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Adolescent Psychopathology Scale as a Screeners for Incoming Juveniles within Residential Facilities

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THE FLORIDA STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

ADOLESCENT PSYCHOPATHOLOGY SCALE AS A SCREENER FOR
INCOMING JUVENILES WITHIN RESIDENTIAL FACILITIES

By

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ABSTRACT

The study examined the utility of the Adolescent Psychopathology Scale - Short Form (APS-SF) as a screening instrument for assessment of the mental health needs of incoming juveniles within a Department of Juvenile Justice residential facility. The APS-SF was compared to a well-validated, semi-structured diagnostic interview, the Structured Clinical Interview for DSM-IV Childhood Diagnoses (KID-SCID), within a sample of 50 male juvenile offenders, 14 to 19 years of age. Overall, the findings offer modest support for the use of the APS-SF as a screener for mental health problems within juvenile justice settings.

CHAPTER 1

INTRODUCTION

Providing effective treatment of mental health problems among juvenile offenders is a public health concern (Mears, 2004; Cohen 1998). The prevalence of mental health problems among juvenile offenders is estimated to be about twice that of the rates found for juveniles in the general population (Underwood et al., 2004). Yet the mental health problems of juvenile offenders often go undetected and untreated (Teplin et al., 2005). Untreated mental health problems among juvenile offenders have been associated with short term and long term rehabilitation difficulties (Atwood, Gold, & Taylor, 1989; McManus, et al., 1984; Myner, et al., 1998; Ganzer & Sarason, 1973; Lueger & Cadman, 1982; Wierson & Forehand, 1995). Moreover, failure to treat the mental health problems of offenders is associated with higher rates of recidivism, adult offending, and other negative outcomes (e.g. unstable employment) (Lexcen & Redding, 2000; Weirson, et al., 1992, Mears, 2004). Taken together, these studies underscore the importance of providing effective interventions to juvenile offenders with mental health problems. To do so requires correct identification of those juvenile offenders in need of treatment. Unfortunately, little empirical research has been conducted to establish screening measures useful in assessment of mental health problems within this population (Wasserman, 2004). Without accurate assessment, the chances of appropriate treatment delivery to juveniles are substantially diminished. This, in turn, could increase risk of higher recidivism and more adverse outcomes than might otherwise have occurred. The current study examined the utility of the Adolescent Psychopathology Scale–Short Form, a promising measure for screening incoming juveniles for mental health concerns who are committed to state residential facilities.

Assessing mental health needs of juvenile offenders

Due to the limited financial and professional resources of the juvenile justice facilities, it is challenging to assure accurate assessment of mental health problems. As reported by a recent study, only four percent of randomly selected juvenile detainees with a major mental disorder and associated impairments had been detected and treated during commitment to a detention center (Teplin et al., 2005). An earlier study found that the strategy for referring an offender for mental health services was also lacking (Barnum & Keilitz, 1992). These investigators reported that requests for clinical evaluations were often made on the basis of risk factors important to the facility (e.g. seriousness of the offense, self destructive behavior and aggressive behavior). While these are important factors to evaluate, a more thorough assessment of the overall needs of juvenile offenders is necessary to reduce the number of offenders with mental health disorders who go unnoticed and untreated (Rogers et al., 2006).

The most foolproof way of identifying the mental health needs of juveniles remanded to residential placements is to have highly trained clinicians conduct in-depth evaluations of all incoming juvenile offenders. Juvenile justice facilities simply do not have the resources available to conduct full psychological evaluation by appropriately trained clinicians for all incoming offenders. To provide a solution to this problem, systematic screenings should be implemented to identify juveniles with mental health problems. Those juveniles identified by the screeners should then be referred for a full psychological evaluation. Ideally, the screening method would require minimal immediate involvement by mental health professionals, but would be sensitive enough to flag potential mental health problems for further evaluation as needed.

There are several criteria that are important to consider in selecting a screening measure for use with this population. First, the measure must be reliable and valid for identifying adolescents who are at risk for mental health disorders as classified by the DSM. Second, due to the constraints of most juvenile justice facilities, the measure should be one that requires minimal time (less than 30 minutes), and can be administered by nonprofessional staff, preferably using a group administration format. Finally, it is important that the measure have a readability score that is commensurate with the reading abilities of most juvenile offenders which is judged to be lower than juveniles within a community setting.

Adolescent Psychopathology Scale as a screening tool for juvenile offenders

The Adolescent Psychopathology Scale- Short Form (APS-SF) is a promising screener: it is brief (20 minutes), is written at a 3rd grade reading level, and can be administered to groups of respondents within a classroom setting. The scales within the APS-SF consist of six DSM-IV diagnoses, as well as six psychosocial scales developed to address a range of psychopathology. The scales on the APS-SF include: Substance Abuse, Conduct Disorder, Oppositional Defiant Disorder, Generalized Anxiety Disorder, Posttraumatic Stress Disorder, Major Depression, Eating Disorder, Suicide, Anger/Violence Proneness, Self Concept, Academic Proneness Scale, and Interpersonal Problems (Table 1). In addition, the APS-SF includes two validity indicator scales (Defensiveness and Inconsistency), as well as four “response style” indicators. The defensiveness indicators consist of six questions that are designed to identify a defensive or overly desirable response style (e.g. “I always admitted it when I made a mistake”). The Inconsistency indicators consist of fourteen pairs of questions that are designed to identify an inconsistent response style (e.g., “I was sometimes upset with my parents” and “I never got upset with my parents”.) The response style indicators represent an important addition to the self report screener by allowing for the type of answer that most appropriately addresses the question. For example, questions regarding symptoms that are best described as either present or absent (e.g. “I used a weapon in a fight”) are represented in a true/false format. Moreover, questions best described by general frequency or duration (e.g. “I felt sad”) are reported as never, almost never, sometimes, and nearly all the time (Reynolds, 1998a). Once completed, the APS-SF creates an easily interpretable clinician report. As seen in Table 2, the report consists of a five-level system that connects t-score deviation from the normative mean to clinical severity level.

To date there are no published studies that examine the validity of the APS-SF within a juvenile justice setting. Several studies have, however, used the APS-SF within a juvenile justice population to establish base rates of psychopathology. Unfortunately, these studies cited the reliability and validity of the APS-SF from the community/clinical studies previously reported, instead of validating the instrument within a juvenile justice setting (Lennings et al., 2006; Salekin et al., 2004; Blumentritt et al., 2004; Bickel et al 2002). Due to the unique nature of juvenile justice settings it is important to assess the validity and utility of the APS-SF within this population.

Present study

The primary aim of the present study was to examine the validity and utility of the APS-SF as a screening measure for identifying mental health problems among juvenile offenders remanded to a correctional facility. In the present study, utility was indexed by the accuracy with which APS-SF scores identified juvenile offenders who met the criteria for one or more DSM IV diagnoses as determined by a semi-structured diagnostic interview. Semi-structured diagnostic interviews conducted by mental health professionals are considered to be the “gold standard” for assessing mental health disorders (Wasserman, 2005; First et al., 2002). For this study,

diagnoses were based on the Structured Clinical Interview for DSM-IV Childhood Diagnoses (KID-SCID) by masters level clinicians with extensive training and experience in administering the KID-SCID.

Validity of the APS-SF scores was assessed by point biserial correlations between APS-SF subscale scores and target KID-SCID diagnoses; significant moderate correlations were expected. Utility of the APS-SF for identifying mental health disorders for this population was assessed by Receiver Operating Curves (ROC) and by diagnostic efficiency statistics including sensitivity, specificity, negative predictive value, positive predictive value, positive likelihood ratio, and negative likelihood ratio scores.

Receiver Operating Curves (ROC) analyses were conducted to evaluate the overall accuracy of the APS-SF subscales for detecting psychopathology. Specifically, the area under the curve (AUC) derived from the ROC was used to assess the discriminating ability of the APS-SF. According to Akobeng (2007), tests with AUC values greater than .9 have high accuracy, those with AUC values between .7 and .9 are considered to be moderately accurate, and those with AUC values between .5 and .7 have low accuracy (an AUC value of .5 reflects a chance result). It was predicted that the APS-SF subscales would have at least moderate diagnostic accuracy (i.e. AUC scores $\geq .70$).

The developers of the APS-SF used four t-score cut points to represent the deviation from the normative mean to clinical severity level (see Table 2). This comparison of scores from the normative mean allows clinicians to easily identify youth responding in a manner that is unique and potentially clinically relevant. The present study utilized several cut scores to assess the diagnostic efficiency of the APS-SF. Three of the four recommended cut points were included in the diagnostic efficiency statistics. The first cut off was a t score of 60 or above, which represents any youth scoring in the subclinical symptom range. Also, the t-score cut off points of 65 (mild clinical symptoms) and 70 (moderate clinical symptoms) were included to investigate the diagnostic efficiency of the APS-SF if other cut points were used.

Table 3 provides definitions and formulas for each of the diagnostic efficiency statistics used in the present study. Tests with high sensitivity are useful for “ruling out” disorders whereas tests with high specificity are useful for “ruling in” disorders. Consequently, positive scores are most useful for tests with high specificity and negative scores are of greatest value for tests with high sensitivity. Positive and negative predictive values provide information about probability of a disorder being present or absent based on results of a screening instrument. The probability that a person with a positive score (meaning a score above a clinical cut-off) actually has the target disorder is the positive predictive value (PPV) of the measure. The proportion of persons with a negative score (i.e., below the clinical cut-off) who do not have the target disorder is the negative predictive value (NPV) of the measure. If the goal of using the APS-SF is to make sure that no juvenile offenders with mental health problems are overlooked, then the sensitivity and NPV of the measure are of greatest importance (i.e., at least above .70). One wants to identify all of the juvenile offenders at risk for psychopathology so that they are provided with more extensive psychological evaluations (e.g., diagnostic interviews) and provided appropriate treatment if indicated. If the APS-SF misses diagnoses that could be detected by a more thorough diagnostic evaluation, then it is not serving the purpose of identifying juvenile offenders that need follow-up evaluations. Although the sensitivity and NPV of the APS-SF are paramount, the specificity and PPV of the measure also have implications for the utility of this measure. These values must be high enough (i.e., at least above .50) to prevent clinicians from

having to spend a considerable amount of time following up frivolous leads, thus reducing its utility as a screening measure.

Another indicator of diagnostic efficiency is likelihood ratios (LRs). As described in Table 2, LRs incorporate the sensitivity and specificity of the APS-SF, and represent a single indicator that is more clinically helpful than the sensitivity and specificity (Akobeng, 2007c). This is because the LR describes how many times more or less likely individuals with a disorder are to be identified by the screener. LRs are calculated for a positive test (LR+) and for a negative test (LR-). LR+ scores greater than 1 indicate that positive test results (i.e., in the APS-SF, scores above a selected cut-score) are more likely to occur in individuals with the disorder than those without the disorder. LR- scores lower than 1 mean that a negative test is more likely to occur in people without the disorder than in people with the disorder. The advantage of likelihood ratios over sensitivity and specificity is that they can be used in conjunction with known base rates of disorders in populations of interest so that one can determine for an individual with a specific test what his or her odds are of having a particular disorder. This information is helpful for interpreting test results across populations known to differ in the base rates of disorders. It was expected that out of the three cut off scores, the APS-SF scales cut off score that is chosen will have at least a small increase in the likelihood of ruling out disease (LR- is less than 1) (Akobeng, 2007a). In addition, it was predicted that the LR+ would show that there is an increased probability that the diagnosis is present when the APS-SF signals for follow-up evaluation (LR+ is 2 or greater) (Akobeng, 2007a).

The diagnostic efficiency of the APS-SF was examined for individual subscale predicting corresponding diagnoses (e.g., Depression subscale predicting Mood Spectrum Disorders) and for the scale as a whole. With regard to the latter, diagnostic efficiency statistics were conducted to examine the diagnostic the ability of the collapsed APS-SF scales to predict the need for a complete follow-up mental health assessment (i.e., does a t-score exceeding a specified cut-score – either 60, 65, or 70 – on any of the APS-SF subscales accurately identify youth who meet diagnostic criteria for any disorder?). This was examined by collapsing the APS-SF scales into one variable that identified if a youth scored greater than the selected t-score cut off for any scale. This computed variable was compared to the collapsed KID-SCID spectrums. Moreover, the KID-SCID spectrums were collapsed into one variable that identified if a youth met for any of the KID-SCID spectrums. These collapsed variables were compared to examine the ability of any scale on the APS-SF to predict the need for a full KID-SCID.

CHAPTER 2

METHODS

Participants

Data were obtained from the files of 50 male juvenile offenders committed to a Department of Juvenile Justice residential treatment facility in the southeastern United States (all identifying information was removed from the data prior to making it available to the researchers). The residential facility specializes in the rehabilitation of severe and chronic juvenile offenders (i.e. must have received at least one felony adjudication). The participants ranged in ages from 14 to 19 years of age, with a mean age of 16.5. The sample was predominantly African American (48%) and Caucasian (32%). The range in grade level was 7th grade to a GED, with the average grade as 9.7 and the standard deviation of 1.50.

Measures

Adolescent Psychopathology Scale Short Form (APS-SF). The APS-SF is a brief self report measure of psychopathology and problem behaviors for adolescents. The APS-SF was developed from the standard form of the Adolescent Psychopathology Scale (APS; Reynolds, 1998b, 1998c, 1998d). The original APS was a 346 item measure designed to assess for DSM-IV disorders and psychosocial problems.

The APS-SF was developed to provide clinicians with a brief, reliable and valid measure of adolescent psychopathology and psychosocial problems (Reynolds, 1998a). The measure has 115 questions and takes 15-20 minutes to complete and was developed for children ranging from 12 to 19 years of age. The APS-SF consists of twelve scales that were developed to examine the presence and severity of important domains of psychopathology. Six of the twelve scales are based on DSM-IV diagnostic criteria: Conduct Disorder (CND), Oppositional Defiant Disorder (OPD), Substance Abuse (SUB), Generalized Anxiety Disorder (GAD), Posttraumatic Stress Disorder (PTSD), and Major Depression (DEP). The final six scales represent psychosocial problem domains for adolescents: Anger Violence Proneness (AVP), Academic Problems (ADP), Eating Disturbance (EAT), Suicide (SUI), Self Concept (SCP) and Interpersonal Problems (IPP). The APS-SF differs from other traditional tests in at least two ways: it includes multiple response formats (i.e. the response format is based on the type of symptom being examined), and it evaluates symptoms across different time periods (i.e. 2 weeks, 1 month etc.). In addition, the APS-SF includes two validity indicator scales (Defensiveness and Inconsistency). The defensiveness scale consists of 6 questions that provide information about the willingness of the youth to divulge information (e.g. "In the past 6 months I have always done the right thing"). The Inconsistency scale consists of 14 questions that provide information about inconsistent responding (e.g. "I felt good about myself & I feel that I am a worthless person").

The APS-SF has good reliability and validity within clinical and classroom samples (Reynolds, 1998a). Internal consistency reliability was examined using alpha (Chronbach, 1951). The alpha rating for the standardization sample ranged from .82 to .91. Validity was compared to a number of different measures including: a self report measure (e.g. MMPI), as well as factor analysis and group validity comparisons between school and clinical samples (Reynolds, 1998a). As reported in the APS-SF manual, the correlations compared to the MMPI for criterion-related validity coefficients were moderately strong (Reynolds, 1998a). Moreover, high correlations that emerged between related scales further established concurrent validity. In addition, factor

analytic support emerged that supports the APS-SF as a multi-dimensional measure. Finally, the contrasted group's validity showed significant differences between the clinical and standardization (school) samples on both internalizing and externalizing clinical scales (Reynolds, 1998a).

The following subscales were included in the study: Substance Abuse, Generalized Anxiety Disorder, Posttraumatic Stress Disorder, Major Depression, Suicide, Anger/Violence Proneness, Self Concept, Academic Proneness Scale, and Interpersonal Problems (Table 1). Three scales were excluded due to very high (conduct disorder and oppositional defiant disorder subscales) or very low (eating disorder subscale) base rates within this population. In addition to exclusion of certain APS-SF scales, special considerations were required for the 5 psychosocial scales (e.g. Academic Proneness Scale, Suicide, Self Concept, Interpersonal Problems, and Anger/Violence Proneness) on the APS-SF that do not map directly to DSM-IV disorders in all of the analyses. The first psychosocial scale was the Academic Proneness Scale. The Academic Proneness Scale is composed of 9 questions related to DSM symptoms of ADHD, as well as items related to learning in the classroom, completing homework, and getting into trouble at school. For this reason it was decided to examine the ability of the Academic Proneness Scale to predict a diagnosis of ADHD by the KID-SCID. Secondly, there are 6 items of the APS-SF that address suicidal ideation. This scale score was compared to suicidal ideation and behaviors as assessed by a framework discussed in Joiner et al, (1999) (Figure 1). Furthermore, the Self Concept Scale and Interpersonal Problems Scale were evaluated to see the extent to which they correlate with mood disorders, anxiety disorders and or adjustment disorders by the KID-SCID. The self concept scale consists of 9 items on the APS-SF that address self concept and self worth. The scale assesses two broad domains a) feelings of worthlessness and self-denigration, and b) physical and social self concept and perceived evaluation of self by others. In addition, the interpersonal problems scale consists of 11 items that address interpersonal problems with relationships, loneliness, lack of friends, social introversion and a sense of things are going wrongs in one's life. No specific predictions were made in regards to the Anger/Violence scale, but it was included in the exploratory analyses to examine its potential contribution to the prediction of DSM-IV diagnoses.

Structured Clinical Interview for DSM-IV Childhood Diagnoses (KID-SCID). The Structured Clinical Interview for DSM-IV Childhood Diagnoses (KID-SCID) served as the criterion measure to which APS-SF scores were compared. The KID-SCID is a semi-structured interview modeled after the Structured Clinical Interview for DSM-IV Diagnoses for adults (SCID). It was created for use with 7-17 year olds. A major strength of this interview is that it provides structure for the clinician to follow, increasing reliability between clinician diagnoses. The structure consists of seven modules: Disruptive Behavior Disorders, Mood Disorders, Psychotic Disorders, Anxiety Disorders, Psychoactive Substance Use Disorders, Adjustment Disorder, and Eating Disorders. The KID-SCID was first developed by Hien et al. in 1994 and is modeled after the adult Structured Clinical Interview for DSM-IV Diagnoses (SCID) (Spitzer, 1992). The psychometric properties of the SCID with adult populations are well established (for review see Segal, 1997). Moreover the extension of this adult measure with an adolescent population have produced moderate to high inter-rater reliability. (Martin et al., 2000).

While psychometric evaluations for the KID-SCID are ongoing, several studies have supported the reliability of this measure with adolescent samples (Smith et al., 2005; Matzner et al., 1997). These studies demonstrated fair to excellent test retest reliability for various anxiety disorders (.44 to 1.0), as well as disruptive behavior disorders (.63 to .84) (Matzner et al., 1997).

Additionally, preliminary findings suggest excellent interrater reliability for the disruptive disorder module (.84 to 1.0) (Smith et al., 2005). The KID-SCID was chosen over other semi-structured interviews because of the abovementioned findings regarding the psychometric properties of the SCID, promising preliminary findings of the KID-SCID, as well as the age appropriate diagnoses generated by the KID-SCID.

The modules administered within the KID-SCID were: Mood Disorders, Disruptive Disorders, Psychotic Disorders, Anxiety Disorders, Psychoactive Substance Use Disorders, and Adjustment Disorders. For the purposes of the study, three disorders (Conduct Disorder, Oppositional Defiant Disorder, and Eating Disorders) were excluded from the KID-SCID interviews. The Conduct Disorder and Oppositional Defiant Disorder questions were omitted as the base rates of both disorders tend to be very high in samples of juvenile offenders, so the contribution of this knowledge is minimal; the Eating Disorder questions were excluded because of the very low base rate within male juvenile justice populations. In addition, the Psychotic Disorders module was administered but excluded from analyses due to very low frequency of positive diagnoses (6 percent) and because it had no related APS-SF scale

Inter rater reliability of diagnoses derived from KID-SCID interviews were examined for 20% of the diagnostic interviews (n=10). Reliability raters were master level clinicians trained in the use of the KID-SCID interview who were blind to diagnoses made by the original raters. Five of the interviews were assessed by randomly chosen voice-recorded interviews. For KID-SCID interviews for which audio recordings were available (n = 29; 58% of the total number of interviews), 5 were randomly selected to be coded by a second rater. For interviews for which there were no audio recordings (n= 21), reliability was assessed by choosing 5 protocols with the most detailed notes (i.e. description of symptoms next to ratings of criteria) to be coded by an independent rater. Kappa scores of .85 and .77 were obtained for voice-recorded and written protocols, respectively. These scores are based on agreement across all possible diagnosis and are considered to demonstrate good to excellent interrater reliability (Landis & Koch, 1977).

Specific KID-SCID diagnoses were collapsed to form “spectrum” diagnoses. This was done because of low prevalence of specific disorders in the sample. Also, our interest was in how well the APS-SF performed in identifying juvenile offenders who should be referred for additional psychological assessment. Knowing the specific disorder for which they were at risk was less important than knowing which individuals were at risk for disorders within a general spectrum of psychopathology. Three spectrum disorder outcome variables were created: 1) Mood Disorders (Major Depressive Disorder, Bipolar Spectrum Disorders, and Dysthymia; 2) Anxiety Disorders (Separation Anxiety Disorder, Social Anxiety Disorder, Specific Phobia, Obsessive-Compulsive Disorder, Post Traumatic Stress Disorder, Generalized Anxiety Disorder, Panic Disorder, and Anxiety NOS), and 3) Substance Use (Alcohol Abuse, Alcohol Dependence, Substance Abuse, and Substance Dependence). In addition to these three spectrum variables, two individual disorders were retained: ADHD and Adjustment Disorder.

Protocol for assessment of suicidality. There are 6 items on the APS-SF that address suicidal ideation. This scale score will be compared to suicidal ideation and behaviors as assessed by a framework discussed in Joiner et al, (1999) (Figure 1). The framework is based around two domains of suicidal risk: history of past attempt and the nature of current suicidal symptoms. These two domains have emerged as critical variables in suicide research, thus guiding the clinician in making an assessment of suicide (Joiner, et al., 1999). The clinicians administering the KID-SCID followed the decision-tree summary of procedure developed by

Joiner et al., 1999 to determine the level of suicidality. If suicidal ideation was reported the level of suicide risk was documented (i.e., low, moderate or severe).

Procedures

Within 30 days of arrival to the Department of Juvenile Justice residential facility, all adolescents admitted to the facility completed the APS-SF and the KID-SCID. The APS-SF was administered in a classroom setting with 0 to 5 other participants present. The APS-SF was administered by a clinical staff member according to the procedures and script recommended by the APS-SF Professional Manual. The KID-SCID was administered in a private setting by clinical staff members who had been trained by the standard training methods distributed by the SCID development group.

CHAPTER 3

RESULTS

Preliminary analyses

Preliminary analyses included an examination of the response validity of the APS-SF profiles, and a test for order effects. The number of APS-SF protocols that were determined to be invalid by APS-SF standards was reported. Response validity is determined by two scales; the Defensiveness Scale (DEF) and the Consistency Response Scale (CNR). As recommended by the APS-SF manual, t-scores above 80 for either of these scales are reported as indicative of an invalid protocol. There were no APS-SF protocols deemed to be invalid in this sample using these standards (e.g. T-score above 80). The DEF scale had a mean of 55.32 and the standard deviation was 11.63. In comparison, the APS-SF developers reported a mean of 50.74 and standard deviation of 10.41 for the DEF scale. The CNR scale had a mean of 48.04 and a standard deviation of 7.73. In comparison, the APS-SF developers reported the CNR scale mean was 50.59, with a standard deviation of 10.81.

Comparisons were made between youth that received the APS-SF first and those who received the KID-SCID first to test for order effects. The patterns of associations between APS-SF and the KID-SCID do not differ depending on the order of administration.

Descriptive Statistics.

The means for the t-scores for the APS-SF scales included in the study ranged from 49.82 to 54.32; with standard deviations ranging from 8.95 to 12.75 (Table 5). Most APS-SF subscales had at or above 20 percent frequency at the t-score cut off of 60. For example, the Depression, Interpersonal Problem, Anger Violence Proneness, Interpersonal Problems, Academic Proneness, Post Traumatic Stress, and Substance Use scales all had a 20-30 percent frequency of boys who received t-scores above 60. In contrast, two scales were endorsed significantly less; the Self Concept Scale only had 6 percent of participants receive a t-score of 60 or above, and the suicide scale did not have any participant receive a t-score above 60. The Self Concept and Suicide scales were excluded from further analyses due to the lack of variability.

Internal consistency of the APS-SF was examined by calculating the coefficient alpha (Cronbach, 1951) for each subscale. Table 5 presents the alpha coefficient obtained in this sample. The seven APS-SF scales ranged from .67 to .90 (Table 5). Of the eight scales, four scales exceeded an alpha of .8 (Academic Proneness Scale, .90; Generalized Anxiety Disorder Scale, .81; Depression Scale, .85; Anger Violence Proneness, .90). Of the remaining three scales two of them had an alpha coefficient between .7 and .79 (e.g. IPP, PTSD). The Substance Abuse Scale (SUB) had an alpha score of .67. In contrast, the alpha coefficients from the standardization sample ranged from .79 to .86.

Intercorrelations among APS-SF subscales

Table 7 presents the intercorrelations between APS-SF subscales. As expected, the internalizing scales were significantly and positively correlated at the .01 level (e.g. DEP with GAD and PTS, and PTS with GAD) and ranged from .70 to .84. Furthermore, the IPP, AVP and ADP also were significantly and positively correlated to each other and the internalizing scales. In contrast, the SUB scale did not have as strong of a correlation between the other six scales. The SUB scale did, however, correlate with the ADP and AVP scales at $p=.037$ and $p=.040$, respectively.

Correlations of APS-SF subscales and KID-SCID diagnoses

In regards to the point biserial correlations between the APS-SF scales and KID-SCID spectrums, it was predicted that the APS-SF scales would be significantly associated with corresponding diagnoses based on the semi-structured interview. With the exception of the MDD Scale, the APS-SF scale scores were positively and significantly correlated with corresponding spectrum diagnoses (Table 8). Moreover, the magnitude of the majority of the hypothesized correlations were in the moderate range ($r = .41-.60$). The correlation between the Academic Proneness Scale and the KID-SCID ADHD diagnosis was slightly lower than the other correlations ($r = .34$). The IPP and AVP scales significantly correlated with anxiety spectrum and adjustment disorders (r 's ranged from .33 to .47).

Receiver Operating Characteristics (ROC)

The purpose of the ROC analyses was to report how well the APS-SF identifies a high risk group that should be referred for a more in-depth evaluation. Figures 2-6 report the Area Under Curve (AUC) for each APS-SF scale and related KID-SCID spectrum; AUC values of .70 or greater were used to define moderate accuracy (i.e., ROC of .52). The mood disorder spectrum was the only outcome for which no APS-SF scale was deemed to have at least moderate accuracy. For the KID-SCID anxiety spectrum disorders, both APS-SF scales had AUC values above .70 (GAD, and PTS). As predicted, the APS-SF Academic Proneness scale was moderately accurate in discriminating between youth with and without ADHD. Finally, the IPP scale and the SUB scale were strongly (AUC above .80) accurate in detecting their related KID-SCID disorders.

Diagnostic Efficiency Statistics

The diagnostic efficiency of the APS-SF subscales for screening youth at risk for psychopathology were examined using cut-scores of 60, 65 and 70. The accuracy of the APS-SF for correctly identifying juvenile offenders at risk for psychopathology was assessed by comparing diagnostic classifications made by the APS-SF to diagnoses derived from the KID-SCID. These comparisons of classifications were done by calculating the sensitivity, specificity, LR+, LR-, NPV, and PPV for each of the three APS-SF cut-scores. These findings are presented in Table 9.

As expected the specificity values for the hypothesized scales and the related KID-SCID disorder spectrums were all above 50 percent. In addition, with the exception of the DEP scale, the sensitivity values for the hypothesized scales and the related KID-SCID diagnoses at a t-score cut off of 60 were all above 50 percent and ranged up to .80. While it is understood that sensitivity of 1.0 is not likely for a screening measure, the finding of sensitivity of .5 or less for some of the scales is concerning (e.g. the depression scale to mood spectrum) and only one of the scales sensitivity exceeded .70 (e.g., IPP scale to Adjustment Disorder).

The LR results combine both the sensitivity and specificity to provide a more thorough summary of the APS-SF abilities as a screener. The LR+ for the APS-SF scales and related diagnoses ranged from 2.3 (for DEP scale to mood spectrum) to 6.0 for the IPP scale and Adjustment disorder. These scores indicate at least a small increase in the likelihood of disorder. The LR-were as low as .23 (IPP scale to Adjustment Disorder) and ranged up to .84 (DEP scale to mood spectrum) for the APS-SF scales and related KID-SCID diagnoses. While neither the LR+ or LR- for the hypothesized scales and related KID-SCID spectrums are optimal (e.g. above 10 for LR+ and below .1 for LR-) they at least indicated a small increase in the likelihood of disorder for the LR+ (LR+ above 2) and at least a small decrease in the likelihood of the disorder for LR (LR- below 1.0).

The NPV scores of all APS-SF scales for targeted diagnoses exceeded the predicted 80 percent. In fact, for all of the targeted disorders, an NPV between .90 and 1.0. was obtained for at least one APS-SF scale cutpoint, but as previously mentioned, low base rates of the disorders can cause inflation of NPV scores. The PPV scores are not as important as the NPV scores and for the purposes of this study the PPV ratings should be higher than 50 percent (i.e. at least 50 percent of the students identified by the screener as being at risk end up developing a problem). The PPV scores ranged from .31 to 1.0 for the pair of hypothesized scales and KID-SCID diagnosis spectrums.

There were no specific hypotheses made in regards to what APS-SF scales would predict adjustment disorder diagnoses, or what the IPP and AVP scales would predict, but several promising results emerged. For example, the IPP scale had a sensitivity of .80, NPV of .98 and a LR+ of 6.0 when compared to adjustment disorder. Similarly, the AVP scale had a sensitivity of .63, NPV of .93, and a LR+ of 13.13 when compared to the anxiety spectrum.

Finally, diagnostic efficiency analyses were run to determine the utility of the APS-SF as a screening measure to identify youth that need a comprehensive mental health assessment. This was examined by conducting classification accuracy model comparing youth that had a t-score above a 60, 65 or 70 on any scale as compared to any KID-SCID spectrum positive diagnosis. As seen in table 10 the t-score cut off of 60 generates the most balanced classification accuracy results. For example, when using the t-score cut off of 60 the sensitivity is 79 percent and the specificity is 65 percent. Furthermore, the NPV is promising at .83 and the PPV was .58,. Finally, the Positive Likelihood Ratios was above 1 (2.22) and the Negative Likelihood Ratio was below 1 (.33).

CHAPTER 4

DISCUSSION

It is well documented that the prevalence rate of mental health disorders within juvenile justice facilities, is significantly higher than in the community population (Teplin, 2006). In addition, despite the high rates of mental health disorders within this population, there is evidence that the identification rate of mental health disorders is only four percent (Teplin et al., 2005). This lack of identification of juvenile offenders in need to mental health services has considerable consequences, including; higher rates of recidivism, adult offending, and other negative outcomes (e.g. unstable employment) (Lexcen & Redding, 2000; Weirson, et al., 1992, Mears, 2004). For these reasons it is imperative that there be reliable and valid screening for mental health problems in residential facilities for juvenile offenders.

Because of the unique characteristics of this population (e.g. adjustment from community to residential facility, high prevalence of mental health disorders and learning disabilities, etc.), screening measures that are valid and reliable for other populations may not be appropriate for this population. The current study sought to answer the question, “is the APS-SF a useful mental health screener for this population?” The findings from the current study suggest that the APS-SF shows promise as a useful screener for identification of juvenile offenders who need follow-up mental health assessment for a variety of reasons. First, it is brief (20 minutes), is written at a 3rd grade reading level, and can be administered to groups of respondents within a classroom setting, contains validity indicators to detect malingering, and is easily interpretable via a clinical report print out.

In addition to the abovementioned criteria, the validity results suggest that this population can validly respond to the APS-SF as a screening measure. No protocols had to be excluded due to invalid or inconsistent responding. Likewise, the internal consistency coefficients extended the moderate to high internal consistency of the APS-SF scales within a community and clinical population to juvenile detainees (e.g. alpha ratings for standardized sample ranged from .79 to .89, as compared to the current studies range of .67 to .90).

Comparison of the APS-SF scale scores to a gold standard diagnostic interview (KID-SCID) offer additional support for the validity of the screening measure via point biserial correlations, diagnostic accuracy statistics, and Area Under the Curve reviewed the possible cut scores for the APS-SF. The results from the point biserial correlations demonstrated a positive and significant correlation between all of the APS-SF scales and related KID-SCID spectrum disorders, with the exception of the DEP scale and mood spectrum.

Even though the validity findings support the overall psychometric properties and usefulness of this measure within this population, the decision to utilize the APS-SF as a screener lies mostly with the APS-SF ability to discriminate juveniles who do and do not meet for a disorder. Support for the utility of the APS-SF for identifying youth in need of further assessment was provided by the AUC scores. Moreover, the findings of the ROC analyses indicate that the APS-SF was moderately accurate in predicting mental health disorders with the exception of mood spectrum disorders.

In addition to understanding the ability of the APS-SF to discriminate youth with and without disorders, it is also clinically imperative to understand how useful the scales on the APS-SF are in referring youth for further evaluation. For the purposes of this study “useful” is defined

as how well the test did in determining which youth did not need further evaluation (i.e. ruling out disorders).

Overall, the results suggest that the APS-SF is most useful as a screener for mental health problems within this population when a youth receives a t-score of 60 or above on any scale. The classification accuracy statistics when comparing a t-score at or above 60 for any scale are most promising when compared to any KID-SCID spectrum disorder diagnosis. While the clinician can no longer just administer one module of the KID-SCID (instead the APS-SF signals the entire KID-SCID should be administered), the APS-SF accurately ruled out 40 percent of our sample for needing a follow-up mental health assessment. These results in addition to the high sensitivity (.79) combined with NPV of .83 and LR- of .33 demonstrate that when combined the scales are doing a good job of identifying youth that need further assessment. While specific benchmarks for determining what is adequate or acceptable classification accuracy of mental health screening instruments, above .70 is considered good. In addition, the NPV was good (.83) and the likelihood ratios were as would be expected (i.e. LR- below 1 and LR+ above 1).

When examining the specific scales, the diagnostic statistic that is most useful for determining utility is the NPV, (which is the proportion of youth with a negative test result who do not have a disorder). For each disorder the NPV varied by the cut-score chosen. Overall, all scales and hypothesized KID-SCID spectrum diagnoses (including the IPP scale predicting adjustment disorder) had NPVs close to 1 (e.g. above .90) for at least one cut off point, but as previously mentioned, the NPV is inflated when base rate of a disorder is low. Moreover, when examining which cut off produced the highest NPV it was clearly t-score > 60 for all APS-SF scales.

In addition to the NPV, another consideration in evaluation of the utility of tests for ruling out psychopathology is the sensitivity of the test (the percentage with the disease who have a positive test result). Moreover, if all the youth with a disorder test positive, then knowing that a youth has a negative score effectively rules out psychopathology. The APS-SF showed low to moderate sensitivity. After reviewing the sensitivity, a t-score cut off of 60 is the best fit for the using the APS-SF as a screener to identify youth in need of further mental health assessment. As would be expected, the sensitivity at a t-score cut off of 60 was consistently higher than the other t-score cut points for the APS-SF scales with related KID-SCID spectrum diagnoses.

In summary, when determining the utility (as defined as high NPV and high sensitivity) of the APS-SF within this population, the findings suggest that the utility is increased by using a cut off score of 60 (considered subclinical in APS-SF manual) opposed to the cutoff of 65 (considered mild symptoms in APS-SF manual) or 70 (considered moderately clinical in APS-SF manual). In addition, certain scales are most informative about specific KID-SCID spectrums of disorders. For example, the PTS and GAD scale are the most informative in regards to need of further assessment of anxiety disorders, and the SUB scale is the most informative in regards to need of follow-up substance use assessment. Finally, the IPP scale is best for predicting need for further assessment of adjustment disorder within this population.

Even if ruling out psychopathology is the primary concern for this study, it is still important to know how well a test “rules in” disorders. If one is highly accurate in ruling out psychopathology, but it comes at a cost of having in-depth evaluations of many youth for whom disorders are absent then it is not useful. For this reason it is important to consider PPV (proportion of kids with positive test result who have a disorder) and specificity (proportion of kids without disorder who have a negative test result). The highest PPV values per disorder range from a low of .33 (mood disorders), to .80 (anxiety spectrum). In addition, the specificity values

ranged from .96 (mood spectrum), to 1.0 (anxiety spectrum, substance spectrum, and adjustment disorder), thus suggesting that the APS-SF has acceptable levels of specificity. While some of the PPV value are smaller than would be expected (e.g., .33 for mood disorders), as previously mentioned the PPV value doesn't lend significant support to the main question of this study, which is can the APS-SF successfully serve as a screener (i.e., rule out boys who do not need further mental health assessment).

In regards to broader considerations regarding the utility of the APS-SF for use with this population the Likelihood Ratios (LR) were calculated. The LR is helpful for making individual predictions based on estimated prevalence rates in a population. The LR results for the APS-SF show only small enhancement to prediction. For example the most convincing LR- score was a .23 for the IPP scale with the adjustment disorder. These results suggest that the scales on the APS-SF generally fall into category of small increase in accurately ruling in or out psychopathology. Thus providing some information that improves prediction of which kids are likely to have or not have a disorder, but the results also suggest that one would not want to base the decision about referral for additional testing solely on this measure.

It is difficult to compare the findings described above to current assessment procedures within juvenile justice for two reasons. First, there are few standardized diagnostic assessment and screening instruments within juvenile justice to compare the results with. Also, the previous research that has examined well known standardized assessment procedures in juvenile justice (e.g. Computerized Diagnostic Interview Schedule for Children) do not report critical indicators of validity such as diagnostic accuracy statistics. Moreover, the APS-SF had "good to excellent" criterion validity within this sample. If a study did find that current assessment instruments within juvenile justice, such as the CDISC, also have "good to excellent" reliability, the APS-SF would still be recommended over the CDISC due to its brevity, ease of administration, etc.

The prevalence of psychopathology in the current sample, based on diagnoses generated from the KID-SCID interviews and APS-SF scores, is similar to the prevalence rates reported by Teplin (2002) in which diagnoses were generated by a computerized structured interview (DISC-IV; Robins et al., 1981). With the exception of the substance use disorders the findings from the APS-SF and KID-SCID are similar to the findings reported by Teplin. More specifically, Teplin found 16 percent frequency for mood disorders (compared to 10 percent in the current study), 21 percent frequency for anxiety disorders (compared to 26 percent in the current study), and 11 percent frequency for ADHD (compared to 14 percent in the current study). In contrast, their frequency of substance spectrum disorders was quite different from the current studies (i.e. Teplin 2002 found that 51 percent of juveniles met for a substance use disorder and the current study found 16 percent frequency). This is likely due to the differences in the amount of time a boy had spent at the facility before the diagnostic interviews were administered. Teplin, 2002 conducted their diagnostic interview while juveniles were at transitional facilities, so they were recently incarcerated and awaiting placement to a juvenile justice facility. In contrast, the current study was conducted within 14 days of arrival to a high security juvenile justice facility, thus they juvenile had likely already participated in a transitional program or had been remanded to other facilities.

Although the findings from the current sample must be replicated with an additional sample to reliably recommend a different cut-off score, these findings do suggest that clinicians interpreting the APS-SF scales should do follow-up assessment on the "above normal" category (e.g. t-score of 60 and up). In addition the findings suggest that clinicians should use other resources to decide if youth close to the recommended cut-off need further assessment (i.e. use

of Children's Depression Inventory to guide clinician in the decision to follow-up on a APS-SF Depression scale with a t-score of 60).

Limitations

The results from the current study are an important step in evaluating mental health screeners within this population. However, several limitations should be addressed in future studies. For example, the first is the concern about accuracy of self report within this population. In general children and adolescents are considered to be reliable informants for internalizing problems (Edelbrock, et al., 1986) but the unique context within juvenile justice facilities poses potential limitations to self report. For example, the youth have been at the facility for less than a month when they completed this measure and most are aware that mental health treatment decisions are being made (i.e. how many groups and type of individual therapy that will be required before they leave the facility). This may serve as a motivator for youth to deny symptoms (e.g. worried about legal or treatment implications if they admit substance abuse) or over-endorse symptoms (e.g. perceived benefits of exaggerating their symptoms for unique group treatment opportunities).

Although, the KID-SCID is well documented, the reliability of any "gold standard" diagnostic tool (e.g. KID-SCID) should be considered when making decisions based on the implications of these results. It is a possible limitation that the participants in this study did not disclose all information, on both the APS-SF and the KID-SCID interviews, due to fear of legal implications or embarrassment of peers learning of their symptoms (e.g. students sometimes asked if their answers were going to place them into certain treatment groups). Overall, the findings are promising and likely warrant further investigation with future samples.

Future studies should attempt to replicate this study's findings with a larger and more diverse sample (i.e. currently study conducted in male, severe offender population). Future studies should attempt to generalize these findings to female populations, as populations with less severity in their criminal offenses. Another limitation of the current study is that the results must be replicated with a validation sample in order to investigate additional t-score cut offs, and diagnostic efficiency statistics at those cut offs.

Conclusions and Future Research

In summary, the validity results provide support for the APS-SF within this sample (e.g. point biserial correlations, inter-correlations, internal consistency), as does the Area Under the Curve, but the classification accuracy findings (especially the sensitivity and LR-) are concerning. The findings from the classification accuracy statistics suggest that several immediate considerations should be made when interpreting the APS-SF within juvenile justice settings. First, the current study used a t-score cut off of 60 to increase the sensitivity of the APS-SF. The cut off was lowered from the recommended t-score of 65 because of the importance of not missing youth in need of further evaluation. Clinicians implementing the APS-SF as a screener should take this into consideration when interpreting juveniles' profiles and follow-up on any scales that are above a t-score of 60. In addition, the current study was not able to examine the reliability or validity of the APS-SF suicide scale, so additional measures of suicidality should be used as a supplemental screener. Overall, the classification accuracy results suggest that a t-score at or above 60 on any scale should signal a full structured mental health assessment.

Further research should follow-up the current derivation study with a validation study in order to examine the current findings with other populations. Most scales on the APS-SF provide information that helps to identify kids in need of further evaluation – certainly better than not

screening (e.g., GAD, PTSD, IPP, ADP, AVP, SUB). Despite this, the APS-SF should work in conjunction with additional brief and reliable methods for identifying youth in need of further assessment for mood disorders.

While the results from the current study do not support the APS-SF to serve as the sole screener for the need of assessment on specific mental health disorder, it is promising when considering the cost-benefit analysis. Moreover, the cost of administering the APS-SF are minimal (i.e. little professional and financial resources to administer, and produces an easily interpretable clinical output) compared to other lengthy structured diagnostic interviews (e.g. C-DISC). Also, the results from the current study indicate that the APS-SF offers useful information (i.e., correctly identified 79 percent of the youth who met criteria for one or more psychological disorders and accurately ruled out 40 percent of sample as needing further psych evaluation). In conclusion, while the results from the current study are not encouraging when considering the use of the APS-SF as the sole screener for assessment of specific mental health disorders, the APS-SF may have utility as a screener to identify juveniles in need of an overall assessment of their mental health.

Table 1

Overview of APS-SF Clinical Scales (Based on APS-SF Professional Manual)

Externalizing	Internalizing
Conduct Disorder	Generalized Anxiety Disorder
Oppositional Defiant Disorder	Posttraumatic Stress Disorder
Substance Abuse	Major Depression
Anger/Violence Proneness	Eating Disturbance
Academic Problems	Suicide
	Self-Concept
	Interpersonal Problems

Table 2

*Description of Clinical Severity Levels of Psychopathology Associated with APS-SF T Scores
(extracted from APS-SF professional manual)*

<u>T-Score range</u>	<u>SD* range</u>	<u>Clinical description/interpretation</u>
Below 60	below 1.00	Normal range
60 to 64	1.00 to 1.49	Subclinical symptom range
65 to 69	1.50 to 1.99	Mild clinical symptom range
70 to 79	2.00 to 2.99	Moderate clinical symptom range
80 and above	3.00 and above	Severe clinical symptom range

Standard Deviation range associated with T scores.

Table 3

Classification Accuracy Model

		Outcome	
		Problem	No Problem
Screen	Risk	a	B
	No Risk	C	D

Sensitivity = $a / (a+c)$

Specificity = $d / (b+d)$

Overall Accuracy = $(b+a) / (a+b+c+d)$

Positive Likelihood Ratio = $\text{Sensitivity} / (1 - \text{specificity})$

Negative Likelihood Ratio = $(1 - \text{sensitivity}) / \text{specificity}$

Positive Predictive Value = $a / (a+b)$

Negative Predictive Value = $d / (c+d)$

Table 4

Likelihood Ratios

LR	Interpretation
>10	Large and often conclusive increase in the likelihood of disorder
5-10	Moderate increase in the likelihood of disorder
2-5	Small increase in the likelihood of disorder
1-2	Minimal increase in the likelihood of disorder
1	No change in the likelihood of disorder
.5-1.0	Minimal decrease in the likelihood of disorder
.2-.5	Small decrease in the likelihood of disorder
.1-.2	Moderate decrease in the likelihood of disorder
<.1	Large and often conclusive decrease in the likelihood of disorder

Table 5

Descriptive statistics for APS-SF scale t-score

APS-SF scales	Mean (based on continuous scores)	SD (based on continuous scores)	Alpha Coefficients (based on continuous scores)	Cutpoint	Frequency
DEP	50.22	8.95	.85	t>60	10(20%)
				t>65	6(12%)
				t>70	1(2%)
PTS	54.32	10.61	.74	t>60	15(30%)
				t>65	8(16%)
				t>70	3(6%)
GAD	52.48	9.17	.81	t>60	10(20%)
				t>65	3(6%)
				t>70	2(4%)
SUB	53.94	12.75	.67	t>60	15(30%)
				t>65	11(22%)
				t>70	8(16%)
ADP	49.82	10.94	.90	t>60	13(26%)
				t>65	6(12%)
				t>70	0
IPP	50.24	9.87	.79	t>60	10(20%)
				t>65	7(14%)
				t>70	3(6%)
AVP	52.10	12.25	.90	t>60	11(22%)
				t>65	7(14%)
				t>70	5(10%)

Table 6

Descriptive statistics for KID-SCID spectrum diagnoses

<u>KID-SCID Modules administered</u>	<u>Frequency</u>
Mood Disorder Spectrum	4(8%)
Major Depressive Disorder	1(2%)
Dysthymia	2(4%)
Bipolar	1(2%)
Anxiety Disorder Spectrum	8(16%)
Separation Anxiety Disorder	1(2%)
Social Phobia	2(4%)
Specific Phobia	2(4%)
Obsessive Compulsive Disorder	1(2%)
Post Traumatic Stress Disorder	2(4%)
Generalized Anxiety Disorder	0
Panic Disorder	2(4%)
Anxiety Not Otherwise Specified	0
Substance Disorder Spectrum	13(26%)
Alcohol Abuse	1(2%)
Alcohol Dependence	6(12%)
Substance Abuse	4(8%)
Substance Dependence	8(16%)
Adjustment Disorder	5(10%)
Attention Deficit Disorder	7(14%)
Psychotic Disorder Spectrum	3(6%)

Table 7

Inter correlations between APS-SF scales (raw scores)

	APS_SUB	APS_GAD	APS_PTSD	APS_DEP	APS_ADP	APS_AVP	APS_IPP
APS_SUB	1.00						
APS_GAD	.096	1.00					
APS_PTSD	-.033	.842**	1.00				
APS_DEP	.020	.704**	.751**	1.00			
APS_ADP	.304*	.561**	.418**	.472**	1.00		
APS_AVP	.296*	.736**	.662**	.555**	.519**	1.00	
APS_IPP	.184	.759**	.713**	.686**	.498**	.836**	1.00

** denotes significance of .01 level * denotes significance of .05.

Table 8

Point Biserial Correlations for elevated APS-SF scales scores and relative KID-SCID diagnoses. (raw scores)

	Substance Use Spectrum	Anxiety Spectrum	Mood Spectrum	Adjustment	ADHD
APS_Substance Abuse	.545**	.313*	.004	.149	.299*
APS_GAD	.380**	.415**	.254	.188	.171
APS_PTSD	.254	.407**	.207	.106	.286*
APS_MDD	.210	.253	.261	.170	-.069
APS_ADP	.214	.090	-.240	.052	.344*
APS_IPP	.339	.404**	0.139	.377**	.161
APS_AVP	.259	.469**	.195	.331*	.252

** denotes significance of .01 level * denotes significance of .05

Table 9

APS-SF scales compared to KID-SCID spectrums

	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
Depression scale to Mood Spectrum							
	t>60	0.25	0.80	0.10	0.93	1.28	0.93
	t>65	0.25	0.89	0.17	0.93	2.3	0.84
	t>70	0.25	1	1	0.94	****	0.75
PTS Scale to Anxiety Spectrum							
	t>60	0.63	0.76	0.33	0.91	2.63	0.49
	t>65	0.50	0.90	0.50	0.90	5.25	0.55
	t>70	0.38	1	1	0.89	****	0.63
GAD Scale to Anxiety Spectrum							
	t>60	0.50	0.86	0.40	0.90	2.63	0.49
	t>65	0.38	1	1	0.89	****	0.63
	t>70	0.25	1	1	0.88	****	0.75
SUB scale to Substance Spectrum							
	t>60	0.62	0.81	0.53	0.86	3.25	0.47
	t>65	0.46	0.86	0.55	0.82	3.42	0.62
	t>70	0.38	0.92	0.63	0.81	4.74	0.67
IPP Scale to Adjustment Disorder							
	t>60	0.80	0.87	0.40	0.98	6.00	0.23
	t>65	0.40	0.89	0.29	0.93	3.60	0.68
	t>70	0.20	0.96	0.33	0.91	4.50	0.84
ADP Scale to ADHD							
	t>60	0.57	0.79	0.31	0.92	2.73	0.54
	t>65	0.14	0.88	0.17	0.86	1.23	0.97
	t>70	0.	1	****	0.86	****	1

Table 10

All APS-SF scales compared to all KID-SCID diagnoses

	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
	t>60	0.79	0.65	0.58	0.83	2.22	0.33
	t>65	0.63	0.81	0.67	0.78	3.26	0.46
	t>70	0.47	.90	.75	0.74	4.89	0.58

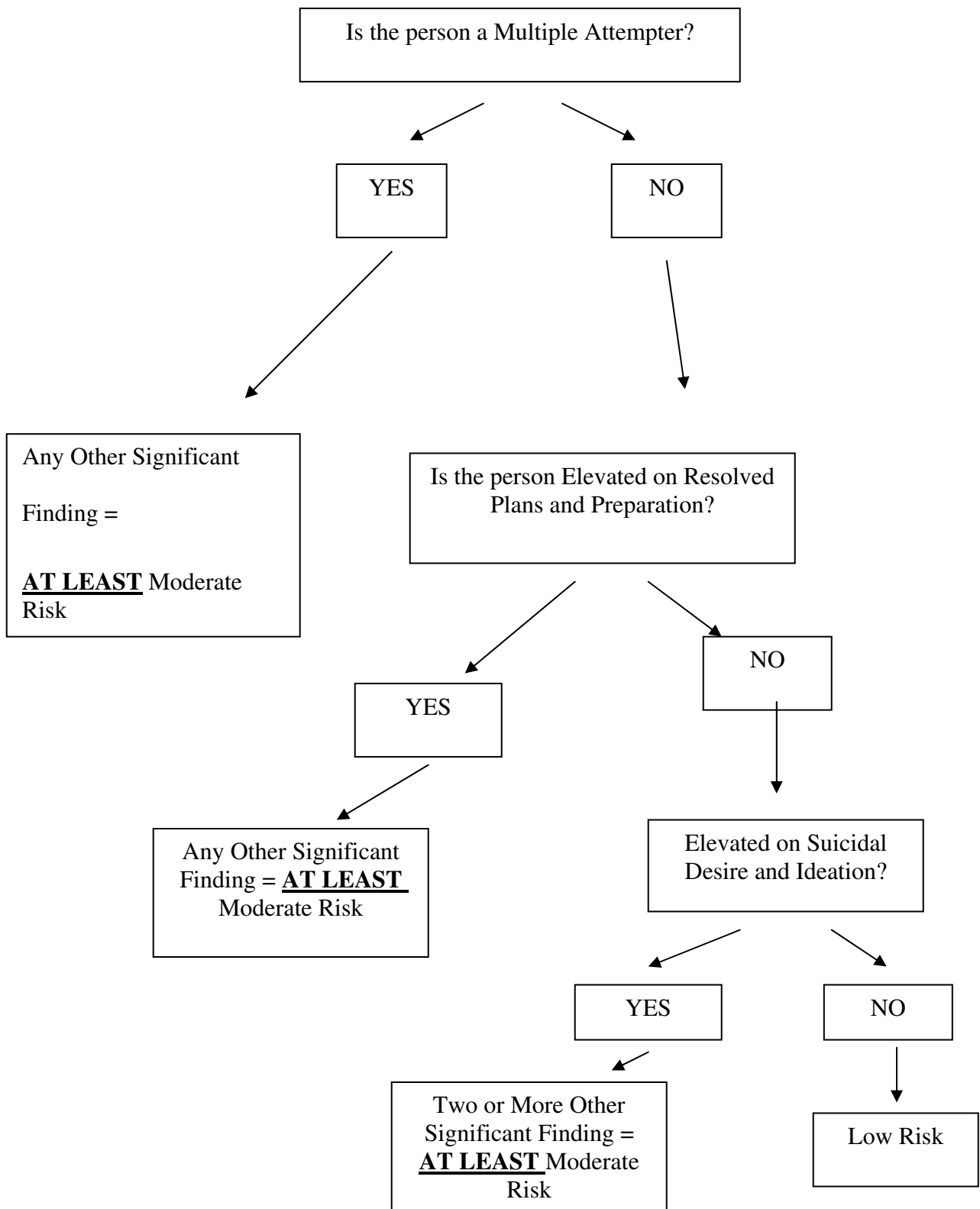
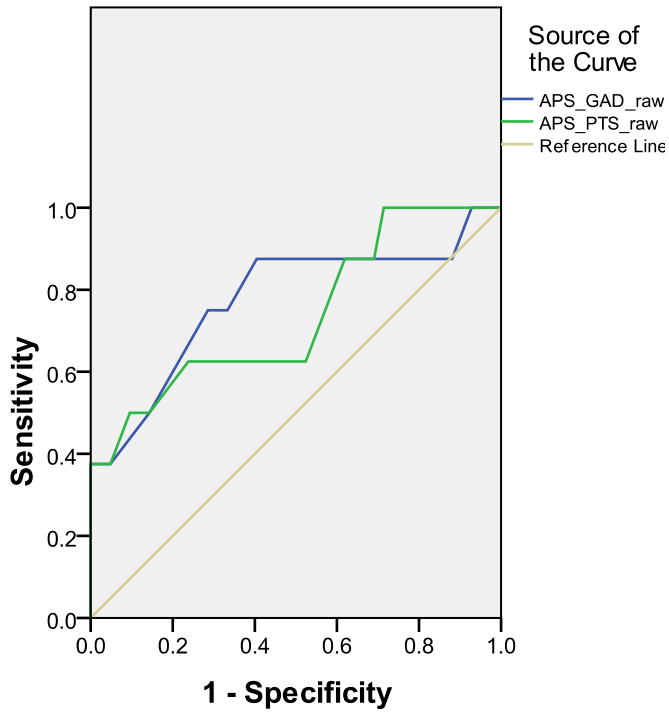


Figure 1

A decision-tree summary of procedure for assessment of suicidality (Joiner, Walker, Rudd, & Jobes (1999)).

ROC Curve



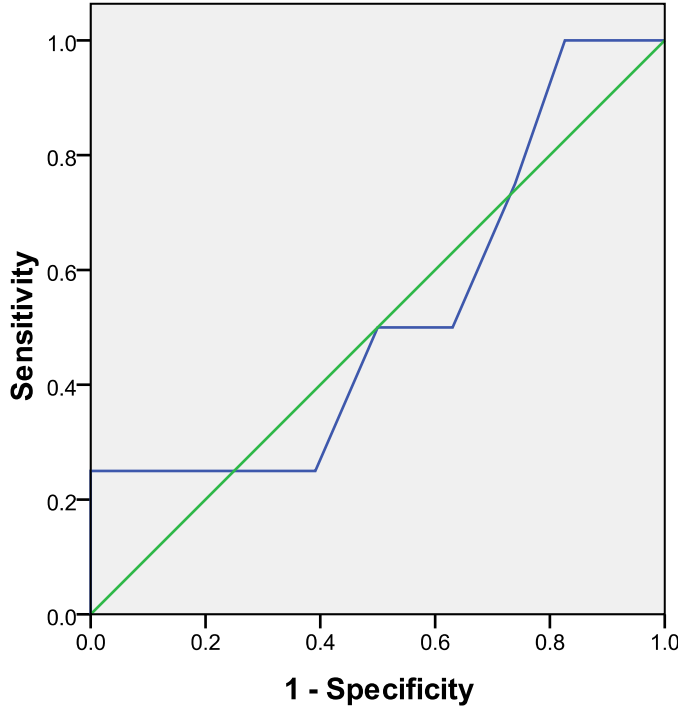
Diagonal segments are produced by ties.

	APS-SF Scales	AUC	SE	p
Anxiety Spectrum	PTS	.737	.106	.035
	GAD	.775	.106	.014

Figure 2

Area Under ROC curve for KID-SCID Anxiety Spectrum

ROC Curve



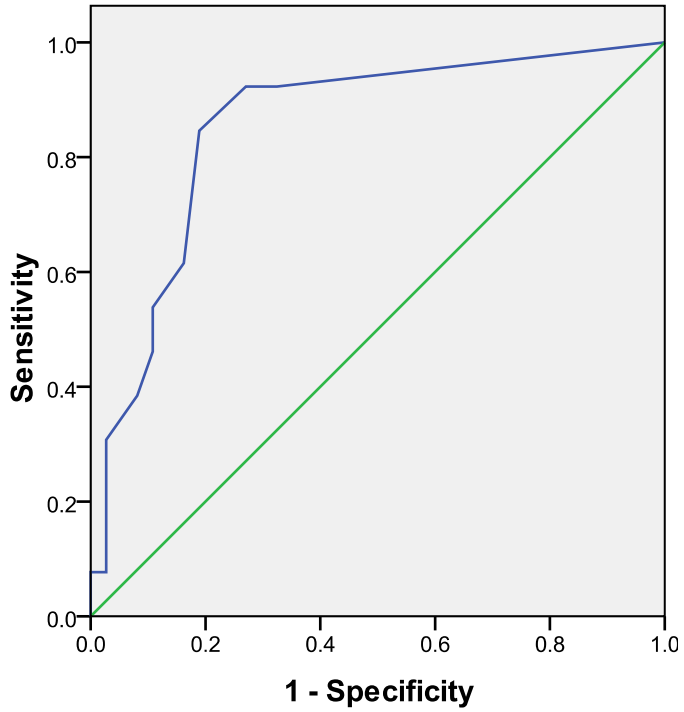
Diagonal segments are produced by ties.

		AUC	SE	p
Mood Spectrum	APS-SF DEP Scale	.522	.159	.886

Figure 3

Area Under ROC curve for KID-SCID Mood Spectrum

ROC Curve



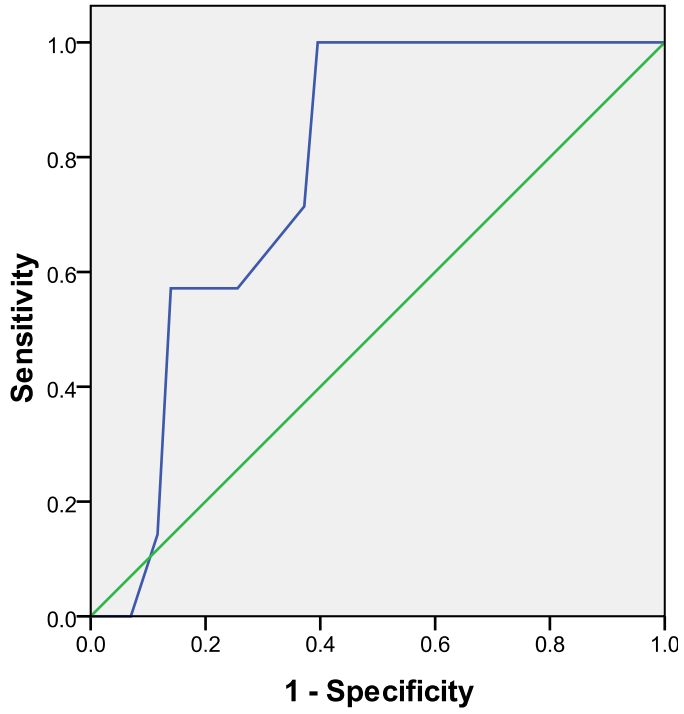
Diagonal segments are produced by ties.

		AUC	SE	p
Substance Spectrum	APS-SF SUB Scale	.854	.061	.000

Figure 4

Area Under ROC curve for KID-SCID Substance Spectrum

ROC Curve



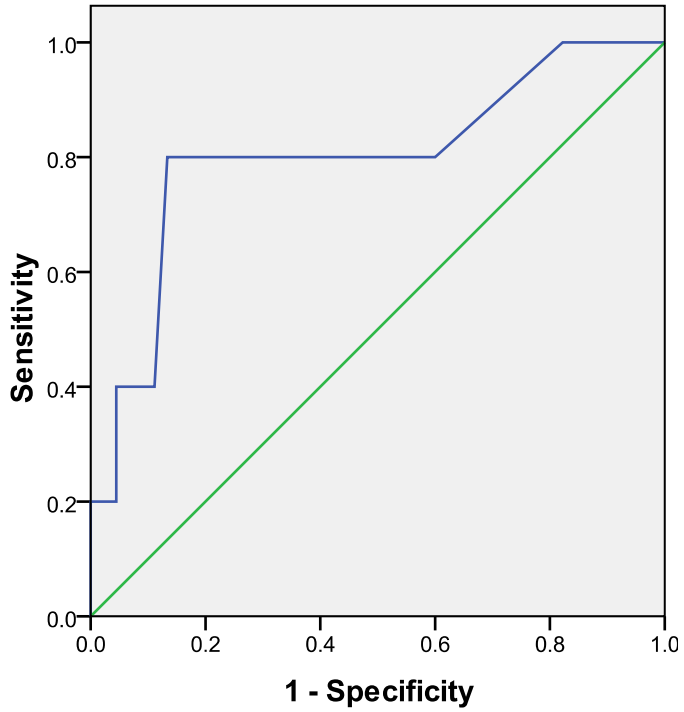
Diagonal segments are produced by ties.

		AUC	SE	p
ADHD	APS-SF ADP Scale	.777	.069	.020

Figure 5

Area Under ROC curve for KID-SCID ADHD

ROC Curve



Diagonal segments are produced by ties.

		AUC	SE	p
Adjustment Disorder	APS-SF IPP Scale	.80	.121	.029

Figure 6

Area Under ROC curve for KID-SCID Adjustment Disorder

APPENDIX A

APS-SF SCALES COMPARED TO KID-SCID MOOD SPECTRUM

Mood	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
DEP	t>60	0.25	0.80	0.10	0.93	1.28	0.93
	t>65	0.25	0.89	0.17	0.93	2.3	0.84
	t>70	0.25	1	1	0.94	****	0.75
PTS	t>60	.50	0.72	0.13	.94	1.77	.7
	t>65	0.25	0.85	0.13	0.93	1.64	0.88
	t>70	0.25	0.96	0.33	0.94	5.75	0.78
GAD	t>60	0.50	0.80	0.10	0.93	1.28	0.93
	t>65	0.25	0.95	0.33	0.94	5.75	0.78
	t>70	0	0.96	0.	0.92	0	1.05
SUB	t>60	0.50	0.72	0.13	0.94	1.77	0.70
	t>65	0.25	0.78	0.09	0.92	1.15	0.96
	t>70	0.25	0.85	0.13	0.93	1.64	0.88
ADP	t>60	0.00	0.72	0.00	0.89	0.00	1.39
	t>65	0	0.86	0.14	0.86	1.02	1.0
	t>70	0	1	****	0.92	****	1
IPP	t>60	0.25	0.80	0.10	0.93	1.28	0.93
	t>65	0.25	0.87	0.14	0.93	1.92	0.86
	t>70	0	0.93	0	0.91	0	1.07
AVP	t>60	0.25	0.78	0.09	0.92	1.15	0.
	t>65	0.25	0.87	0.14	0.93	1.92	0.86
	t>70	0.25	0.91	0.20	0.93	2.88	0.82

**** denotes zero in the denominator

APPENDIX B

APS-SF SCALES COMPARED TO KID-SCID ANXIETY SPECTRUM

APS-SF Scale	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
DEP	t>60	0.38	0.83	0.30	0.88	2.25	0.75
	t>65	0.25	0.90	0.33	0.86	2.63	0.83
	t>70	0.13	1	1	0.86	****	0.88
PTS	t>60	0.63	0.76	0.33	0.91	2.63	0.49
	t>65	0.50	0.90	0.50	0.90	5.25	0.55
	t>70	0.38	1	1	0.89	****	0.63
GAD	t>60	0.50	0.86	0.40	0.90	2.63	0.49
	t>65	0.38	1	1	0.89	****	0.63
	t>70	0.25	1	1	0.88	****	0.75
SUB	t>60	0.50	0.74	0.27	0.89	1.91	0.68
	t>65	0.38	0.81	0.27	0.87	1.97	0.77
	t>70	0.38	0.88	0.38	0.88	3.15	0.71
ADP	t>60	0.38	0.76	0.23	0.86	1.58	0.82
	t>65	0.25	0.90	0.33	0.86	2.63	0.83
	t>70	0.	1	****	0.84	****	1
IPP	t>60	0.50	0.86	0.40	0.90	3.50	0.58
	t>65	0.50	0.93	0.57	0.91	7	0.54
	t>70	0.25	0.98	0.67	0.87	10.5	0.77
AVP	t>60	0.63	0.86	0.45	0.92	4.38	0.44
	t>65	0.63	0.95	0.71	0.93	13.13	0.39
	t>70	0.5	0.98	0.80	0.91	21	0.51

**** denotes zero in the denominator

APPENDIX C

APS-SF SCALES COMPARED TO KID-SCOD SUBSTANCE SPECTRUM

APS-SF Scale	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
DEP	t>60	0.23	0.81	0.30	0.75	1.22	0.95
	t>65	0.15	0.89	0.33	0.75	1.42	0.95
	t>70	0.	0.97	0.	0.73	0	1.03
PTS	t>60	0.38	0.73	0.33	0.77	1.42	0.84
	t>65	0.23	0.86	0.38	0.76	1.71	0.89
	t>70	0.08	0.95	0.33	0.74	1.42	0.98
GAD	t>60	0.31	0.84	0.40	0.78	1.90	0.83
	t>65	0.08	0.95	0.33	0.74	1.42	0.98
	t>70	0.08	0.97	0.5	0.75	2.85	0.95
SUB	t>60	0.62	0.81	0.53	0.86	3.25	0.47
	t>65	0.46	0.86	0.55	0.82	3.42	0.62
	t>70	0.38	0.92	0.63	0.81	4.74	0.67
ADP	t>60	0.46	0.81	0.46	0.81	2.44	0.66
	t>65	0.15	0.89	0.33	0.75	1.42	0.95
	t>70	0	1	****	0.74	****	1
IPP	t>60	0.31	0.84	0.40	0.78	1.90	0.83
	t>65	0.23	0.89	0.43	0.77	2.13	0.86
	t>70	0.23	1	1	0.79	****	0.77
AVP	t>60	0.38	0.84	0.45	0.79	2.37	0.73
	t>65	0.23	0.89	0.43	0.77	2.13	0.86
	t>70	0.15	0.92	0.40	0.76	1.9	0.92

**** denotes zero in the denominator

APPENDIX D

APS-SF SCALES COMPARED TO KID-SCID ADJUSTMENT DISORDER

APS-SF Scale	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
DEP	t>60	0.00	0.77	0.00	0.83	0.00	1.30
	t>65	0.0	0.89	0.17	0.91	1.80	0.9
	t>70	0	0.98	0	0.90	0	1.02
PTS	t>60	0.60	0.73	0.20	0.94	2.25	0.55
	t>65	0.60	0.89	0.38	0.95	5.4	0.45
	t>70	0.20	0.96	0.33	0.91	4.5	0.84
GAD	t>60	0.40	0.82	0.20	0.93	2.25	0.73
	t>65	0.2	0.96	0.33	0.91	4.50	0.84
	t>70	0.20	0.98	0.5	0.92	9.00	0.82
SUB	t>60	0.40	0.71	0.13	0.91	1.38	0.84
	t>65	0.40	0.80	0.18	0.92	2.00	0.75
	t>70	0.40	0.87	0.25	0.93	3.00	0.69
ADP	t>60	0.57	0.79	0.31	0.92	2.73	0.54
	t>65	0.40	0.91	0.33	0.93	4.50	0.66
	t>70	0	1	****	0.9	****	1
IPP	t>60	0.80	0.87	0.40	0.98	6.00	0.23
	t>65	0.40	0.89	0.29	0.93	3.60	0.68
	t>70	0.20	0.96	0.33	0.91	4.50	0.84
AVP	t>60	0.40	0.80	0.18	0.92	2.00	0.75
	t>65	0.40	0.89	0.29	0.93	3.60	0.68
	t>70	0.40	0.93	0.4	0.93	6.00	0.64

**** denotes zero in the denominator

APPENDIX E

APS-SF SCALES COMPARED TO KID-SCID ADHD

APS-SF Scale	Cutpoint	Sensitivity	Specificity	PPV	NPV	LR+	LR-
DEP	t>60	0.00	0.77	0.00	0.83	0.00	1.30
	t>65	0.	0.86	0.	0.84	0	1.16
	t>70	0	0.98	0.0	0.86	0	1.02
PTS	t>60	0.43	0.72	0.20	0.89	1.54	0.79
	t>65	0.29	0.86	0.25	0.88	2.05	0.83
	t>70	0.14	0.95	0.33	0.87	3.07	0.90
GAD	t>60	0.14	0.79	0.10	0.85	0.68	1.08
	t>65	0.14	0.95	0.33	0.87	3.07	0.9
	t>70	0.14	0.98	0.50	0.88	6.14	0.88
SUB	t>60	0.50	0.71	0.07	0.97	1.71	0.71
	t>65	0.57	0.84	0.36	0.92	3.51	0.51
	t>70	0.57	0.91	0.50	0.93	6.14	0.47
ADP	t>60	0.57	0.79	0.31	0.92	2.73	0.54
	t>65	0.14	0.88	0.17	0.86	1.23	0.97
	t>70	0.	1	****	0.86	****	1
IPP	t>60	0.29	0.81	0.20	0.88	1.54	0.88
	t>65	0.14	0.86	0.14	0.86	1.02	1
	t>70	0.14	0.95	0.33	0.87	3.07	0.90
AVP	t>60	0.57	0.84	0.36	0.92	3.51	0.51
	t>65	0.43	0.91	0.43	0.91	4.61	0.63
	t>70	0.14	0.91	0.2	0.87	1.54	0.95

**** denotes zero in the denominator

APPENDIX F

AREA UNDER ROC CURVE

	APS-SF Scales	AUC	SE	p
Mood Modules	DEP	.522	.159	.886
	PTS	.579	.158	.604
	GAD	.524	.175	.872
	SUB	.565	.174	.668
	ADP	.266	.116	.124
	IPP	.466	.175	.464
	AVP	.389	.171	.694
Anxiety Modules	DEP	.662	.115	.149
	PTS	.737	.106	.035
	GAD	.775	.106	.014
	SUB	.649	.123	.186
	ADP	.551	.135	.653
	IPP	.741	.110	.032
	AVP	.780	.104	.013
Substance Modules	DEP	.657	.085	.095
	PTS	.684	.080	.050
	GAD	.762	.076	.005
	SUB	.846	.062	.000
	ADP	.630	.099	.167
	IPP	.715	.077	.022
	AVP	.672	.084	.068
ADHD	DEP	.497	.081	.978
	PTS	.608	.116	.364
	GAD	.628	.109	.282
	SUB	.659	.141	.180
	ADP	.777	.069	.020
	IPP	.645	.107	.224
	AVP	.737	.1	.049
Adjustment	DEP	.649	.146	.279
	PTS	.680	.164	.190
	GAD	.644	.157	.293
	SUB	.536	.171	.796
	ADP	.533	.170	.698
	IPP	.80	.121	.029
	AVP	.727	.151	.099

APPENDIX G

DEPARTMENT OF JUVENILE JUSTICE INSTITUTIONAL REVIEW BOARD APPROVAL
LETTER



STATE OF FLORIDA
DEPARTMENT OF JUVENILE JUSTICE

September 28, 2004

Therese Kemper
Florida State University/Department of Psychology
One University Way
Tallahassee, Florida 32306-1270

Dear Ms. Kemper:


RE: Juvenile Sexual Offenders: Predictors of Treatment Outcomes and Recidivism and Comparison to the Delinquent Control.

I am pleased to inform you that the Florida Department of Juvenile Justice Institutional Review Board has approved your proposed study. This approval covers only the study identified in your proposal. The other studies identified at the end of your application for other authors require their own independent IRB application and approval. This letter is to indicate approval of the identified study only.

The following conditions apply to this approval:

- All information obtained from DJJ is confidential. It may not be disclosed to any person, business, government agency, or other entity unless the disclosure is authorized in writing by DJJ. The data with identifiers will be sent to the Justice Research Center for merging. This is due to their role as a contract provider for DJJ and their ongoing role with confidential information.
- You may not disclose any information that could reasonably lead to the identification of any individual youth. All data resulting from this research project must be published in aggregate form.
- Any person working on this research project must agree to be bound by these conditions concerning confidentiality of information.
- We request that you provide the DJJ with a review copy of the final publication with a reasonable comment period prior to publication of the study findings. Please send to the IRB in the address listed below.
- Please complete and sign the following security agreement and send it back to us at Florida Department of Juvenile Justice, 2737 Centerview Drive, Suite 100, Tallahassee, Florida 32317 to the attention of Dominique Roe-Sepowitz. The study shall not begin until the security agreement has been signed and received by the Department.

Cordially,


Ted Tollett
Institutional Review Board

CC: Dominique Roe-Sepowitz

2737 CENTERVIEW DRIVE TALLAHASSEE, FLORIDA 32399-3100

JEB BUSH, GOVERNOR

Anthony J. Schembri, SECRETARY

APPENDIX H

FLORIDA STATE UNIVERSITY HUMAN SUBJECTS COMMITTEE APPROVAL LETTER
(renewed annually through 2009)



Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2763
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 6/10/2004

To:
Therese Kemper
MC: 1270

Dept: **PSYCHOLOGY DEPARTMENT**

From: **John Tomkowiak, Chair**

A handwritten signature in black ink that reads "John Tomkowiak M.D.".

Re: **Use of Human Subjects in Research**
Juvenile sexual offenders: Comparison of victim age-based subgroups and prediction of treatment outcome and recidivism

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b) 4 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If the project has not been completed by **6/9/2005** you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Dr. Janet Kistner
HSC No. 2004.422

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BIOGRAPHICAL SKETCH

EDUCATION

Florida State University, Tallahassee, Florida
Clinical Psychology PhD program
PIRT Fellowship 2009-2010

2007 - present

Florida State University, Tallahassee, Florida
Bachelor's of Science in Psychology, April 2007
President's List and Dean's List, Florida State University
Honors in the Major, Florida State University
Leadership Torch Award, Florida State University
Student Senator, Florida State University
Member of Psi Chi, National Honor Society
Psychology major Grade Point Average: 3.92

2002-2007

RESEARCH EXPERIENCE

Program Evaluation, Arthur G. Dozier School for Boys:

Code intellectual functioning, treatment assignments, reports of committed offenses and abuse history from juvenile offenders file, as well as manage data management and oversee data entry for the project. August 2006 to present

Research Assistant for Dr. Janet Kistner:

Oversee undergraduate assistants and data entry. Coordinate and manage reviewer submissions to the Journal of Clinical Child and Adolescent Psychology, as well as individual assignments by the Associate Editor.

Research Analyst and Lab Manager:

Coded intellectual functioning, treatment assignments, reports of committed offenses and abuse history from juvenile offenders file, as well as manage all aspects of data management for the project. Aid in generating research topics and writing articles, conduct literature searches, participate in lab research projects, and attend weekly lab meetings. Supervised undergraduate assistants and manage general lab business. August 2006 to August 2007

Honors Research with Dr. Janet Kistner, Department Chair:

Evaluated the validity of the Computerized Diagnostic Interview Schedule (CDISC-IV) on a population of male offenders within a state-operated, juvenile justice program classified as a high risk to public safety. Project included: scoring assessment tests, coding information from clinician's interviews, creating and managing all aspects of data management. August 2005 to April 2007

CLINICAL EXPERIENCE

Psychological Trainee, Florida State University Psychology Clinic, Tallahassee, FL

Provide outpatient, individual and group psychotherapy using empirically-supported treatments. August 2008-Current

Psychology Trainee, Arthur D. Dozier School for Boys, Marianna FL

Provide assessments, individual and group psychotherapy using empirically-supported treatments to incarcerated males at Dozier Juvenile Justice treatment facility. August 2008- August 2009

HONORS, AWARDS & ACTIVITIES

Manuscript Reviewer, Journal of Clinical Child and Adolescent Psychology.

Posters Presented

Kemper, T.S., Oneal B.J. , & Drew, C.H. (September 2009). *Psychometric properties of the TPI-ASA in a sample of adjudicated adolescents*. Poster presented at Association of Treatment - -- Annual Convention, Dallas.

Drew, C.H., Kistner, J.A., Loney, B. (March 2008). The Validity of the Computerized Diagnostic Interview Schedule with Youth Committed to State Residential Facilities. Poster presented at American Psychology and Law Annual Convention, Jacksonville.