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Psychometric Properties of the MMPI-A Harris-Lingoes and Si Subscales in a Forensic Sample

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**PSYCHOMETRIC PROPERTIES OF THE MMPI-A HARRIS-
LINGOES AND SI SUBSCALES IN A FORENSIC SAMPLE**

by

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ABSTRACT

PSYCHOMETRIC PROPERTIES OF THE MMPI-A HARRIS-LINGOES AND SI SUBSCALES IN A FORENSIC SAMPLE

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The purpose of the current study was to examine the internal and external psychometric properties of the Harris-Lingoes subscales. This was accomplished by use of both self-report and caregiver-rated external criterion measures. The present study employed an archival data set consisting of 760 adolescents (470 boys and 290 girls) who completed the MMPI-A at an outpatient adolescent treatment facility as part of a court-ordered psychological evaluation. Overall, a number of subscales demonstrated good internal consistency reliability (e.g., D4 and Hy3) whereas other subscales (e.g., Pd2) demonstrated unacceptable internal consistency reliability for both genders. Correlations with external self-report scores and caregiver ratings showed varying degrees of support for the construct validity of scores on the Harris-Lingoes and Si subscales in this sample. As a secondary analysis, stepwise regression was used to predict scores on the CBCL Internalizing and Externalizing scales. Limitations and directions for future research are discussed.

This work is dedicated to my daughter, Matalyn. You are the wind in my sails.

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This work is for my daughter, Matalyn. You are my true compass, the wind in my sails, and the sun on my face.

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CHAPTER 1

INTRODUCTION

Psychological assessment bears significantly on outcomes such as recommendations made to courts and treatment efforts in juvenile forensic settings. The Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A; Butcher et al., 1992) is the most extensively researched and validated self-report personality instrument used with adolescents. It is more commonly used with adolescents than any other self-report measure and boasts a long record of specific application to comprehensive assessment, disposition, and treatment for delinquent juvenile populations (Archer, Zoby, & Stredny, 2006).

While the MMPI-A is most frequently perceived as a measure of psychopathology for use in clinical inpatient and outpatient venues, its significant value germane to forensic application may be less widely known or acknowledged. Yet the MMPI (Hathaway & McKinley, 1943) and MMPI-A (Butcher et al., 1992) both have long-standing research histories central to the assessment of adolescents within forensic contexts (Pennuto & Archer, 2008). The first study of the MMPI with adolescent delinquents was published over 60 years ago (Capwell, 1945a, 1945b). Moreover, Pennuto and Archer (2008) called attention to the strong contemporary interest that remains in MMPI-A forensic assessment by noting the existence of a number of current book chapters on MMPI-A use in forensic settings (Archer, 2005; Archer & Baker, 2005; Archer, et al., 2006; Butcher & Pope, 2006). One example of a current forensic MMPI-A application is to aid in determination of an adolescent's competence to stand trial by illuminating possible significant psychopathology that may impede a juvenile's ability to

understand legal charges and trial outcomes and to contribute to one's own defense.

Sound assessment practices can also facilitate early detection of juveniles who are at risk for offense recidivation and early clinical intervention may promote improved behavioral prognosis for adolescents (Pennuto & Archer, 2008).

Sharp and Kline (2008) discussed strengths and weaknesses of currently used questionnaire measures for assessment of juvenile delinquency (including the MMPI-A) and emphasized the need for criterion-related validity research. Sharp and Kline also highlighted the potential for risk in applying the concept of psychopathy to adolescents, and insisted that vigilant review of psychometric substantiation of such measures continue to be applied in adolescent forensic settings. After Archer's (2005) review of MMPI-A utility in forensic settings, he concluded that research to date has largely focused on samples of male adolescents in correctional or detention centers. He highlighted the growing percentage of female delinquents and the consequent need for further MMPI-A research using samples of female adolescent delinquents.

Despite the relatively large number of studies that used the MMPI with adolescents (e.g., Capwell, 1945) or, more recently used the MMPI-A (e.g., Kopper, Osman, Osman, & Hoffman, 1998), no studies have thoroughly examined the psychometric properties of the Harris-Lingoes (Harris & Lingoes, 1955, as cited in Graham, 2006) or Si subscales (Ben-Porath, Hosteller, Butcher, & Graham, 1989) with delinquent adolescents. In light of their direct bearing on the purpose of the current study, literature on the development of the MMPI (Hathaway & McKinley, 1943), including the Harris-Lingoes and Si subscales will be reviewed. Further, I will cover the use of the

original use of the original MMPI with adolescents, the development of the MMPI-A, and research on the Harris-Lingoes and Si Subscales.

Development of the MMPI and Clinical Scales

In response to the need for a comprehensive, efficient, and standardized assessment of hospital inpatients, the original version of the MMPI was published by the University of Minnesota Press in 1943 (Dahlstrom, Welsh, & Dahlstrom, 1972). Developers Starke Hathaway and J.C. McKinley employed an empirical keying approach to develop scales designed to assess psychodiagnostic categories that were in widespread use at the time. For the various Clinical scales, items were selected for inclusion based on response frequency differences between criterion groups of psychiatric patients and a group of normals consisting of visitors to the University of Minnesota hospitals. A variety of sources, such as existing personality measures, textbooks, and personal experience working in the mental health field, were used to assemble a subjective and rationally derived collection of 1,000 items. Redundant or immaterial items were then removed for a final set of 550 items (Dahlstrom et al., 1972).

In 1982, the MMPI underwent modification and improvement, and this resulted in publication of a revised version in 1989 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). The MMPI-2 reflected updated wording and deletion of MMPI items deemed to be offensive. New Content scales (Butcher, Graham, Williams, & Ben-Porath, 1990) were also developed and included. The result of this revision was a 567 item broadband instrument with a larger and more geographically, educationally, and ethnically diverse normative sample.

A great deal of empirical research efforts focused on the original version of the test. Because the Clinical scales received little modification upon revision to the newer version of this instrument, it was noted that considerable continuity remained between the versions. Therefore, research conducted on the original version of the test was considered to be acceptable for application to the newer version (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989).

The MMPI (Hathaway & McKinley, 1943) and its revised version include 10 basic Clinical scales, among others. Basic Clinical scales were constructed by distinguishing item endorsement frequencies of psychiatric patients with the endorsement frequencies of normal adult counterparts on an extensive range of psychological domains. Test items that evidenced a substantial difference between normals and various criterion groups of psychiatric patients were used to construct clinical scales. Items were added regardless of apparent face validity of membership to the construct the particular scale purported to measure (Dahlstrom, Welsh, & Dahlstrom, 1972). However, Hathaway and McKinley employed various means to verify that the differences in item endorsement between normal and criterion groups were not due to systematic or chance factors (Dahlstrom et al., 1972). Additionally, research that focused on deriving these scales employed various samples of individuals who represented the criterion group. Cross-validation samples were also used to assess the reliability of the divisions between groups on item endorsement. Finally, differences in item endorsements were also assessed on a variety of demographic domains including age, marital status, work history, education, and area of residence (Dahlstrom et al.)

Despite empirically rigorous efforts to construct such scales, scale homogeneity was not of primary concern to Hathaway and McKinley in development of the Clinical Scales (Graham, 2006). Therefore, the Clinical Scales are not homogenous groupings of items and they do not reflect internally consistent behavioral characteristics (Dahlstrom, Welsh, & Dahlstrom, 1972). Rather, they are, “are pragmatically formed clusters of symptoms which overlap and interrelate in a variety of ways.” (Dahlstrom et al., 1972, p. 231) Therefore, various item content areas may produce overall mean elevations on the Clinical scales, significantly complicating clinical interpretation. Several factor analytic and rational approaches to researching this concern have focused on ameliorating this issue. Recommendations that have followed from these research efforts proposed methodically breaking down item groupings within overarching clinical scales to aid in test interpretation (e.g., Comrey, 1957a-c, 1958a-e; Comrey; Harris & Lingo, 1955 & 1968, as cited in Graham, 2006).

As a result of the criterion keying approach to scale construction, items often appeared on more than one Clinical scale, because they showed distinctions between more than one diagnostic area (Dahlstrom, Welsh, & Dahlstrom, 1972.) In fact, some items appear on as many as six different Clinical scales, with scales 1 (Hs) and 3 (Hy) having the most items in common (Dahlstrom et al., 1972.) Clinical scale item overlap, as well as the presence of items assessing a general distress dimension (see Tellegen et al., 2003), substantially complicate Clinical scale interpretation.

Consequently, a mean elevation on a given Clinical scale can result from various item response patterns within the scale. Therefore, these elevations may represent a great deal of variability in reasons for overall scale elevation on any given scale, making it

difficult to understand the clinical areas of concern within the overall scale construct (Graham, 2006). Researchers began to see the utility in having a way to tease apart specific subgroups of responses that may have contributed to overall scale elevation, which would isolate specific factors associated with scale elevation providing a clearer interpretive picture (e.g., Harris & Lingo, 1955 & 1968, as cited in Graham, 2006.) Harris and Lingo published subscales to address this issue in 1955. Use of their scales to gain a clearer interpretive picture of information gained from the clinical scales remains usual and customary on modern versions of the test to this day (Graham, 2006).

Development of Harris-Lingo and Si Subscales

The Harris-Lingo subscales are extensively used to interpret MMPI profiles (Graham, 2006). Although these subscales were originally developed and intended for use with the original MMPI Clinical scales, they are also scored and used with the MMPI-2 and MMPI-A (Archer, 2005; Graham, 2006).

The Harris-Lingo subscales are not stand-alone scales. They were created to aid in interpretation in the context of parent Clinical scale score elevations. Harris and Lingo (1955, 1968, as cited in Graham, 2006) developed these subscales for six of the eight Clinical Scales (scales 2, 3, 4, 6, 8, and 9). They determined Clinical scales 1 and 7 to be already homogeneous in content and therefore did not require adjunctive interpretive subscales. Similarly, Harris and Lingo did not construct scales for Clinical scales 5 and 0 as these scales were not viewed as standard clinical scales in earlier research (Graham, 2006).

Harris and Lingo used a rational approach to derive their 28 subscales by examining each Clinical scale item and grouping each item with ones similar in content

or with items that seemed to measure a similar construct (Graham, 2006). Items were not confined to one subscale, and as a result, several subscales have items in common (Archer, 2005). Due to the way in which the Harris-Lingoes subscales were generated, it was implied that they were more homogeneous in content than their parent Clinical scales despite the lack of empirical evidence to support this at the time of their construction (Graham, 2006). Consequently, Harris and Lingoes' rational approach has received some scrutiny due to the empirical flexibility with which the subscales were constructed.

When the MMPI-2 was developed, the Harris-Lingoes subscales underwent several modifications. Some items were removed, leaving fewer items on the MMPI-2 subscales versus the MMPI subscale counterparts. Items were added that did not also appear on the respective parent scale for some of the subscales on the original version of the test and these items were deleted in the updated version. Subscales were named in accordance with the content sub-area that each purported to measure (Graham, 2006).

Several years after the publication of the MMPI, Drake developed scale 0, or the Social Introversion (Si) scale, in 1946 by comparing the response differences of 50 high scoring college women (introverted) with 50 low scoring college women (extraverted). Following scale development, the scale was cross-validated on a male sample. It was initially called the Social I-E scale, and was created for another inventory. It was generated in a different manner than the Clinical scales because a psychiatric criterion group was not used to establish inclusion of items. The Si scale was comprised of 69 items intended to measure various aspects of social introversion. One item was removed from the MMPI Si scale during test revision to the MMPI-2, and eight items were

removed from the Si scale when the MMPI-A was created, leaving 62 items on the MMPI-A.

Ben-Porath, Hosteller, Butcher, and Graham developed Social Introversion subscales, or *Si* subscales, for the MMPI-2 in 1989. Sixty-nine items were factor analyzed and grouped together into subscales based on item-scale correlations and alpha coefficients using a sample of 515 male and 797 female college students. Ben-Porath et al. (1989) reported that these scales exhibit acceptable convergent and divergent validity. Sieber and Meyer (1992) provided data derived from a sample of 410 college students used to evaluate Si subscale performance against self-report measures of constructs that were believed to be differentially related to the 3 Si subscales. Results provided evidence for Si subscale score validity.

Use of Original MMPI with Adolescents

The original MMPI was administered to adolescents to derive clinical and research information even before it was published. The rationale for this was that the original MMPI was administered to individuals 16 and older, yet Dahlstrom, Welsh, and Dahlstrom (1972) stated that its utility could be extended for use with individuals as young as 12. This application of the MMPI most likely stemmed from the view that a sixth grade reading level was required to understand the meaning of the items.

The first MMPI research conducted using a sample of adolescents was carried out by Capwell (1945) with delinquent and non-delinquent girls. Capwell demonstrated support for the validity of MMPI scores with respect to ability to differentiate between female adolescents with a criminal history from those with no criminal history using the Pd scale. She also showed that MMPI scores could do this reliably in her sample when

administered a second time 4 to 15 months from the first MMPI administration (Capwell, 1945a & 1945b, respectively). Capwell reported that the MMPI, “Provided the richest amount of material regarding individual adjustment” among other personality measures given (Capwell, 1945a, p. 224) and that it, “...differentiated most clearly” between delinquents and non-delinquents (Capwell, 1945b, p. 293). Similarly, Monachesi’s early work in forensic adolescent populations expanded upon Capwell’s work using samples of both female (1950) and male adolescents (1948, 1950) and demonstrated comparable findings with regard to the MMPI’s ability to distinguish between delinquent and non-delinquent groups on MMPI scales 6, 7, 8, and 9. Capwell reported that scale 4 outperformed the others, demonstrating support for the validation of scale 4 in this unique population. Early MMPI studies with adolescent populations served to demonstrate the instruments’ clinical utility and to guide clinical activities focused on the adolescent population, namely treatment planning, diagnosis, and prediction of adolescent behavior. Regular use of the MMPI for these purposes was reflected by research efforts that extended directly into the clinical domain of direct practice with this population (e.g., Ball, 1962; Hathaway & Monachesi 1951, 1952).

Hathaway and Monachesi (1963) launched the largest scale prospective longitudinal study looking at MMPI responses and delinquent behavior to discover personality variables that might predict future delinquency. Their project began in 1947 with the first collection of data ($n = 3,971$), and expanded in 1954 with collection of what was called the “statewide sample ($n = 11,329$).” Both samples combined yielded about 15,000 adolescent participants and results gathered in the 1960’s were published by these researchers in a book in 1963. Monachesi and Hathaway (1969) reported a higher rate of

delinquency among male adolescents when scales 4, 8, and 9 were elevated and this finding was even more salient for the female adolescent population studied, as they exhibited almost twice the rate of delinquent behaviors with similar scale elevations. Extensions of Hathaway and Monachesi's groundbreaking work ensued, yielding similar findings (e.g., Briggs, Wirt, & Johnson, 1961) with scales 4, 8, and 9 identified as "excitatory" scales that serve to predict delinquent behavior in adolescents. Hathaway and Monachesi also labeled scales 0, 2, and 5 as Suppressor scales, yielding elevations in boys with lower rates of delinquency (Archer, 2005). This seminal research demonstrated the MMPI's ability to predict delinquency in the adolescent population and variation in response patterns based on gender, and played an integral role in later development of adolescent norms.

Marks and Briggs' (1972) adolescent norms for the MMPI were derived from 720 participants from the statewide sample and 1, 046 adolescent respondents in 1964 and 1965 from six other states. A large portion of research on adolescents with the original MMPI was based on these norms, which represented white adolescent normals who were not treated for emotional difficulties at the time. Norms were reported separately for each gender and for ages 14 and below, 15, 16, and 17. Marks and Briggs developed these norms based on standard linear transformations of raw scores, or T-scores. They did not develop K-corrections and provided several rationales for this decision. Marks, Seeman, and Haller (1974) also conducted a study on code types to provide clinically relevant information that aided in the interpretation of adolescent code type configurations. This study formed the basis for research that then shifted to focus more on the direct application of the original MMPI to the specific adolescent population.

The popular opinion soon developed that adolescent profiles should be interpreted using adolescent norms and not the adult norms originally provided. This spurred Gottesman, Hanson Kroeker, and Briggs (1987, published in Archer, 1987) and Colligan and Offord (1992) to provide adolescent norms as well.

Popularity of MMPI use with adolescents grew rapidly, yet it remained unclear just how widespread the assessment of adolescents using the MMPI was, until Archer, Maruish, Imhof, and Piotrowski (1991) assessed the frequency of MMPI use in the juvenile population. Archer et al. (1991) reported that psychologists mentioned the MMPI as the third most frequently mentioned instrument in their sample and the sixth most frequently used instrument with adolescents regardless of the fact that the MMPI was intended for adult assessment.

Archer (1987) reported the existence of approximately 100 studies conducted with adolescent populations using the original MMPI from 1943 to the 1980's. Regardless of the MMPI's widespread popularity in reported clinical use with adolescents and reported advantages to the test such as comprehensiveness and ease of use, general concerns arose regarding the appropriateness of MMPI use in the evaluation of adolescents. The MMPI was intended for use with adults ages 18 and older and for respondents with at least a seventh-grade reading level, and was not specifically constructed for use with adolescents (Archer & Krishnamurthy, 2002). Although the MMPI and MMPI-2 were used to assess adolescents in many cases, research that evaluated the clinical utility with this population pointed out a number of problems with doing this (Toyer & Weed 1998).

Clinicians also pointed out several shortcomings in terms of using the original MMPI with adolescents that pointed to the need for modification such as the lengthy

nature of the test, use of archaic or inappropriate normative samples, and outdated language (Archer, Maruish, Imhof, and Piatrowski, 1991). Moreover, studies that looked at inpatient adolescents' responses when used with adult and adolescent norms (e.g., Archer 1984; Klinge and Strauss, 1976) showed more marked scale elevations using adult norms versus employing adolescent norms.

Some important limitations have been acknowledged that extend beyond concerns about use of adult norms with adolescents, though. These concerns center around the adolescent norms provided by Marks and Briggs (1972), which were generated from data samples from the 1940's through the 1960's and reflected an exclusively white adolescent sample in Minnesota. Thus, the adolescent norms being used represented outdated and ethnically restricted reference comparison data. Klinefelter, Pancoast, Archer, & Pruitt (1990) proposed that mean elevations and code types garnered from more recent scientific inquiry considerably diverge from the mean elevations and code types generated by the Marks and Briggs norms. Because norms of more contemporary adolescent profiles gathered in the 1980's showed significant clinical scale mean elevations in contrast to the Marks and Briggs norms, a need for updated and more accurate norms was indicated.

Moreover, on the individual item level, outdated wording of items and item content that is irrelevant to younger adolescents was also in need of modification. Finally, there was also a recognized lack of items and scales that would accurately gauge developmentally specific concerns that pertain directly to the period of adolescence, such as drug use, eating concerns, and problems related to school.

Development of MMPI-A

The culmination of these concerns regarding MMPI use with adolescents spurred the creation of a special committee selected by the University of Minnesota Press. The MMPI Adolescent Project Committee which included Butcher, Tellegen, and Archer, was formed to directly address these concerns with the goal of determining the appropriateness and specifics of developing an adolescent version of the test. The goals for construction of an adolescent version of the test were to obtain a national representative normative sample, to shorten the test to make it more amenable to teenage test-takers without omitting important functions of the test, to preserve a level of uniformity between the two measures and integrity of the original instrument, and finally, to develop a way to measure aspects of psychopathology germane to the adolescent population.

Form TX of the MMPI, an experimental form with 704 items, was produced using 550 MMPI items, 50 items evaluating more contemporary issues such as eating disorders and drug problems, and 104 items deemed specific to adolescent concerns such as peer group influence and school problems. This form was administered to 815 girls and 805 boys in the normative sample. Using these norms, the MMPI-A was finalized into a booklet that included more appropriate item content for the adolescent age group, a new normative sample, present tense wording and shortening of the number of items to 478 total items.

To maintain the applicability of the nearly 50 year span of research with adolescents using the MMPI, Butcher et al. (1992) attempted to preserve the basic structure of the MMPI scales to keep test versions as consistent as possible (Archer, 2005). Therefore, the MMPI-A is comprised of 478 items, eight Validity scales, ten

Clinical scales, and a number of special scales and subscales: 28 Harris-Lingoes subscales, three Social Introversion subscales, 15 Content scales, 31 Content Component scales, six Supplementary scales, and five Psy-5 scales (Archer, 2005).

The MMPI-A, like the MMPI and MMPI-2, is currently a widely used and popular standardized self-report inventory used to obtain a breadth of descriptive information about psychopathology and personality. It is the most frequently used objective personality measure for adolescents (Archer & Newsome, 2000). Archer and Newsome reported in their survey of MMPI-A use in contemporary practice with adolescents, that clinicians perceive the strengths of this instrument to include the MMPI-A's ability to provide a comprehensive snapshot of current functioning, availability of norms, ease of administration, psychometric integrity, and large research base. It has also been acknowledged as a significant part of a more complete evaluation used for clinical and forensic purposes. The MMPI-A's extensive validity indicators have been especially useful in determining influences of malingering or overreporting response sets in forensic assessments (Archer, 2005).

Baum, Archer, Forbey, and Handel's (in press) literature review on the MMPI-A yielded reportedly 112 published articles, books, and chapters on this instrument alone, showing a pattern of rapidly increasing interest and research in this area since the publication of the MMPI-A in 1992. Archer (2005) noted that because the MMPI and MMPI-A are such closely related instruments, much of the research conducted with the original MMPI can be generalized to the MMPI-A as well.

Modifications in scale composition and the addition of new items to a traditional item pool, however, have raised uncertainty about generalizing early research to the MMPI-A. Further, there is a relatively limited research base establishing the

psychometric properties of certain MMPI-A scales and subscales, such as the Harris-Lingoes subscales. Various valuable empirical inquiries have reflected interest in examining the psychometric soundness of various scales and subscales, yet many are limited by small sample sizes and do not include investigation of Harris-Lingoes subscales.

Since its publication, empirical investigation of the MMPI-A has yielded a substantial pool of research with considerable research conducted using the MMPI-A to specifically examine adolescent delinquency (e.g., Archer, Bolinsky, Morton, & Farris, 2003, Arita & Baer, 1998; Cashel, Rogers, Sewell, & Holliman, 1998, Toyer & Weed, 1998). MMPI-A research has also examined numerous clinical populations. For example, Arita and Baer (1998) examined and provided support for the convergent and discriminant validity of several MMPI-A Content scales in a sample of psychiatric inpatient adolescents using several external criterion self-report measures. Toyer and Weed (1998) investigated the concurrent validity of the MMPI-A by examining scales which purport to measure conduct problems in a small sample of outpatient adjudicated youths ($n = 42$) along with counselor ratings of respondents' behavior. The validity of the MMPI was reported to be supported in assessment of conduct disordered adolescents, as the Clinical, Content, and Supplementary scales showed ability to distinguish the conduct disordered respondents from the norm by one standard deviation. Stein, McClinton, and Graham (1998) concluded the long-term stability of MMPI-A scales to be comparable to MMPI scales using a non-clinical sample and reported test-retest coefficients for Validity, Clinical, Content, Supplementary, and Psy-5 scales, yet did not include Harris-Lingoes subscales in their investigation.

Harris-Lingoes and Si Subscales

Clearly the utility and psychometric properties of the MMPI-A Harris-Lingoes subscales have been investigated even less so than the limited research that has specifically focused on investigation of the Harris-Lingoes subscales in adults. For this reason, this section encompasses all versions of the MMPI with regard to relevant research conducted on the Harris-Lingoes and Si subscales.

Research on Harris-Lingoes and Si Subscales for the MMPI

Although it was extensively researched and despite its longstanding existence before revision to the MMPI-2, it is an understatement to say that the MMPI Harris-Lingoes subscales have not been the focus of much empirical research effort with adults.

In 1985, Miller and Streiner attempted to evaluate the subjective nature of MMPI Harris-Lingoes subscale construction. Thirteen expert judges were used to group clinical scale items into groups reflecting similar constructs. Although nine subscale groupings created by the judges were found to be decidedly similar to nine of the Harris-Lingoes subscales, nine were found to be only moderately similar, and 12 were reported to be dissimilar. Miller and Streiner ultimately reported that the judges generated more subscale groupings for each Clinical scale than Harris and Lingoes, and showed a small degree of agreement on item groupings. Consequently, they noted the aforementioned reservations regarding the method of subjective grouping of items into subscales used to construct the Harris-Lingoes subscales for the MMPI; nevertheless, these subscales were retained on MMPI-2.

Much of the MMPI research conducted in adult samples with the subscales reflected attempts to understand their utility to distinguish between groups on various

psychodiagnostic dimensions using subsets of Harris-Lingoes subscales. Prokop (1986) investigated the MMPI Hy scale in a sample of low back pain patients by comparing Harris-Lingoes subscale mean elevations in 93 male and female low back pain patients with 102 male and female normal controls. Subscales reflecting somatic content were found to more powerfully predict pain diagnosis status than subscales with nonsomatic context. Specifically, mean elevations on subscales Hy2, Hy3 and Hy4 were significant distinguishing subscales for female pain patients and controls and subscales Hy3, Hy4, and Hy5 appeared to effectively distinguish male pain patients from normal controls, with Hy5 emerging as the most powerful discriminator for the male sample. Similarly, Moore, Mcfall, Kivlahan, and Capestany (1988) investigated the Sc subscales in a sample of chronic pain patients ($n = 73$), who scored lower than psychotic ($n = 55$) and nonpsychotic ($n = 87$) psychiatric patients on all subscales except for Sc3.

Rappaport (1978) looked at the relationship between trait anxiety and the Pd subscales in a small sample of male and female psychiatric inpatients. Social Alienation and Self-Alienation were found to be significantly correlated with anxiety and Social Imperturbability yielded an inverse relationship with trait anxiety. In an investigation of the convergent validity and ability to discriminate between adult male offenders, Bayer, Bonta, and Motiuk (1985) reported a positive correlation between the Pd2 scale and prior offender incarceration. They also reported acceptable internal consistencies for each of the Pd subscales with the exception of Authority Conflicts. Using criteria such as social history data and status of successful conclusion of incarceration, Bayer, Bonta, and Motiuk provided some evidence for validity of Pd subscales and reported significant expected correlations on all subscales except for Pd4. These researchers reported that

they did not find support for the incremental validity of Pd subscales over parent scales, but concluded that the Harris-Lingoes subscales yielded significant and clinically meaningful data useful for treatment planning and understanding various factors that contribute to mean elevations on the parent Pd scale. Moreover, they noted the potential for mean elevations on the Pd scale to be misinterpreted or masked if individual content areas responsible for such mean elevations (i.e., via the Harris-Lingoes subscales) are not evaluated in conjunction with elevated parent scales.

In 1992, Wrobel examined the concurrent validity of MMPI Harris-Lingoes scales by comparing clinician ratings of a sample of 85 male and female outpatient adults with Harris-Lingoes subscales descriptors. Wrobel reported 30 of the 68 predicted correlates to be significant. The highest frequency of significant correlations was demonstrated by the D, Pd, and Sc subscales, and the fewest by the Hy, Pa, and Hy subscales. Although sound validity was reported for most of the subscales, Wrobel noted problems with several subscales including Hy1, Hy2, Pd3, Pa3, and Ma2.

Research on Harris-Lingoes and Si Subscales for the MMPI with Adolescents

In a sample of depressed inpatient adolescents Herkov and Meyers (1996) provided modest support for the ability of the Harris-Lingoes Pd subscales' to distinguish between adolescent respondents with Conduct Disorder and those without Conduct disorder on subscale Pd2. They divided their sample of clinically depressed adolescent respondents into conduct-disordered and non-conduct-disordered groups and administered the MMPI, converting resultant scores to *t*-scores using the norms developed from the Hathaway and Monachesi database. Herkov and Meyers reported that parent Clinical scale 4 (Pd) did not differentiate between the groups, as was

hypothesized. Upon examination of Harris-Lingoes subscales to understand this unexpected finding associated with Clinical scale 4 (Pd), they found that the conduct-disordered group scored significantly higher than the group without Conduct Disorder on the Pd2 Harris-Lingoes subscale (Authority Problems), pointing to the ability of the Harris-Lingoes subscales' utility in differentiating nuances between groups on this construct. Though this finding lends some support for the Harris-Lingoes subscales' ability to differentiate between groups in this sample, they were created for the sole purpose of understanding overall parent scale mean elevations via teasing out content areas of interest with direct regard to parents scale mean elevations, not to directly compare mean scores between groups on content areas in absence of parent scale mean elevations.

Clinician ratings have also been used to demonstrate the validity of certain Harris-Lingoes subscales in an inpatient sample. Basham's study of 327 inpatient adolescents using the MMPI (1992) yielded some evidence for convergent validity of two Harris-Lingoes subscales by reporting significant correlation between clinicians' accounts of family conflict and the MMPI Pd1 scale (Familial discord) and between involvement with the legal system and externalizing behavior and the MMPI Pd2 scale (Authority problems).

Research on Harris-Lingoes and Si Subscales for the MMPI-2

Despite the historical use of the MMPI Harris-Lingoes subscales in interpretation and clinical use of adult and adolescent profiles, several psychometric quandaries have been identified with research efforts that center on investigation of the more modern

MMPI-2 version of the test. Firstly, the Harris-Lingoes subscales are considerably intercorrelated due to item overlap (Graham, 2006) and thus reflect a lack of uniqueness between subscales to varying degrees. Moreover, Krishnamurthy, Archer, & Huddleston (1995) reported restricted possible T score mean elevations for two of the Harris-Lingoes scales. Specifically, they reported the highest possible T score for both men and women on the MMPI-2 for the Hy1 subscale to be 61, and the highest achievable T score for the Pd3 subscale to be 65 for women and 64 for men. Moreover, Archer (2005) noted that due to a small number of subscale items, scales Hy1 and Pd3 cannot be elevated above 66 and 67, respectively.

Levitt, Browning, and Freeland (1992) pointed out difficulty with scores due to slightly shortened subscales due to test revision. They used psychiatric and non-psychiatric samples to compare mean scale 4 Harris-Lingoes MMPI scores to the mean scale 4 subscale scores produced by the MMPI-2, the MMPI-2 subscales containing fewer items than the corresponding MMPI subscales. These researchers showed that MMPI-2 scale 4 subscales yielded lower scores than their MMPI counterparts. However, Graham (2006) noted that had the Lewitt, Browning and Freeland methodology included conversion of raw scores to T-scores using suitable norms, only trivial differences would have emerged, if any. Providing supportive evidence for the continuity of test versions with regard to Harris-Lingoes subscales, Chojnacki and Walsh (1994) demonstrated a high degree of consistency between the original MMPI Harris-Lingoes subscales scores and the updated MMPI-2 subscale scores in the same sample of college student respondents.

Similar to MMPI research in this area, several empirical investigations have centered on examination of the utility of specific subsets of Harris-Lingoes subscales in various populations to provide information regarding psychometric properties. In their factor analytic investigation, Ward, Kersh and Waxmonsky's (1998) analysis of the MMPI-2 Paranoia scale in two separate samples of patients demonstrated a solution of three factors (Paranoia, Low Morale, and Naivete) that conceptually lined up with the three Paranoia (Pa) subscales. Osberg and Poland (2001) investigated MMPI-2 correlates of criminal history in a forensic sample using the Harris-Lingoes scales to assess their incremental validity over the basic clinical scales that have been found to be generally elevated in this population on both the MMPI and MMPI-2 (i.e., psychopathic deviate, hypomania, and depression). In this study, these researchers administered the full version of the test to a sample of incarcerated adults using respondents' criminal histories as the criterion measure. They reported that three Harris-Lingoes subscales evidenced significant correlations with the criterion: Ma1 (Amorality), Pd2 (Authority problems, and Pd5 (Self-alienation). Moreover, the Pd subscales in particular were shown to add more ability to predict criminal history over and above the parent clinical scale. These researchers stated that their findings suggest the Pd subscales utility in routine forensic psychological assessment.

Researchers have also responded to the issue of interpretive ambiguity stemming from mean elevations on the parent Pd scale, which can indicate several problem areas associated with psychopathy. Lilienfeld (1999) examined the ability of the MMPI-2 Pd Subscales to detect facets of psychopathy in a sample of college students. Several external measures pertinent to psychopathy and antisocial behavior were used to

elucidate the validity of the Pd Scales using external measures of various facets of psychopathic deviancy. In general, findings of this study supported the construct validity of the Pd Harris-Lingoes subscales and their ability to tease out important dimensions of the overarching construct of psychopathy that may bear on case disposition and clinical practice.

Lilienfeld reported that the Pd2 (Authority Problems) scale emerged as the most regular benchmark of psychopathy in general, though other Pd scales also evidenced positive correlations with the various external measures used in the study. Lilienfeld also noted that Pd2 was moderately to highly related to instruments that assess primary psychopathy, it may be more useful than the other Pd scales in discriminating between individuals who exhibit more ingrained characterological forms of psychopathy versus those whose antisocial behavior results from external circumstances. Moreover, Lilienfeld reported Pd3 to be correlated with the Social Potency and Stress Immunity dimensions of the PPI, which suggested that individuals who generate higher scores on other Pd scales may not show the abilities consistent with social composure and distress tolerance. Pd2 was also the only scale to be positively associated with the Coldheartedness dimension of the PPI, whereas other Pd scales showed negative correlations with this dimension. Lilienfeld suggests that those scores are high on the scales that negatively correlate with Coldheartedness may not indicate signs of affective deficits that are often evident in psychopathic individuals. Because Pd 4 (Social Alienation) and Pd 5 (Self Alienation) negatively correlated with Coldheartedness, or the dimension that represents affective insensitivity, Lilienfeld suggests that high scores on these two scales may suggest greater responsiveness to psychotherapy. Finally, Lilienfeld

pointed out that the only correlate of the Carefree Nonplanfulness dimension of psychopathy is the Pd5 subscale (Self-alienation). This challenged the claim (Faust, 1997) that the Harris-Lingoes Pd scales may be largely unessential because an mean elevation on the parent Pd scale simply indicates that general psychopathy is present. Limitations of this study appeared to be the questionable generalizability of findings derived from an undergraduate student sample and administration of the Pd scale in isolation from the rest of the test.

Graham, Ben-Porath, and McNulty (1999) provided more current correlates for MMPI-2 interpretation based on their large-scale study of outpatient community mental health patients. Graham et al.'s (1999) correlate data are based on subscale scores and extra-test measures such as intake information, mental status, self-report symptom inventories, and patient description form scales. They reported that the results derived from their study show that there are reliable correlates of many Harris-Lingoes subscales and that they show patterns that can differ from their parent clinical scales. Because no comprehensive studies in other settings were available with which to compare their results, Graham et al. compared their correlate data with the correlates provided by Graham (1993). Based on their comparisons of correlates for each subscale with Graham's (1993) correlates, Graham and his colleagues reported notable similarity and no incompatible findings. They concluded, "In summary, our findings offer support for previously reported descriptors for most of the Harris-Lingoes subscales" (p. 95). Finally, they noted that because similar data was not available for settings other than their mental health center sample, generalizing their correlates to other settings should be done with caution.

Research on Harris-Lingoes and Si Subscales for the MMPI-A

In terms of the Harris-Lingoes subscales on the adolescent version of the test, research has shown that adolescent profiles produce elevated scores on the Harris-Lingoes subscales when adult norms are used (Pancoast & Archer, 1988). In response to this problem, Colligan and Offord (1989) made available adolescent norms drawn from their current sample collected with the original MMPI (Archer, 2005). Norms for adolescents are based on a sample of 1,620 girls and boys.

Although the MMPI-A was published in 1992 with little extant research available to understand the psychometric properties and clinical utility of the Harris-Lingoes subscales, few investigations have committed to evaluations in this area.

Research has demonstrated the incremental validity of the Harris-Lingoes scales when used along with the corresponding parent clinical scales. In their sample of 143 inpatient adolescent girls ($n = 75$) and boys ($n = 68$), Kopper, Osman, Osman, and Hoffman (1998) identified several MMPI-A Harris-Lingoes subscales which aided in the prediction of suicide potential above and beyond the clinical parent scale for each gender. These researchers reported that subscales Pd4 (Social alienation) and Pd5 (Self alienation), D1 (Subjective depression), Ma3 (Imperturbability) and Ma1 (Amorality) in boys and D1, Pd5, Ma2 (Psychomotor acceleration) and Ma3 in girls significantly added unique ability to assess suicide potential beyond the parent clinical scales.

Gallucci (1994) looked at correlations between Harris-Lingoes subscales and clinicians' ratings of various dimensions including aggression, impulsivity, sensation seeking, guilt, friendship, ambivalence, and friendship in an adolescent inpatient sample ($n = 177$). Gallucci cited scales Hy2 (Need for Affection) and Hy5 (Inhibition of

Aggression) as significantly correlated to overcontrolled behavior or inhibitory functioning and Ma1 as significantly correlated with undercontrolled behavior or excitatory functioning, and lack of social engagement across genders. Gallucci also reported the Ma1 scale to be correlated with substance abuse in boys and with impulsivity in girls. Hy2 was found to be related to self-criticism in boys and Hy5 was associated with guilt in girls. Ma3 correlated with sensation seeking across gender, and was negatively related to self-criticism for both girls and boys and with friendship in boys. Pa3 (Naivete) was correlated with friendship and negatively associated with impulsivity for both genders and with anticipation and planning for boys.

Pena, Megargee, & Brody (1996) administered the MMPI-A to male adolescent offenders ($n = 162$) in a state training school and compared base rates, patterns, and various MMPI-A scale scores (including the Harris-Lingoes subscales) with non-delinquent peers ($n = 805$) from the standardization sample. Pena et al. (1996) reported that they did not make any formal hypotheses for the Harris-Lingoes and Social Introversion subscales because these subscales are to be interpreted only when parent scales are elevated. Pena and her colleagues' goal with regard to these subscales was to examine how the delinquent sample scored. Pena et al. reported that 20 of the 31 Harris-Lingoes subscales yielded statistically significant mean differences at the .001 level between the delinquent and non-delinquent samples. Overall, the highest and lowest means occurred in conjunction with parent clinical scales that were most elevated or depressed. Lowest mean scores for adolescent offenders in Pena et al.'s sample reportedly ranged from T-scores of 42 to 46 and occurred on the following subscales: D2 (Psychomotor Retardation), Hy2 (Need for Affection), Hy5 (Inhibition of Aggression),

Pa3 (Naivete), Si1 (Shyness/Self-Conscious), and Si2 (Social Avoidance). Mean scores on these subscales differed significantly from the nondelinquent sample (at $p < .001$). Pena et al. stated that low scores in the delinquent sample on scales that reflect constructs such as shyness and nonaggressive behavior lend support for the construct validity of these subscales in this population. Moreover, Pena et al. reported that the highest mean scores for the offender sample ranged from T -scores of 54.5 to 64 and occurred on subscales Pd2 (Authority Problems), Pd4 (Social Alienation), Pd5 (Self-Alienation), Pa1 (Persecutory Ideas), Sc3 (Bizarre Sensory Experiences), Ma1 (Amorality), and Ma4 (Ego Inflation) and were statistically significant at $p < .001$. Highest scores were reportedly obtained on subscales reflecting the presence of problems with authority, feeling socially isolated and persecuted by others, and amorality, and, "The patterns were generally consistent with the construct validity of these subscales," and, "These data are consistent with Galucci's (1994) report on the external correlates of certain Harris and Lingoes (1955) subscales among adolescent inpatients (Pena et al., p. 394)." Pena et al. also reported two strange findings in the delinquent sample were an elevated mean on Sc3 (Bizarre Sensory Experiences) and a low score on Pd1 (Familial Discord).

Pena, Megargee, and Brody (1996) reported that when they applied Greene's (1987) 5 T -score point criterion for clinical significance, three of the statistically significant differences in subscale scores between the two samples emerged as clinically meaningful as well: Pd2, Pa1, and Ma1. For Pd2, Pena et al. reported a mean of 64 in the delinquent sample and that 80% of the scores in this sample were elevated. Moreover, 54% of these mean elevations occurred above a T -score of 64. Further, they reported the mean subscale score for Pa1 equal to a T -score of 58 and 49% of this sample yielded

elevated scores, 37% being over a *T* of 64. Finally, the mean score produced by delinquents on subscale Ma1 was a T-score of 61, and 75% produced mean elevations on this subscale with 46% of these mean elevations occurring over a T of 64.

Current Study

Use of the MMPI-A is widespread, and customarily used in a variety of settings, including forensic venues. Though research using samples of adolescent delinquents dates back over 6 decades, many investigations have focused largely on investigating the utility and psychometric properties of specific Harris-Lingoes subscales in specific population subsets and with small samples. Yet, no large-scale investigation using both male and female adolescents in a forensic setting has investigated the entire set of Harris-Lingoes and Si subscales. Therefore, the purpose of the current study is to examine the internal and external psychometric properties of the Harris-Lingoes subscales.

CHAPTER II

METHOD

Participants

The present study employed an archival data set consisting of adolescents who were court-ordered to undergo a forensic evaluation. The data set used in the present study was previously used and described by Handel, Archer, Elkins, Mason, and Simonds (2010). This sample consisted of 760 adolescents (470 boys and 290 girls) who completed the MMPI-A at an outpatient adolescent treatment facility. Participants without current legal charges ($n = 111$) were removed from the data set for the sake of uniformity. In other words, the sample consisted solely of adolescents in a pre-dispositional status. Next, protocols completed by 12- and 13-year old participants were removed from the data set ($n = 50$). After applying the following validity criteria to the remaining protocols ($n = 600$), 103 more cases were excluded from the dataset: Cannot Say raw score < 30 ($n = 18$); VRIN ($n = 20$), TRIN ($n = 21$), L ($n = 35$), and K ($n = 0$)(T-scores) < 80 ; F ($n = 3$), F1 ($n = 5$), and F2 ($n = 1$) (T-scores) < 90 . The final sample consists of 496 total participants who meet the aforementioned study criteria (boys: $n = 315$; girls: $n = 181$).

Table 1 displays demographic data for the final sample and separated by gender. Percentages for mean age, grade level, ethnicity, Axis I diagnoses, current legal charges, type of offense, and type of historical legal charges are displayed. For percentages of Axis I diagnoses and both current and historical legal charges descriptives, percentage frequencies reported do not total to 100% due to the non-mutually exclusive categories included. Sixty-two percent of the total sample were African-American adolescents,

which is an elevated percentage in the current sample when compared with court service information from juvenile intake cases in the state of Virginia in 2009, which reported that 44.2% of adolescent offenders were African-American (Virginia State Department of Juvenile Justice). However, it is important to note that the present sample includes all adolescents that were referred by the court system over the specified time period and therefore there is no sampling bias with respect to individuals actually ordered to undergo evaluations in the Hampton/Newport News area. The Child In Need of Services (CHINS) category refers to court-provided caregiver assistance when a child's behavior cannot be managed effectively at home. A CHINS charge is a legally-binding contract between the child and the probation officer, which can include a required behavior from the child such as abstaining from drugs and alcohol, curfew, and treating others with respect. The probation officer makes recommendations to the court based on to what extent the child abided by the contract. In most CHINS petition cases, children have a history that includes several status offenses before the petition is ordered.

Table 1

Frequencies of Demographic Variables

	Total Sample	Boys	Girls
N	496	315	181
Mean Age	15.81 (SD=1.12)	15.79 (SD=1.14)	15.85 (SD=1.09)
Grade:			
6 th	4 (0.8%)	3 (1.0%)	1 (0.6%)

Table 1 (Continued)

	Total Sample	Males	Females
7 th	32 (6.5%)	21 (6.7%)	11 (6.1%)
8 th	76 (15.3%)	49 (15.6%)	27 (14.9%)
9 th	144 (29.0%)	101 (32.1%)	43 (23.8%)
10 th	95 (19.2%)	48 (15.2%)	47 (26.0%)
11 th	60 (12.1%)	36 (11.4%)	24 (13.3%)
12 th	20 (4.0%)	14 (4.4%)	6 (3.3%)
Graduated	3 (0.6%)	2 (0.6%)	1 (0.6%)
GED Program	41 (8.3%)	26 (8.3%)	15 (8.3%)
Unknown	21 (4.0%)	15 (4.8%)	6 (3.3%)
Ethnic Group:			
African-American	310 (62.5%)	197 (62.5%)	113 (62.4%)
Caucasian	134 (27.0%)	84 (26.7%)	50 (27.6%)
Biracial	20 (4.0%)	11 (3.5%)	9 (5.0%)
Hispanic	11 (2.2%)	8 (2.5%)	3 (1.7%)
Other	8 (1.6%)	6 (1.9%)	2 (1.1%)
Unknown	13 (2.6%)	9 (2.9%)	4 (2.2%)
Axis I Diagnoses:			
Impulse Control/			

Table 1 (Continued)

	Total Sample	Males	Females
Behavior Disorders	(73.6%)	244 (77.5%)	121 (66.9%)
Substance Use Disorders	219 (44.1%)	152 (48.3%)	67 (37.0%)
Depression Disorders	92 (38.7%)	110 (34.9%)	82 (45.3%)
ADHD Disorders	87 (17.5%)	67 (21.3%)	20 (11.0%)
Adjustment Disorders	68 (13.7%)	34 (10.8%)	34 (18.8%)
Relational Problems	58 (11.7%)	30 (9.5%)	28 (15.5%)
Abuse Disorders	56 (11.3%)	21 (6.7%)	35 (19.3%)
Bipolar Disorders	47 (9.5%)	27 (8.6%)	20 (11.0%)
Anxiety Disorders	4 (8.9%)	16 (5.1%)	28 (15.5%)
Learning Disorders	35 (7.1%)	27 (8.6%)	8 (4.4%)
Current Legal Charges:			
CHINS Charge	167 (33.7%)	73 (23.2%)	94 (51.9%)
Assault Charge	132 (26.6%)	85 (27.0%)	47 (26.0%)
Miscellaneous	127 (25.6%)	82 (26.0%)	45 (24.9%)
Theft Charge	96 (19.3%)	81 (25.7%)	15 (8.3%)
Drug/Alcohol Charge	78 (15.7%)	59 (18.7%)	19 (10.5%)
Property Charge	74 (14.9%)	59 (18.7%)	15 (8.3%)
Status-Offense	54 (10.9%)	29 (9.2%)	25 (13.8%)
Sexual Offense	36 (7.2%)	33 (10.5%)	3 (1.7%)

Table 1 (Continued)

	Total Sample	Males	Females
Weapons Charge	26 (5.2%)	20 (6.3%)	6 (3.3%)
Violent Offense	212 (42.7%)	144 (45.7%)	68 (37.6%)
Non-violent offenses only	284 (57.3%)	171 (54.3%)	113 (62.4%)
History of Legal Charges (N=295 with historical charges; 198 boys and 97 girls):			
Theft Charge	138 (46.8%)	97 (49.0%)	41 (42.3%)
Assault Charge	94 (31.9%)	63 (31.8%)	31 (32.0%)
Miscellaneous	85 (28.8%)	55 (27.8%)	30 (30.9%)
Status-Offense	70 (23.7%)	44 (22.2%)	26 (26.8%)
Property Charge	71 (24.1%)	54 (27.3%)	17 (17.5%)
CHINS Charge	51 (17.3%)	33 (16.7%)	18 (18.6%)
Drug/Alcohol Charge	48 (16.3%)	36 (18.2%)	12 (12.4%)
Weapons Charge	20 (6.8%)	16 (8.1%)	4 (4.1%)
Sexual Offense	12 (4.1%)	11 (5.6%)	1 (1.0%)
Violent Offense	135 (27.2%)	93 (31.5%)	42 (24.0%)
Non-violent offenses only	160 (32.2%)	105 (34.6%)	55 (31.6%)
No historical charges	201 (40.5%)	117 (33.9%)	84 (44.4%)

Note. CHINS = Child in Need of Services. Percentages for historical charges represent percentage of individuals possessing a historical charge. This table was reproduced from Handel, Archer, Elkins, Mason, and Simonds (2010).

Measures

Minnesota Multiphasic Personality Inventory for Adolescents. The Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A; Butcher et al., 1992) is a 478-item true-false questionnaire. The focus of the present study was the Harris-Lingoes and Si subscales of the MMPI-A. In the MMPI-A normative sample, Butcher et al. reported alpha coefficients ranging from .43 (scale 5) to .88 (scale 8) for boys and .40 (scale 5) to .89 (scale 8) for girls for the basic Clinical scales. Further general information regarding the reliability and validity of MMPI-A scores is accessible in several sources (e.g., Archer, 2005; Butcher et al., 1992). However, no studies have reported Cronbach's alpha coefficients for the MMPI-A Harris-Lingoes or Si subscales.

Child Behavior Checklist. The Child Behavior Checklist (CBCL; Achenbach, 1991a; Achenbach & Rescorla, 2001) is a measure that is completed by parents or others who see the child or adolescent in a family-like setting. Data collection for the present study began in the late 1990s before the release of the updated version of the CBCL (for ages 6-18; Achenbach & Rescorla, 2001). Therefore, the sample consists of two forms of the CBCL: The CBCL/4-18 (Achenbach, 1991a) and the CBCL/6-18 (Achenbach & Rescorla, 2001). In the present study the earlier version of the CBCL was scored using the updated CBCL (Achenbach & Rescorla, 2001) scales according to the procedure provided in Achenbach and Rescorla (2001). The CBCL contains eight "empirically based" syndrome scales (Withdrawn, Somatic Complaints, Anxious-Depressed, Social

Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior), Internalizing Problems and Externalizing Problems composite scales, and a Total Problems composite scale. Further, it includes a set of six “DSM-Oriented” scales. Finally, the measure includes a set of “Competence and Adaptive” scales that is not used for the purpose of the current study. Achenbach and Rescorla (2001) reported combined gender alpha coefficients ranging from .78 (Thought Problems and Somatic Complaints) to .97 (Total Problems) for their empirically based scales and .72 (Anxiety Problems) to .91 (Conduct Problems) for their DSM-Oriented scales. More comprehensive data regarding the psychometric properties of the CBCL 6/18 are available in Achenbach and Rescorla (2001).

Youth Self Report. The Youth Self Report (YSR; Achenbach, 1991b; Achenbach & Rescorla, 2001) is the corresponding 112-item self-report measure of the CBCL. The YSR is completed by a child or adolescent ages 11-18 to describe his or her own functioning. The earlier (i.e., 1991) version of this instrument was scored using the updated scales (Achenbach and Rescorla, 2001). The YSR was normed on a national sample of 1,315 boys and girls. The YSR manual indicates that scales successfully differentiate children who are referred and non-referred for mental health services. Achenbach and Rescorla (2001) reported YSR alpha coefficients that range from .71 (Withdrawn/Depressed) to .95 (Total Problems) for the empirically based scales. For the DSM-Oriented scales, Achenbach and Rescorla (2001) reported alpha coefficients ranging from .67 (Anxiety Problems) to .83 (Conduct Problems). Achenbach and Rescorla (2001) also presented more comprehensive data concerning the psychometric properties of YSR scores.

Disruptive Behavior Rating Scale-Parent Form. The Disruptive Behavior Rating Scale (DBRS; Barkley & Murphy, 1998) is a measure that assesses disruptive behavior domains reflecting DSM-IV diagnoses of ADHD and Conduct Disorder. This measure consists of 26 items assessing symptoms of ADHD and ODD and 15 items assessing symptoms of Conduct Disorder. Symptoms of ADHD and ODD are rated on a four-point Likert scale (Never or rarely, Sometimes, Often, or Very often) by the child's caregiver. Caregivers are instructed to answer items (yes or no) related to Conduct Disorder symptoms that have occurred during the last 12 months. Barkley and Murphy (1998) provided some data for children ages five to 13 for the ADHD portion of the instrument but did not report psychometric data for the Conduct Disorder portion.

Procedure

Prior to legal disposition, adolescents were ordered by Juvenile and Domestic Relations Court judges to undergo a psychological evaluation prior to sentencing. These evaluations were carried out at a large community mental health center to aid in deriving disposition, diagnosis, treatment, and understanding of precursors of delinquent behavior. Data for this study were derived from the records of such evaluations that took place locally between 1999 and 2007. This dataset has also been used for other scientific inquiries (e.g., to examine the psychometric properties of the substance abuse scales in Tirrell, 2005).

A large percentage of the adolescent sample was living in the community during the evaluation, but a small number of adolescents were detained at a residential detention center and were therefore transported to site of the evaluation. Psychological evaluations were conducted by qualified mental health personnel (i.e., Licensed Clinical

Psychologists) or by pre- or post-doctoral trainees under the supervision of a Licensed Clinical Psychologist.

The customary assessment procedure included diagnostic interviewing, an in-person interview with the juvenile's parent or guardian, a telephone interview with the Probation or CHINS officer (if relevant), and a review of court-related documents including Probable Cause Statements, Witness Statements, court-orders and a court-ordered Social History. Customary testing procedures included administration of the Minnesota Multiphasic Personality Inventory for Adolescents (MMPI-A; Butcher et al., 1992), Youth Self-Report (Achenbach, 1991b; Achenbach & Rescorla, 2001), Child Behavior Checklist (Achenbach, 1991a; Achenbach & Rescorla, 2001), and the Disruptive Behavior Rating Scale (Barkley & Murphy, 1998). Parents or guardians completed the CBCL and DBRS.

Several factors contributed to the existence of more MMPI-As than other inventories in the data set. Evaluations completed in the 1990s did not typically include the CBCL or YSR, as these measures were not regularly used at the evaluation facility. In addition, the MMPI-A was administered first during each evaluation, and so some adolescents were not amenable to further testing. Finally, in a small percentage of cases, a parent or guardian was not available at the time of the adolescent's evaluation to complete the CBCL or DBRS.

The primary goal of the present study was to examine the construct validity of the Harris Lingoes subscales. Both internal and external analyses were conducted to thoroughly examine the psychometric properties of Harris-Lingoes subscale scores.

Internal Analyses

Internal analyses included means, subscale intercorrelations, standard deviations, alpha coefficients, percentages of elevated cases, and standard errors of measurement.

External Analyses

External analyses involved zero-order correlations between Harris-Lingoes subscales and the DBRS, YSR, and CBCL scales. Apriori cutoff scores were employed to determine clinical significance and were set at .20 for the CBCL and DBRS and at .40 for the YSR. As Thompson (1994) argued, null hypothesis significance tests of convergent validity coefficients do not test a plausible hypothesis (i.e., $\rho_{xy} = 0$). Therefore, representative point estimates with 95% confidence intervals were reported (Schmidt, 1996). Both convergent and discriminant validity coefficients are reported. Finally, the internalizing and externalizing composites of the CBCL will be regressed on Harris-Lingoes and Si subscale scores using stepwise multiple regression.

In terms of convergent validity, the following Harris-Lingoes and Si subscale descriptions provided by Archer (2005) were be used. Due to the succinct nature of the subscale descriptors provided in Archer's book, the subscale descriptions were taken directly from this source (pp.219-225). Subscales are grouped by their parent Clinical scales, and the number of items that appear on each subscale is provided.

Scale 2 (Depression)

D1: Subjective Depression (29 items). Elevated scores on this subscale may be related to characteristics such as: Feelings of depression, unhappiness, and guilt, lack of energy and interest in everyday activities, deficits in concentration and attention, and self-critical tendencies.

D2: Psychomotor Retardation (14 items). Elevated scores on this subscale may be related to characteristics such as: Lack of energy or inability to mobilize resources, social withdrawal and social avoidance, and denial of hostile or aggressive impulses.

D3: Physical Malfunctioning (11 items). Elevated scores on this subscale may be related to characteristics such as: Concern about and preoccupation with physical health and reporting of a wide array of physical symptoms.

D4: Mental Dullness (15 items). Elevated scores on this subscale may be related to characteristics such as: Complaints of difficulties with memory, concentration, or judgment, lack of energy, poor self-concept and feelings of inferiority, and difficulty in making decisions.

D5: Brooding (10 items). Elevated scores on this subscale may be related to characteristics such as: Lack of energy, apathy, and lethargy, excessive sensitivity to criticism, and feelings of despondency and sadness.

Scale 3 (Hysteria)

Hy1: Denial of Social Anxiety (6 items). Elevated scores on this subscale may be related to characteristics such as: Social extroversion, and ease in talking to and dealing with others.

Hy2: Need for Affection (12 items). Elevated scores on this subscale may be related to characteristics such as: Strong need for attention and affection, optimistic and trusting in relationships, and denial of cynical, hostile, or negative feelings about others.

Hy3: Lassitude-Malaise (15 items). Elevated scores on this subscale may be related to characteristics such as: Unhappiness and discomfort, fatigues, physical problems, and the perception of poor health, sadness and despondency, and poor appetite and sleep disturbance.

Hy4: Somatic Complaints (17 items). Elevated scores on this subscale may be related to characteristics such as: Multiple somatic complaints and concerns, head or chest pains, fainting, dizziness, and problems with balance, and nausea, vomiting, and gastrointestinal disturbances.

Hy5: Inhibition of Aggression (7 items). Elevated scores on this subscale may be related to characteristics such as: Denial of hostile or aggressive impulses, perfectionistic tendencies, self-perception as decisive, and self-perception as socially sensitive.

Scale 4 (Psychopathic Deviate)

Pd 1: Familial Discord (9 items). Elevated scores on this subscale may be related to characteristics such as: View of home and family as unpleasant, hostile, or rejecting, view of home situation as lacking in love, critical, and controlling, and the occurrence of frequent quarrels and conflict within the family.

Pd2: Authority Problems (8 items). Elevated scores on this subscale may be related to characteristics such as: History of legal violations and antisocial behaviors, history of conflicts with individuals in authority, and resentful of societal standards, customs, or norms.

Pd3: Social Imperturbability (6 items). Elevated scores on this subscale may be related to characteristics such as: Denial of social anxiety and dependency needs,

social extroversion and social confidence, and the tendency to hold strong opinions that are vigorously defended.

Pd4: Social Alienation (12 items). Elevated scores on this subscale may be related to characteristics such as: Feeling misunderstood, alienated, and isolated, feelings of loneliness, unhappiness, and estrangement from others, the tendency to blame others for problems or conflicts, and feelings of despondency and sadness.

Pd5: Self-Alienation (12 items). Elevated scores on this subscale may be related to characteristics such as: Emotional discomfort and unhappiness, problems with concentration and attention, feelings of guilt, regret, and remorse, possibility of excessive alcohol use.

Scale 6 (Paranoia)

Pa1: Persecutory Ideas (17 items). Elevated scores on this subscale may be related to characteristics such as: A sense of being treated unfairly by others, externalization of blame for problems and frustrations, use of projection, possible presence of persecutory ideas and delusions of persecution.

Pa2: Poignancy (9 items). Elevated scores on this subscale may be related to characteristics such as: View of self as sensitive, high-strung, and easily hurt, belief that one feels emotions more intensely than do others, loneliness, sadness, and a sense of being misunderstood, self-perception of uniqueness or specialness.

Pa3: Naïveté (9 items). Elevated scores on this subscale may be related to characteristics such as: Naively trusting and optimistic, denial of hostile or cynical feelings or attitudes, presentation of high moral or ethical standards, unlikely to act impulsively.

Scale 8 (Schizophrenia)

Sc1: Social Alienation (21 items). Elevated scores on this subscale may be related to characteristics such as: Lack of rapport with others, avoidance of social situations and withdrawal from relationships, sense of being misunderstood, unfairly criticized, or unjustly punished by others, and hostility or anger toward family members.

Sc2: Emotional Alienation (11 items). Elevated scores on this subscale may be related to characteristics such as: Feelings of self-criticalness, despondency, depression, and despair, possibility of suicidal ideation, view of life as difficult or hopeless, possibility of sadistic or masochistic experiences.

Sc3: Lack of Ego Mastery-Cognitive (10 items). Elevated scores on this subscale may be related to characteristics such as: Admission of strange thought processes, feelings of unreality, and problems in concentration and attention.

Sc4: Lack of Ego Mastery-Conative (14 items). Elevated scores on this subscale may be related to characteristics such as: Feelings of psychological weakness and vulnerability, problems with concentration and attention, lack of energy and psychological inertia, and guilt, despondency, depression, and possible suicidal ideation.

Sc5: Lack of Ego Mastery-Defective Inhibition (11 items). Elevated scores on this subscale may be related to characteristics such as: Loss of control over emotions and impulses, restlessness, irritability, and hyperactivity, episodes of uncontrollable laughing or crying, and possible dissociative experiences or symptoms.

Sc6: Bizarre Sensory Experiences (20 items). Elevated scores on this subscale may be related to characteristics such as: Strange or unusual sensory

experiences, loss of emotional control, and the occurrence of a variety of neurological symptoms including paralysis, loss of balance, or involuntary muscular movements.

Scale 9 (Hypomania)

Ma1:Amorality (6 items). Elevated scores on this subscale may be related to characteristics such as: A tendency to perceive others as motivated by selfishness and self-gain, endorsement of antisocial or asocial attitudes, beliefs, or behaviors, and drug abuse.

Ma2:Psychomotor Acceleration (11 items). Elevated scores on this subscale may be related to characteristics such as: Acceleration of thought or speech, tension, restlessness, and hyperactivity, need to seek out excitement and stimulation, and attraction to sensation-seeking and risk-taking behaviors.

Ma3:Imperturbability (8 items). Elevated scores on this subscale may be related to characteristics such as: Denial of social anxiety, comfort and confidence in social situations, freedom or independence from the influence of the opinions of others, and tendency to seek out excitement.

Ma4:Ego Inflation (9 items). Elevated scores on this subscale may be related to characteristics such as: Feelings of self-importance, possibly including grandiosity, and resentment of perceived demands or interference by others.

Scale 0 (Social Introversion)

Si1: Shyness/Self Consciousness (14 items). Elevated scores on this subscale may be related to characteristics such as: Shy around others and easily embarrassed, ill at ease in social situations, and uncomfortable in new situations.

Si2: Social Avoidance (8 items). Elevated scores on this subscale may be related to characteristics such as: Dislike or avoidance of social activities and avoidance of contact or involvement with others.

Si3: Alienation - Self and Others (17 items). Elevated scores on this subscale may be related to characteristics such as: Low self-esteem and poor self-concept, self-critical and lack of confidence in judgment, nervous, fearful, and indecisive, and suspicious or fearful of others.

In terms of convergent validity, the following CBCL and YSR subscale descriptions provided by Achenbach and Rescorla (2001) were used and a summary of the content of each scale is provided below. The number of items that appear on each subscale is also provided.

Anxious/Depressed (16 items). Elevated scores on this scale are related to: Feelings of worthlessness, anxiety, self-consciousness, fearing criticism, suicidal thoughts, guilt, and perfectionism.

Withdrawn/Depressed (8 items). Elevated scores on this scale are related to: Anhedonia, social isolation, fatigue, and sadness.

Somatic Complaints (11 items). Elevated scores on this scale are related to: Various physical complaints such as stomach upset, aches and pains, etc.

Social Problems (11 items). Elevated scores on this scale are related to: Suspiciousness of others, trouble making friends, social dependency, and not being liked by others.

Thought Problems (15 items). Elevated scores on this scale are related to: Rumination, lack of impulse control, and bizarre ideas and behavior.

Attention Problems (26 items). Elevated scores on this scale are related to: Difficulty finishing tasks, impulsivity, difficulty sitting still, inattention, underachievement, and disrupting others' tasks.

Rule-Breaking Behavior (18 items). Elevated scores on this scale are related to: Various antisocial behaviors such as stealing, breaking rules such as skipping school and using illegal substances, and destroying property.

Aggressive Behavior (21 items). Elevated scores on this scale are related to: Verbal and physical aggression, and disobedience.

Finally, the following DBRS subscale descriptions provided by Barkley (1998) will be used. Syndrome scale descriptions were taken directly from this source (pp.211-215). The number of items that appear on each subscale is provided.

Attention Deficit Hyperactivity Disorder (ADHD) scale (18 items). Elevated scores on this scale are based on items that mirror DSM-IV criteria for ADHD. Nine items assess the nine DSM-IV inattention symptoms of the disorder and nine items assess the nine DSM-IV hyperactivity and impulsivity symptoms. Examples of items include: failing to give close attention to details, difficulty sustaining attention, easily distracted, difficulty organizing tasks, fidgets with hands, leaves seat in the classroom, runs or climbs excessively, talks excessively, difficulty engaging in leisure activities quietly.

Oppositional Defiant Disorder (ODD) scale (8 items). Elevated scores on this scale are based on items that mirror the eight DSM-IV criteria for ODD. Examples of items include: Often loses temper, often argues with adults, often deliberately annoys people, often angry and resentful, often spiteful or vindictive.

Conduct Disorder (CD) scale (15 items). Elevated scores on this scale are based on items that mirror the fifteen DSM-IV criteria for CD. Items are based on four major overarching categories of CD which include aggression to people and animals, destruction of property, deceitfulness or theft, and serious violations of rules. Examples of items include: Often bullies, threatens, or intimidates others, has been physically cruel to people, has forced someone into sexual activity, has deliberately engaged in fire setting with the intention of causing serious damage, has broken into someone else's house, building, or car, often stays out at night despite parental prohibitions.

CHAPTER III

RESULTS

Gender Differences

Chi-square tests were performed to determine if there are there are gender differences in terms of current and historical legal charges and mental health diagnoses. Results of chi-square tests for current legal charges show no gender differences for assault charges ($\chi^2 (1, N = 496) = .06, ns$), status offense charges ($\chi^2 (1, N = 496) = 2.51, ns$), miscellaneous charges ($\chi^2 (1, N = 496) = .08, ns$), violent crime ($\chi^2 (1, N = 496) = 3.12, ns$), and weapons charges ($\chi^2 (1, N = 496) = 2.13, ns$). Gender differences were found on current CHINS charges ($\chi^2 (1, N = 496) = 42.57, p < .001$), with boys having 73.6% of these charges versus 26.4% of girls; property charges ($\chi^2 (1, N = 496) = 9.88, p < .05$), with 60.7% boys versus 39.3% of girls charged; theft charges ($\chi^2 (1, N = 496) = 22.37, p < .001$), with boys incurring 58.5% of these charges versus 41.5% of girls; alcohol and/or drug charges ($\chi^2 (1, N = 496) = 5.88, p < .001$), with boys responsible for 61.3% of these charges versus 38.7% of girls; and sexual offense charges ($\chi^2 (1, N = 496) = 13.28, p < .001$) with boys having 61.3% of these charges versus 38.7% for girls.

Historical legal charges were also examined for gender differences. There were no gender differences found on any of the historical legal charges including assault charges ($\chi^2 (1, N = 295) = .00, ns$), CHINS charges ($\chi^2 (1, N = 295) = .16, ns$), property charges ($\chi^2 (1, N = 295) = .338, ns$), status offense charges ($\chi^2 (1, N = 295) = .76, ns$), theft charges ($\chi^2 (1, N = 295) = 1.18, ns$), bad conduct charges ($\chi^2 (1, N = 295) = .32, ns$), drug and/or alcohol charges ($\chi^2 (1, N = 295) = 1.61, ns$), sexual offense charges ($\chi^2 (1, N = 295) = 1.61, ns$), sexual offense charges ($\chi^2 (1, N = 295) = 1.61, ns$).

= 295) = 3.42, *ns*), weapons charges (χ^2 (1, N = 295) = 1.61, *ns*) or violent crime charges (χ^2 (3, N = 496) = 5.19, *ns*).

Finally, mental health diagnoses were examined for the presence of gender differences. No gender differences were found with regard to Bipolar Disorder (χ^2 (1, N = 496) = .82, *ns*) or Relational Problems (χ^2 (1, N = 496) = 1.33, *ns*). Significant gender differences were found for Anxiety Disorders (χ^2 (1, N = 496) = 15.35, $p < .001$), 36% boys and 63.6% girls; Substance Use Disorders (χ^2 (1, N = 496) = 5.89, $p < .05$), 69.4% boys and 31% girls, Depression Disorders (χ^2 (1, N = 496) = 5.22, $p < .05$), 57.3% boys and 42.7% girls, Adjustment Disorders (χ^2 (1, N = 496) = 6.21, $p < .05$), 50% boys and 50% girls, Abuse Disorders (χ^2 (1, N = 496) = 18.43, $p < .001$), 37.5% boys and 62.5% girls, Impulse Control/Behavioral Disorders (χ^2 (1, N = 496) = 6.66, $p < .001$), 66.8% boys and 33.2% girls, Attention Deficit/Hyperactivity Disorders (χ^2 (1, N = 496) = 8.30, $p < .01$), 77% boys and 23.6% girls, and Learning Disorders (χ^2 (1, N = 496) = 6.38, $p < .05$), 77.1% boys and 22.9% girls.

Internal Analyses

Table 2-A displays the intercorrelation matrix of boys' scores on the Harris-Lingoes subscales. The smallest correlations occurred between scores from subscales D1 and Pa3, D2 and Sc5, Pd1 and Pa3, Pd2 and Sc1, Pd3 and Ma1, Pa3 and Sc6, and Si2 and Si3 ($r = .00$). The largest correlation occurred when scores from subscale D1 were correlated with subscale D4 ($r = .88$). Of the overall intercorrelations ($n = 485$), 141 (29%) were between $r = .00$ and $r = .20$, 160 (33%) were between $r = .21$ and $r = .40$, 157 (32%) were between $r = .41$ and $r = .69$, and 27 (6%) were between $r = .70$ and $r = .90$.

Table 2-B displays the intercorrelation matrix of girls' scores on the Harris-Lingoes subscales. The smallest correlations occurred between scores from subscales D3 and Sc5, Pa3 and Pd2, Pd1 and Si2, and Si2 and Si3 ($r = .00$). The largest correlation for girls also occurred when scores from subscale D1 were correlated with subscale D4 ($r = .88$). Of the overall intercorrelations ($n = 485$), 151 (31%) were between $r = .00$ and $r = .20$, 157 (32%) were between $r = .21$ and $r = .40$, 156 (32%) were between $r = .41$ and $r = .69$, and 21 (4%) were between $r = .70$ and $r = .90$ (percentages based on rounded values).

Correlations between scores on the CBCL and YSR were computed for each gender and are presented in Table 3. For the CBCL and YSR Syndrome scales, correlations on the corresponding CBCL and YSR scales (e.g., CBCL Withdrawn/Depressed scale correlated with YSR Withdrawn/Depressed scale) for boys' scores ranged from $r = .15$ on the Withdrawn/Depressed scales to $r = .47$ on the Rule Breaking Behavior scales. Correlations on the identical CBCL and YSR scales for girls' scores ranged from $r = .22$ on the Thought Problems scales to $r = .44$ on the Rule Breaking Behavior scale. Correlations were highest on the Rule Breaking Behavior scales of the CBCL and YSR. Correlations between CBCL and YSR scales overall for boys ranged from $-.01$ between the Withdrawn/Depressed scale of the CBCL and the Social Problems scale of the YSR to $.43$ between the Externalizing composite scale of the CBCL and the Rule Breaking Behavior scale on the YSR. For girls' scores, the weakest correlation was $r = -.01$ between the CBCL Rule Breaking Behavior scale on the CBCL and the Somatic Complaints scale of the YSR and $r = .01$ between the CBCL Somatic Complaints scale and the Rule Breaking Behavior scale of the YSR. The strongest

correlation was $r = .39$ between the Anxious/Depressed scale of the CBCL and the Social Problems scale of the YSR.

Correlations between the DSM-oriented CBCL and YSR scales are also presented in Table 3. For boys, correlations on the scales common to the CBCL and YSR ranged from $r = .19$ on the Anxiety Problems scales to $r = .44$ on the Oppositional Defiant Disorder scales. Correlations on the identical CBCL and YSR scales for girls' scores ranged from $r = .22$ on the Somatic Problems scales to $r = .38$ on both the Affective Problems and Conduct Problems scales. Correlations between the CBCL and YSR scales overall for boys ranged from $r = .02$ between the Conduct Problems scale of the CBCL and the Anxiety Problems scale of the YSR to $r = .34$ between both the Conduct Problems scale of the CBCL and the Oppositional Defiant Disorder scale on the YSR and between the Oppositional Defiant Disorder scale on the CBCL and the Conduct Problems scale of the YSR. For girls' scores, the weakest correlation was $r = .02$ between the CBCL Anxiety Problems scale on the CBCL and the Conduct Disorder scale of the YSR. The strongest correlation was $r = .34$ between the Conduct Disorder scale of the CBCL and the Oppositional Defiant Disorder scale of the YSR.

Mean T-scores, alpha coefficients, and the percentage of adolescents producing a mean elevation (elevations are represented by a T-score ≥ 65) on each scale are presented by gender in Table 4.

Handel et al. (2010) found that mean profiles on the MMPI-A Clinical scales were within normal limits for boys and girls. In the present study, mean profile scores for the Harris-Lingoes subscales were also within normal limits for boys and girls (i.e., T-score < 65). However, moderate mean elevations for boys (T-score = 62.8) and girls (T-score =

64.2) occurred on subscale Pd2. Overall, the lowest and highest mean scores produced on the Harris-Lingoes subscales ranged from 44.5 ($SD = 9.9$) for girls on subscale Ma2 to 64.2 ($SD = 8.7$) for girls on subscale Pd2. Overall, boys' mean scores ranged from 45.7 ($SD = 45.7$) on subscale Ma2 to 62.8 ($SD = 8.7$) on subscale Pd2. The lowest alpha coefficients overall for the Harris-Lingoes subscales occurred on subscales D3 for boys (.01) and Pd2 for girls (.00). The highest alpha coefficients were on subscales Sc6 and Si3 for boys (.74) and on subscale Hy3 for girls (.78). Overall, the most frequently elevated scale for both boys (46.0 percent) and girls (58.6 percent) was Pd2 and the most frequently elevated scales were Si1 for both boys and girls (2.2 percent for both) and Pa3 for girls (2.2 percent).

Table 4

Percentages of Elevated Cases, Alpha Coefficients, Mean scale score and SDs

Scale	Boys (n=315)				Girls (n=181)			
	Mean (SD)	Alpha	% \geq 65	SEM	Mean (SD)	Alpha	% \geq 65	SEM
D1	55.8 (9.38)	.56	20.3	6.2	56.2 (11.3)	.72	18.8	6.0
D2	52.4 (10.0)	.27	14.9	8.5	52.2 (10.9)	.26	11.0	9.4
D3	57.0 (9.7)	.01	19.4	9.7	57.8 (10.6)	.29	17.1	8.9
D4	51.8 (11.3)	.66	10.2	6.6	52.5 (11.9)	.73	17.7	6.2
D5	51.0 (10.3)	.59	13.7	6.6	51.4 (10.8)	.66	17.7	6.3
Hy1	54.9 (8.2)	.45	17.5	6.1	54.4 (8.6)	.55	19.3	5.8
Hy2	50.1 (9.7)	.53	7.0	6.7	47.8 (8.9)	.47	2.8	6.5
Hy3	50.5 (10.9)	.69	14.0	6.1	53.0 (12.3)	.78	22.7	5.8

Table 4 (Continued)

Scale	Boys (n=315)				Girls (n=181)			
	Mean (SD)	Alpha	% \geq 65	SEM	Mean (SD)	Alpha	% \geq 65	SEM
Hy4	51.5 (9.6)	.63	7.9	5.8	51.2 (10.5)	.71	9.9	5.7
Hy5	50.7 (10.2)	.18	12.4	9.2	45.4 (10.0)	.18	5.5	9.1
Pd1	53.6 (9.1)	.26	8.9	7.8	53.8 (9.4)	.45	17.7	7.0
Pd2	62.8 (8.7)	.16	46.0	8.0	64.2 (8.7)	.00	58.6	8.7
Pd3	54.5 (9.4)	.49	16.8	6.7	54.7 (8.8)	.47	18.8	6.4
Pd4	54.1 (11.0)	.58	14.6	7.1	55.4 (10.4)	.57	18.8	6.8
Pd5	53.8 (9.9)	.59	17.8	6.3	56.0 (10.0)	.63	19.3	6.1
Pa1	56.2 (10.4)	.66	17.8	6.1	57.9 (10.3)	.64	17.7	6.2
Pa2	47.7 (11.2)	.48	8.6	8.1	49.2 (10.7)	.58	8.8	6.9
Pa3	46.5 (10.5)	.55	7.3	7.0	45.2 (8.5)	.42	2.2	6.5
Sc1	52.4 (11.0)	.69	11.4	6.1	53.3 (10.2)	.64	16.0	6.1
Sc2	50.4 (10.0)	.50	6.7	7.1	52.9 (10.5)	.53	9.4	7.2
Sc3	50.3 (9.8)	.64	8.9	5.9	51.7(11.6)	.77	7.2	5.6
Sc4	49.4 (10.5)	.69	12.4	5.8	51.9 (11.1)	.73	13.8	5.8
Sc5	47.7 (10.7)	.66	6.3	6.2	46.9 (9.8)	.61	14.4	6.1
Sc6	50.1 (10.5)	.74	7.9	5.4	50.0 (10.5)	.76	9.9	5.1
Ma1	54.5 (10.2)	.42	22.5	7.8	54.9 (10.1)	.25	13.8	8.7
Ma2	45.7 (9.9)	.50	2.5	7.0	44.5 (9.9)	.43	0.6	7.5

Table 4 (Continued)

Scale	Boys (n=315)				Girls (n=181)			
	Mean (SD)	Alpha	% \geq 65	SEM	Mean (SD)	Alpha	% \geq 65	SEM
Ma3	56.6 (9.7)	.21	19.4	8.6	55.4 (10.0)	.26	9.9	8.6
Ma4	50.2 (9.5)	.38	4.8	7.5	53.1 (9.5)	.28	3.9	8.1
Si1	45.9 (8.5)	.60	2.2	5.4	46.5 (9.2)	.73	2.2	4.8
Si2	49.4 (9.3)	.65	8.9	5.5	52.4 (11.8)	.76	14.9	5.8
Si3	50.0 (10.0)	.74	8.9	5.1	51.9 (8.8)	.69	7.2	4.9

Note. Means are based on unrounded, untruncated T-scores. SEM = Standard Error of Measurement; D1 = Subjective Depression; D2 = Psychomotor Retardation; D3 = Physical Malfunctioning; D4 = Mental Dullness; D5 = Brooding; Hy1 = Denial of Social Anxiety; Hy2 = Need for Affection; Hy3 = Lassitude-Malaise; Hy4 = Somatic Complaints; Hy5 = Inhibition of Aggression; Pd1 = Familial Discord; Pd2 = Authority Problems; Pd3 = Social Imperturbability; Pd4 = Social Alienation; Pd5 = Self Alienation; Pa1 = Persecutory Ideas; Pa2 = Poignancy; Pa3 = Naivete; Sc1 = Social Alienation; Sc2 = Emotional Alienation; Sc3 = Lack of Ego Mastery Cognitive; Sc4 = Lack of Ego Mastery Cognitive; Sc5 = Lack of Ego Mastery Defective Inhibition; Sc6 = Bizarre Sensory Experiences; Ma1 = Amorality; Ma2 = Psychomotor Acceleration; Ma3 = Imperturbability; Ma4 = Ego Inflation; Si1 = Shy/Self Consciousness; Si2 = Social Avoidance; Si3 = Alienation Self/Others.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 2 (D) (i.e., D1, D2, D3, D4, and D5), lowest mean scores for both boys and girls were produced on subscales D5 and the highest scores for both boys and girls were produced on subscale D3. Boys' scores ranged from 51.0 (10.3) on D5 to 57.0 (9.7) on D3. Girls' scores ranged from 51.4 (10.8) on D5 to 57.8 (10.6) on D3. Alpha coefficients produced by boys' scores ranged from .01 on D3 to .66 on D4. For girls, alphas ranged from .26 on D2 to .73 on D4. The most frequently elevated subscale for both boys and girls was D1 (20.3 and 18.8 percent, respectively) and the least frequently elevated scores for boys was D4 (10.2 percent) and D2 for girls (11.0 percent). Standard errors of measurement ranged from 6.2 on D1 to 9.7 on D3 for boys and from 6.0 on D1 to 9.4 on D2 for girls.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 3 (Hy) (i.e., Hy1, Hy2, Hy3, Hy4, and Hy5), lowest mean scores for boys and girls were produced on subscales Hy2 and Hy5, respectively, and the highest scores for both boys and girls were produced on subscale Hy1. Boys' scores ranged from 50.1 (9.7) on Hy2 to 54.9 (8.2) on Hy1. Girls' scores ranged from 45.4 (10.0) on Hy5 to 54.4 (8.6) on Hy1. Alpha coefficients were lowest on subscale Hy5 (.18 for boys and girls) and highest on subscale Hy3 (.69 for boys and .78 for girls.) The most frequently elevated Hy subscale for boys and girls was Hy2 (7.0 and 2.8 percent, respectively), and the most frequent mean elevations occurred for both genders on Hy1 (17.5 and 19.3 percent, respectively). Standard errors of measurement ranged from 5.8 on Hy4 to 9.2 on Hy5 for boys and from 5.7 on Hy4 to 9.1 on Hy5 for girls.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 4 (Pd) (i.e., Pd1, Pd2, Pd3, Pd4, and Pd5), the highest mean scores for both boys and girls occurred on this set of subscales. The lowest mean scores for both boys and girls were produced on subscale Pd1 and the highest scores for both boys and girls were produced on subscale Pd2. Boys' scores ranged from 53.6 (9.1) on Pd1 to 62.8 (8.7) on Pd2. Girls' scores ranged from 53.8 (9.4) on Pd1 to 64.2 (8.7) on Pd2. Alpha coefficients for the Pd subscales were lowest on subscale Pd2 for boys (.16) and girls (.00) and highest on subscale Pd5 for boys (.59) and girls (.63). The least frequently elevated subscale for boys and girls occurred on Pd (8.9 and 17.7 percent, respectively). Almost half of boys (46.0) and well over half of girls (58.6) elevated subscale Pd2. Standard errors of measurement ranged from 6.7 on Pd5 to 8.0 on Pd2 for boys and from 6.1 on Pd5 to 7.0 on Pd1 for girls.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 6 (Pa) (i.e., Pa1, Pa2, and Pa3), lowest mean scores for both boys and girls were produced on subscale Pa3 and the highest scores for both boys and girls were produced on subscale Pa1. Boys' scores ranged from 46.5 (10.5) on Pa3 to 56.2 (10.4) on Pa1. Girls' scores ranged from 45.2 (8.5) on Pa3 to 57.9 (10.3) on Pa1. On the Pa subscales, alpha coefficients produced by boys' scores ranged from .48 on Pa2 to .66 on Pa1. For girls, alphas ranged from .42 on Pa3 to .64 on Pa1. For the Pa subscales, Pa3 was the least frequently elevated subscale for boys (7.3 percent) and girls (2.2 percent), and Pa1 was the most frequently elevated subscale for boys (17.8 percent) and girls (17.7 percent.) Standard errors of measurement ranged from 6.1 on Pa2 to 8.1 on Pa2 for boys and from 6.2 on Pa1 to 6.9 on Pa2 for girls.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 8 (Sc) (i.e., Sc1, Sc2, Sc3, Sc4, Sc5, and Sc6), lowest mean scores for both boys and girls were produced on subscale Sc5 and the highest scores for both boys and girls were produced on subscale Sc1. Boys' scores ranged from 47.7 (10.7) on Sc5 to 52.4 (11.0) on Sc1. Girls' scores ranged from 46.9 (9.8) on Sc5 to 53.3 (10.2) on Sc1. Boys' scores produced a range of alpha coefficients from .50 for Sc2 to .74 for Sc6. Alpha coefficients for girls ranged from .53 on Sc2 to .77 on Sc3. The least frequently elevated Sc subscale was Sc5 for boys (6.3 percent) and Sc2 for girls (9.4). For boys, Sc4 was most frequently elevated at 12.4% and 16% of the profiles were elevated on Sc1 for girls. Standard errors of measurement ranged from 5.4 on Sc6 to 7.1 on Sc2 for boys and from 5.1 on Sc6 to 7.2 on Sc2 for girls.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 9 (Ma) (i.e., Ma1, Ma2, Ma3, and Ma4), lowest mean scores for both boys and girls were produce on subscale Ma2 and the highest scores for both boys and girls were produced on subscale Ma3. Boys' scores ranged from 45.7 (9.9) on Ma2 to 56.6 (9.7) on Ma3. Girls' scores ranged from 44.5 (9.9) on Ma2 to 55.4 (10.0) on Ma3. Alphas for boys ranged from .21 on Ma3 to .50 on Ma2, and the alphas for girls ranged from .25 on Ma1 to .43 on Ma2. The least frequently elevated subscale for the Ma subscale grouping was Ma2 (2.5 percent for boys and .6 percent for girls). The most frequently elevated subscale for boys (22.5 percent) and girls (13.8 percent) was Ma1. Standard errors of measurement ranged from 7.0 on Ma2 to 8.6 on Ma3 for boys and from 7.5 on Ma2 to 8.7 on Ma1 for girls.

For mean profile Harris-Lingoes subscale scores that correspond to the Clinical Scale 0 (Si) parent Clinical scale (i.e., Si1, Si2, and Si3), lowest mean scores for both boys and girls were produced on subscale Si1 and the highest scores for both boys and girls were produced on subscales Si3 and Si2, respectively. Boys' scores ranged from 45.9 (8.5) on Si1 to 50.0 (10.0) on Si3. Girls' scores ranged from 46.5 (9.2) on Si1 to 52.4 (11.8) on Si2. Alpha coefficients for boys ranged from .60 on Si1 to .74 on Si3, and girls ranged from .69 on Si3 to .76 on Si2. Si1 was the least frequently elevated subscale for both boys and girls (2.2 percent for both). Si2 and Si3 were most frequently elevated for boys (8.9 percent for both) and Si2 was most frequently elevated for girls (14.9 percent). Standard errors of measurement ranged from 5.1 on Si3 to 5.5 on Si2 for boys and from 4.8 on Si1 to 5.8 on Si2 for girls.

Alpha coefficients by gender for the DBRS, CBCL, and YSR are presented in Tables 5, 6, and 7, respectively.

Table 5

DBRS Percentages of Elevated Cases, Alpha Coefficients, Mean scale score and SDs

Scale	Boys (n=255)				Girls (n=148)			
	Mean (SD)	Alpha	% Elev.	SEM	Mean (SD)	Alpha	% Elev.	SEM
Inatt	10.63 (7.10)	.92	*	2.01	9.40 (6.77)	.91	*	2.03
Hyper	8.17 (6.49)	.88	*	2.25	8.24 (6.38)	.88	*	2.21
ODD	3.18 (2.90)	.93	35.2	.77	4.06 (3.13)	.93	38.6	.83
CD	3.28 (2.67)	.73	35.0	1.39	3.80 (2.58)	.69	40.9	1.44

Note. DBRS = Disruptive Behavior Rating Scale; Inatt = ADHD/Inattention; Hyper = ADHD/ Hyperactivity; CD = Conduct Disorder; ODD = Oppositional Defiant Disorder. * = No norms are available for age ranges used in the present study; therefore, percentages will not be provided for these entries. Previously reported by Handel, Archer, Elkins, Mason, and Simonds (2010).

Table 6

CBCL Percentages of Elevated Cases, Alpha Coefficients, Mean scale score and SDs

Scale	Boys (n=260)				Girls (n=151)			
	Mean (SD)	Alpha	% Elev.	SEM	Mean (SD)	Alpha	% Elev.	SEM
W/D	4.09 (3.12)	.74	16.9	1.59	4.33 (2.82)	.68	11.7	1.60
Som	2.64 (2.89)	.74	10.8	1.47	3.54 (3.59)	.80	14.6	1.61
Anx	4.37 (4.15)	.81	11.6	1.81	5.81 (4.60)	.81	12.9	2.01
Soc	3.41 (3.27)	.74	6.6	1.67	4.28 (3.34)	.73	9.0	1.74
Tht	3.91 (3.79)	.73	13.9	1.97	3.93 (3.65)	.71	17.9	1.97
Att	6.70 (4.01)	.78	6.0	1.88	5.40 (3.79)	.78	6.8	1.78
Rule	9.39 (5.74)	.81	23.6	2.50	10.54 (5.59)	.81	40.6	2.02
Agg	11.57 (7.71)	.90	22.3	2.44	14.21 (8.38)	.91	32.9	2.51
Int	11.11 (8.67)	.89	14.9	2.88	13.67 (9.02)	.88	15.7	3.12
Ext	20.95 (12.52)	.92	29.7	3.54	24.76 (12.80)	.92	35.0	3.62
Tot	50.60 (29.38)	.96	19.6	5.88	57.38 (30.25)	.96	28.4	6.05
Aff	4.47 (4.31)	.80	19.9	1.93	5.19 (4.40)	.80	17.2	1.97
Anx P	1.97 (2.07)	.64	9.7	1.24	2.52 (2.19)	.59	7.8	1.40

Table 6 (Continued)

CBCL Percentages of Elevated Cases, Alpha Coefficients, Mean scale score and SDs

Scale	Boys (n=260)				Girls (n=151)			
	Mean (SD)	Alpha	% Elev.	SEM	Mean (SD)	Alpha	% Elev.	SEM
Som P	1.76 (2.08)	.69	7.7	1.16	2.41 (2.57)	.75	13.9	1.29
A/H	4.55 (3.17)	.76	3.2	1.55	4.33 (2.85)	.68	8.9	1.61
OD	5.13 (2.98)	.82	21.9	1.26	5.87 (2.76)	.79	29.3	1.26
Con	9.38 (6.10)	.84	24.3	2.59	10.57 (6.13)	.84	40.1	2.45

Note. CBCL = Child Behavior Checklist; W/D = Withdrawn/Depressed; Som = Somatic Complaints; Anx = Anxious/Depressed; Soc = Social Problems; Tht = Thought Problems; Att = Attention Problems; Rule = Rule-Breaking Behavior; Agg = Aggressive Behavior; Int = Internalizing; Ext = Externalizing; Tot = Total Problems; Aff = Affective Problems; Anx P = Anxiety Problems; Som P = Somatic Problems; A/H = Attention-Deficit/Hyperactivity Disorder; OD = Oppositional Defiant Disorder; Con = Conduct Disorder. Raw score means are reported (raw scores were used for the correlations) , but the % elevated column is based on T-scores > 70. Previously reported by Handel, Archer, Elkins, Mason, and Simonds (2010).

Table 7

YSR Percentages of Elevated Cases, Alpha Coefficients, Mean scale score and SDs

	Boys (n=238)	Girls (n=155)
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Table 7 (Continued)

Scale	Mean (SD)	Alpha	% Elev.	SEM	Mean (SD)	Alpha Elev.	SEM	
W/D	3.71 (2.53)	.60	4.8	1.60	5.38 (3.12)	.72	10.0	1.65
Som	2.77 (2.96)	.76	6.5	1.45	4.78 (3.73)	.78	6.6	1.75
Anx	3.77 (3.61)	.77	3.8	1.73	6.66 (5.07)	.85	7.4	1.96
Soc	3.37 (3.23)	.75	5.3	1.62	3.90 (3.11)	.68	5.6	1.76
Tht	3.88 (3.64)	.75	4.7	1.82	5.32 (4.31)	.77	5.1	2.07
Att	5.00 (3.28)	.73	4.1	1.70	5.29 (3.11)	.70	2.8	1.70
Rule	7.60 (4.36)	.76	10.5	2.14	7.72 (4.22)	.75	6.9	2.11
Agg	9.38 (6.19)	.87	13.0	2.23	12.04 (6.40)	.86	20.3	2.39
Int	10.26 (7.68)	.87	5.4	2.78	16.82 (10.30)	.90	9.2	3.26
Ext	16.98 (9.70)	.90	13.6	3.07	19.76 (9.57)	.88	18.4	3.32
Tot	44.35 (25.21)	.95	8.3	5.64	56.48 (27.74)	.95	10.8	6.20
Aff	3.81 (3.35)	.70	3.1	1.83	6.45 (4.80)	.81	8.5	2.09
Anx P	2.19 (2.04)	.59	3.4	1.31	3.18 (2.25)	.58	2.3	1.46
Som P	1.82 (2.17)	.71	5.4	1.17	3.32 (2.60)	.66	6.7	1.52
A/H	4.02 (2.61)	.66	0.9	1.52	4.67 (2.52)	.61	0.6	1.57
OD	4.22 (2.41)	.71	14.2	1.30	5.25 (2.36)	.70	18.3	1.29
Con	7.01 (4.81)	.83	17.7	1.98	7.57 (4.44)	.77	21.2	2.13

Note. YSR = Youth Self-Report; W/D = Withdrawn/Depressed; Som = Somatic Complaints; Anx = Anxious/Depressed; Soc = Social Problems; Tht = Thought

Problems; Att = Attention Problems; Rule = Rule-Breaking Behavior; Agg = Aggressive Behavior; Int = Internalizing; Ext = Externalizing; Tot = Total Problems; Aff = Affective Problems; Anx P = Anxiety Problems; Som P = Somatic Problems; A/H = Attention-Deficit/Hyperactivity Disorder; OD = Oppositional Defiant Disorder; Con = Conduct Disorder. Raw score means are reported (raw scores were used for the correlations) , but the % elevated column is based on T-scores > 70. Previously reported by Handel, Archer, Elkins, Mason, and Simonds (2010).

External Analyses

Harris-Lingoes and SI subscales with alpha coefficients of below .4 for both boys and girls were dropped from further analyses. Namely, boys' and girls' scores on subscales D2, D3, Hy5, Pd2, Ma3, and Ma4 were dropped as well as boys' scores on subscale Pd1 and girls' scores on subscale Ma1. Alpha coefficients in the .40 range are not uncommon for published and standardly used MMPI-A subscales. For example, multiple MMPI-A Content Component Scales have alpha coefficients in the .40 to .50 range in normative and clinical samples (Ben-Porath, Graham, Archer, Tellegen, & Kaemmer, 2006). Therefore, the use of .40 as a lower bound reflects what occurs in actual clinical practice by psychologists. Of note is in the distribution of alpha coefficients produced by girls' scores, a break in coefficient values occurs between .42 to .29.

Convergent Validity (Disruptive Behavior Rating Scale)

Table 8 presents the zero-order correlations between scores on the Harris-Lingoes subscales and DBRS scales by gender. Representative point estimates and confidence

intervals are listed at the bottom of Table 8. These provide an estimate of sampling error in the present results. To identify predicted relationships between Harris-Lingoes subscales and DBRS scales a priori, the author and the Dissertation Chair of the current study independently inspected the item content of Harris-Lingoes subscales and DBRS scales and compared the independent selections of hypothesized relationships between scales. Conceptually related relationships between Harris-Lingoes subscale and DBRS scale content are underlined in Table 8. Clinically significant relationships ($r \geq .20$) are bolded. Sellbom, Ben-Porath, and Graham (2006) point out that, "Previous MMPI-2 outpatient correlate studies have shown that a meaningful pattern of correlates for MMPI-2 scales occur when an absolute $r \geq .20$ is used. (p. 94)." Therefore, this same standard was employed in the present study. In terms of the hypothesized relationships between the Harris-Lingoes subscales and DBRS scales, the majority of these expected correlations were not clinically significant. For boys, 1/6 (17%), and for girls, 1/4 (25%) of the hypothesized relationships were supported. Expected correlations between the Oppositional Defiant Disorder scale and subscale Pd3 ($r = .05$ and $-.04$) was not clinically significant for boys' or for girls' scores, and Ma1 for boys ($r = .06$) was not clinically significant for boys. Similarly, boys' scores on Ma1 ($r = .03$) were expected to correlate significantly with the Conduct Disorder scale, and these relationships were not statistically significant for boys' scores or for girls' scores, respectively. However, the expected relationship between D4 and the Inattention scale was above $r = .20$ for both boys' and girls' scores ($r = .25$ and $.24$, respectively).

Table 8: Zero-order correlations Harris-Lingoes and DBRS scores by Gender

Scale	Inattention	Hyperactivity	ODD	CD
D1	.19/.14	.17/.10	.14/.08	.12/.01
D4	.25/.24	.23/.17	.18/.12	.17/.04
D5	.09/.13	.08/.11	.13/.05	.09/-.04
Hy1	-.01/-.05	-.05/-.07	.01/-.04	.00/-.05
Hy2	.00/-.02	-.04/-.07	-.10/.09	-.10/.07
Hy3	.25/.15	.20/.13	.17/.20	.15/.14
Hy4	.15/.01	.15/.02	.06/.00	.02/-.02
Pd1	/.27	/.17	/.28	/.20
Pd3	-.01/-.02	-.03/-.02	.05/-.04	.03/-.05
Pd4	-.02/.08	.03/.13	.08/.16	.13/.18
Pd5	.04/.15	.07/.19	.07/.15	.15/.16
Pa1	-.05/-.03	-.01/.03	.00/.09	.07/.08
Pa2	.07/.09	.28/.07	.07/.03	.05/-.03
Pa3	.09/.03	.07/-.02	-.01/.09	.01/.05
Sc1	.13/.18	.11/.20	.12/.23	.13/.09
Sc2	.20/.10	.16/.15	.17/.13	.15/.05
Sc3	.13/.27	.11/.28	.08/.12	.01/.03

Table 8 (Continued)

Scale	Inattention	Hyperactivity	ODD	CD
Sc4	.21/.21	.19/.21	.16/.16	.13/.01
Sc5	.09/.04	.13/.07	.09/-.06	.08/.00
Sc6	.08/.20	.09/.13	.06/.02	.00/-.04
Ma1	.00/	-.02/	<u>.06/</u>	<u>.03/</u>
Ma2	.00/.05	.04/.16	.13/-.04	.12/-.01
Si1	.06/.04	.06/-.02	.03/-.01	-.02/-.06
Si2	-.09/.10	-.11/.08	-.07/.01	.00/-.04
Si3	.02/.19	.05/.22	<u>.06/.09</u>	<u>.07/.07</u>

Note. n=255 for boys; n=148 for girls. Correlations for boys are listed before the backward slash (/) and correlations for girls are listed after the backward slash (/). For boys, representative point estimates with confidence intervals are as follows: r = .02, 95% CI [-.10, .14]; r = .08, 95% CI [-.04, .20]; r = .17, 95% CI [.05, .29]; r = .27, 95% CI [.15, .38]; For girls, r = .02, 95% CI [-.14, .18]; r = .08, 95% CI [-.08, .24]; r = .17, 95% CI [.01, .32]; r = .27, 95% CI [.11, .41]. Correlation coefficients $\geq |.20|$ are bolded.

Underlined scores represent conceptually related scales. DBRS = Disruptive Behavior Rating Scale; Inattention = ADHD/Inattention; Hyperactivity = ADHD/ Hyperactivity; CD = Conduct Disorder; ODD = Oppositional Defiant Disorder; D1 = Subjective

Depression; D2 = Psychomotor Retardation; D3 = Physical Malfunctioning; D4 = Mental Dullness; D5 = Brooding; Hy1 = Denial of Social Anxiety; Hy2 = Need for Affection; Hy3 = Lassitude-Malaise; Hy4 = Somatic Complaints; Hy5 = Inhibition of Aggression; Pd1 = Familial Discord; Pd2 = Authority Problems; Pd3 = Social Imperturbability; Pd4 = Social Alienation; Pd5 = Self Alienation; Pa1 = Persecutory Ideas; Pa2 = Poignancy; Pa3 = Naivete; Sc1 = Social Alienation; Sc2 = Emotional Alienation; Sc3 = Lack of Ego Mastery Cognitive; Sc4 = Lack of Ego Mastery Cognitive; Sc5 = Lack of Ego Mastery Defective Inhibition; Sc6 = Bizarre Sensory Experiences; Ma1 = Amoral; Ma2 = Psychomotor Acceleration; Ma3 = Imperturbability; Ma4 = Ego Inflation; Si1 = Shy/Self Consciousness; Si2 = Social Avoidance; Si3 = Alienation Self/Others. Underlined scores represent conceptually related scales. Bolded scores represent clinically significant scores ($r \geq .20$.)

The predicted positive linear relationships between Harris-Lingoes subscales and the DBRS scales are presented in this paragraph. The predicted correlation between subscale D4 and the ADHD: Inattention scale for both boys and girls resulted in correlations above .20 ($r = .25$ and $.24$, respectively.) The hypothesized correlations between subscales Pd3 and Ma1 for boys with the Oppositional Defiant Disorder (ODD) scale were negligible. For Pd3 and ODD, coefficients were $r = .05$ and $-.04$ for boys and girls, respectively. For Ma1 and ODD the coefficient for boys was $r = .06$.

Discriminant Validity (Disruptive Behavior Rating Scale)

Discriminant validity of Harris-Lingoes subscales with DBRS scales can also be viewed in Table 8. Several subscales produced a number of non-hypothesized

correlations with DBRS scales and exceeded the clinical significance threshold of $r = .20$. For example, subscale Hy3 produced clinically significant correlations with the Inattention and Hyperactivity scales for girls ($r = .25$ and $.20$, respectively) and with the Oppositional Defiant Disorder scale for boys ($r = .20$). Similarly, subscale Sc4 produced clinically significant correlations with the Inattention scale for both genders ($r = .21$) and with the Hyperactivity scale for boys ($r = .21$). Several subscales did not correlate with non-hypothesized scales at the clinical significance level such as subscales Pd3 and Ma1 for boys.

Convergent Validity (Youth Self-Report)

Table 9 displays the zero-order correlations between scores on the Harris-Lingoes subscales and YSR scales by gender. Conceptually related relationships between Harris-Lingoes subscales and YSR scales are underlined in Table 9, and the same aforementioned a priori method of determining these predicted relationships was employed. The a priori cutoff for clinical significance was set at $.40$ for the YSR correlations, and correlations that meet this criterion for clinical significance appear in bold in the table. A value of $.40$ was used in an effort to make some adjustment for the likely influence of common method variance. As noted by Kline (2004), common method variance can inflate correlation coefficient by as much as $r = .30$. This type of adjustment for the possible influence of common method variance has been employed previously (e.g, Green, Handel, & Archer, 2006). Twenty-four of 41 of the hypothesized relationships for boys were supported (59%), and 32 of 37 (86%) of the hypothesized relationships for girls were supported. For the YSR Syndrome Scales, a positive correlation was predicted between the Anxious/Depressed scale with Harris-Lingoes

subscales D1, D4, D5, Pd5, Sc2, Sc4 and Si3. Within these predicted relationships, correlations for both genders were weakest on subscale Sc2 and strongest on subscale D5, and predicted relationships showed moderate correlations for the exception of boys' scores on subscale Sc2. Correlations for boys ranged from $r = .35$ on subscale Sc2 to $r = .54$ for subscale D5. For girls, correlations ranged from $r = .50$ on subscale Sc2 to $r = .70$ on subscale D5. All of these hypothesized relationships met the a priori criterion for clinical significance, except for the relationship between subscale Sc2 and the Anxious/Depressed scale for boys.

Positive correlations were predicted between the YSR Withdrawn/Depressed scale and Harris-Lingoes subscales D1, D4, D5, Sc2, Sc4, Sc2, Sc4, Si1, and Si2. A negative correlation was predicted to occur with Hy1. Predicted correlations for boys ranged from $r = .15$ on Si2 to $r = .49$ on D5. For girls, predicted correlations ranged from $r = .21$ on Si1 to $.61$ on D1. As expected, an inverse relationship occurred with Hy1, with $r = -.39$ for boys and $-.38$ for girls. The majority of these hypothesized relationships met the cutoff for clinical significance except for predicted correlations between the Withdrawn/Depressed scale and subscales Sc2 and Si2 for boys and subscale Si2 for both genders. Though the predicted negative correlation between the Withdrawn/Depressed scale and subscale Hy1 scale did not meet the clinical cutoff value, correlational values for both boys' and girls' scores closely approximated the cutoff value of the absolute value of $r = .40$.

Discriminant Validity (Youth Self-Report)

Discriminant validity of Harris-Lingoes subscales with YSR scales can also be viewed in Table 9. Several subscales produced a number of non-hypothesized

correlations with CBCL scales and exceeded the clinical significance threshold of $r = .40$. For example, subscale D1 produced clinically significant correlations for boys' and girls' scores with the following scales: Anxious/Depressed ($r = .51$ and $.69$, respectively), Withdrawn/Depressed ($r = .48$ and $.61$, respectively), Somatic Complaints ($r = .40$ and $.53$, respectively), Social Problems ($r = .45$ and $.58$, respectively), Thought Problems ($r = .41$ and $.57$, respectively), Attention Problems ($r = .45$ and $.59$, respectively), Internalizing composite ($r = .55$ and $.71$, respectively), DSM-Oriented scales Affective Problems ($r = .51$ and $.72$, respectively), Anxiety Problems ($r = .43$ and $.55$, respectively), and the Externalizing composite ($r = .41$) and DSM-Oriented Somatic Problems ($r = .45$) and Attention Deficit/Hyperactivity problems ($r = .43$) scales for boys. Similarly, subscale Sc3 produced clinically significant correlations with the following scales for boys and girls, respectively: Anxious/Depressed ($r = .47$ and $.58$), Withdrawn/Depressed ($r = .45$ and $.52$), Somatic Complaints ($r = .52$ and $.51$), Social Problems ($r = .41$ and $.52$), Thought Problems ($r = .44$ and $.55$), Attention Problems ($r = .45$ and $.49$), Internalizing composite ($r = .57$ and $.63$), Rule-Breaking Behavior ($r = .42$ for girls), Externalizing composite ($r = .41$ for boys), and DSM-Oriented scales Affective Problems ($r = .57$ and $.69$), Anxiety Problems ($r = .41$ and $.45$), and Somatic Problems ($r = .45$ and $.42$). Several subscales correlated with very few non-hypothesized scales at the clinical significance level such as subscales D3, Hy4, and Sc2.

Convergent Validity (Child Behavior Checklist)

Table 9-B displays the zero-order correlations between scores on the Harris-Lingoes subscales and the CBCL scales by gender. Conceptually related relationships between Harris-Lingoes subscale and CBCL scale content are underlined in Table 9-B,

and the same aforementioned method of determining these predicted relationships a priori was employed. The a priori cutoff for statistical significance was set at .20 for the CBCL correlations, and correlations that meet this criterion for statistical significance appear in bold in the table. Confidence intervals at the bottom of the table provide an estimate of sampling error.

For boys, 20 of 41 (49%) of the hypothesized relationships were supported, and 29 of 37 (78%) of the hypothesized relationships for girls were supported. For the CBCL Syndrome Scales, a positive correlation was predicted between the Anxious/Depressed scale with Harris-Lingoes subscales D1, D4, D5, Pd5, Sc2, Sc4 and Si3. Correlations for boys ranged from $r = .17$ on subscale Si3 to $r = .54$ for subscale D5. For girls, correlations ranged from $r = .17$ on subscale D4 to $r = .30$ on subscale Sc4. The majority of these hypothesized relationships met or exceeded the threshold. The exceptions were found on subscales D4, where only boys' scores met clinical significance, and on subscales Pd5 and Si3, where only girls' scores met clinical significance.

Positive correlations were predicted between the CBCL Withdrawn/Depressed scale and Harris-Lingoes subscales D1, D4, D5, Sc2, Sc4, Sc2, Sc4, Si1, and Si2. A negative correlation was predicted to occur with Hy1. The weakest correlations for both genders occurred on subscale Si2. Predicted correlations for boys ranged from $r = .09$ on Si2 to $r = .49$ on D5. For girls, predicted correlations ranged from $r = .17$ on Si2 to $r = .30$ on Sc4. As expected, a weak to moderate inverse relationship occurred with Hy1, with $r = -.39$ for boys and $r = -.14$ for girls. The majority of these predicted relationships were not at or above the threshold except for girls' scores on subscale Hy1 and boys' scores on Si3.

Positive correlations were predicted between the CBCL Somatic Complaints scale and Harris-Lingoes subscale Hy4. A very weak correlation occurred for boys ($r = .04$) and a modest correlation occurred for girls ($r = .26$). The relationship with subscale Hy4 was only clinically significant for girls' scores.

For the CBCL Social Problems scale, positive correlations were expected to occur with Pd4 and Sc1. For boys' scores, a weak correlation was found for both Pd4 and Sc1 ($r = .01$ and $.15$, respectively). Girls' scores produced a modest correlation for Pd4 and Sc1 ($r = .21$ and $.26$, respectively). For both subscales only girls' scores met the cutoff for clinical significance.

Positive correlations were expected between the CBCL scale Thought Problems and subscale Sc3. Modest to weak correlations were shown for both genders and at $r = .17$ for boys and $.25$ for girls, and these values were not clinically significant. The correlation for girls' scores was clinically significant.

For the CBCL Attention Problems scale, a positive correlation was hypothesized with subscale D4. There was a stronger correlation for boys ($r = .45$) than for girls ($r = .23$), yet the correlation was clinically significant for both genders.

For the Aggressive Behavior scale, a positive relationship was expected to occur with boys' scores on subscale Ma1. A very weak, non-clinically significant correlation occurred ($r = .02$.)

The Internalizing composite scale was expected to correlate positively with D1, D4, D5, Pd5, Sc2, Sc4, Si1, Si2, Si3, Hy4 and to have an inverse relationship with subscale Hy1. Correlations coefficients for boys ranged from $r = .07$ on subscale Si2 to $.55$ on D1. For girls, correlation coefficients ranged from $r = .14$ on subscale Pd5 to $.35$

on subscale Sc4. As expected, a negative correlation occurred for both genders on subscale Hy1 ($r = -.36$ for boys and $-.22$ for girls.) Overall, most expected correlations met the cutoff for statistical significance. However, correlations between the Internalizing composite scale and subscales Hy4, Pd5, and Si3 were only clinically significant for girls.

The Externalizing composite scale was hypothesized to show positive correlations with Ma1 for boys. A weak positive and non-clinically significant correlation was produced for boys ($r = .05$.)

Zero-order correlations were also computed for the CBCL DSM-Oriented scales. The weakest correlations for boys were produced between the Anxiety Problems scale and Pd4 ($r = .00$), between the Somatic Problems scale and Pa1, Pd5, and Si2 ($r = .00$), and between the Conduct Problems scale and Si3. The strongest correlation for boys occurred between the Anxiety Problems scale and Sc4 ($r = .28$). For girls, the weakest correlations were also produced between the Anxiety Problems scale and Ma1 for boys and between the Oppositional Defiant Problems scale and Si2 ($r = .00$).

A priori relationships were hypothesized between the Affective Problems scale and subscales D1, Sc2, and Sc4. For subscale D1, both boys' ($r = .21$) and girls' ($r = .33$) scores reached clinical significance. Similarly, for subscale Sc2, both boys' ($r = .25$) and girls' ($r = .31$) scores reached the cutoff for clinical significance. Finally, both boys' ($r = .23$) and girls' ($r = .36$) scores for subscale Sc4 met the criterion for clinical significance.

For the Somatic Problems scale, Hy4 was expected to show positive correlations with this scale. For boys' scores ($r = .04$) on subscale Hy4 the hypothesized correlation did not meet clinical significance, however, for girls' scores ($r = .23$) the cutoff clinical significance was met.

An expected positive correlation was expected to occur between the Attention Deficit/Hyperactivity scale and subscale D4. This relationship was not clinically significant for boys or girls ($r = .19$ and $.19$, respectively.)

For the Oppositional Defiant Disorder scale, positive relationships were expected to occur between this scale and subscales Pd3 and Ma1 for boys. None of these relationships for either gender met the criterion for clinical significance. For subscale Pd3, $r = .04$ for boys and $.11$ for girls. Lastly, for subscale Ma1, $r = .08$ for boys.

For the Conduct Problems scale, a positive relationship was hypothesized to occur with subscale Ma1 for boys. This relationship was not clinically significant. For subscale Ma1, $r = .02$ for boys.

Highest correlational values for the YSR Somatic Complaints scale and Harris-Lingoes subscales occurred on Hy4 for both genders ($r = .46$ and $.60$, respectively.) All predicted correlations were clinically significant.

For the YSR Social Problems scale, positive correlations were expected to occur with Pd4 and Sc1. Moderate correlations were produced for both genders on both subscales. For Pd4, $r = .43$ for boys and $.44$ for girls. For Sc1, $r = .47$ for boys and $.58$ for girls. All of these hypothesized relationships met the criterion for clinical significance.

Positive correlations were expected between the YSR scale Thought Problems and subscale Sc3. Moderate correlations occurred for both genders and at $r = .49$ for boys and $.58$ for girls and met the criterion for clinical significance.

For the YSR Attention Problems scale, a positive correlation was hypothesized with subscale D4. Moderate correlations were produced for boys at $r = .45$ for boys and $.61$ for girls and were clinically significant.

For the Aggressive Behavior scale, positive relationships were expected to occur with boys' scores on subscale Ma1. A modest correlations occurred, $r = .35$. None of these hypothesized relationships met the criterion for clinical significance.

The Internalizing composite scale was expected to correlate positively with D1, D4, D5, Pd5, Sc2, Sc4, Si1, Si2, Si3, Hy4 and to have an inverse relationship with subscale Hy1. Correlations coefficients for boys ranged from $r = .09$ on subscale Si2 to $.55$ on D1. For girls, correlation coefficients ranged from $r = .20$ on subscale Si2 to $.71$ on subscale D1. As expected, a negative correlation occurred for both genders on subscale Hy1 ($r = -.36$ for boys and $-.44$ for girls.) The majority of the hypothesized relationships between the Internalizing composite of the YSR and designated Harris-Lingoes subscales were clinically significant apart from subscales Sc2, Si1, and Hy1, which were only clinically significant for girls' scores. Additionally, the hypothesized relationship between the Internalizing composite scale and subscale Si2 was not clinically significant for both genders.

The Externalizing composite scale was hypothesized to show a positive correlation with boys' scores on Ma1. Modest to weak positive correlations were produced ($r = .39$.) Neither of these hypothesized relationships was clinically significant.

Zero-order correlations were also computed for the YSR DSM-Oriented scales. The weakest correlations for boys were produced between the Somatic Problems scale and Pa3 ($r = .01$), and the Conduct Problems scale and Si2 ($r = -.01$). The strongest

correlation occurred between the Affective Problems scale and Hy3 ($r = .57$). For girls, the weakest correlations were also produced between the Conduct Problems scale and Si2 ($r = .01$). The strongest correlation occurred between the Affective Problems scale and D1 ($r = .72$).

For the DSM-Oriented scales, Affective Problems was hypothesized to show positive correlations with subscales D1, Sc2, and Sc4. For subscale D1, $r = .51$ for boys and $.72$ for girls, meeting the a priori-defined criterion for clinical significance for both genders. For subscale Sc2, $r = .34$ for boys and $.55$ for girls, indicating that this hypothesized correlation was only clinically significant for girls. For subscale Sc4, $r = .51$ for boys and $.69$ for girls, and both of these values met the criterion for clinical significance.

The Somatic Problems scale was expected to correlate positively with Hy4. The correlation was clinically significant for both genders ($r = .42$ for boys and $.56$ for girls.)

The Attention Deficit/Hyperactivity Problems scale was expected to result in a positive relationship when correlated with subscale D4. Girls' scores met the criterion for clinical significance ($r = .45$) but boys' scores did not ($r = .34$).

The Oppositional Defiant Disorder Problems scale was hypothesized to show a positive relationship with subscales Pd3 and Ma1 for boys. None of the hypothesized relationships were clinically significant for boys' or girls' scores on subscale Pd3 ($r = -.05$ and $-.03$, respectively) nor on Ma1 for boys ($r = .28$).

For the Conduct Problems scale, Ma1 was expected to result in a positive correlation for the boys' scores, but was not clinically significant ($r = .37$).

Discriminant Validity – CBCL

Discriminant validity of Harris-Lingoes subscales with CBCL scales can also be viewed in Table 9-B. Several subscales produced a number of non-hypothesized correlations with CBCL scales and exceeded the clinical significance threshold of $r = .20$. For example, subscale D1 produced clinically significant non-hypothesized correlations for boys' and girls' scores with the following scales: Somatic Complaints ($r = .40$ and $.25$, respectively), Social Problems ($r = .45$ and $.21$, respectively), Thought Problems ($r = .41$ and $.20$, respectively), Attention Problems ($r = .45$ for boys), Rule-Breaking Behavior ($r = .35$ for boys), and DSM-Oriented scales Anxiety Problems ($r = .23$ for boys), and Somatic Complaints ($r = .21$ for girls). Similarly, subscale Hy3 produced clinically significant correlations with the following scales for boys and girls, respectively: Anxious/Depressed ($r = .32$ and $.26$), Withdrawn/Depressed ($r = .23$ and $.27$), Somatic Complaints ($r = .23$ for girls), Social Problems ($r = .28$ and $.20$), Thought Problems ($r = .26$ and $.33$), Attention Problems ($r = .24$ for boys), Rule-Breaking Behavior ($r = .21$ for boys), Aggressive Behavior ($r = .23$ for boys), Internalizing composite ($r = .29$ and $.31$), Externalizing composite ($r = .24$ for boys), and DSM-Oriented scales Anxiety Problems ($r = .23$ for boys), and Somatic Problems ($r = .21$ for girls). Several subscales correlated with very few non-hypothesized scales at the clinical significance level such as subscales Hy4.

Multiple Regression Analyses

Finally, the Harris-Lingoes subscales were regressed on the externalizing composite scores of the CBCL by gender using stepwise regression to identify salient predictors of externalizing behavior. Predictor variables were selected for entry into the

model based on the predefined probability criterion of $p < .05$ and were removed from the equation at $p = .10$. The final model indicated that 6% in the variability in boys' caregiver-rated externalizing behavior could be explained by subscales Hy3 and Si2 ($F(2, 257) = 9.95, p < .001$; see Table 10-A). The final model indicated that 9% in the variability in girls' caregiver-rated externalizing behavior could be explained by subscales Pd4 and Hy2 ($F(2, 148) = 6.98, p = .001$; see Table 10-B).

Table 10-A

Stepwise Multiple Regression to Predict Boys' CBCL Externalizing Scores

Variable	Final Beta	p
Hy3	.24	.00
Si2	-.12	.05

Final R² = .06 Final Adj. R² = .05.

Note. $n = 260$

Table 10-B

Stepwise Multiple Regression to Predict Girls' CBCL Externalizing Scores

Variable	Final Beta	p
Pd4	.22	.01
Hy2	.22	.05

Table 10-B (Continued)

Final R² = .09 Final Adj. R² = .07.

Note: n = 151

Harris-Lingoes subscales were also regressed on the externalizing composite scores of the YSR by gender using stepwise regression to identify salient predictors of externalizing behavior. The final model indicated that 41% in the variability in self-report ratings of boys' externalizing behavior could be explained by the combination of subscales Ma2, Ma1, Sc1, Pd3, D4, Sc6, and Si2 ($F(7, 230) = 23.19, p < .001$; see Table 10-C). For girls' scores, the final model indicated that 35% in the variability in self-report ratings of girls' externalizing behavior could be explained by the combination of subscales Sc1, Ma1, D4, and Si2 ($F(4, 150) = 19.94, p < .001$; see Table 10-D).

Table 10-C

Stepwise Multiple Regression to Predict Boys' YSR Externalizing Scores

Variable	Final Beta	<i>p</i>
Ma2	.29	.00
Ma1	.22	.00
Sc1	.23	.001
Pd3	.14	.05
D4	.18	.05
Sc6	.14	.05
Si2	-.13	.05

Final R2 = .41 Final Adj. R2 = .40.

Note: n = 238

Table 10-D

Stepwise Multiple Regression to Predict Girls' YSR Externalizing Scores

Variable	Final Beta	<i>p</i>
Sc1	.51	.00
Ma1	.47	.00
D4	.18	.05
Si2	-.15	.05

Final R2 = .35 Final Adj. R2 = .33.

Note: n = 155

Harris-Lingoes subscales were also regressed on the internalizing composite scores of the CBCL by gender using stepwise regression to identify salient predictors of internalizing behavior. For boys' scores, the final model indicated that 13% in the variability in boys' caregiver-rated internalizing behavior could be explained by the combination of subscales Sc2, Hy3, and Sc6 ($F(3, 256) = 12.90, p < .001$; see Table 10-E). For girls, the final model indicated that 16% in the variability in girls' caregiver ratings of internalizing behavior could be explained by the combination of subscales Sc4 and Hy2 ($F(2, 148) = 13.62, p < .001$; see Table 10-F).

Table 10-E

Stepwise Multiple Regression to Predict Boys' CBCL Internalizing Scores

Variable	Final Beta	<i>p</i>
Sc2	.30	.00
Hy3	.18	.05
Sc6	-.17	.05

Final R² = .13 Final Adj. R² = .12.

Note: n = 260

Table 10-F

Stepwise Multiple Regression to Predict Girls' CBCL Internalizing Scores

Variable	Final Beta	<i>p</i>
Sc4	.35	.00
Hy2	.19	.05

Final R² = .16 Final Adj. R² = .14.

Note: n = 151

Harris-Lingoes subscales were also regressed on the internalizing composite scores of the YSR by gender using stepwise regression to identify salient predictors of internalizing behavior. The final model indicated that 52% in the variability in self-report ratings of boys' internalizing behavior could be explained by the combination of

subscales Sc3, Sc5, Hy3, Pa1, and Ma2 ($F(5, 232) = 50.63, p < .001$; see Table 10-G).

The final model indicated that 61% in the self-report ratings of girls' internalizing behavior could be explained by the combination of subscales D1, Sc3, Hy4, D5, and Sc1 ($F(4, 150) = 58.37, p < .001$.) (see Table 10-H).

Table 10-G

Stepwise Multiple Regression to Predict Boys' YSR Internalizing Scores

Variable	Final Beta	<i>p</i>
Sc3	.61	.00
Sc5	.33	.00
Hy3	.29	.00
Pa1	.15	.01
Ma2	.11	.05

Final R² = .52 Final Adj. R² = .51.

Note: n = 238

Table 10-H

Stepwise Multiple Regression to Predict Girls' YSR Internalizing Scores

Variable	Final Beta	<i>p</i>
Sc3	.47	.00
Hy4	.19	.01
D5	.26	.00
Sc1	.16	.05

Table 10-H (Continued)

Variable	Final Beta	<i>p</i>
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Final R2 = .61 Final Adj. R2 = .60. Note: n = 155

CHAPTER IV

DISCUSSION

The Harris-Lingoes and Si subscales were developed for the MMPI to aid in further interpretation of the Clinical scales. These 28 subscales were rationally-derived subscales, that is, they were developed by inspection of parent Clinical scales and items were grouped with ones similar in content and items that appeared to measure similar constructs (Graham, 2006). Norms were developed specifically for interpretation of the Harris-Lingoes subscales for the adolescent version of the test. Few investigations of the psychometric properties of the Harris-Lingoes and Si subscales have committed to evaluating these subscales since the publication of the MMPI-A, and so little research has shown whether the Harris-Lingoes and Si subscales are useful for their intended purpose. The current study sought to illuminate this issue by investigating the internal and external psychometric properties of the entire set of Harris-Lingoes and Si subscales in a forensic sample of both boys and girls.

Internal Psychometric Properties

No studies to date nor the MMPI-A manual report alpha coefficients for the Harris-Lingoes subscales, so comparing these findings with others' findings is not possible. Nevertheless, as noted in the Standards for Educational and Psychological Testing (1999), the minimum acceptable level of reliability for any index is a matter of professional judgment. In a widely cited and influential methodological article, Schmitt (1995) argued against using a specific cutoff level for alpha coefficients. Schmitt pointed out that, "Classic reliability theory also holds that the upper limit of validity (the relationship between a predictor and criterion) is the square root of the reliability of the

criterion of outcome variables,” and, “Even with a reliability as low as .49, the upper limit of validity is .70 (p. 351).” Schmitt concluded, “When a measure has other desirable properties, such as meaningful content converge of some domain and reasonable unidimensionality, this low reliability may not be a major impediment to its use (p. 352).”

In the case of the MMPI instruments, researchers have long been aware of the limitations of short subscales that are designed to refine the content of longer, more heterogeneous scales (e.g., Butcher et al., 2001). Of course, the primary limitation with short subscales is more limited reliability. For this reason, subscales are only used to form hypothesis about clients when a parent scale is elevated. Further, HL and Si subscales are never used in isolation because any hypotheses generated by these subscales are subsequently confirmed or refuted using other sources of data both within and outside of the MMPI-A. Therefore, the “risk” inherent in using subscales with more limited reliability is much lower than using a single scale with low reliability that is subsequently used to make high impact decisions. For example, if the verbal section of the Graduate Record Examinaton (GRE) had an alpha level of .50 in a number of populations, this would be far more problematic than an alpha level of .50 on a subscale that is only used to refine the content of a longer scale.

Overall, a number of subscales demonstrated internal consistency reliability in a range that is common in the MMPI-A and MMPI-2 literature for short subscales that are not intended to function as stand-alone scales. For example, subscale alpha coefficients in the .40 to .60 range are also common for the standardly used MMPI-A content component scales (Ben-Porath and Sherwood, 1997). In the present study,

approximately two-thirds of the subscales had reliabilities $\geq .50$. Nevertheless, a number of subscales exhibited particularly poor reliability.

For boys' and girls' scores, 20 of the 31 and 19 of the 31 subscales, respectively, possessed alpha coefficients of at least .50, indicating a level of reliability that is common for widely used MMPI-A and MMPI-2 subscales. The highest internal consistency reliability was demonstrated on subscales D4, Hy3, Pd5, and Pa1 for both genders, and on Sc6 and Si3 for boys and on Sc3 and Si2 for girls. The majority of these subscales include at least 12 items, though Sc3 and Si2 contained 10 and eight items, respectively.

Though reasonable reliability in comparison to widely used MMPI-A and MMPI-2 subscales was found on the majority of the subscales, the small number of items on most of the subscales may lend easily to low reliability. Specifically, three of the 31 Harris-Lingoes and Si subscales include 20 or more items, and 12 subscales include 10 or fewer items. For both genders, several subscales in this sample showed particularly poor reliability. For both genders, subscales Hy5 and Pd2 showed very poor reliability in this sample, with alphas near zero. For boys, subscale D3 and subscale D2 for girls also evidenced poor reliability. In terms of the low reliability specifically on subscales Hy5 and Pd2, these subscales purport to measure the ability to inhibit aggression and problems with authority, respectively. Extremely low internal consistency on these two subscales call into question the utility of these two subscales in a forensic population. Subscale D2, which measures aspects related to psychomotor retardation, such as denial of hostile or aggressive impulses and social avoidance, also showed low reliability for girls' scores, which may also call into question the efficacy of this scale in the forensic population.

For the mean scale scores for both genders, the most elevated mean scale scores on the Harris-Lingoes subscales coincided with the most elevated scores on the parent Clinical scales. All profile scores were lower than 65 *T*. For both boys and girls, the only subscale elevated over 60 *T* and the highest mean elevation produced for both genders was Pd2 (Authority Problems). Specifically, both genders produced the highest mean elevation on subscale Pd2, and the highest Clinical scale mean elevation for both genders occurred on scale 4 (Pd), providing some evidence of construct validity for subscale Pd2.

For both genders, the highest subscale scores occurred on subscales D1, Pd2, Pa1, and Ma3 ($T > 55$), and reflect feelings of depression, unhappiness, and lack of energy, preoccupation with and reports of physical problems, a history of legal violations and antisocial behavior, a sense of being treated unfairly and externalizing blame, as well as denial of social anxiety and tendency to seek out excitement. Overall, these results appear to support the construct validity of these scales in this population except for the findings for subscale D1 which encompasses the subjective experience of depression and physical complaints. For girls, two of the highest mean scores occurred on subscales Pd4 and Pd5, which encompass concepts such as feeling misunderstood, alienated, and isolated, as well as experience of emotional discomfort, problems with attention and concentration, and remorse. These findings are also consistent with prior research with adolescent male delinquents. Pena et al. (1996) also reported the highest means in their sample of delinquent boys to occur on subscales Pd2, Pa1, Pd4, and Pd5.

Though the Si subscales did not produce the absolute lowest mean scores for either gender, Si subscale scores were amongst the lowest mean scores produced for both genders, and approximate the lowest score produced on subscale Ma2. For both genders,

the lowest mean subscale scores occurred on Si1, Ma2, Pa2, Pa3, and Sc5 ($T < 50$). These results in general support the construct validity of scales Si1, Pa2, and Pa3, since in a forensic sample of adolescents, one would not expect offending adolescents to report high moral standards, sensitivity, and potential for feelings to be easily hurt. However, low scores on subscales Ma2 and Sc5 show reports of control over emotions and impulses and lack of irritability and hyperactivity as well as lack of sensation-seeking and risk-taking behaviors. The low mean score on Pa3 is consistent with both Gallucci's (1994) and Pena et al.'s similar reports in their delinquent adolescent samples, and with Gallucci's (1994) finding that this subscale is negatively associated with impulsivity. For boys, lowest mean subscale scores also included subscales Sc4 and Si2, indicating a lack of social avoidance behavior and lack of guilt, depression, suicidal tendencies, and lack of psychological weakness or vulnerability. These findings appear intuitive, as delinquent adolescents may have much involvement with peers and much peer influence, and would be expected to report externalizing via delinquent behavior versus internalizing depression, guilt, and turning anger toward the self. For girls, lowest mean subscale scores also included Hy2 and Hy5, as would be expected in an adolescent forensic setting, reported a low degree of denial of aggressive impulses, low social sensitivity, a low need for affection and trusting relationships with others, and a low need to deny negative feelings toward others. Low mean scores for both genders on subscales Pa3 and Si are consistent with Pena et al.'s reports of low subscale scores in their sample of delinquent boys. Also consistent with Pena et al.'s findings is the low mean score on subscale Si2 for boys in the current study's sample of boys. Low means for girls in the current study on subscales Hy2 and Hy5 are also consistent with delinquent boys'

profiles reported by Pena et al. Low girls' mean scores on Hy2 and Hy5 also agree with Galucci's (1994) findings that Hy2 and Hy5 are associated with behavioral overcontrol and with self-criticism and guilt, respectively, for girls, and that these two scales function as inhibitory scales.

For the Harris-Lingoes D subscales (i.e., D1-D5), the current study found slightly higher mean elevations on subscales D1-D5 than were reported by Pena et al. For example, in the current study, 20.3% of boys and 18.8% of girls elevated subscale D1, whereas in Pena et al.'s sample of delinquent boys, only 11.7% of cases were reported to have elevated this subscale. For the Hy subscales (i.e., Hy1-Hy5) Hy1 and Hy2 showed comparable percentages of elevated cases to Pena et al., except for girls' scores on subscale Hy3 which were slightly greater by approximately 10% than boys' scores in the current study and those reported by Pena et al. Boys' percentages reported by Pena et al for subscale Hy4 were approximately 10% higher than boys in the current study. Percentages of elevated cases for boys in the current study (12.4%) were also found to be slightly greater than Pena's reported mean elevations for boys on this scale (1.2%). For the Pd subscales (i.e., Pd1-Pd4), the percentages of elevated cases for both genders in the current study are comparable to the percentages of subscale mean elevations reported by Pena et al for subscales Pd2, Pd3, Pd4, and Pd5 and boys' scores were also comparable on subscale Pd1, yet girls' scores were slightly higher (17.7%) than boys' in the current study (8.9%) and boys' in Pena et al.'s study (9.9%). For the Pa subscales (i.e., Pa1-Pa3), subscales Pa2 and Pa3 produced comparable mean elevations for both genders and were also comparable with reported percentages in Pena et al, with the exception of lower percentages found for both boys (17.8%) and girls (17.7%) in the current study compared

to boys' scores reported by Pena et al (37.0). For the Sc subscales (Sc1-Sc6), both genders produced comparable percentages of elevated cases on each subscale, and these findings were also similar to the percentages reported by Pena et al. Percentages of elevated cases for the Ma subscales (i.e., Ma1-Ma2), subscales Ma2 and Ma3 were found to be similar for both genders in the current study and also comparable to those reported by Pena et al. However, percentages of elevated cases on subscale Ma1 reported by Pena et al (46.3%) were much higher than the percentages for boys (22.5%) and girls (13.8) in the current study, suggesting that in the current study, the percentage of mean elevations on a subscale reflecting amorality, antisocial or asocial attitudes and behaviors may be under-reported for delinquent boys and girls. Moreover, Pena et al.'s reported percentage of mean elevations on subscale Ma4 was also higher (27.2) than found for the boys (4.8%) and girls (3.9%) in the current study, suggesting that less of the sample of delinquent boys and girls from the current study reported ego inflation. Percentages on mean elevations for the Si subscales (Si1-Si3) were low, and were similar for both genders in the current study and also reported by Pena et al.

Intercorrelations for scores on the Harris-Lingoes scales for both genders were computed. The smallest correlation values for boys were between subscales D1 and Pa3, D2 and Sc5, Pd1 and Pa3 and Sc1, Pd3 and Ma1, Pa3 and Sc6, and Si2 and Si3 ($r = .00$). Subscale D1 (Subjective Depression) reflects having feelings of depression whereas and Pa3 (Naivete) reflects denial of negative and hostile feelings. For subscales D2 and Sc5, D2 these subscales also may reflect differing psychological constructs, as they reflect psychomotor retardation and aspects associated with hyperactivity, respectively. There was also no correlation between subscales Pd3 and Ma1. These subscales reflect aspects

of social imperturbability such as extroversion and social confidence, and features of amorality such as antisocial or asocial attitudes and behaviors, respectively. For Pa3 and Sc6, these subscales reflect naivete such as denial of hostile feelings and bizarre sensory and physical experiences as well as loss of emotional control. These subscales may reflect different processes in terms of naivete reflecting an emotional restraint or unwillingness to report or gain insight into negative feelings versus reporting emotional disconstraint and willingness to report odd and unusual symptoms. Girls' scores between the same subscales were cross-referenced to identify any intercorrelation gender differences, and girls' intercorrelations between these subscales were all comparably low (i.e., less than the absolute value of .07).

Both genders' scores on subscales Si2 and Si3 produced a correlation value of zero. Because subscale Si2 (Social Avoidance) may reflect more schizoid processes such as feeling social contact is not needed, Si2 (Alienation- Self and Others) may reflect more of an avoidant psychological process in which an adolescent is driven by a low self-concept and also fears critical attitudes from others. Low subscale intercorrelations for girls' scores were between subscales D3 and Sc5, Pd1 and Si2, and Si2 and Si3 ($r = .00$). For subscales D3 and Sc5, these scales reflect physical malfunctioning and hyperactivity or emotional disinhibition. The lack of correlation between these subscales may indicate that delinquent girls who report expressing emotions and psychomotor agitation may not also require somaticization of suppressed emotion. For Pd1 and Si2, these subscales reflect familial discord and feelings of being alienated from one's own emotions and from others. Boys' scores between the same subscales were cross-referenced to identify any intercorrelation differences, and boys' scores on these subscales were also all

relatively low (i.e., less than the absolute value of .07), except for the correlation between D3 and Sc5 ($r = .23$).

The largest correlation for both boys and girls occurred when scores from subscale D1 (Subjective Depression) were correlated with subscale D4 (Mental Dullness) ($r = .88$ for both genders). Both subscales represent a range along the continuum of classic depressive symptoms and overlap in terms of cognitive symptoms (e.g., attention, concentration, memory, judgment), such as feeling depressed, unhappy, lacking energy and interest in activities, poor attention and concentration from D1 and memory and concentration problems, lack of energy, and difficulty with judgment making decisions from D4.

Due to the relevancy to the sample of delinquent adolescents in this study, the Pd subscales were examined further in terms of their intercorrelations with other subscales. For boys, intercorrelations between the Pd subscales yielded a moderate correlation, ranging from $r = .44$ - $.65$, between subscales Pd5 and Pd1, and Pd4. Perhaps a moderate correlation was not found between these subscales and subscale Pd3 due to the items that reflect aloof indifference and lack of emotional reactivity to others associated with the Pd3-Social Imperturbability subscale, whereas the other Pd subscales reflect both emotional and behavioral response. For girls, similar findings included a moderate intercorrelation between subscales Pd4 and Pd5 ($r = .64$), suggesting a link between social and self-alienation for both genders. For girls, a small negative correlation was identified between subscales Pd3 and both Pd4 and Pd5, and for boys, a small negative correlation was found to exist between subscales Pd3 and Pd4, again, highlighting the possible contrast between the intended social and emotional alienation inherent in the

Pd3-Social Imperturbability subscale and the unintended social and self-alienation reflected in subscales Pd4 and Pd5. Harris-Lingoes Pd subscale intercorrelation values were also examined for Pd subscales and other sets of Harris-Lingoes subscales. For both genders, a high correlation was identified between subscales Pd3 and Hy1 and a high negative correlation between subscales Pd3 and Si1. The high intercorrelation between subscales Pd3 (Social Imperturbability) and Hy1 (Denial of Social Anxiety) is expected given similar concepts related to lack of emotional stimulation in social settings. The negative correlation between Pd3 (Social Imperturbability) and Si1 (Shyness/Self-consciousness) also reflects contradictory subscale content areas. For girls, high positive correlations occurred between subscales, Pd5 (Self-Alienation) and D1 (Subjective Depression), and Pd4 (Social Alienation) and Pa1 (Persecutory Ideas). These findings indicate that for girls, feelings of emotional discomfort, guilt, remorse, and possible alcohol use have a strong relationship with feelings of depression and unhappiness, as the content of these subscales overlaps considerably. As for the strong positive association between Pd4 and Pa1, this finding suggests a strong bi-directional relationship between a sense of being treated unfairly by others and projecting and externalizing blame with feeling misunderstood, alienated, and isolated from others. Finally, for girls, subscale Pd3 was moderately and highly negatively correlated with subscales Si3 and Si1, respectively.

Correlations between scores on CBCL scales and corresponding YSR measures were computed by gender. As expected, low to moderate correlations were found between the majority of parallel scales. For example, correlations of $r = .25$ and $.29$ for boys and girls, respectively occurred between both CBCL and YSR Anxious/Depressed Syndrome scales. Some scale pairs had slightly higher correlations. As examples, YSR

and CBCL Social Problems scales only for girls ($r = .42$), Attention Problems scales for boys and girls ($r = .34$ and $.35$, respectively), for Rule-Breaking Behavior scales for boys and girls ($r = .47$ and $.44$, respectively), and for the Externalizing composite scales ($r = .40$ for boys and $.35$ for girls). One hypothesis that may account for the slightly stronger correlations for these particular scales is that attention problems, rule-breaking and externalizing behaviors as well as social problems for girls may be more evident to the caregivers who are tasked with rating them than other less overt or internal processes. The strongest correlation values for scale combinations other than parallel scales occurred between the YSR Externalizing composite and both CBCL Rule-Breaking Behavior and Aggressive Behavior for both boys and girls and the CBCL Externalizing composite and the YSR Rule Breaking Behavior and Aggressive Behavior scales ranging from $r = .33$ to $.43$ for boys and from $r = .30$ -. 33 for girls. For girls, high correlations also occurred between the YSR Social Problems scale and the Anxious/Depressed, Thought Problems, and Internalizing composite scales ($r = .38$ to $.39$).

Similarly, parallel-version CBCL and YSR DSM-Oriented scales were examined for convergent validity. Low correlations were found on the Anxiety Problems and the Somatic Problems scales for both genders, and on the Affective Problems scale for boys. Slightly higher correlations were found to occur for both genders on the ADHD Problems, ODD Problems, and Conduct Problems scales for both genders, and on the Affective Problems scale for girls.

These results show that both caregiver and self-report measures converge on each other well, especially for constructs of interest given the sample used for the current study. Modest cross-informant correlations are common in assessment research.

Achenbach et al. (2008) reported that correlations of similar (and modest) magnitude are often found between both child-parent ratings and patient-clinician ratings in adults.

External Validity

External measures were used to evaluate the validity of the Harris-Lingoes subscales with both caregiver- and self-report measures. Limited relationships were found between the predicted positive correlations between DBRS scales and Harris-Lingoes subscales. Specifically, weak correlations were found to occur between subscale D4 (Mental Dullness) and the ADHD: Inattention scale, and negligible correlations, which closely approximated zero correlation, were found to occur between subscale Pd3 and the Oppositional Defiant Disorder scale. In terms of the hypothesized relationships between the Harris-Lingoes subscales and DBRS scales, the majority of these expected correlations were not clinically significant, namely between DBRS scales and Harris-Lingoes subscales that gauge externalizing behaviors. However, the expected relationship between D4 and the Inattention scale was clinically significant for both genders.

External validity of the Harris-Lingoes subscales was examined by computing zero-order correlations on scores for both genders between the YSR Syndrome scales and the Harris-Lingoes subscales. The majority of all a priori hypothesized relationships between YSR Syndrome scales and the Harris-Lingoes subscales met statistical significance, indicating satisfactory external validity for many of the Harris-Lingoes subscales. Specifically, subscales D1, D4, D5, Pd5, Sc4, and Si3 were associated with external caregiver ratings on a scale gauging anxiety and depression for both genders. Subscale Sc2 (Emotional Alienation) only met statistical significance for caregiver

ratings of anxiety and depression for girls, but not for boys. Subscales D1, D4, D5, and Sc4 were associated with external caregiver ratings on a scale gauging withdrawn behavior and depression for both genders; however, subscale Sc2 was only clinically significant for caregiver ratings of girls and not of boys, and Si2 did not show convergent validity with internalizing for either gender. Finally, subscale Si1 was not found to be related to withdrawn behavior and depression for either gender on caregiver ratings, and the hypothesized inverse relationship between caregiver ratings of withdrawn and depressed behavior with subscale Hy1 did not meet statistical significance. Subscale Si2 was found to show convergent validity for withdrawn behavior and depression for girls only. Subscale Hy4 for both genders was associated with caregiver ratings of somatic complaints. Subscales Pd4 and Sc1 were found to be associated with caregiver ratings of social problems for both genders, and subscale Sc3 was associated with thought problems for both boys and girls. Subscale D4 reflected caregiver ratings of attention problems for both genders. As hypothesized, subscales D1, D4, D5, Pd5, Sc4, Si3, and Hy4 were shown in caregiver ratings to relate to internalizing psychopathology for both genders. Subscales Sc2 and Si1, and the expected inverse relationship with Hy1 were only clinically significant for girls and not for boys. Further, subscale Si2 was not found to relate in caregiver ratings with internalizing psychopathology.

Though many of the predicted relationships for caregiver ratings of Harris-Lingoes subscales with scales that reflect internalizing psychopathology demonstrated good external validity, caregiver ratings of Harris-Lingoes subscales that reflect externalizing psychopathology were unexpectedly poor.

External validity of the Harris-Lingoes subscales was also evaluated via zero-order correlations of caregiver ratings between Harris-Lingoes subscales and the YSR DSM-Oriented scales. Several hypothesized relationships were found to be clinically significant. Subscales D1 and Sc4 were found to be significantly related to affective problems and girls' scores on subscale Sc2 also showed a clinically significant relationship with affective problems. Attention Deficit/Hyperactivity problems was found to be associated with subscale D4, but only for boys' scores. Finally oppositional defiant problems was expected to be positively related to subscales Pd3 and Ma. None of these expected relationships was found to be clinically significant for either gender.

External validity of the Harris-Lingoes subscales was also examined by computing zero-order correlations on scores for both genders between the self-report CBCL Syndrome scales and the Harris-Lingoes subscales. Overall, most of the hypothesized relationships between self-report scores on the CBCL and the Harris-Lingoes subscales met statistical significance, indicating good external validity. Specifically, subscales D1, D5, Sc2, and Sc4 were found to be correlated with an external measure gauging anxiety and depression. Gender differences were found, indicating that subscale D4 may be better at determining anxiety and depression for boys than for girls, and subscales Pd5 and Si3 are more effective detectors of anxiety and depression for girls. Subscales D1, D4, D5, Sc2, and Sc4 were found to correlate positively with an external measure of withdrawn behavior and depression for both genders. Subscale Hy1 may be more effective of identifying withdrawn behavior and depression for boys, and Si 2 was not effective for either gender in identifying withdrawn behavior and depression. Subscales Pd4 and Sc1 were found to identify social problems for girls, but were not

especially helpful for identifying social problems for boys. Similarly, subscale Sc3 was a more effective measure for thought problems for girls but not for boys. However, subscale D4 showed good external validity for both genders on a measure of attention problems. As expected, subscales D1, D4, D5, Sc2, and Sc4 were effective measures of internalizing psychopathology, and subscale Hy1 demonstrated good divergent validity, as it showed a negative relationship with internalizing psychopathology as hypothesized. Neither subscales Si1 nor Si2 demonstrated effective relationships with internalizing for either gender. Findings indicate that subscales Hy4, Pd5, and Si3 were more effective for girls as measures of internalizing psychopathology.

The DSM-Oriented scales of the CBCL were also examined a priori and hypothesized relationships were made with various Harris-Lingoes subscales based on item content. The Affective problems scale was expected to show positive relationships with subscales D1, Sc2, and Sc4. All of these relationships met the criterion for clinical significance for both genders. Subscale Hy4 were expected to be positively correlated with somatic problems, yet only girls' scores were clinically significant for subscale Hy4. Relationships were also expected to occur between the Attention Deficit/Hyperactivity problems and subscale D4 and between Oppositional Defiant Disorder problems and Pd3 and Ma. None of these relationships met the cutoff for clinical significance for either gender.

Several subscales did not appear to show good convergent or discriminant validity, as positive or negative correlations were pervasive among both internalizing and externalizing domains. For example, as seen in Table 7, subscale Hy2 showed low to moderate negative correlations with YSR scales that reflected both internalizing and

externalizing external criterion scales, and though subscale D1 was more strongly correlated with internalizing criterion scales, it was also moderately positively correlated with externalizing criterion scales.

Sets of Harris-Lingoes subscales are discussed below in terms of the CBCL and YSR measures' relative effectiveness in terms of convergent and divergent validity.

D1-D5: As expected, subscale D1 was found to demonstrate good convergent validity with external measures of anxiety, withdrawn behavior, and depression as well as with more global measures of internalizing psychopathology for both genders. Specifically, both caregiver and self-report external ratings demonstrated comparable convergent validity with subscale D1. External caregiver ratings of anxiety and depression showed the best global relationship with subscale D4 for both genders, whereas self-report ratings of anxiety and depression were effective for boys on subscale D4. Withdrawn behavior and depression as well as measures of attention and overall internalizing psychopathology on the YSR and CBCL were equally effective in terms of relating with subscale D4 for both genders. For subscale D5, both the YSR and CBCL measures of anxiety and depression, withdrawn behavior and depression, and overall internalizing psychopathology were comparable in terms of converging with subscale D5. In terms of discriminant validity, subscales D1, D4, and D5 produced multiple non-hypothesized relationships on both the YSR and CBCL. These subscales also produced modest correlations with externalizing scales.

Hy1-Hy4: Caregiver ratings were not as effective as self-report measures of when expecting an inverse relationship between withdrawn and depressed behavior and subscale Hy1 for girls. For boys, the self-report measure of withdrawn and depressed

behavior for boys was more effective than the caregiver ratings. The CBCL internalizing psychopathology measure effectively differentiated with subscale Hy1, yet only the YSR internalizing psychopathology measure was effectively inversely related subscale Hy1 for girls. Subscale Hy4 converged with the YSR somatic complaints and internalizing psychopathology measures for both genders, whereas the CBCL somatic complaints and internalizing psychopathology measures only converged with Hy4 for girls. Subscale Hy3 demonstrated poor discriminant validity on both the YSR and the CBCL as it produced numerous correlations with external scales.

Pd1-Pd5: The YSR converged with subscale Pd4 in terms of social problems for both genders, whereas the social problems measure on the CBCL was effectively converged with Pd4 only for girls. The anxiety and depression and internalizing psychopathology measures on the YSR were effectively related with subscale Pd5, yet similar CBCL measures only converged with subscale Pd5 for girls and not boys. Of the set of Pd subscales, Pd1 demonstrated very poor discriminant validity as it produced multiple non_hypothesized correlations even with internalizing scales. Subscales Pd4 and Pd5 also produced several non-hypothesized correlations.

Sc1-Sc6: The YSR social problems measure was effectively correlated with subscale Sc1 for both genders, whereas the same CBCL scale was effectively converged with Sc1 for only girls. For measures of anxiety and depression, withdrawn behavior and depression, and general internalizing psychopathology, the CBCL effectively converged with subscale Sc2 for both genders, whereas the same YSR measures only converged with Sc2 for girls. Similarly, the YSR thought problems measure was effectively converged with subscale Sc3, whereas a similar relationship on the CBCL only occurred

for girls. Measures of anxiety and depression, withdrawn behavior and depression, and internalizing psychopathology were comparable for both genders in terms of convergence with subscale Sc4. For the Sc subscales, Sc3, Sc4, Sc5, and Sc6 produced numerous non-hypothesized correlations on the YSR, but subscales Sc3, Sc5, and Sc6 did not produce many non-hypothesized correlations on the CBCL.

Ma2-Ma4: Subscale Ma2 produced many non-hypothesized correlations, demonstrating poor discriminant validity on when correlated with the YSR, but not when correlated with the CBCL.

Si1-Si3: For subscale Si1, the CBCL measure of withdrawn behavior and depression was more effective than the YSR in terms of convergent validity for girls. The YSR did not show good convergent validity with subscale Si1 for either gender. For internalizing measures of the CBCL and YSR, the YSR was more effective in terms of converging with subscale Si1 for girls, and the CBCL did not converge with subscale Si1 for either gender. The CBCL and YSR measures of internalizing were comparable in that neither converged well with subscale Si2 for either gender. The YSR withdrawn and depressed measure converged with Si2 for girls, but did not demonstrate good convergent validity for boys, whereas the CBCL measure of withdrawn behavior and depression did not converge with Si2 for either gender. In terms of external measures of anxiety and depression and internalizing psychopathology, the YSR converged well with subscale Si3 for both genders on these measures, whereas the CBCL was comparable only for girls' scores. Subscale Si3 demonstrated poor discriminant validity when correlated with scores on the YSR, as it produced many non-hypothesized correlations, yet it produced very few non-hypothesized correlations on the CBCL.

General Conclusions

Several general conclusions can be drawn from this study regarding the internal psychometric properties of the Harris-Lingoes subscales. Subscales demonstrating the highest internal consistency reliability included D4, Hy3, Pd5, and Pa1 for both genders. Some gender differences emerged for subscales' reliability. For boys, subscales Sc6 and Si1 demonstrated good reliability, whereas subscales Sc3 and Si2 demonstrated good reliability for girls' scores. Lowest reliability was demonstrated on Pd2 for both genders, and on D3 for boys and D2 for girls. In this sample, as would be expected, the highest means for both genders were produced on subscale Pd2. One unexpected finding was that one of the lowest means occurred for subscale Ma2, which is an unexpected finding given the sample of adolescent offenders. When comparing percentages of elevated cases, it appears that the percentages of elevated cases for subscales Ma1 and Ma4 were much lower than compared with other research employing a similar sample, and more percentages of D1 mean elevations in the current sample as compared with other research in a sample of adolescent delinquents. Further research may inquire further regarding these differences in samples of adolescent offenders. Several unexpected intercorrelations between Harris-Lingoes subscales also occurred, including a lack of intercorrelation between subscales Pd3 and Ma1 and Pd1 and Si2, which would appear to correlate more strongly given similar constructs. Additionally, Pd3 did not appear to correlate well within other Pd subscales, and may reflect a different dimension of psychopathic deviancy than the other Pd subscales.

The predicted relationships between Harris-Lingoes subscales and external measures based on inspection of what each scale and subscale purported to measure,

generally demonstrated good convergent validity and provide support for the use of Harris-Lingoes subscales as intended. Several gender differences occurred and are of note, given that many studies have not investigated these subscales in a sample of adolescent girls, and therefore have not had the opportunity to evaluate important gender differences that may occur when using the Harris-Lingoes subscales. Evaluation of self-report external measures and Harris-Lingoes subscales yielded several gender differences, indicating that subscales D4, and Hy1 may be more effective in detecting somatization, mental dullness, and denial of social anxiety for boys, whereas subscales Pd5, Si3, Hy4, Pd4, and Sc1 may be more effective for girls in detecting alienation of self and others, somatization, and social alienation. In terms of caregiver ratings, subscales Sc2, Hy1, and Si1 may be more effective in detecting emotional alienation, denial of social anxiety, physical malfunctioning, and shyness and self-consciousness in girls.

Finally, the Harris-Lingoes subscales were regressed on the externalizing and internalizing composite scores of the CBCL and YSR by gender using stepwise regression to identify salient predictors of externalizing and internalizing behavior. Both subscale Pd1 and Sc2 were identified as a combination of predictors for boys' self-reported externalizing behaviors. This suggests for that boys who self-report externalizing behaviors, their self-reported externalizing scores may be best predicted by familial discord and emotional alienation. In terms of caregiver ratings of externalizing behaviors for boys, the combination of psychomotor acceleration, amorality, social alienation, subjective depression, and mental dullness. For girls, the combination of familial discord and psychomotor retardation were found to be the best predictors of self-reported externalizing behaviors, and the combination of social alienation, authority

problems, mental dullness, subjective depression, and inhibition of aggression were the best predictors of caregiver reports of externalizing behaviors.

For boys' self-reported internalizing scores, the combination of emotional alienation, familial discord, social alienation, need for affection, lassitude-malaise, and bizarre sensory experiences were found to best predict internalizing behavior. Caregiver ratings of internalizing behavior that combined best predicted internalizing for boys were lack of ego mastery-cognitive, lack of ego mastery-defective inhibition, lassitude-malaise, persecutory ideas, and psychomotor acceleration. For girls' self-reported internalizing scores, the combination of lack of ego mastery-conative and need for affection best predicted internalizing behavior and for caregiver ratings, the combination of lack of ego mastery-cognitive, inhibition of aggression, physical malfunctioning, brooding, somatic complaints, and social alienation best predicted internalizing behavior.

Limitations and Directions for Future Research

Limitations of the current study include use of external criterion measures that were somewhat limited in scope and may have not reflected the full spectrum of possible adolescent psychopathology. As a result, predicted relationships gauging external validity of various Harris-Lingoes subscales were not entirely evaluated. Additionally, the base rates of various Axis I disorders present in this sample may have influenced the correlational values. In addition, the relatively wide confidence intervals in the present study indicate the importance of conducting multiple future studies in this area. Given the large number of validity coefficients calculated and the relatively wide confidence intervals, some point estimates are undoubtedly quite discrepant from the population parameters. The best method for reducing the influence of sampling error will be to

conduct future studies with the eventual goal of conducting a meta-analysis on the validity of the Harris-Lingoes and Si subscales (Schmidt, 1996).

Future research may address the findings and the limitations of the current study by employing a greater range of external criterion measures to evaluate subscales that did not conceptually align with criterion measures. Further, the current study showed deficiencies in a number of Harris-Lingoes subscales in terms of both reliability and validity. Rather than attempt to rewrite the Harris-Lingoes subscales, future efforts should focus on restructuring the MMPI-A to eliminate heterogeneous Clinical scales so that subscales are no longer required. This type of effort has been proven successful in improving convergent and discriminant validity of MMPI-2 scales for adults (Tellegen et al., 2003; Ben-Porath & Tellegen, 2008). Finally, unexpected findings of this study, particularly for subscales that were predicted to gauge externalizing behavior should be further inspected.

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Table 2-A (Continued)

MMPI-A Scale	D1	D2	D3	D4	D5	Hy1	Hy2	Hy3	Hy4	Hy5
Pd1	.30	-.04	.10	.33	.31	-.15	-.15	.39	.19	-.23
Pd2	-.02	-.15	-.03	.05	-.03	.21	-.01	.05	.01	-.09
Pd3	-.46	-.19	-.21	-.38	-.44	.83	.27	-.31	-.21	.15
Pd4	.39	-.15	.19	.35	.50	-.28	-.40	.34	.15	-.31
Pd5	.62	.04	.30	.57	.59	-.34	-.35	.64	.32	-.36
Pa1	.45	-.10	.22	.39	.53	-.41	-.41	.38	.32	-.30
Pa2	.52	.04	.16	.45	.53	-.30	-.22	.50	.37	-.19
Pa3	.00	.25	-.06	.01	-.05	.13	.63	.02	.10	.25
Sc1	.59	.44	.23	.53	.54	-.44	-.35	.51	.38	-.24

Table 2-A (Continued)

MMPI-A Scale	D1	D2	D3	D4	D5	Hy1	Hy2	Hy3	Hy4	Hy5
Sc2	.65	.25	.22	.63	.56	-.38	-.13	.56	.48	-.14
Sc3	.68	.09	.28	.70	.61	-.44	-.40	.60	.46	-.35
Sc4	.75	.24	.29	.76	.67	-.45	-.34	.69	.48	-.32
Sc5	.53	.00	.23	.50	.53	-.46	-.40	.44	.47	-.29
Sc6	.61	.09	.27	.57	.53	-.38	-.23	.53	.64	-.19
Ma1	.06	-.21	.05	.09	.11	-.11	-.24	.05	.03	-.22
Ma2	.24	-.24	.11	.26	.31	-.28	-.42	.29	.16	-.46
Ma3	-.34	-.12	-.18	-.29	-.27	.46	.26	-.27	-.13	.17
Ma4	.21	-.35	.07	.16	.26	-.25	-.46	.22	.13	-.38
Si1	.59	.37	.18	.50	.47	-.76	-.21	.39	.32	-.06

Table 2-A (Continued)

MMPI-A Scale	Pd1	Pd2	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Si2	.29	.31	.11	.24	.20	-.11	.04	.15	.21	.08
Si3	.53	-.06	.24	.52	.55	-.47	-.58	.44	.28	-.39
Pd1		.11	-.11	.36	.44	.35	.36	.00	.43	.29
Pd2			.35	.13	.47	.02	-.02	-.07	.00	.01
Pd3				-.24	.04	-.39	-.31	.04	-.41	-.36
Pd4					.65	.80	.43	-.26	.59	.29
Pd5						.59	.45	-.16	.58	.46
Pa1							.52	-.23	.74	.44

Table 2-A (Continued)

	Pd1	Pd2	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Pa2								-.04	.59	.47
Pa3									-.13	.04
Sc1										.55
Sc3	.29	.03	-.41	.43	.60	.52	.48	-.19	.61	.46
Sc4	.32	.01	-.41	.43	.65	.50	.49	-.13	.61	.77
Sc5	.21	-.09	-.41	.37	.44	.56	.48	-.13	.59	.49
Sc6	.23	-.04	-.35	.26	.42	.49	.53	.00	.58	.54
Ma1	.06	.27	.00	.30	.25	.30	.09	-.31	.24	.11
Ma2	.24	.08	-.21	.37	.42	-.46	.31	-.21	.37	.27

Table 2-A (Continued)

MMPI-A Scale	Pd1	Pd2	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Ma3	-.08	.13	.59	-.24	-.32	-.24	-.18	.13	-.32	-.20
Ma4	.27	.01	-.21	.40	.41	.49	.35	-.40	.49	.20
Si1	.10	-.13	-.71	.23	.32	.33	.31	-.02	.48	.41
Si2	-.04	-.04	-.13	-.09	-.02	.05	.13	.09	.18	.23
Si3	.28	-.03	-.42	.58	.61	.59	.41	-.50	.56	.35

Table 2-A (Continued)

MMPI-A Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Ma3	Ma4	Si1	Si2
Sc1	.61	.61	.59	.58	.24	.37	-.32	.49	.48	.18
Sc2	.43	.77	.49	.54	.11	.27	-.21	.20	.41	.23
Sc3		.76	.62	.68	.26	.43	-.34	.42	.39	.11
Sc4			.57	.58	.22	.40	-.34	.33	.45	.15
Sc5				.75	.17	.46	.77	.49	.54	.16
Sc6					.14	.39	.76	.62	.68	.22
Ma1						.30	-.07	.57	.58	-.11
Ma2							-.25	.43	.75	-.14
Ma3								-.22	.14	.10
Ma4									.08	-.10

Table 2-A (Continued)

MMPI-A Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Ma3	Ma4	Si1	Si2
Si1										.33
Si3	.67	.61	.57	.49	.33	.46	-.35	.51	.38	.00

Note. n = 315. D1 = Subjective Depression; D2 = Psychomotor Retardation; D3 = Physical Malfunctioning; D4 = Mental Dullness; D5 = Brooding; Hy1 = Denial of Social Anxiety; Hy2 = Need for Affection; Hy3 = Lassitude-Malaise; Hy4 = Somatic Complaints; Hy5 = Inhibition of Aggression; Pd1 = Familial Discord; Pd2 = Authority Problems; Pd3 = Social Imperturbability; Pd4 = Social Alienation; Pd5 = Self Alienation; Pa1 = Persecutory Ideas; Pa2 = Poignancy; Pa3 = Naivete; Sc1 = Social Alienation; Sc2 = Emotional Alienation; Sc3 = Lack of Ego Mastery Cognitive; Sc4 = Lack of Ego Mastery Cognitive; Sc5 = Lack of Ego Mastery Defective Inhibition; Sc6 = Bizarre Sensory Experiences; Ma1 = Amorality; Ma2 = Psychomotor Acceleration; Ma3 = Imperturbability; Ma4 = Ego Inflation; Si1 = Shy/Self Consciousness; Si2 = Social Avoidance; Si3 = Alienation Self/Others.

Table 2-B (continued)

MMPI-A Scale	Pd1	Pd2	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Pd1	.39	.02	.13	.38	.41	-.09	-.01	.43	.25	-.08
Pd2	.08	-.09	.10	.09	-.01	.15	-.15	.16	.09	-.09
Pd3	-.49	-.29	-.14	-.45	-.45	.83	.30	-.30	-.34	.20
Pd4	.50	-.02	.23	.40	.54	-.28	-.46	.43	.29	-.20
Pd5	.72	.09	.40	.63	.69	-.35	-.33	.69	.47	-.39
Pa1	.42	.03	.26	.37	.43	-.33	-.42	.39	.39	-.23
Pa2	.64	.18	.25	.53	.68	-.36	-.23	.51	.49	-.28
Pa3	-.03	.10	.05	-.04	-.14	.21	.53	-.03	.05	.28
Sc1	.64	.16	.25	.55	.61	-.39	-.36	.57	.41	-.22
Sc2	.63	.20	.38	.60	.55	-.35	-.14	.63	.43	-.19

Sc3	.75	.25	.33	.78	.65	-.42	-.22	.67	.52	-.25
Sc4	.82	.30	.38	.83	.71	-.44	-.22	.77	.51	-.25
Sc5	.52	.00	.18	.49	.54	-.45	-.26	.45	.44	-.19
Sc6	.60	.16	.29	.59	.57	-.41	-.14	.56	.67	-.21
Ma1	.22	-.08	.05	.26	.22	-.05	-.02	.26	.14	-.12
Ma2	.46	-.13	.21	.51	.51	-.31	-.32	.45	.42	-.35
Ma3	-.40	-.10	-.12	-.38	-.36	.57	.16	-.31	-.32	.18
Ma4	.12	-.32	-.03	.07	.23	-.13	-.40	.10	.06	-.15
Si1	.57	.44	.12	.46	.47	-.80	-.20	.31	.36	-.01
Si2	.20	.30	.05	.10	.13	-.33	-.14	.12	.17	-.03

Table 2-B (continued)

MMPI-A Scale	Pd1	Pd2	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Sc3	.24	.10	-.41	.42	.64	.47	.55	-.18	.59	.45
Sc4	.30	.02	-.42	.45	.65	.47	.46	-.17	.61	.80
Sc5	.17	.01	-.42	.42	.48	.49	.53	-.24	.55	.47
Sc6	.17	.04	-.36	.33	.54	.49	.59	-.04	.52	.58
Ma1	.22	.33	-.02	.24	.24	.29	.10	-.31	.19	.26
Ma2	.19	.11	-.30	.44	.52	.41	.42	-.30	.38	.36
Ma3	-.20	.11	.68	-.31	-.34	-.26	-.27	.12	-.37	-.25
Ma4	.18	-.02	-.13	.43	.30	.42	.23	-.39	.40	.10
Si1	.14	-.12	-.75	.29	.29	.27	.33	-.09	.44	.34
Si2	.00	-.03	-.32	.13	.14	.16	.24	-.03	.31	.24

Table 2-B (continued)

MMPI-A Scale	Pd1	Pd2	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
SI3	.22	.02	-.50	.59	.58	.56	.61	-.46	.60	.44

Table 2-B (Continued)

	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Ma3	Ma4	Si1	Si2
Sc1	.59	.61	.55	.52	.19	.38	-.37	.40	.44	.31
Sc2	.53	.80	.47	.58	.26	.36	-.25	.10	.34	.24
Sc3		.82	.57	.68	.29	.53	-.39	.17	.38	.13
Sc4			.55	.62	.33	.53	-.36	.13	.41	.13
Sc5				.73	.26	.65	-.32	.31	.34	.14
Sc6					.21	.56	-.29	.18	.31	.22
Ma1						.37	.02	.16	-.02	-.23
Ma2							-.28	.32	.12	-.04
Ma3								-.07	-.55	-.24
Ma4									.02	-.03

Table 2-B (Continued)

MMPI-A Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Ma3	Ma4	Si1	Si2
Si3	.70	.62	.59	.50	.28	.57	-.43	.33	.43	.00

Note. n = 181. D1 = Subjective Depression; D2 = Psychomotor Retardation; D3 = Physical Malfunctioning; D4 = Mental Dullness; D5 = Brooding; Hy1 = Denial of Social Anxiety; Hy2 = Need for Affection; Hy3 = Lassitude-Malaise; Hy4 = Somatic Complaints; Hy5 = Inhibition of Aggression; Pd1 = Familial Discord; Pd2 = Authority Problems; Pd3 = Social Imperturbability; Pd4 = Social Alienation; Pd5 = Self Alienation; Pa1 = Persecutory Ideas; Pa2 = Poignancy; Pa3 = Naivete; Sc1 = Social Alienation; Sc2 = Emotional Alienation; Sc3 = Lack of Ego Mastery Cognitive; Sc4 = Lack of Ego Mastery Cognitive; Sc5 = Lack of Ego Mastery Defective Inhibition; Sc6 = Bizarre Sensory Experiences; Ma1 = Amorality; Ma2 = Psychomotor Acceleration; Ma3 = Imperturbability; Ma4 = Ego Inflation; Si1 = Shy/Self Consciousness; Si2 = Social Avoidance; Si3 = Alienation Self/Others.

APPENDIX C

Table 3

Correlations for CBCL and YSR responses by Gender

Syndrome Scale	CBCL:	Anx	With	Som	Soc	Tht	Att	Rule	Agg	Int	Ext
YSR:											
Anxious/Depressed		.25/.29	.05/.18	.17/.21	.21/.17	.21/.28	.15/.19	.14/.09	.15/.12	.20/.28	.16/.12
Withdrawn/Depressed		.16/.17	.15/.26	.14/.06	.12/.12	.14/.23	.06/.15	.13/.12	.06/.06	.18/.19	.10/.04
Somatic Complaints		.25/.21	.13/.14	.29/.26	.27/.09	.23/.18	.15/.09	.17/-.01	.19/.04	.26/.25	.20/.02
Social Problems		.20/.39	.01/.26	.13/.25	.24/.42	.22/.38	.15/.28	.12/.22	.16/.31	.14/.38	.16/.30
Thought Problems		.21/.22	.05/.11	.07/.13	.19/.11	.29/.22	.24/.13	.19/.03	.17/.03	.14/.20	.19/.04
Attention Problems		.20/.29	.07/.18	.17/.18	.24/.24	.27/.26	.34/.35	.26/.18	.26/.18	.17/.27	.28/.20
Rule-Breaking Behavior		.15/.14	.21/.20	.24/.01	.21/.06	.20/.19	.17/.22	.47/.44	.34/.16	.23/.13	.43/.29
Aggressive Behavior		.17/.25	.07/.20	.17/.06	.22/.31	.19/.27	.26/.16	.28/.23	.32/.35	.16/.21	.33/.33
Internalizing Score		.27/.26	.12/.21	.24/.19	.24/.15	.24/.25	.15/.16	.18/.03	.16/.09	.25/.29	.18/.08
Externalizing Score		.17/.21	.14/.21	.21/.02	.24/.22	.21/.26	.24/.20	.39/.33	.36/.30	.20/.20	.40/.35

Table 3 (Continued)

DSM Scale	CBCL: Affective	Anxiety	Somatic	ADHD	ODD	Conduct
YSR:						
Affective Problems	.30/.38	.17/.12	.13/.16	.20/.11	.15/.01	.21/.09
Anxiety Problems	.19/.23	.19/.24	.14/.15	.08/.21	.04/.06	.02/.12
Somatic Problems	.19/.26	.19/.10	.24/.22	.11/.06	.15/-04	.14/-08
ADHD Problems	.16/.18	.12/.20	.11/.13	.35/.36	.23/.11	.33/.09
ODD Problems	.20/.22	.14/.12	.20/.08	.30/.33	.44/.36	.34/.34
Conduct Problems	.15/.16	.13/.02	.17/.04	.20/.27	.34/.22	.39/.38

Note. $n = 220$ for boys; $n = 137$ for girls. For boys, representative point estimates with confidence intervals are as follows: $r = .04$, 95% CI [-09, .17]; $r = .12$, 95% CI [-01, .25]; $r = .23$, 95% CI [.10, .35]; $r = .38$, 95% CI [.26, .49]; For girls, $r = .04$, 95% CI [-013, .21]; $r = .12$, 95% CI [-05, .28]; $r = .23$, 95% CI [.07, .38]; $r = .38$, 95% CI [.23, .52]. Anx = Anxious/Depressed; With = Withdrawn/Depressed; Som = Somatic Complaints; Soc = Social Problems; Tht =

Table 3 (Continued)

Thought Problems; Att = Attention Problems; Rule = Rule-Breaking Behavior; Agg = Aggressive Behavior

APPENDIX D

Table 9

Zero-Order Correlations Between Raw Scores from the MMPI-A and the Youth Self-Report by Gender

Scale	D1	D4	D5	Hy1	Hy2	Hy3	Hy4
YSR Syndrome Scales:							
Anxious/Depressed	<u>.51/.69</u>	<u>.49/.66</u>	<u>.54/.70</u>	-.34/-.47	-.27/-.27	.47/.58	.34/.49
Withdrawn/Depressed	<u>.48/.61</u>	<u>.43/.53</u>	<u>.49/.58</u>	-.39/-.38	-.28/-.19	.45/.52	.21/.36
Somatic Complaints	.40/.53	.37/.49	.33/.43	-.18/.47	-.17/-.15	.52/.51	<u>.46/.60</u>
Social Problems	.45/.58	.45/.57	.43/.56	-.30/-.45	-.28/-.27	.41/.52	.29/.40
Thought Problems	.41/.57	.42/.53	.37/.51	-.26/-.34	-.22/-.18	.44/.55	.30/.51
Attention Problems	.45/.59	<u>.45/.61</u>	.36/.60	-.27/-.34	-.29/-.24	.45/.49	.34/.32
Rule-Breaking Behavior	.35/.30	.41/.31	.30/.26	-.19/-.11	-.27/-.13	.42/.26	.23/.14

Table 9 (Continued)

Scale	D1	D4	D5	Hy1	Hy2	Hy3	Hy4
Aggressive Behavior	.32/.41	.36/.43	.32/.39	-.21/-.25	-.29/-.21	.34/.42	.28/.29
Internalizing Score	<u>.55/.71</u>	<u>.52/.66</u>	<u>.54/.68</u>	<u>-.36/-.44</u>	<u>-.28/-.24</u>	<u>.57/.63</u>	<u>.41/.57</u>
Externalizing Score	.36/.41	.41/.42	.34/.38	-.22/-.22	-.31/-.20	.41/.39	.28/.26
Total Score	<u>.50/.67</u>	<u>.52/.65</u>	<u>.48/.63</u>	<u>-.32/-.40</u>	<u>-.32/-.27</u>	<u>.53/.60</u>	<u>.38/.49</u>
YSR DSM-Oriented Scales:							
Affective Problems	<u>.51/.72</u>	<u>.47/.66</u>	<u>.49/.67</u>	-.31/-.37	-.32/-.22	<u>.57/.69</u>	.31/.53
Anxiety Problems	<u>.43/.55</u>	<u>.44/.52</u>	<u>.42/.54</u>	-.24/-.41	-.24/-.22	<u>.41/.45</u>	.34/.42
Somatic Problems	.33/.45	.30/.41	.25/.36	-.15/-.19	-.12/-.13	<u>.45/.42</u>	<u>.42/.56</u>
Attention Deficit /							
Hyperactivity Problems	.31/.43	<u>.34/.45</u>	.24/.47	-.17/-.25	-.26/-.24	.37/.33	.25/.26

Table 9 (Continued)

Scale	D1	D4	D5	Hy1	Hy2	Hy3	Hy4
Oppositional Defiant							
Problems	.23/.26	.27/.32	.22/.26	-.12/-.07	-.20/-.19	.30/.30	.21/.17
Conduct Problems	.36/.32	.40/.33	.33/.27	-.21/-.16	-.29/-.15	.39/.32	.28/.20
YSR Syndrome Scales:							
Anxious/Depressed	/.28	-.36/-.45	.41/.41	.52/.58	.47/.43	.46/.57	.02/-.15
Withdrawn/Depressed	/.40	-.35/.26	.38/.38	.49/.16	.47/.51	35/.60	-.13/.60
Somatic Complaints	/.61	-.18/.42	.23/.43	.39/.05	.35/.47	.29/.54	.00/.55
Social Problems	/.25	-.32/-.41	.43/.44	.41/.52	.52/.48	.40/.46	-.05/-.06
Thought Problems	/.19	-.20/-.29	.35/.33	.42/.52	.39/.43	.37/.47	-.02/-.03
Attention Problems	/.26	-.25/-.35	.31/.37	.45/.52	.37/.31	.31/.47	-.02/-.20

Table 9 (Continued)

Scale	Pd1	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Rule-Breaking Behavior	.22	-.05/-.05	.28/.23	.40/.36	.32/.27	.30/.30	-.20/-.04	.43/.41	.33/.28
Aggressive Behavior	.33	-.11/-.20	.32/.36	.36/.43	.40/.44	.32/.38	-.15/-.10	.42/.48	.34/.35
Internalizing Score	.00	-.35/-.42	.41/.42	.56/.62	.51/.45	.45/.60	-.03/-.09	.53/.58	<u>.38/.55</u>
Externalizing Score	.32	-.09/-.15	.33/.34	.41/.45	.40/.42	.34/.39	-.18/-.08	.46/.50	.36/.36
Total Score	.31	-.26/-.37	.43/.45	.53/.62	.51/.51	.43/.56	-.10/-.10	.55/.62	.40/.54
YSR DSM-Oriented Scales:									
Affective Problems	.31	-.25/-.34	.42/.45	.53/.64	.45/.45	.45/.56	-.09/-.07	.50/.57	<u>.34/.55</u>
Anxiety Problems	.20	-.32/-.39	.34/.32	.43/.47	.39/.36	.35/.45	.02/-.16	.38/.47	.31/.35
Somatic Problems	.16	-.16/-.20	.16/.23	.30/.40	.29/.30	.25/.35	.01/.06	.30/.32	.27/.32

Table 9 (Continued)

Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Si1	Si2
Attention Deficit /								
Hyperactivity Problems	.22	-.16/-.26	.26/.33	.35/.40	.30/.27	.30/.37	-.09/-.19	.32/.31
Oppositional Defiant								
Problems	.44	<u>-.05/-.03</u>	.23/.27	.31/.30	.25/.34	.24/.28	-.11/-.12	.32/.40
Conduct Problems	.18	-.08/-.07	.29/.26	.37/.33	.39/.37	.29/.30	-.18/-.04	.46/.43
YSR Syndrome Scales:								
Anxious/Depressed	.53/.66	<u>.47/.66</u>	.55/.51	.49/.55	.23/	.43/.51	.36/.42	.05/.11
Withdrawn/Depressed	.49/.60	<u>.42/.56</u>	.44/.26	.49/.38	.30/	.39/.51	<u>.39/.21</u>	<u>.15/.54</u>
Somatic Complaints	.50/.66	.41/.46	.47/.42	.42/.43	.20/	.34/.47	.20/.32	.04/.32
Social Problems	.45/.59	.41/.65	.48/.45	.43/.46	.23/	.40/.41	.33/.41	.04/.17

Table 9 (Continued)

Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Si1	Si2
Thought Problems	<u>.49/.58</u>	<u>.42/.55</u>	<u>.45/.52</u>	<u>.50/.58</u>	.21/	<u>.43/.42</u>	.24/.29	.02/.12
Attention Problems	<u>.57/.71</u>	<u>.49/.67</u>	<u>.49/.47</u>	<u>.49/.49</u>	.31/	<u>.40/.45</u>	.27/.35	-.04/.07
Rule-Breaking Behavior	<u>.44/.23</u>	.37/.27	.31/.26	.36/.21	.37/	.35/.22	.15/.13	-.05/.02
Aggressive Behavior	<u>.41/.44</u>	<u>.37/.46</u>	<u>.46/.36</u>	<u>.45/.33</u>	<u>.35/</u>	<u>.45/.41</u>	.17/.20	-.07/-.04
Internalizing Score	<u>.61/.68</u>	<u>.52/.69</u>	<u>.59/.50</u>	<u>.56/.60</u>	.29/	<u>.46/.48</u>	<u>.37/.44</u>	<u>.09/.20</u>
Externalizing Score	<u>.46/.40</u>	<u>.41/.43</u>	<u>.43/.35</u>	<u>.45/.32</u>	<u>.39/</u>	<u>.44/.37</u>	.17/.19	-.06/-.02
Total Score	<u>.60/.67</u>	<u>.52/.68</u>	<u>.57/.53</u>	<u>.57/.57</u>	.35/	<u>.51/.51</u>	.31/.38	-.01/-.13
YSR DSM-Oriented Scales:								
Affective Problems	<u>.54/.64</u>	<u>.51/.69</u>	<u>.45/.49</u>	<u>.42/.57</u>	.27/	<u>.39/.48</u>	.32/.34	.03/.19
Anxiety Problems	<u>.54/.57</u>	<u>.43/.52</u>	<u>.50/.48</u>	<u>.44/.48</u>	.24/	<u>.37/.48</u>	.29/.34	.08/.09

Table 9 (Continued)

Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Si1	Si2
Somatic Problems	.43/.44	.34/.41	.42/.30	.42/.45	.14/	.29/.39	.18/.22	.04/.07
Attention Deficit /								
Hyperactivity Problems	.49/.57	.36/.52	.41/.45	.42/.38	.24/	.46/.50	.15/.22	-.13/-.08
Oppositional Defiant								
Problems	.30/.30	.32/.36	.28/.20	.32/.17	.28/	.32/.27	.12/.08	-.08/-.06
Conduct Problems	.40/.28	.36/.31	.40/.26	.40/.22	.37/	.41/.24	.19/.15	-.01/.01

Table 9 (Continued)

Scale	Si3
YSR Syndrome Scales:	
Anxious/Depressed	<u>.48/.59</u>
Withdrawn/Depressed	.49/.47
Somatic Complaints	.37/.59
Social Problems	.46/.51
Thought Problems	.42/.42
Attention Problems	.44/.60
Rule-Breaking Behavior	.38/.24
Aggressive Behavior	.44/.48
Internalizing Score	<u>.53/.57</u>

Table 9 (Continued)

Scale	Si3
Externalizing Score	.45/.43
Total Score	.55/.60
YSR DSM-Oriented Scales:	
Affective Problems	.49/.51
Anxiety Problems	.40/.55
Somatic Problems	.29/.30
Attention Deficit /	
Hyperactivity Problems	.43/.55
Oppositional Defiant	
Problems	.30/.37

Table 9 (Continued)

Scale	Si3
Conduct Problems	.41/.31

Note. $n = 238$ for boys; $n = 155$ for girls. Correlations for boys are listed before the backward slash (/) and correlations for girls are listed after the backward slash (/). For boys, representative point estimates with confidence intervals are as follows: $r = .01$, 95% CI [- .12, .14]; $r = .14$, 95% CI [.01, .26]; $r = .27$, 95% CI [.15, .38]; $r = .42$, 95% CI [.31, .52]; $r = .69$, 95% CI [.62, .75]. For girls, $r = .01$, 95% CI [- .15, .17]; $r = .14$, 95% CI [- .02, .29]; $r = .27$, 95% CI [.12, .41]; $r = .42$, 95% CI [.28, .54]; $r = .69$, 95% CI [.60, .76].

Correlation coefficients $\geq |.40|$ are bolded. Underlined scores represent conceptually related scales. YSR = Youth Self-Report; D1 = Subjective Depression; D2 = Psychomotor Retardation; D3 = Physical Malfunctioning; D4 = Mental Dullness; D5 = Brooding; Hy1 = Denial of Social Anxiety; Hy2 = Need for Affection; Hy3 = Lassitude-Malaise; Hy4 = Somatic Complaints; Hy5 = Inhibition of Aggression; Pd1 = Familial Discord; Pd2 = Authority Problems; Pd3 = Social Imperturbability; Pd4 = Social Alienation; Pd5 = Self Alienation; Pa1 = Persecutory Ideas; Pa2 = Poignancy; Pa3 = Naivete; Sc1 = Social Alienation; Sc2 = Emotional Alienation; Sc3 =

Table 9 (Continued)

Lack of Ego Mastery Cognitive; Sc4 = Lack of Ego Mastery Cognitive; Sc5 = Lack of Ego Mastery Defective Inhibition; Sc6 = Bizarre Sensory Experiences; Ma1 = Amorality; Ma2 = Psychomotor Acceleration; Ma3 = Imperturbability; Ma4 = Ego Inflation; Si1 = Shy/Self Consciousness; Si2 = Social Avoidance; Si3 = Alienation Self/Others.

APPENDIX E

Table 9-B

Zero-Order Correlations Between Raw Scores from the MMPI-A and the Child Behavior Checklist by Gender

Scale	D1	D4	D5	Hy1	Hy2	Hy3	Hy4
CBCL Syndrome Scales:							
Anxious/Depressed	<u>.51/.22</u>	<u>.49/.17</u>	<u>.54/.26</u>	<u>-.34/-.20</u>	<u>-.11/-.01</u>	<u>.32/.26</u>	<u>.16/.12</u>
Withdrawn/Depressed	<u>.48/.28</u>	<u>.43/.24</u>	<u>.49/.21</u>	<u>-.39/-.14</u>	<u>-.12/.15</u>	<u>.23/.27</u>	<u>.08/.16</u>
Somatic Complaints	<u>.40/.25</u>	<u>.37/.23</u>	<u>.33/.18</u>	<u>-.18/-.19</u>	<u>-.11/.11</u>	<u>.16/.23</u>	<u>.04/.26</u>
Social Problems	<u>.45/.21</u>	<u>.45/.18</u>	<u>.43/.25</u>	<u>-.30/-.15</u>	<u>-.11/-.06</u>	<u>.28/.20</u>	<u>.20/.08</u>
Thought Problems	<u>.41/.20</u>	<u>.42/.21</u>	<u>.37/.19</u>	<u>-.26/-.17</u>	<u>-.11/.04</u>	<u>.26/.23</u>	<u>.12/.14</u>
Attention Problems	<u>.45/.17</u>	<u>.45/.23</u>	<u>.36/.14</u>	<u>-.27/-.06</u>	<u>-.11/.08</u>	<u>.24/.16</u>	<u>.18/.07</u>
Rule-Breaking Behavior	<u>.35/.08</u>	<u>.41/.14</u>	<u>.30/.08</u>	<u>-.19/.00</u>	<u>-.08/.02</u>	<u>.21/.13</u>	<u>.08/-.01</u>
Aggressive Behavior	<u>.32/.04</u>	<u>.36/.06</u>	<u>.32/.07</u>	<u>-.21/-.05</u>	<u>-.04/.09</u>	<u>.23/.10</u>	<u>.12/-.03</u>
Internalizing Score	<u>.55/.30</u>	<u>.52/.25</u>	<u>.54/.27</u>	<u>-.36/-.22</u>	<u>-.14/.09</u>	<u>.29/.31</u>	<u>.12/.22</u>

Table 9-B (Continued)

Scale	D1	D4	D5	Hy1	Hy2	Hy3	Hy4
Externalizing Score	.36/.06	.41/.10	.34/.08	-.22/-03	-.07/.07	.24/.13	.11/-02
Total Score	.23/.19	.26/.20	.17/.19	-.07/-13	-.12/.07	.30/.23	.16/.10
CBCL DSM-Oriented Scales:							
Affective Problems	<u>.21/.33</u>	.22/.31	.17/.28	-.02/-16	-.11/.10	.27/.39	.08/.24
Anxiety Problems	.23/.09	.27/.08	.16/.14	-.10/-10	-.11/.02	.31/.09	.18/.01
Somatic Problems	.12/.21	.09/.18	.14/.15	-.04/-15	-.12/.12	.10/.18	<u>.04/.23</u>
Attention Deficit /							
Hyperactivity Problems	.12/.12	<u>.16/.19</u>	.08/.13	-.04/-04	-.03/.01	.17/.11	.18/.04

Table 9-B (Continued)

Scale	Pd1	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Oppositional Defiant									
Problems	.14/-.04	.19/-.01	.11/.01	-.03/.06	-.08/.15	.20/.02	.11/-.07		
Conduct Problems	.16/.07	.19/.10	.14/.08	-.05/-.04	-.05/.02	.20/.14	.11/-.03		
CBCL Syndrome Scales:									
Anxious/Depressed	/.24	-.20/-.14	.03/.22	.18/.25	.12/.12	.17/.20	.00/-.09	.17/.27	.33/.27
Withdrawn/Depressed	/.14	-.01/-.10	-.02/.08	.10/.16	.03/.01	.13/.13	-.02/.03	.18/.23	.27/.28
Somatic Complaints	/.12	-.13/-.12	-.03/.09	.04/.20	.00/.05	.12/.22	-.04/.15	.05/.14	.14/.16
Social Problems	/.24	-.05/-.05	.01/.21	.10/.24	.07/.13	.11/.12	-.06/-.01	.15/.26	.24/.23
Thought Problems	/.18	-.04/-.09	.03/.21	.15/.29	.07/.18	.11/.15	.00/-.03	.12/.26	.18/.24
Attention Problems	/.16	-.07/.01	.07/.05	.07/.20	.06/-.06	.10/.09	.02/.08	.18/.18	.21/.12

Table 9-B (Continued)

Scale	Pd1	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Rule-Breaking Behavior	<i>/</i>.23	.02/.04	.12/.27	.16/.19	.13/.13	.18/.08	.01/.04	.19/.19	.17/.10
Aggressive Behavior	<i>/</i>.26	.01/.02	.04/.16	.11/.09	.03/.07	.11/.02	.05/.14	.13/.18	.21/.05
Internalizing Score	<i>/</i>.21	-.10/-.15	.00/.18	.14/.26	.07/.09	.17/.23	-.02/.03	.16/.27	<u>.30/.29</u>
Externalizing Score	<i>/</i>.27	.01/.03	.08/.22	.14/.14	.07/.11	.15/.05	.03/.11	.17/.20	.21/.08
Total Score	<i>/</i>.27	-.05/-.04	.06/.21	.15/.23	.09/.10	.17/.13	.02/.07	.19/.26	.27/.20
CBCL DSM-Oriented Scales:									
Affective Problems	<i>/</i>.29	-.01/-.09	.02/.11	.13/.32	.03/.03	.18/.18	-.01/.04	.13/.23	<u>.25/.31</u>
Anxiety Problems	<i>/</i> .09	-.10/-.03	.00/.09	.15/.08	.10/.03	.12/.10	.01/-.06	.12/.14	.32/.15
Somatic Problems	<i>/</i> .10	-.04/-.11	-.03/.07	.00/.15	.00/.06	.09/.21	-.07/.19	.05/.12	.13/.10

Table 9-B (Continued)

Scale	Pd1	Pd3	Pd4	Pd5	Pa1	Pa2	Pa3	Sc1	Sc2
Attention Deficit /									
Hyperactivity Problems	.17	-.05/-.01	.08/.10	.04/.21	.04/-.02	.10/.09	.05/.06	.15/.20	.15/.10
Oppositional Defiant									
Problems	.27	<u>.04/.11</u>	.07/.13	.10/.01	.04/.03	.08/-.05	.01/.16	.15/.10	.20/.01
Conduct Problems	.20	-.02/.04	.07/.25	.09/.15	.08/.13	.13/.08	.06/.06	.19/.21	.20/.09
CBCCL Syndrome Scales:									
Anxious/Depressed	.19/.19	<u>.30/.30</u>	.17/.22	.15/.12	-.09/	.10/.15	.16/.12	.05/.07	
Withdrawn/Depressed	.09/.18	<u>.20/.30</u>	.08/.06	.02/.10	-.05/	.01/-.01	<u>.17/.20</u>	<u>.09/.17</u>	
Somatic Complaints	.11/.28	.14/.26	.05/.10	.03/.19	.02/	.11/.12	.04/.12	.04/.12	
Social Problems	.15/.24	.23/.30	.19/.17	.16/.16	-.08/	.13/.17	.12/.06	.04/.19	

Table 9-B (Continued)

Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Si1	Si2
Thought Problems	<u>.17/.25</u>	.20/.26	.14/.15	.12/.18	-.03/	.11/.06	.13/.10	-.05/.10
Attention Problems	<u>.17/.27</u>	.23/.23	.18/.06	.18/.14	-.01/	.10/.01	.11/.10	-.07/.12
Rule-Breaking Behavior	.14/.08	.17/.10	.11/-.01	.11/.03	.09/	.18/.06	.00/-.05	-.08./-.01
Aggressive Behavior	.07/.08	.18/.10	.12/.03	.07/.07	<u>.02/.</u>	.13/-.04	.03/-.02	-.08/.07
Internalizing Score	.16/.27	<u>.26/.35</u>	.13/.18	.09/.17	-.06/	.09/.13	<u>.15/.17</u>	<u>.07/.14</u>
Externalizing Score	.11/.08	.19/.11	.12/.01	.09/.06	<u>.05/</u>	.16/.00	.02/-.04	-.09/.04
Total Score	.16/.22	.25/.26	.17/.10	.13/.14	.00/	.15/.06	.10/.07	-.04/.11
CBCL DSM-Oriented Scales:								
Affective Problems	.14/.27	<u>.23/.36</u>	.10/.19	.05/.20	-.04/	.06/.18	.08/.09	.01/.09
Anxiety Problems	.17/.18	.28/.20	.15/.09	.12/.06	-.05/	.08/.04	.13/.06	.08/.08

Table 9-B (Continued)

Scale	Sc3	Sc4	Sc5	Sc6	Ma1	Ma2	Si1	Si2
Somatic Problems	.09/.24	.13/.19	.06/.09	.01/.18	.05/	.11/.13	.05/.09	.00/.09
Attention Deficit								
Hyperactivity Problems	.10/.26	.16/.18	.13/.09	.12/.17	-.01/	.08/.04	.04/.05	-.10/.07
Oppositional Defiant								
Problems	.07/-.04	.16/.01	.12/-.05	.07/-.02	.08/	.13/-.09	.02/-.08	-.09/.00
Conduct Problems	.09/.08	.17/.09	.13/.01	.10/.04	.02/	.16/.05	.03/-.04	-.06/.03

Table 9-B (Continued)

Scale	Si3
CBCL Syndrome Scales:	
Anxious/Depressed	<u>.17/.28</u>
Withdrawn/Depressed	.04/.18
Somatic Complaints	.10/.16
Social Problems	<u>.11/.22</u>
Thought Problems	<u>.17/.25</u>
Attention Problems	.10/.15
Rule-Breaking Behavior	.03/.08
Aggressive Behavior	.04/.12
Internalizing Score	<u>.13/.26</u>

Table 9-B (Continued)

Scale	Si3
Externalizing Score	.11/.11
Total Score	.11/.22
CBCL DSM-Oriented Scales:	
Affective Problems	.11/.22
Anxiety Problems	.13/.17
Somatic Problems	.08/.12
Attention Deficit /	
Hyperactivity Problems	.04/.19
Oppositional Defiant	
Problems	.02/.03

Table 9-B (Continued)

Scale	Si3
Conduct Problems	.00/.10

Note. $n = 260$ for boys; $n = 151$ for girls. Correlations for boys are listed before the backward slash (/) and correlations for girls are listed after the backward slash (/). For boys, representative point estimates with confidence intervals are as follows: $r = .01$, 95% CI [-.11, .13]; $r = .11$, 95% CI [-.01, .23]; $r = .18$, 95% CI [.06, .30]; $r = .26$, 95% CI [.14, .37]; $r = .33$, 95% CI [.22, .43]. For girls, $r = .01$, 95% CI [-.15, .17]; $r = .11$, 95% CI [-.05, .27]; $r = .18$, 95% CI [.02, .33]; $r = .26$, 95% CI [.11, .40]; $r = .33$, 95% CI [.18, .47].

Correlation coefficients $\geq |.20|$ are bolded. Underlined scores represent conceptually related scales. CBCL = Child Behavior Checklist; D1 = Subjective Depression; D2 = Psychomotor Retardation; D3 = Physical Malfunctioning; D4 = Mental Dullness; D5 = Brooding; Hy1 = Denial of Social Anxiety; Hy2 = Need for Affection; Hy3 = Lassitude-Malaise; Hy4 = Somatic Complaints; Hy5 = Inhibition of Aggression; Pd1 = Familial Discord; Pd2 = Authority Problems; Pd3 = Social Imperturbability; Pd4 = Social Alienation; Pd5 = Self Alienation; Pa1 = Persecutory Ideas; Pa2 = Poignancy; Pa3 = Naivete; Sc1 = Social Alienation; Sc2 = Emotional Alienation; Sc3 = Lack of Ego Mastery Cognitive; Sc4 = Lack of Ego Mastery Cognitive; Sc5 = Lack of Ego Mastery Defective

Table 9-B (Continued)

Inhibition; Sc6 = Bizarre Sensory Experiences; Ma1 = Amoralty; Ma2 = Psychomotor Acceleration; Ma3 = Imperturbability; Ma4 = Ego Inflation; Si1 = Shy/Self Consciousness; Si2 = Social Avoidance; Si3 = Alienation Self/Others.

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