A., & Semple, W. E. (1997). Comparing the mental health needs of female and male incarcerated juvenile delinquents. *Behavioral Sciences and the Law, 15*, 195-202.
- Tollett, C. L., & Benda, B. B. (1999). Predicting "survival" in the community among persistent and serious juvenile offenders: A 12-month follow-up study. *Journal of Offender Rehabilitation, 28*, 49-76.
- Wang, E. W., & Diamond, P. M. (1999). Empirically identifying factors related to violence risk in corrections. *Behavioral Sciences and the Law, 17*, 377-389.
- Wasserman, G. A., McReynolds, L. S., Ko, S. J., Katz, L. M., Cauffman, E., Haxton, W., et al. (2004). Screening for emergent risk and service needs among incarcerated youth: Comparing the MAYSI-2 and voice DISC-IV. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*, 629-639.
- Wechsler, D. (1991). *Manual for the Wechsler Intelligence Scale for Children—Third Edition*. San Antonio, TX: The Psychological Corporation.
- Wechsler, D. (1997). *The WAIS-III administration and scoring manual*. San Antonio, TX: The Psychological Corporation.
- Wechsler, D. (2003). *Manual for the Wechsler Intelligence Scale for Children—Fourth Edition*. San Antonio, TX: The Psychological Corporation.