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**PARENT RATINGS OF YOUTH BEHAVIOR IN THE REPUBLIC OF TRINIDAD
AND TOBAGO ON THE ADJUSTMENT SCALES FOR CHILDREN AND
ADOLESCENTS: PARENT EDITION**

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School Psychology

by

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ABSTRACT

This study examined parent ratings of youth behavior in the Republic of Trinidad and Tobago using the Adjustment Scales for Children and Adolescents: Parent Edition (ASCA: P). The ASCA: P addresses the lack of an available contextual approach to collect information from the home. The findings of the current study build upon the research by Mordell and McDermott (2001) suggesting that the ASCA: P has promise as a useful assessment tool in the US. This study investigated several properties of the ASCA: P including the component structure, internal consistency reliability and significant differences across the ASCA: P syndromes based on gender, age, ethnicity and the highest level of education attained by the mother and father. The sample was comprised of a random stratified sample of 783 Trinidadian students. Principal component analysis using equamax rotation methods revealed a three component structure of Withdrawn, Aggressive, and Attention Seeking/Impulsive syndromes. A second-order component analysis revealed two global components of externalizing and internalizing behaviors. Cronbach's coefficient alphas indicated reliability difficulties in the Aggressive syndrome among females (.54), the Mixed ethnic group (.53) and for youth with mothers with beyond a primary level of education (.58). Significant ANOVA results included that boys had higher scores than girls on the Attention Seeking/Impulsive and Global Externalizing scales, the Mixed/other ethnic group had higher Attention Seeking/Impulsive scores than the East Indian students and mothers with higher levels of education had children with higher Attention Seeking/Impulsive scores. Results indicate that with additional research and needed modifications to improve its technical properties, the ASCA: P is a potentially useful tool to advance our understanding and identification of behavior pathology in Trinidad.

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INTRODUCTION

Internationally, policy makers are becoming increasingly aware of the need to identify children experiencing serious psychological and behavioral difficulties so as to address their mental health needs (World Health Organization [WHO], 2001; United States Department of Health and Human Services [USDHHS], 1999). A recent report by the U.S. Surgeon General (1999) states that four of the ten leading causes of disability for individuals in America over the age of five are associated with mental health. The Surgeon General's report asserts that not enough attention to emotional disturbance has been provided in the United States, resulting in many children with psychological and emotional difficulties not receiving treatment (USDHHS, 1999).

Outside of the United States, high rates of childhood psychopathology are estimated to exist across the globe. Quantifying the prevalence of psychopathology internationally is difficult due to inconsistent research design and assessment methodology (McDermott, 1996). Estimates from the WHO (2001) include a worldwide average prevalence rate of children with emotional and behavioral disorders at 19%, ranging from 13% in India to 23% in Switzerland. Bird (1996) estimated similar findings, with the mean prevalence of international childhood psychopathology at 16%. Despite the apparent need for international mental health services and prevention programs, the WHO (2001) reports that 90% of countries worldwide have no mental health policies in effect for children. Researchers have argued that the lack of appropriate services and treatment for childhood psychopathology may be a result of current data deficiencies and that more complete data needs to be collected through the implementation of cost-effective mental health screenings in schools and other health care settings using standardized assessment instruments (USDHHS, 1999).

The accurate identification of emotional and behavioral disorders is critical, as numerous studies from the United States show that children and adolescents with these difficulties are more likely than other children to face serious problems both in and out of school (Wehman, 1997). Studies have found that approximately one half of students with behavioral disorders drop out of school before completing high school (Frank, Sitlington, & Carson, 1991). Students with behavioral and emotional disorders may show significantly lower academic achievement due to a variety of factors, including poor motivation, hospitalization or loss of instructional time because of acting out in the classroom (Wehman, 1997). Research has also shown a significantly higher rate of juvenile delinquency in students identified with a serious emotional disturbance (Jarvelin, Laara, Rantakallio, Moilanen, & Isohanni, 1995). When students exit high school, their transition into the community presents additional concerns. Students with behavioral disorders experience a high unemployment rate that ranges from 20% to 57% and generally do not attend postsecondary schools for further education or training (Steinberg & Knitzer, 1992). Of those 18 years or older, over 60% have committed illegal acts, and over half are not living on their own in the community, instead residing with family members (Steinberg & Knitzer, 1992).

Given the breadth of behavioral difficulties and current legal and ethical guidelines, researchers use a variety of tools to identify children in need of treatment. Behavioral assessment techniques include observation, interview and behavior rating scales. Important elements of the instrument include the informant (parent or teacher), format of the scale, and the population in which it is used. The present study investigates the psychometric properties of the Adjustment Scale of Children and Adolescents: Parent Edition (ASCA: P) for children in the Republic of Trinidad and Tobago. The use of parent informants, behavior rating scales,

contextually based instruments and the unique cultural environment of Trinidad will therefore be examined, as they are the key components of this scale.

Defining Emotional and Behavioral Problems

A significant association between emotional and behavioral problems and delinquent behavior and academic difficulties exists, and the identification of children in need of treatment is critical. One of the difficulties in identifying students with behavioral disorders is the tremendous variability in their behavior (Epstein & Cullinan, 1992). In general, behaviors that may raise concern can be classified by two categories: internalizing and externalizing disorders. Externalizing behaviors are disruptive to others and include a broad array of aggressive behavior, antisocial characteristics and hyperactivity. Other terms that have been used to identify this behavioral dimension include undercontrolled and outer-directed behavior. The essential characteristics of this domain include aggressive, acting-out, disruptive, defiant, oppositional and hyperactive behaviors (Merrell, 2003). Examples of externalizing behavior disorders include Attention Deficit Hyperactivity Disorder, Conduct Disorder and Oppositional Defiant Disorder.

In contrast, internalizing behaviors tend not to be disruptive to others but include such problematic behaviors as anxiety, depression, social withdrawal and somatic complaints. Children displaying these types of problems may be seen as withdrawn, disengaged, lethargic or shy (McDermott, 1994). Internalizing problems include overcontrolled and inner-directed characteristics and generally consist of emotional rather than behavioral problems. Internalizing problems may be difficult to detect as they tend to involve internal states and subjective perceptions (Merrell, 2003). Research findings have shown that youth report significantly more internalizing problems in their self-reports than their parents report about

them (Herjanic & Reich, 1982; Sourander, Helstela, & Helenius, 1999), thus suggesting that internalizing problems are especially likely to remain unrecognized by adults. Examples of internalizing behavior disorders include Generalized Anxiety Disorder and Major Depressive Disorder.

Quality of Assessment for Emotional and Behavioral Disorders

Effective early identification for children with behavioral disorders is essential for providing necessary supports and services. However, work by Epstein and Cullinan (1992) raises serious issues confronting professionals in assessing students with behavioral disorders. These investigators found that the methods used for assessing students suspected of having behavioral problems required a high degree of subjectivity and used too few instruments for accurate measurement. The study also concluded that parents were not sufficiently involved in the assessment process.

The findings from Epstein and Cullinan (1992) are especially disturbing because they run contrary to public law mandates. The importance of including parents in the assessment of their children has been included in American public legislation and advocated by the National Association of School Psychologists (NASP, 1997). Under the Individuals with Disabilities Education Act (IDEIA; Public Law 108-446, 2004) children qualify for special education and related services through an individualized evaluation by a multidisciplinary team that includes the parent. IDEIA supports parents' rights to voice their concerns and provide input for their children's Individualized Education Plan. Researchers concur that the success of students with behavioral disorders in achieving their goals is significantly impacted by the teamwork of all individuals involved, including professionals, students, and family members (Wehman, 1997).

A multifaceted approach to assessing children is also mandated in IDEIA. IDEIA states that the Local Education Agency shall use a variety of assessment tools, including information provided by parents (Section 614b; IDEIA 2004, P.L. 108-446). In order to gain a comprehensive understanding of children, psychologists have an ethical obligation to obtain information from a collection of sources rather than basing decisions on solely one informant. Gathering information about students with behavioral disorders in a variety of settings and from a numbers of sources is essential to help professionals obtain a more complete picture of a student's behavior (Wehman, 1997).

To meet the conditions established by IDEIA, an evaluation must include a variety of assessment tools, information provided by parents, and technically sound instruments. (Section 614b: IDEIA 2004, P.L. 108-446). Additionally, legislation requires public educational facilities to screen large numbers of children, which imposes the pressure of time and cost-effectiveness in assessment. Considering these matters, behavioral assessment must use methods that address both the needs for expeditious assessment and the maintenance of ethical and legal standards. The different methods of behavioral assessment available (observation, interviews and rating scales) have varying strengths and weaknesses in meeting these assessment needs.

Behavioral Assessment Techniques

To evaluate the emotional and behavioral needs of children psychologists employ a variety of assessment methods. Sattler (1992) identified the four pillars of assessment as norm referenced tests, interviews, observations, and informal assessment (e.g., criterion-referenced tests). Each of these methods may be valid for different purposes and each method may provide a different perspective on problem behaviors (Sattler, 1992). In the assessment

of emotional and behavioral problems for children, the techniques of observation, interviews and rating scales are considered among the most valuable (Merrell, 2003).

Observation

Behavioral observation is a procedure in which observers develop operational definitions of the targeted behaviors of interest, observe their targeted student and systematically record that student's behaviors. Possible benefits of observational data include gaining a representative picture of the natural behavior of the child and obtaining information about the adjustment of a child to his or her typical surroundings. Observation can be used to identify important antecedent stimuli and controlling consequences of behavior and therefore can be highly functional, ecologically valid and helpful in planning and implementing interventions. However, behavioral observations have several disadvantages as an assessment technique, including potential threats to the validity of the data. These threats include unreliability of observers, lack of social comparison data, poorly defined observational data, and use of inappropriate recording techniques (Merrell, 2003). In addition, biased observer expectations can affect how the data is collected, the situational specificity of the child's behavior may not be adequately accounted for, and observer reactivity within the observation setting may artificially affect the child's behavior. More over, direct observations are frequently focused on a limited time sampling of behavior and are based on limited contact with the child (Merrell, 2003).

Interviews

Interviews are structured communications that are driven by specific goals related to obtaining relevant information and using it to make decisions. Interviews are available in several formats. They range from unstructured "stream of consciousness" exchanges to

formal, highly structured interviews. The interview has a number of distinct advantages as an assessment procedure: it allows for flexibility in questioning, observation of verbal and nonverbal behavior, and the opportunity to establish rapport. Interviewing, however, has several flaws as an assessment tool. Reliability and validity are difficult to establish, interviewees may provide inaccurate information, and interviewers need sufficient training and experience. In addition, interviewees may be influenced by subtle, unintended cues from the interviewers leading them to distort their replies and the interviewer may have personal biases that may result in selective or faulty recall of information (Merrell, 2003).

Behavior Rating Scales

Behavior rating scales provide a standardized format for perceptions regarding a child's behavioral characteristics by an informant who knows the child well. Rating scales are typically based on extended contact with the child and sample a broad range of behaviors. Rating scales not only allow the rater to indicate whether a specific symptom is present, but also provide a means of estimating to what degree the symptom is present. For example, a common three-point rating system allows the rater to score a specific behavior descriptor from 0 to 2, with 0 indicating the symptom is "never" present, 1 indicating the symptom is "sometimes" present, and 2 indicating the symptom is "frequently" present. The related checklist format simply asks the rater to identify whether given symptoms are present or not.

Behavior rating scales are widely accepted and utilized among child assessment specialists for the identification and placement of children with emotional or behavioral difficulties (Hart & Lahey, 1999). Among school psychologists they are the most frequently utilized instruments to assess the emotional and behavioral difficulties of children (Stinnett, Havey, & Oehler-Stinnett, 1994). Researchers have referred to behavior rating scales as "best

practice” in assessing emotional and behavioral disorders (McCaughy & Ritter, 1995). The popularity of behavior rating scales is due to the many important advantages they offer as an assessment tool, both in terms of their technical properties and their practical utility.

Advantages of Behavioral Rating Scales

The technical properties that make behavioral rating scales attractive to psychologists include their objective techniques, normative information and ability to control for extraneous variables that may introduce error in measurement. Behavioral rating scales are an objective assessment method that generally provides more reliable data than other assessment techniques such as interviews or observations (Merrell, 2003). Furthermore, standardized behavior scales provide normative information about a child as compared to their same-aged peers. In contrast, ideographically based assessments are subject to misinterpretation by the individual perceptions of the evaluator (Merrell, 2003). Behavior rating scales also have the advantage of offering a relatively unobtrusive evaluation of students’ behavior within natural social settings. The presence of outside evaluators, or the evaluation of children outside of their natural contexts, may introduce variables to the assessment which may change the children’s behaviors and introduce error into the measurement of the behavior (Canivez & Bordenkircher, 2002).

The popularity of behavior rating scales can also be attributed to their practical utility. Behavior rating scales have the advantage of providing an efficient and cost effective way to identify a student’s behavioral strengths and weaknesses across different environments and raters. These instruments can therefore be used to screen a large number of children to detect those needing early intervention services. Behavior rating scales are capable of providing data on low-frequency but important behaviors that might not be seen in a limited number of

direct observation sessions (e.g., violent and assaultive behavior). Behavior rating scales can also be used to assess children who cannot provide accurate information about themselves (e.g., young children with limited verbal skills; Merrell, 2003). Researchers state that psychologists often favor behavior rating scales due to their growing preference for instruments that can facilitate a link between assessment and intervention (Reschly & Ysseldyke, 1995).

Disadvantages of Behavioral Rating Scales

Despite the many advantages of behavior rating scales, there are potential threats to their validity. Martin, Hooper, and Snow (1986) categorized the measurement problems of behavior rating scales into two classes: bias of response and error variance. Bias of response refers to the way that informants completing the rating scales create measurement error by the way they use the scales. Response set errors include the halo effect, in which the observer's early impressions of an individual influence their subsequent ratings of that individual. Other response set errors include the error of leniency or severity, involving the tendency to assign overly generous or overly critical responses. Finally, the error of central tendency involves the tendency to rate individuals around the midpoint of the observational scale, sometimes to avoid difficult judgments (Gall, Borg & Gall, 1996).

Error variance is related to response bias but provides a more general representation of some of the problems encountered with behavior rating scales. Four types of variance that may introduce error in the obtained results of a rating scale assessment are: source variance, setting variance, temporal variance, and instrument variance (Merrell, 2003). Source variance refers to the subjectivity of the rater and any of the distinctive ways that they complete the rating scales. Setting variances refers to the situational specificity of behavior due to the

reinforcing properties present in the environment. Temporal variance refers to the tendency of behavior ratings to be only moderately consistent over time due to changes of behavior and changes in the raters approach to the rating tasks over time. Instrument variance refers to the fact that different rating scales often measure related but slightly differing hypothetical constructs. Another factor that creates instrument variance is that each rating scale uses different normative populations with which to make score comparisons (Merrell, 2003).

Outside of bias of response and error variance there are additional concerns that can affect the psychometric properties of behavior rating scales. Worthen, Borg, and White (1993) state that rating scale scores are complicated by the tendency for recent events and behavior to be given disproportionate weight. This concern is based on the finding that it is easier to remember more recent behavior. Another technical variable that may affect the psychometric properties of rating scales is the construction of the rating format. More accurate ratings are obtained when a clear definition for each quality level exists (Merrell, 2003). One common error in scale construction is to use too many levels; the higher the level of inference needed in making the rating, the more difficult it becomes to discriminate reliably among the rating levels (Merrell, 2003). Other factors that can affect reliability and validity are rater competence, rater agreement, and instructions for completing the ratings (Canivez, Perry, & Weller, 2001).

Parents as Informants

An additional concern regarding the use of behavioral rating scales is the research indicating that reports from parent raters may have several limitations. Research suggests that parental reports of behavioral problems may lack the accuracy found in reports by teachers (Dupaul, Power, McGoey, Ikeda, & Anastopoulos, 1998). Teachers have the advantage of

having the comparative experience of observing many students across time and varied social contexts within the school and classroom. Due to their teaching experience, teachers may take a normative perspective in rating the behavioral or emotional problems in children. As a result, teachers have been considered by some researchers to be among the most accurate adult raters of child behavior (Kamphaus & Frick, 1996). Thus, some researchers are concerned about the accuracy of parental reports when studies show little correspondence between the ratings of parents and teachers (Cornell, Delcourt, Bland, & Goldberg, 1994; Costenbader & Keller, 1990; Graybill & Blackwood, 1996; Lambert, Thesiger, Overly & Knight, 1990). Rating agreement between teachers and parents tends to lower when rating internalizing problems (e.g., depression, anxiety) rather than externalizing problems (e.g., hyperactivity, aggression; Lambert, Knight, Taylor, & Newell, 1993).

Other researchers take a different view of the lack of correspondence between the ratings of parents and teachers. Several researchers contend that parents and teachers each contribute unique information about children's behavior as many social and behavioral problems are contextually selective (Achenbach, McConaughy, & Howell, 1987; Costenbader & Keller, 1990). In this view, behavioral ratings from both home and school provide unique information and are needed for a comprehensive understanding of children's behavioral and emotional functioning. Furthermore, information from parents is a valuable piece of assessment data as parents have seen their children over many years and in different contextual situations. Conversely, teachers may have fewer opportunities to view internalizing problems, since quiet children often are unnoticed when in a crowd (Duncan & Kilpatrick, 1991).

Other concerns regarding parental reports is the research suggesting that ratings from parents may be subject to a variety of distortions. Some research suggests that parents tend to under-report the behavioral problems of their children (Glaser, Kronsoble, & Forkner, 1997; McDevitt, 1994; Sherman, Iacono & McGue, 1997; Sourander, Helstelae & Helenius, 1999). In an effort to avoid seeing their children as having problems or being sick, parents may rate their children with less problems than reality suggests. In contrast, other research suggests that parents tend to over-report behavioral problems of their children (Banez & Compas, 1990; Fergusson, Lynskey, & Horwood, 1993; Schaughency & Lahey, 1985). This over-reporting of behavioral problems may be due to parent's projecting their own pathology onto their children. Research has suggested that maternal perception of child deviance may be more a function of maternal depression than of the child's actual level of deviant behavior (Fergusson, Lynskey, & Horwood, 1993; Forehand, Wells, McMahon, Griest, & Rogers, 1982).

The empirical foundation for the conclusions that depressed mothers have distorted perceptions of their children's problems has been challenged by some researchers (Richters, 1992; Schaughency & Lahey, 1985). In a review of this literature, Richters (1992) argued that claims of distorted ratings from depressed mothers must be supported by evidence that depressed mothers are more likely than nondepressed mothers to disagree with criterion raters and that criterion ratings are superior to (more accurate than) mother's ratings. Ninety-three percent of the 17 distortion claim studies reviewed by Richters (1992) failed to meet the minimal condition of demonstrating that depressed mothers were more likely than nondepressed mothers to report problems in their children that were not confirmed by independent informants. Richters (1992) also argued that when mothers' home-based ratings

are compared with criterion ratings of children in non-home settings, distortion claims must rule out the possibility that children are more likely to manifest certain behavior problems either at home or in other contexts. None of the distortion claim studies reviewed by Richters investigated this possibility. Five studies included in Richter's review presented evidence counter to the distortion hypothesis and found that depressed mothers agreed with criterion informants about their children's functioning as well as or better than nondepressed mothers. Richters (1992) concludes his review by stating that there is little empirical evidence for the widespread belief that depressed mothers have distorted perceptions of their children's problems.

Although parental reports may have limitations, information from parents is a necessary and invaluable piece of assessment data. Parents typically spend more time with their children than teachers and see their children in a multitude of various situations (Conners, 1997). Furthermore, psychologists have an ethical and legal obligation to conduct multifaceted evaluations, including assessing children from multiple sources (Section 614b; IDEIA 2004, P.L. 108-446).

Behavior Rating Scales for Parents

Among the many standardized behavioral rating checklists for parents, two of the more popular include the Conners Parent Rating Scale (CPRS; Conners, 1985) and the Child Behavior Checklist for Ages 6-18 (CBCL/6-18; Achenbach, & Rescorla, 2001) Both instruments present a list of observable behaviors and parents rate their children on the frequency or intensity of these behaviors. These scales are both designed to identify possible behavioral problems and pathology based upon the parent's responses. Studies indicate that the CPRS demonstrates adequate reliability and validity and the primary factors provided by

the scale are supported by factor analysis (Conners, 1985). The CPRS was revised in 1998 with updated item content and norms derived from a representative sample of U.S. children. The Conners Parent Rating Scale Revised (CPRS: R) has 193 items and yields seven factors (Conduct Problems, Oppositional, Psychosomatic, Impulsive-Hyperactive, and Anxious-shy, Perfectionism, Social Problems). Symptoms are rated on a four-point scale and scores are transformed into *T* scores.

In a large study of the reliability and validity with 2200 students, the CPRS: R demonstrated good psychometric properties (Conners, Sitarenios, Parker, & Epstein, 1998). Excellent internal reliability was demonstrated for the seven scales on the CPRS: R, with coefficient alphas ranging from .75 to .94. Six-week test-retest correlations were significant ($p < .05$) for all scales on the CPRS: R (ranging from .42 to .78) with the exception of the Social Problems scale (.13). With a sample of children ($n = 182$), half diagnosed with ADHD and half randomly selected and matched with the other children on the basis of age, sex and ethnicity, the CPRS: R had an overall correct classification rate of 93.4%, thus demonstrating adequate criterion validity. Exploratory and confirmatory factor analysis supported the seven factor structure. All three goodness of fit indicators suggested that the model had good fit to the data (goodness of fit index = .86, adjusted goodness of fit index = .85, and root mean-square residual = .03) and all of the parameter estimates between items and factors were significant. The mean parameter estimates for the seven factors ranged from .63 to .74.

Historically, one of the most commonly used scales in assessing the behavior of children was the Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL was available in two versions; one version for ages 4 to 16 with 118 items and another version for ages 2 to 3 with 100 items. Items are rated on a three-point scale and separate norms are provided for

age and gender groups. Within each age group, separate scales were developed based on factor analysis. The nine scales for the 6 to 11 age group are as follows: Schizoid or Anxious, Depressed, Uncommunicative, Obsessive-Compulsive, Somatic Complaints, Social Withdrawal, Hyperactive, Aggressive, and Delinquent. Each scale is grouped into two broad-band factors: Internalizing and Externalizing. The CBCL was considered to be well standardized with adequate reliability and validity (Sattler, 1992). Studies showed a test-retest reliability of .93 and interparent agreement of .76 (Achenbach, 1991). It had been criticized, however, for its underrepresentation of children of low socio-economic status (Drotar, Stein, & Perrin, 1995). In 2001, the CBCL was updated to incorporate new normative data. The new version, Child Behavior Checklist for Children for Ages 6-18 (CBCL/6-18) includes 188 items that describe specific behavior and emotional problems, plus two open-ended items for reporting additional problems. The CBCL/6-18 scoring profile provides *T* scores for three competence scales (Activities, Social, and School), Total Competence, eight cross-informant syndromes, and Internalizing, Externalizing, and Total Problems. The normative sample was representative of the 48 contiguous US states for SES, ethnicity, region, and urban-suburban-rural residence.

The cross-cultural validity of the CBCL has been investigated in several studies with mixed findings (Achenbach, Verhulst, Baron, & Althaus, 1987; De Groot, Koot, & Verhulst, 1994; Hartman et al., 1999; Verhulst, Achenbach, Althaus, & Akkerhuis, 1988). One group of researchers (Achenbach, et al., 1987; De Goot, et al., 1994; Verhulst, et al., 1988) compared the CBCL factor structure in samples from the United States and the Netherlands and found relative similarity of syndromes across cultures. However, in a study by Hartman et al. (1999) confirmatory factor analysis of the CBCL in seven countries (Greece, Israel,

Norway, Portugal, Netherlands, Turkey, & U.S.) yielded inadequate empirical support for the construct validity of the CBCL syndromes across countries. In a notable study by Weisz, Weiss, Suwanlert, and Chaiyasit (2003) cultural syndrome similarity was tested by comparing the CBCL in nations that differ markedly in racial, ethnic, religious, and cultural practices. In the study, 924 clinic-referred children from Thailand were administered a CBCL translated into Thai. Exploratory factor analysis was used to compare the CBCL structure in Thai to the CBCL structure created with American children. Results showed that only 17% of CBCL syndromes (e.g., somatic problems) showed strong cross-cultural agreement. Among the narrowband syndromes, (e.g., aggression and anxiety), 56% of the cross-cultural comparisons showed concordance kappas at or below .40, showing only slight to fair agreement. The differences in the syndromal structure of the CBCL between children in Thailand and the United States raises concerns regarding the validity of using the CBCL across cultures. The study also raises concerns regarding the possibility that large differences in culture and ethnicity may be associated with dissimilarity in child syndromes.

Contextually Based Assessment

Although current behavioral rating scales such as the CBCL and the CPRS: R demonstrate adequate psychometric properties, they do not consider the context in which the behavior occurs. Assessment void of contextual data does not clarify whether the problematic behavior is isolated to specific circumstances or if it is pervasive across situations. Therefore, lack of context inhibits objectivity, as it is impossible to determine the cause of a behavior when it is unclear under which contexts it occurs. Researchers argue that behavior emergent only in isolated contexts is far more likely to be random or reactive than suggestive of psychopathology (Breen & Altepeter, 1991; Horn, Wagner, & Ialongo, 1989). Contextual

assessment methods help to resolve this problem by requiring respondents to report specific behaviors across multiple situations, thus providing insight into behavior within different contexts (McDermott, 1993). Contextually based methods distinguish behavior by situational factors including function and provocation and thus provide clearer information from which to suggest remediation (McDermott, 1993).

Adjustment Scales for Children and Adolescents

The Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993) was designed as a contextually based instrument to assess child and adolescent psychopathology based on teacher ratings of student behaviors within school settings. The ASCA contains 156 behavioral indicators within 29 specific social, play or learning situations. For each situational indicator, the teacher marks any of 4 to 7 behavioral descriptions of the child's behavior over the past several months. Each indicator is marked as either observed or not observed, therefore removing the subjectivity inherent in the Likert-style qualifiers of the CPRS-R and CBCL question formats.

The ASCA was standardized in the United States on a stratified sample of 1,400 students aged 5 through 17. The standardization group was stratified according to the 1990 U.S. Census for age, gender, academic level, ethnicity, handicapping condition, national region, community size and parent education level. Based on factor analysis, items were assigned to one of six core syndromes or two supplementary syndromes. The six core syndromes include Attention Deficit/Hyperactivity, Solitary Aggressive-Provocative, Solitary Aggressive-Impulsive, Oppositional-Defiant, Diffident, and Avoidant. These six core syndromes also combine to form overall adjustment indexes: Overactivity and Underactivity. The two

supplementary syndromes are Delinquency and Lethargic-Hypoactive and are reliable for certain subgroups in the population.

Studies suggest that the ASCA demonstrates acceptable psychometric properties (McDermott, 1994). Internal consistency estimates of the total standardization sample range from .68 to .86 for the six core syndromes and two supplementary syndromes and .92 for the Overactivity scale and .82 for the Underactivity Scale (McDermott, 1994). Exploratory factor analysis supports the factor structure of the ASCA at the item, core syndrome and second-order levels (McDermott, 1994). McDermott (1994) also found significant correlations among similar psychological dimensions between the ASCA and the Conners Teacher Rating Scale (Trites, Blouin, & Laprade, 1982) and the CBCL (Achenbach & Edelbrock, 1981). Discriminant function analyses found the ASCA able to correctly classify normal from socially/emotionally disturbed youth (McDermott, 1994). Additional studies also provide evidence supporting 90 day stability (Canivez, Perry, & Weller, 2001) and interobserver reliability (Schaefer, Watkins, & Canivez, 2001; Watkins & Canivez, 1997). Canivez et al. (2001) report that the psychometric characteristics of the ASCA are considered acceptable and meet the standards for both group and individual decision making suggested by Salvia and Ysseldyke (2001).

The cross-cultural construct validity of the ASCA has been studied in the Republic of Trinidad and Tobago. In a study by Grim (2002) with a nationally representative sample of 478 elementary students, exploratory principal component analyses yielded a five-component structure. This structure differs from the six core and two supplemental ASCA syndromes derived from the U.S. standardization process. In the factor analysis, the Solitary Aggressive-Provocative and the Solitary Aggressive-Impulsive syndromes were not found and an

Impulsive-Aggressive syndrome emerged. Other changes in the factor structure include the absence of the two supplementary syndromes: Lethargic and Delinquent. Second-order exploratory factor analyses supported the two factor solution of Overactivity and Underactivity. An investigation of the generalizability of the syndromes across the population subsamples suggested generalizability problems for the Impulsive-Aggressive syndrome with children under age nine and female students, for the Avoidant syndrome with females, African and Mixed descent students, and for the Oppositional Defiant syndrome with children under age nine and students of African and Mixed descent. The second-order factor solution of Overactivity and Underactivity were generalizable to all demographic subsamples. ANOVA tests revealed that students of Mixed descent demonstrated higher levels of Impulsive-Aggressive behavior than students of East Indian descent, and that students of Mixed and African descent presented higher levels of Oppositional Defiance. A notable limitation of this study was that the sample size was not large enough to adhere to the recommendation by some researchers (Bryant & Yarnold, 1995) for the number of subjects needed for factor analysis.

The validity of the ASCA for use in Trinidad and Tobago was also studied by Menaker (2003). Menaker (2003) attempted to address of the limitations in the study by Grim (2002) by using a large stratified sample ($n = 700$) of elementary students from the Republic of Trinidad and Tobago. Exploratory principal components analyses revealed a five-component latent structure that was nearly identical to Grim's (2002). All five components demonstrate adequate internal reliability, and remained invariant among random subgroups of the sample. A second-order exploratory analysis revealed two overarching dimensions of behavior, Overactivity and Underactivity, that were also internally reliable and generalizable to the

different demographic subgroups. ANOVA tests indicated significant effects for sex and ethnicity but not for age. Post-hoc analyses using Tukey's HSD method, unveiled higher scores in general for male students on the Attention-Deficit Hyperactive, Aggressive, and Avoidant syndromes. Also, students of both African and Mixed descent were found to have scores higher on the Aggressive syndrome but had lower scores on the Diffident syndrome than students of East Indian descents. On the two global factors of Overactivity and Underactivity, males scored higher than females in Overactivity, and students of African and Mixed ethnic descent scored higher than East Indian students on the Overactivity factor.

Adjustment Scales for Children and Adolescents: Parent Edition

The Adjustment Scales for Children and Adolescents: Parent Edition (ASCA: P; see Appendix A) was developed from the ASCA to form a contextually-relevant measure to collect information from parents. Despite the efficacy of contextually based assessment as well as the legal and ethical standards that require psychologists to keep parents involved in the assessment of their children, the ASCA: P is the only contextually based instrument available with parents as the reporters. ASCA's item format was replicated for the new scale and the items that were relevant to parents were duplicated. Several new contexts were added for the ASCA: P wherein parents are potentially knowledgeable. Of the 29 school-based situations within ASCA, five were deleted for the ASCA: P and 10 more situations were added. In total, the ASCA: P includes 34 contextual situations containing 236 behavioral descriptors.

Cross-Cultural Research

Before the ASCA: P can be used in a different culture, its psychometric properties must be determined adequate for that specific population. In creating normative tests, it must be

considered that children come from multiple social, socioeconomic and ethnic backgrounds that may affect behavior and knowledge. Consequently, children for whom a measure is intended to generalize must be adequately represented in the normative sample. In addition, evidence of adequate reliability and validity of the test must be collected for that specific population. To date, no studies have been conducted to assess the psychometric properties of the ASCA: P in Trinidad and Tobago.

Special attention in cross-cultural research must be given to the possibility that judgments about whether a particular behavior pattern represents a serious problem may be shaped by the cultural context in which the behavior occurs. Studies suggest that cultural factors may influence parent's concern over child psychopathology (Lambert et al., 1992; Weisz et al., 1988). In a study by Lambert et al. (1992) Jamaican ($n = 47$) and American ($n = 58$) parents read vignettes of two children, one with overcontrolled problems (fearfulness) and one with undercontrolled problems (fighting). Parents then answered several questions, rating the seriousness of the behavior, how unusual it is and the likelihood it will improve. Regression analyses revealed that the parent's level of education was a significant predictor and positively related to their ratings; however, culture had the most profound effect. Jamaican parents rated child overcontrolled and undercontrolled problems as significantly less unusual than did American parents ($p < .0001$). In addition, Jamaican parent ratings of the likelihood of improvement in overcontrolled ($p < .05$) and undercontrolled ($p < .0001$) vignettes were significantly higher than those of U.S. parents.

An identical study in Thailand had similar findings (Weisz et al., 1988). Thai parents ($n = 75$) compared with American parents ($n = 62$) rated both over and undercontrolled problem patterns as significantly less serious, less worrisome, less unusual, and more likely to

improve (all $ps < .0001$). The culture effects remained significant beyond the .001 level after statistically eliminating the demographic effects of age and education. The one exception was the effect of culture on the question regarding the unusualness of the behavior; this effect dropped to $p = .006$ when educational level was controlled. The difference in Jamaican, Thai and American parents' ratings across these studies illustrate the variations in the cultural perceptions of behavior and their thresholds for child problems. Thus, when considering parent's perceptions of child psychopathology it is necessary to consider the possible influence of cultural context.

Cultural Considerations on Mental Health in Trinidad

The unique culture and ethnic diversity of Trinidad and Tobago are important considerations when investigating mental health in this country. Specifically, this study examined the relation of age, ethnicity, gender and parent education to ASCA: P scores. Each of these cultural variables are important to examine to understand the context in which psychopathology develops within Trinidad.

Culture and Gender in Trinidad

In the 1995 National Health Survey the prevalence rates of mental illness in Trinidad and Tobago was reported as 4.5% of males and 6% of females (Pan American Health Organization, 1998). Despite recent strides toward gender equality, patriarchal views and injustices toward women in Trinidad culture are still present. The Trinidad and Tobago Coalition on the Rights of the Child (2005) noted continued legal injustices toward women. For example, it was noted that while law has been amended to allow magistrates to impose custodial sentences on persons found guilty of committing an assault or battery on a male child, female children are not included in this act. Other noted concerns were gender

differences in the legal age required for marriage, which for females is only age 12. In accordance with such legal concerns, women are unrepresented in governmental positions in Trinidad, holding only 25% of seats in parliament (United Nations Development Programme, 2006).

Power differentials between women and men remain salient in different cultural contexts. Women are marginalized from leadership positions in the established churches, Hinduism and Islam, but are influential in the Afro-Christian sects. Afro-Trinidadian women are often heads of households and enjoy autonomy and influence within domestic domains. East Indians have traditionally engaged in such patriarchal practices including arranged marriages and patrilineal inheritance; however, these practices have greatly diminished (Advameg, Inc., 2007).

Statistics show that females in Trinidad have over-all comparable rates of education but earn lower rates of income compared to males. The ratio of female to male net secondary enrollment is 1.06 and the ratio of female to male net tertiary enrollment is 1.27 (United Nations Development Programme, 2006). In 2002, the literacy rates for males (99%) and females (98%) were comparable. Females make up 38% of legislators, senior officials and managers and 54% of professional and technical workers. The ratio of estimated female to male earned income, however, is only .46 (United Nations Development Programme, 2006). In her review of gender issues in Trinidad, Bissessar (1999) noted that it is difficult for women to attain higher level public services positions in Trinidad due to the structures introduced under the British administration.

Culture and Youth in Trinidad

Another important cultural consideration is the perception and expectations of children

among parents in Trinidad. Across all cultural groups, older siblings, kin and neighbors often play significant roles as care-givers (Yelvington, 1995). Evans and Davies (1997) reported parents in the Caribbean generally expect children to be quiet, obedient and respectful of adults. A disobedient child involved in *commesse* (scandal) is considered an embarrassment to the family (Yelvington, 1995). A hierarchical structure exists in families, with the older children and boys viewed with more importance and the eldest son even receiving preferential treatment. Importance is placed on children completing household chores for which they typically receive no reward. Chores are designated based on gender, with girls performing domestic activities and boys assigned duties related to outdoor work (Gopaul-McNicol, 1993). Boys are generally expected to be aggressive but respectful of adults, while girls are given less free reign and encouraged to emphasize physical beauty (Yelvington, 1995). Across socioeconomic groups, parents largely value a punitive and authoritarian approach to child rearing, with corporal punishment being widely accepted. Although corporal punishment has been officially banned from schools in Trinidad, it commonly continues due to poor monitoring and parental consent (Trinidad and Tobago Coalition on the Rights of the Child, 2005).

Culture and Parent Education in Trinidad

A prominent concern in Trinidad is the high rate of poverty. The reported incidence of poverty in Trinidad and Tobago is 21%, with 11% of the population living in extreme poverty (Central Intelligence Agency [CIA], 2006). Poverty in Trinidad is correlated with female-headed households, unemployment, and heads of households with less than a secondary school education. The higher incidence of poverty among female-headed households is partially attributed to the lower labor force participation rates and wages

among women and their other family care responsibilities which may limit their ability to engage in income-generating activities. Education in Trinidad is reported to have a strong correlation with earnings and intergenerational mobility. The heads of poor households tend to have low levels of educational attainment and their children's educational attainment is also usually. Households living in poverty are more likely to be larger, have more children and a non-nuclear family structure. They are less likely to have access to proper housing, water and sewage and are likely to reside in overcrowded and unhealthy conditions. The incidence of poverty in Trinidad is found to be slightly higher in urban than rural areas. (Ministry of Planning and Development, 2005).

In the present research study, data on parent educational attainment was collected as a measure of SES. Statistics from the U.S. indicate a strong correlation between parent educational attainment and income. Eighty-two percent of children whose parents have less than a high school diploma live in low-income families. Even among children whose parents work full-time and year-round, 74% of children whose parents have less than a high school diploma live in low-income families (National Center for Children in Poverty, 2006). It was noted by the South Trinidad Chamber of Industry and Commerce that in Trinidad “Educational attainment is clearly an area of great concern; young people with no qualifications will find it near impossible to obtain a secure formal sector job and to progress economically and socially.” In a review of research, Hudson (1988) found that the inverse relationship between SES and mental illness existed regardless of the type of SES indicator used, whether education, income or occupation, or the type of mental illness examined.

Research finds low SES to be associated with mental health problems in children (Franz, Kuns, & Schmitz, 2000; Franz, Lensche, & Schmitz, 2002; Ritsher, Warner, Johnson &

Dohrenwend, 2001). Ritsher, Warner, Johnson and Dohrenwend (2001) interviewed 756 participants four times over the course of 17 years using the Schedule for Affective Disorders and Schizophrenia. Low parental education, defined as not being educated beyond high school, doubled the offspring's risk of major depressive disorder. The mean education level of parents with depressed offspring versus the education for parents of non-depressed offspring was statistically significant ($t = -2.48, df = 304, p < .05$). Furthermore, low parental education was predictive of the risk of depression for their offspring, after controlling for parental depression and offspring gender and age.

In a cross-sectional design study in Germany, the socioeconomic status and psychological distress of mothers and children were investigated. The scores on self-report scales of 531 single mothers of children aged 5-7 were compared to a control group of married mothers ($N = 278$). Socioeconomic status was measured by income and education of parent, while the psychological problems of mothers were measured by a self report scale (Symptom Checklist 90-R). Problem behavior in children was rated by the mothers with the Child Behavior Checklists (CBCL). The single mother group had significantly lower income and less education than the control group. *T*-tests indicated that the single mother/low SES group showed significantly greater psychological distress on all sub-scales on the SCL-90-R compared to the control group ($p < .01$). In addition, boys of single/low SES mothers were rated as having significantly greater problem behaviors on the CBCL total score and subscales including; Thought Disorder, Social Problems, Delinquent Behavior, Externalizing, Other Problems and Mixed Problems ($p < .05$; Franz et al., 2002).

Culture and Ethnicity in Trinidad

Trinidad has two primary ethnic groups: East Indians, who account for 40.3% of the population, and Africans, who account for 39.5% of the population. An additional 18.4% of the population describe themselves as being of Mixed Race. The history of these ethnic groups within Trinidad has had important ramifications on current politics and ethnic relations.

Indo-Trinidadian History

East Indians are people of South Asian descent who originally came to Trinidad as indentured laborers to work in sugar cane plantations in the Caribbean. The goal of indentureship was to alleviate the labor shortage that resulted from ex-slaves' desertion of the sugar plantations after emancipation with the Abolition Act of 1833. By 1870, Indians constituted about a quarter of Trinidad's population and about one-third by the 1920s (Brereton, 1993). The immigration of indentured Indians continued until 1917 when it was banned by the government of India.

Indian indentureship has had a dramatic impact on Trinidad society and the relationship between the two major ethnic groups. Indian indentured laborers were entitled until 1895 to a free return to India after a five-year contract for males and a three-year contract for females. As a result, Indians at this time were not viewed and did not view themselves as permanent residents and future citizens of Trinidad. In addition, the indentureship system created a spatial segregation between the Indo-Trinidadians and Afro-Trinidadians. Indentured Indians could not leave the plantation without an official pass from the plantation authorities. By the end of the 1860s, indentured workers were offered a few acres of land in lieu of a free passage to India. The land was generally located close to the plantations as a way to

encourage them to continue to work on the plantation and to supplement their low wages with the cultivation of their plot. Thus, by the end of the 19th century, sugar and rural areas were populated predominately by Indians and urban areas by Africans (Douillet, 2005). Africans benefited from education in urban areas, while Indians remained primarily in rural areas with little access to education. With occupation as a central basis of social status in Trinidad, Indo-Trinidadian's agricultural work made their social status very low (Singh, 1985).

The indentureship of Indians also fuelled resentment between the ethnic groups in Trinidad. Africans resented the arrival of Indians as they perceived them as the cause for depressed wages and held Indians in contempt for accepting lower wages than they would accept (Mohammed, 1988). In the 1880s, as there was an increased recruitment of indentured servants within a depressed environment, East Indians were perceived as an economic threat and the competition between Indo-Trinidadians and Afro-Trinidadians in the lower socio-economic status was exacerbated (Brereton, 1979).

Afro-Trinidadian History

The majority of African Trinidadians were the descendants of immigrants from other islands of the Caribbean. Other Afro-Trinidadians trace their ancestry to American slaves recruited to fight for the British in the War of 1812 or from indentured laborers from West Africa (CIA, 2006). When British colonizers abolished slavery, freed black slaves moved off plantations and frequently held non-agricultural jobs in the industrial, domestic, teaching and commercial occupations. By 1981, two thirds of the non-Indian population was engaged in non-agricultural pursuits. Afro-Trinidadians dominated the political landscape after independence from Britain in 1962. At this time Indians claim they were regarded as second-

class citizens and discriminated against and excluded from the army, police, and other public services.

Current Relations between Indo-Trinidadians and Afro-Trinidadians

Until the 1970s, Indo-Trinidadians were statistically the poorest and least educated group in the nation and represented the highest percentage of the poor (Munasinghe, 2001). However, during the mid-1970s oil boom the country experienced a socio-economic boom and the Indo-Trinidadians experienced the highest degree of upward mobility. Indo-Trinidadians explain their success as a result of their greater self-discipline and ability to plan for their future and that of their children through purchases of land and through education. However, Afro-Trinidadians generally perceive the mobility of the Indo-Trinidadians as achieved through extreme stinginess or through suspicious means such as selling drugs (Douillet, 2005).

East Indians currently dominate the medical, legal, and business sectors in Trinidad (Mills, 2004). A study of Afro-Trinidadians in business (Ryan, 1992) noted that Afro-Trinidadians dominate the public sector while other ethnic groups dominate in the private sector. Ryan (1992) theorizes that this lack of business involvement by Afro-Trinidadians may be due to a lack of extended family structure in contrast to the generally well-defined extended family structure found in the Indian groups, lack of access to venture capital, and lack of solidarity from others of their own ethnic group. Despite the occupational stratification, statistics from the Ministry of Planning and Development (2003) show that African and Indian households have comparable gross average per capita income levels (1,158 \$TT versus 1,077 \$TT, respectively). The Chinese gross per capita income is

approximately twice as much as either group, and the Caucasian income is approximately four times greater.

Due to Indo-Trinidadians and Afro-Trinidadians' history of socio-economic distance and antagonism, stereotypes and ethnic tension exists (Douillet, 2005). Indo-Trinidadians criticize Afro-Trinidadians as lacking proper work ethic and not being family-oriented. Afro-Trinidadian women are generalized as being hard-headed and not placing enough emphasis on taking care of children and cooking, while Indo-Trinidadian women are perceived as obedient. Indo-Trinidadians are stereotyped as sexually inadequate, physically violent and erratic. Some of Afro-Trinidadian's eating behaviors and occupations are considered as ritually impure (Mohammed, 1988) while Indo-Trinidadians are considered inferior due to weaker physical strength and the perception of Hinduism as uncivilized paganism (Singh, 1985). The notion that Indo-Trinidadians are aggressively taking over all aspects of social, economic and political life is widespread among Afro-Trinidadians (Douillet, 2005).

In his discussion of Trinidadian culture, Samaroo (1985) reported that the physical and cultural differences of the East Indians have accentuated their isolation in Trinidad. It is argued that Africans have been socialized into Christian and European behaviors and values, while East Indians have held onto their ancestral culture, including dress, language and religion. The visible physical and cultural difference has contributed to the notion that Indians have held on to Indian culture, which is not compatible with Trinidad's "Western" society. Samaroo (1985) suggests that negotiating their attachment to "ancestral culture" while "participat[ing] in the politics of the larger society dominated by Western, Christian values has been the 'great dilemma' of the East Indian in the Caribbean" (p. 80).

Ethnic and racial disharmony is still evident in political debates, as both African and Indian groups continue to accuse the other of racial discrimination (Mills, 2004). There are currently two major political parties, the United National Congress (UNC) and the People's National Movement (PNM), with memberships structured significantly on ethnic lines. In 1995, Basdel Panday became the first Indian Prime Minister. The UNC, dominated by the Indo-Trinidadians, was in power between 1995 and December 2000. Currently, the PNM is the ruling political party in Trinidad and Tobago after a tie in the general elections in 2001 and President Robinson appointed Patrick Manning as Prime Minister.

Trinidad's cultural identity and the preservation of ethnic distinctions are debated in various venues in the public sphere. Ethnic mixing is viewed by some as a positive move toward national integration, while others view it as the loss of and contamination of ethnic cultural identity. Trinidad's ethnic groups are experiencing a continuing emergence of commonalities in domains such as clothing, music, food and religion. As an example, up to the 1960s Indo-Trinidadian women would go to Port-of-Spain on rare occasions and dressed in traditional saris; however, Indo-Trinidadian women currently hold various white-collar jobs and wear similar clothes as Afro-Trinidadian women (Douillet, 2005). Attitudes toward mixed marriages between ethnic groups are heterogenous and vary across generations and religion. Among Indo-Trinidadians, the highest level of acceptance of mixed marriage is among young Indian Christians, the lowest level is among Hindus and an intermediate level is among Presbyterians and Muslims. Interestingly, greater acceptance of mixed marriages exists among Indian women than among Indian men (St. Bernard, 1999).

Purpose and Rationale

Researchers have estimated that high rates of childhood psychopathology exist across the world (WHO, 2001). The accurate identification of emotional and behavioral disorders is critical, as children with these difficulties are more likely than other children to face serious problems both in and out of school, including high drop-out rates and delinquency (Wehman, 1997). Among the several available methods of assessment for behavior and emotional problems, behavior rating scales offer significant advantages, including objectivity, normative information and reliable data (Merrell, 2003). Notwithstanding parental report limitations, behavior rating scales with parents as reporters offer critical insight into the functioning of a child in multiple situations outside of the school. Additionally, contextual assessment methods provide insight into behavior by distinguishing behavior by situational factors including function and provocation (McDermott, 1993). Currently, the ASCA: P is the only contextual based instrument available for use with parents as the reporters. A prior study found the ASCA: P to be a reliable and valid means of testing for children at risk for behavioral and emotional difficulties in the United States (Mordell & McDermott, 2001). The purpose of this study is to determine if the ASCA: P can demonstrate adequate psychometric properties when testing children from a different culture, specifically the Republic of Trinidad and Tobago. The following research questions are asked in this study:

1. Is there a resolvable component structure for the ASCA: P scores using a sample of Trinidadian children in grades Infant One through Standard Five?

Research on the ASCA: P in the United States indicated a three syndrome structure, including provocative, noncompliant, and restless behaviors (Mordell & McDermott, 2001). These behavior problems were found in previous research in Trinidad on the

ASCA (Grim, 2002; Menaker, 2003). It is therefore hypothesized that the three syndrome structure on the ASCA: P found in previous research in the U.S. will be found in the present study in Trinidad.

2. What is the internal consistency reliability, as measured by Cronbach's coefficient alpha, of the ASCA: P syndromes for students in the Republic of Trinidad and Tobago?

Research on the ASCA: P by Mordell and McDermott (2001) showed adequate internal consistency coefficients, as did previous research on the ASCA in Trinidad and Tobago (Grim, 2002; Menaker, 2003). It is therefore hypothesized that the ASCA: P will demonstrate adequate internal consistency reliability (coefficient alphas of at least .80) in the present study.

3. Are there significant differences across the ASCA: P syndromes based on gender, age, ethnicity, or the highest level of education attained by the female guardian or male parent?

Research by Grim (2002) on the ASCA with Trinidadian students revealed that students of Mixed descent demonstrated higher levels of impulsive-aggressive behavior than students of East Indian descent, and that students of Mixed and African descent presented higher levels of oppositional defiance. Research by Menaker (2003) showed higher scores for male students on Attention-Deficit Hyperactive, Aggressive, and Avoidant syndromes. Also, students of both African and Mixed descent were found to have scores higher on the Aggressive syndrome but had lower scores on the Diffident syndrome than students of East Indian descent. Based on these research findings in Trinidad, it is hypothesized that males

and students of African and Mixed ethnic descent in the present study will score higher on syndromes related to overactivity and aggression than East Indian and female students.

The Trinidad research investigating the relationship between age and behavior pathology as defined in the ASCA has not been consistent. In the research by Grim (2002), younger students evidenced more behavioral problems on the Oppositional Defiant and Avoidant syndromes; however, Menaker (2003) found no age differences for the ASCA syndromes with her larger sample in Trinidad. Given these findings, it is predicted that the present study will not find age differences for the syndromes.

Research on children's behavior problems in Trinidad related to parent education has not been conducted. Related research from other countries will therefore be used as a guide to hypothesize findings in the present study. Research indicates that educational attainment is correlated with income level (National Center for Children in Poverty, 2006). Furthermore, research in several countries has shown a correlation between child behavior problems and low family income (Bor, Najaman, Andersen, O'Callaghan, Williams, & Behrens, 1997; Chase-Lasdale, Coley, Lohman, & Pittman, 2002; Franz et al., 2002). It is therefore hypothesized that parent educational attainment will be inversely correlated with child behavioral difficulties.

METHOD

Setting

This study was conducted in the Republic of Trinidad and Tobago located in the West Indies. Trinidad is the southernmost island in the Caribbean Sea, lying 11 km east of the Venezuelan coast. It is approximately 5,128 square kilometers in size, which is comparable in size to the state of Delaware. Trinidad was first colonized by the Spanish but came under British control in the early 19th century. Independence from Britain was attained in 1962. Trinidad is a republic within the Commonwealth of Nations and is divided into eight regions which are governed under a democratic system based on the Westminster System of Britain (Tourism and Industrial Development Company of Trinidad & Tobago Limited, 2001). See Figure 1 for a map of the Republic of Trinidad and Tobago and its eight administrative regions.

Population

The population of Trinidad and Tobago is estimated to be approximately 1.3 million (2005 estimate), with most (96%) residing on the island of Trinidad and the remainder (4%) on Tobago. There are two major cities, Port of Spain and San Fernando, in and around which approximately 40% of the population live (Central Statistical Office, 2000). Due to emigration and a low birth rate, in 2006 Trinidad and Tobago had the lowest population growth rate in the world (-.87%; CIA, 2006). Trinidad shares a wide variety of religions: 29.4% Roman Catholic, 23.8% Hindu, 10.9% Anglican, 5.8% Muslim, 3.4% Presbyterian, and 26.7% none or other. English is the official language of Trinidad and is taught in all the schools (CIA, 2006).

I. Map of Trinidad and Tobago



Note: From Benedetti, M. (n.d.). *Trinidad and Tobago*. Retrieved August 22, 2001, from

<http://www.ugcs.caltech.edu/~benedett/trinidad/index.html>

Economy of Trinidad

Trinidad's petroleum-based economy provides its citizens with a per capita income of US\$10,440 in 2005 which is well above the Latin American average. Oil accounts for 40% of the Gross Domestic Product (GDP), 80% of exports, and 5% of employment and makes the country a major financial center in the Caribbean. Growth in Trinidad and Tobago has averaged 6% per year since 1994, among the highest in Latin America and the Caribbean region. In 2005, the economy grew by 7%, due to high oil prices which also created substantial fiscal and balance of payment surpluses (CIA, 2006). However, the country struggles with high rates of unemployment and poverty. In 2000, the unemployment rate was 11.4% and 21% of the population was estimated to live below the poverty line (Ministry of Planning & Development, n.d.).

Education in Trinidad

Education in Trinidad is free at the primary and secondary levels and attendance at school is compulsory for children between the ages of five and twelve. Virtually all children attend primary school, and approximately 70% of children aged 12-15 attend secondary school. The first level of education in Trinidad includes two classes, termed Infant One and Infant Two, that are comparable to kindergarten and first grade, respectively, in the United States. Children typically enter Infant One at age five and attend this grade for one year. After completing Infant One, children complete a year of class at the grade of Infant Two. The second level of education in Trinidad includes five different grades, termed Standard One through Standard Five. Children at this level attend each grade for one year, typically from ages 7 to 12. Standard One through Standard Five are comparable to second through sixth grade in the United States. After students complete Form 5 (approximately equivalent to

grade 10 in the US) and pass a required exam, they may receive the Caribbean Examinations Council Secondary Education, which qualifies them for entry into higher education. At the post-secondary level, government technical vocational schools and teachers colleges are free for qualified students. There are four small, government-run technical colleges, five teachers colleges, and two polytechnic institutes (Tourism and Industrial Development Company of Trinidad & Tobago Limited, 2001). In 2001, 38% of all entries for the Caribbean Examination Council were males and 62% were females. Females received significantly higher scores than boys on the critical benchmark core subjects including Mathematics, English, Social Studies and Integrated Science (Niles, 2004).

Health Care in Trinidad

Trinidad faces several challenges in improving the health status of the population. Trinidad has a national health service, but private medicine serves a large share of the population. In 2003, Trinidad's total health expenditure was only 3.9% of its GDP. In comparison, the U.S.'s health expenditure was 15.2% of its GDP and Jamaica's was 5.3% (WHO, 2006). Trinidad and Tobago was given a Human Development Index (HDI) ranking of 57 out of 177 countries in the Human Development Report 2006 (United Nations Development Programme, 2006). Comparatively, the United States was ranked 8th and Jamaica was 104th. The HDI provides a composite measure of three dimensions of human development: life expectancy, education (measured by adult literacy and enrollment in primary through tertiary levels) and standard of living (measured by purchasing power parity and income). The life expectancy in Trinidad in 2004 was 69.8 which was comparable to the world average of 67 years (United Nations Development Programme, 2006).

Among the most prominent health concerns in Trinidad is HIV/AIDS, with an estimated prevalence rate in 2001 (among adults aged 15-49) of 2.5%, compared to the world prevalence rate of 1.2%. Other health care concerns include the rise in infant mortality to the rate of 21 per 1000 live births (WHO, 2007). Related to this issue, the need has been identified to improve the quality of health care for pregnant woman, and improve issues related to low birth weight babies, exclusive breastfeeding, and iron deficiency anemia. Another major challenge in the current health system includes inadequate human resource planning resulting in not having a health workforce of sufficient quantity or competency to meet the health needs of the population (WHO, 2007). There is approximately one doctor in Trinidad and Tobago per 1266 people (Kindersley, 2004).

To address the mental health needs of the population, Trinidad has a national mental health policy and program and a single mental hospital, two psychiatric units at other hospitals, and 75 out-patient clinics. Trinidad and Tobago has the highest number of trained mental health staff among the Caribbean islands but the distribution of staff is considered inadequate. Per 100,000 people, there are .3 psychologists, 1 psychiatrist, and 10 psychiatric beds (WHO, 2005). In a review of psychiatric inpatient admissions in Trinidad, Neehall (1991) reported that 38% of patients were diagnosed with psychoses, 34% were diagnosed with alcohol and drug use disorders, and 15% were diagnosed with affective disorders. As reported by the WHO (2004), the suicide rate among males in Trinidad and Tobago has more than doubled between 1981 and 1994 from 7.4 to 17.4 per 100,000; for females, the rate has similarly increased from 2.9 to 5 per 100,000. In a review of 270 patients who died at a general hospital, it was determined that suicide was associated with gender (male), ethnicity (East Indian), age (11-34 age group) and psychiatric morbidity (28%). Paraquat was used in

63.7% of the suicidal cases and other agrochemicals were used in another 20% of cases (Hutchison, Daisley, & Simmons, 1991). Hutchison, Daisley and Simmons (1999) examined 48 cases of suicide in Trinidad and determined that 81% were due to paraquat poisoning, half were in the 25-34 years age group, and nearly 90% were of East Indian origin.

Crime in Trinidad

The U.S. Department of State has rated crime in Trinidad and Tobago as high. Violent offenses have increased over the past five years including murder, sexual assault and domestic violence (Overseas Security Advisory Council, 2001). In a study of 1093 homicides that occurred between the years 1991 and 2000 in Trinidad and Tobago, the Spearman rank correlation was used to determine any associations between homicide and social or demographic factors (Hutchinson, 2005). The study concluded that Afro-Trinidadian's committed 68.2% of these homicides and were significantly more likely to commit homicide than Indo-Trinidadians ($p = .003$). The ratio of male to female homicide was reported as 3.8 to 1. The number of homicides in Trinidad has significantly increased in recent years and in 2005 there were 384 murders (Overseas Security Advisory Council, 2007). The number of kidnappings in Trinidad has also increased, with a current abduction rate second in the world to Columbia. In 2001, there were fewer than 10 kidnappings but this number increased to 29 kidnappings in 2002 and currently remains a considerable social concern. Police report that the kidnappings are related to drug dealings but the Indo-Trinidadian community has expressed concern that the victims of the kidnappings are primarily Indians and contend that these crimes are being fueled by police corruption, government complicity and racism (Williams, 2005).

Drug and alcohol abuse are also significant societal concerns in Trinidad. The United States Central Intelligence Agency has listed Trinidad as a trans-shipment point for illegal drugs coming from South America into the US and Europe. They estimate that approximately 65% of all serious crimes committed in Trinidad are related to the drug trade (Deceyon, 2006). In a questionnaire survey conducted by Singh, Maharaj and Shipp (1991) of 1603 secondary school students in Trinidad, prevalence of drug use was reported as follows: alcohol (84%), tobacco (35%), marijuana (8%) and cocaine (2%). Students of Indian origin reported significantly more alcohol use, and students of African origin reported using marijuana more frequently.

Participants

Based on a random, stratified sampling, ASCA: P scores for 783 students from the Republic of Trinidad and Tobago were examined. A small number of students (.9%) for whom the ASCA: P was submitted were eliminated from the study. The excluded students included five whose demographic information indicated a teacher completed the ASCA: P, one student whose friend completed the form and one student whose ASCA: P was not completed. The final number of participants were as follows: 97 in Infant I, 93 in Infant II, 92 in Standard I, 114 in Standard II, 100 in Standard III, 102 in Standard IV and 88 in Standard V. In addition, there were 97 students whose grade was not indicated on the ASCA-P. The respondents completing the form were 82% parents and 10% relatives/guardians. Seven percent did not report their relation to the student. A summary of respondents' relationship to the student is included in Table 1.

Other demographic information collected about the student participants include age, ethnicity, mother's and father's highest level of education, and birth order. The age

distributions of students in each grade are presented in Table 2. The ages of some children were not provided (ranging from 3% in Standard One to 29% of students whose grade was not reported). As can be seen in Table 2, a considerable age range is evident for each of the grades. This range in age can be explained, in part, by the lack of special education services in Trinidad.

Table 3 presents the gender distribution of the children by grade. Boys and girls were relatively equally represented amongst the participants for each of the grades. In each of the grades there were several children whose gender was unidentified (ranging from 1% in Standard I and Standard V to 11% for the students whose grade was not reported).

Table 4 presents the ethnicity of the students by grade. In total, the sample population was 36% African, 37% East Indian, 21% mixed and 7% of sample did not report their ethnicity. The sample's ethnic composition is consistent with recent demographic data regarding the percentages of the different ethnicities in Trinidad and Tobago (CIA, 2006).

Parent education level was compared for each ethnic group in the sample (Table 5). For each ethnic group a slight majority of students' mothers had more than a primary level of education. A slight majority of East Indian fathers had only a primary level of education; however, a majority of African and mixed ethnicity fathers had attained more than a primary level of education. A considerable percentage of participants did not respond regarding their education level (on average 30.3% per ethnic group). Therefore, a definite conclusion regarding parent education level by ethnicity can not be determined for the sample.

Table 6 and 7 present information regarding the highest level of education obtained by the students' mothers and fathers, respectively. A substantial percent of the sample did not

Table 1

Distribution of Respondents' Relationship to Target Participant

Type of Respondent	<i>n</i>	%
Parents		
Mother	533	68.2
Father	98	12.5
Parent	7	.9
Stepmother	5	.6
Stepfather	1	.1
Parent Total	644	82.3
Relatives/Guardians		
Aunts	23	2.9
Sister	22	2.8
Grandmother	19	2.4
Brother	9	1.2
Other	8	1.0
Relative/Guardian Total	81	10.3
Not reported	58	7.4

Table 2

Age of Participants by Grade

Grade	<i>n</i>	<i>M</i>	<i>SD</i>	Range	Unreported Age
Infant I	99	6.1	.46	5-7	6.2%
Infant II	94	7.1	.46	6-9	6.5%
Standard I	94	8.1	.67	6-10	3.1%
Standard II	116	9.1	.65	7-11	8.8%
Standard III	102	10.0	.73	9-13	6.0%
Standard IV	104	11.1	.82	8-13	3.9%
Standard V	90	12.0	.87	10-16	6.8%
Unreported	84	9.0	2.40	6-14	29.9%
Total <i>N</i>	783	9.1	.88	5-16	8.9%

Table 3

Gender of Participants by Grade

Grade	<i>n</i>	Gender		Unreported
		Male	Female	
Infant I	97	47 (48.5%)	45 (46.4%)	5 (5.1%)
Infant II	93	44 (47.3%)	43 (46.2%)	6 (6.5%)
Standard I	92	48 (52.2%)	41 (44.6%)	3 (3.2%)
Standard II	114	54 (47.4%)	52 (45.6%)	8 (7.0%)
Standard III	100	46 (46.0%)	46 (46.0%)	8 (8.0%)
Standard IV	102	46 (45.1%)	50 (49.0%)	6 (5.9%)
Standard V	88	41 (46.6%)	42 (47.7%)	5 (5.7%)
Unreported	97	39 (40.2%)	42 (43.3%)	16 (16.5%)
Total <i>N</i>	783	365 (46.6%)	361 (46.1%)	57 (7.3%)

Table 4

Percent Distribution of Participants' Ethnicity by Grade

Grade	African	East Indian	Mixed	Unreported
Infant I	36.1	36.1	23.7	4.1
Infant II	36.6	34.4	24.7	4.3
Standard I	40.3	29.3	26.1	4.3
Standard II	36.8	38.6	18.5	6.1
Standard III	35.0	46.0	13.0	6.0
Standard IV	32.4	48.0	17.6	2.0
Standard V	35.2	43.2	21.6	0.0
Unreported	34.0	23.7	20.6	21.7
Total N	35.4	37.4	20.6	6.6

Table 5

Parents' Ethnicity and Education Level

Parent Ethnicity	Education Level	<i>n</i>	%
African Mothers	Some or Completed Primary	74	26.1
	Beyond Primary	126	44.5
	Not Reported	83	29.3
East Indian Mothers	Some or Completed Primary	98	33.6
	Beyond Primary	108	36.9
	Not Reported	86	29.5
Mixed Ethnicity Mothers	Some or Completed Primary	56	34.5
	Beyond Primary	69	42.6
	Not Reported	37	22.8
African Fathers	Some or Completed Primary	73	25.8
	Beyond Primary	103	36.4
	Not Reported	107	37.8
East Indian Fathers	Some or Completed Primary	114	39.0
	Beyond Primary	89	30.5
	Not Reported	89	30.5
Mixed Ethnicity Fathers	Some or Completed Primary	42	25.9
	Beyond Primary	68	42.0
	Not Reported	52	32.1

Table 6

Percent Distribution of Participants' Mother's Education Level by Participants' Grade

Grade	Primary	Form 3	Form 5	Form 6	Technical/ Professional	Unreported
Infant I	27.8	2.1	24.8	1.0	1.0	43.3
Infant II	21.5	4.3	31.2	1.1	1.1	40.8
Standard I	29.3	9.8	27.2	5.4	1.1	27.2
Standard II	33.3	6.1	29.8	1.8	0.9	28.1
Standard III	39.0	8.0	28.0	3.0	0.0	22.0
Standard IV	31.5	6.9	33.4	2.0	0.0	26.2
Standard V	31.8	11.4	30.7	1.1	1.1	23.9
Unreported	23.8	6.0	36.8	4.8	0.0	28.6
Total <i>N</i>	29.4	6.6	30.6	2.4	.6	30.4

Table 7

Percent Distribution of Participants' Father's Education Level by Participants' Grade

Grade	Primary	Form 3	Form 5	Form 6	Technical/ Professional	Unknown
Infant I	24.7	2.1	20.6	1.0	4.1	47.5
Infant II	24.7	4.3	17.2	1.1	4.3	48.4
Standard I	34.8	4.3	21.7	3.3	3.3	32.6
Standard II	32.4	5.3	28.9	0.9	0.9	31.6
Standard III	32.0	4.0	23.0	6.0	0.0	35.0
Standard IV	38.2	2.9	26.5	2.0	1.0	29.4
Standard V	33.0	4.5	31.8	6.8	0.0	23.9
Unreported	19.6	7.2	22.7	5.2	2.1	43.2
Total <i>N</i>	30.0	4.3	24.2	3.3	1.9	36.3

report this information. On average across the grades, 30% did not report the mother's education, and 36% did not report the father's education. Among those for whom educational level was reported, the amount of education obtained by mothers and fathers was comparable. The majority of mothers and fathers in the sample reported their highest level of education was Primary (30% of fathers, 29% of mothers) or Form 5 (24% of fathers, 30% of mothers), while few reported finishing a Technical or Professional degree (1.9% of fathers, .6% of mothers). Recent demographic data shows that in 2000 the tertiary enrollment in Trinidad and Tobago was only 6.5% (NationMaster.com [n.d.] Trinidad and Tobago Profile: Education).

Procedure

The 783 Trinidadian participants in the study came from a random stratified sampling based on educational region. School population data compiled by the Educational Planning Division of the Ministry of Education was used to identify a representative sample of students from the Republic of Trinidad and Tobago. All of the schools from Trinidad and Tobago were listed and divided by region and then schools were randomly selected from this list. The names of these randomly selected schools were forwarded to the Ministry of Education in Trinidad and given to educational specialists including 10 Guidance Officers and 11 Special Education Officers. All of the data collectors possessed a university degree and had received training from the Penn State consulting team which supervised the data collection. At the selected schools in their assigned regions, these officers used a random numbers table to randomly select two students at each grade level. In mixed-gender schools, one male and one female student were selected from each classroom and in single-gender schools, two males or two females were selected. If a single-gender school was selected then

the next random draw at that grade was from schools that exclusively served the other gender. The ASCA: P was then sent home for parents of the selected students to complete. This sampling procedure resulted in a potential sample of 1,106 students. These students represented an over-sampling of approximately 50% to allow for participant attrition. Seven hundred and eighty three usable ASCA: P forms were returned, resulting in a return rate of approximately 71%. Eighty-nine percent of the ASCA: P forms were completed in June or July of 2002. Five percent of the data was completed in May and 5% did not record the date in which the form was completed. The ASCA: P forms were then sent to the United States where the data was compiled into a spreadsheet. Every entry was double-checked by comparing the data entered on the spreadsheet with the original ASCA: P protocol and all inaccurate entries were corrected.

Results of the sampling of schools and students are presented in Table 8 and Table 9. Table 8 shows the population of primary students in each region and the sample of students from that region that participated in the study. Table 9 shows the total number of primary schools in Trinidad by region and the number of schools in each region that were included in the sample. There was a slight under-representation of students from the St. George West region; however, the remainder of the sample was relatively equivalent to the proportion of students and schools in each region.

Measure

Adjustment Scales for Children and Adolescents: Parent Edition (ASCA: P)

All participants in the study had an ASCA: P completed by their parent or guardian. Similar to the ASCA, the ASCA: P applies a format that presents behavioral descriptions with reference to specific play, work and social contexts. Questions are presented,

Table 8

Comparison of Sample Population to Target Population by Region

Region	Total Population	Proportion	Sample Population	Proportion
St. George West	40,879	24.1%	126	16.1%
St. George East	28,031	16.5%	141	18.0%
St. Andrew/ St. David	10,682	6.3%	43	5.5%
Caroni	25,414	15.0%	110	14.1%
Nariva/Mayaro	6,262	3.7%	37	4.7%
Tobago	7,316	4.4%	50	6.4%
Victoria	32,275	19.0%	174	22.2%
St. Patrick	18,721	11.0%	102	13.0%

Note: From Summary of primary schools in Trinidad and Tobago 1998/1999 according to educational planning boundaries, by Trinidad and Tobago Ministry of Education, Port of Spain: Author.

Table 9

Schools in Trinidad by Region, Schools Sampled by Region, and Proportion of Student Population and Participants by Region

Region	Total Schools	Proportion	Sample Schools	Proportion
St. George West	98	20.5%	17	23.0%
St. George East	59	12.4%	12	16.2%
St. Andrew/ St. David	43	8.6%	5	6.8%
Caroni	69	14.5%	10	13.5%
Nariva/Mayaro	21	4.6%	3	4.0%
Tobago	33	6.9%	4	5.4%
Victoria	78	20.8%	14	18.9%
St. Patrick	56	11.7%	9	12.2%

Note: From *Summary of primary schools in Trinidad and Tobago 1998/1999 according to educational planning boundaries*, by Trinidad and Tobago Ministry of Education, Port of Spain: Author.

introducing specific situations (e.g., How does she answer questions?). Following the question are a series of response items (e.g., Freezes up and has trouble answering, answers if she can.) The items were chosen to represent the six ASCA constructs (Attention-Deficit Hyperactive, Solitary Aggressive/Provocative, Solitary Aggressive/Impulsive, Oppositional Defiant, Diffident and Avoidant). Informants respond in a dichotomous manner, indicating as many behavioral items as apply to their children. Behavioral items that are indicated as applicable are scored 1, while items not indicated are scored 0. As in the ASCA, descriptions of positive behavior are included within the descriptors to allow parents to identify their children's strengths as well as difficulties. Separate forms for males and females were created that have identical item content and gender-specific referents. Prior to analysis, the ASCA: P included 203 behavioral descriptors. The item and situations were re-conceptualized to better cover the anticipated psychopathology constructs in Trinidad and Tobago. Items were also reviewed and modified by the Guidance Officers in Trinidad and Tobago for cultural appropriateness.

Research on the ASCA: P

Research on the ASCA: P is limited to one study conducted in the United States. In a study by Mordell and McDermott (2001) the validity of the ASCA: P was examined with evidence based on construct and concurrent methods: generalizability and invariance was assessed across demographic and random subgroups, reliability was assessed using internal consistency and temporal methods, and age and gender differences were evaluated across the ASCA: P syndromes. The sample included 314 students, aged 5 to 17 years, from Pennsylvania, New Jersey and New York. Due to the small sample size, lack of minority

representation, and exclusion of important psychometric testing (e.g., rater agreement) it was concluded that subsequent research into ASCA: P's utility is necessary.

Component Structure of the ASCA: P

In the U.S. study the ASCA-P data was subjected to principal component analyses using both orthogonal and oblique rotation methods (Mordell & McDermott, 2001). Exploratory components analysis, using equamax rotation methods, revealed a three component structure. The solution met the criterion of Cattell's (1966) scree test, retained more than five items on each component, demonstrated adequate internal consistency (Cronbach's coefficient alpha was .85, .79 and .84 for each component, respectively) and attained acceptable intercorrelations of retained unit weighted components (.23, .38 and .42 for each component, respectively). The first syndrome, labeled Unsocialized, was comprised of 17 descriptions of rude and provocative behaviors (e.g., stealing, pushing ahead). The second syndrome, named Avoidant, retained 13 items indicating disconnection and noncompliance (e.g., lacking energy, never seeks help). The third syndrome, named Restless Impulsivity, was comprised of 18 items, indicating general restlessness and disruption to the environment (e.g., restless, answers before thinking).

A second-order principal component analysis was conducted in order to determine if the three behavioral syndromes were further discernable into the global overactive and underactive domains (Mordell & McDermott, 2001). Only one component emerged with all three syndromes retaining salient loadings. This component signified overall adjustment, and both overactive and underactive syndromes were included. Based on the second-order analysis, an ASCA: P total score of behavior pathology was created.

The amount of reliable and unique variance associated with each component was calculated by subtracting the component's communality from its alpha coefficient (Mordell & McDermott, 2001). Specificity exceeded error variance for all components, indicating that the components were comprised of unique and reliable variance.

Invariance and Generalizability of the ASCA: P

To assess invariance, structures for five random subgroups ($n = 200$ each) were compared to the full-sample structure, and the mean of the five coefficients of congruence was calculated for the components (Mordell & McDermott, 2001). Each component retained adequate similarity ($> .83$) to its counterpart component in the full sample and each random subgroup component had moderately low ($< .48$) similarity to the other noncorresponding components. Generalizability was assessed by partialing out variance associated with age, gender and race in the syndrome structure and then comparing these structures to the structure that was not partialled. Generalizability results indicated that counterpart components were maximally similar (.99) and noncounterpart components held moderately low similarities ($< .47$) for each demographic group.

Reliability of the ASCA: P

Internal consistency coefficients for the syndromes were also calculated for the full sample as well as each subgroup (Mordell & McDermott, 2001). Subgroups included pre-adolescents, adolescents, males, females, Caucasians and minorities (comprised of 55 African American, 8 Hispanic, 6 Asian, and 8 Other ethnicities). Coefficients ranged between .79 and .84 for the syndromes with a total score alpha of .94. The levels of internal consistency support reliability of the syndromes, with the exception of the Avoidance syndrome, which holds insufficient alpha coefficients for females and minorities.

Correlation analyses indicated substantial stability of the syndromes across a four-week time period (Mordell & McDermott, 2001). Indices of temporal stability were between .67 and .84 for the syndromes with a total score temporal coefficient of .85. No significant rater effect was found, as evaluated via the intra class correlation method (Shrout & Fleiss, 1979).

Convergent and Divergent Evidence for the ASCA: P

Canonical variance analysis found a significant overlap between the seven dimensions of the Conners Parent Rating Scale-Revised: Long Version (CPRS-R:L) and the three ASCA:P syndromes, $\Lambda = .32$, $F(36, 296) = 3.92$, $p < .005$, and produced two significant canonical correlations, canonical $R_s = .72$ and $.49$ with $p < .001$ and $p < .005$, respectively (Mordell & McDermott, 2001). The first canonical relationship was defined by salient loadings from the Unsocialized and Restless Impulsive syndromes of ASCA: P and the Oppositional, Cognitive Problems and Hyperactivity dimensions of CPRS-R: L (.54-.63). The second canonical relationship was a moderate (.45) loading from ASCA: P's Avoidant syndrome and salient loadings from the Cognitive Problems and Psychosomatic dimensions of CPRS-R: L (.30 and .31). Canonical redundancy analysis indicated that ASCA: P explained 25% of CPRS-R: L variance, while the CPRS-R:L explained 33% of ASCA:P variance. This difference in explained variance was described as a result of the larger number of items on the CPRS-R: L.

Age and Gender Differences on the ASCA: P

A 2 x 2 x 3 ANOVA found that levels of adjustment problems differed as a function of age and gender, with males and preadolescents (aged 5 through 10 years) demonstrating higher levels of adjustment problems than females and adolescents (aged 11 through 17; Mordell & McDermott, 2001). Applying Tukey's HSD, preadolescents displayed higher levels of Restless Impulsivity than did adolescents, male adolescents displayed higher levels

of Unsocialized behaviors than did any other group, and preadolescents attained higher levels on the Restless Impulsive syndrome than adolescents. It was determined that 5.3% of the variance across adjustment problems could be attributed to age while 1.7% could be attributed to the age and gender interaction.

Data Analyses

Although research has demonstrated that the ASCA: P demonstrates adequate psychometric properties in the U.S. (Mordell & McDermott, 2001), studies have not been conducted using this instrument in other countries. This study investigated ASCA: P's utility as an indicator of behavioral adjustment in children from the Republic of Trinidad and Tobago. Specifically, this study examined the component structure of the ASCA: P in Trinidad, the internal consistency reliability of the ASCA: P syndromes and differences across the ASCA: P syndromes based on demographic information, including gender, age, level of parent education and ethnicity.

Component Structure of the ASCA: P with Primary Students in Trinidad

Assumptions for Principal Component Analysis

Principal component analysis operates on several assumptions about the sample data. These assumptions include: multivariate normality, suitable sample size, absence of extreme multicollinearity or singularity among variables, and factorability of the correlation matrix. Tabachnick and Fidell (2001) report that these assumptions are more relaxed with exploratory applications and apply to a greater degree with confirmatory factor analysis.

Multivariate normality. Multivariate normality assumes that all variables and linear combinations of variables are normally distributed. Two components of normality are skewness, the symmetry of the distribution, and kurtosis, the peakedness of the distribution.

According to Fabrigar, Wegner, MacCallum, and Strahan (1999) variables can be assumed normal if the skewness is less than 2 and the kurtosis is less than 7. While the component solution is enhanced if the variables are normally distributed, principal components can still be used to summarize the relationships in a large set of observed variables if this assumption is not met (Tabachnick & Fidell, 2001).

Sample size. A number of rules or guidelines have been produced regarding an adequate sample size for component analysis. One common guideline has involved determining an adequate sample size as a function of the number of variables. For example, some researchers have recommended that the sample size be at least 10 times the number of variables (Marascuilo & Levin, 1983; Nunnally, 1978). Empirical studies, however, have not provided support for rules that recommend a sample size to variable ratio (Guadagnoli & Velicer, 1988; MacCallum, Widaman, Zhang, & Hong, 1999). Other researchers have recommended a minimum sample size. Comrey and Lee (1992) stated that a sample size of 500 is “very good” and 1000 is “excellent.” Researchers have agreed that larger sample sizes produce correlation coefficients that are more reliable and sample factor loadings that are more precise estimates of the population factor loadings (MacCallum, Widaman, Zhang, & Hong, 1999). The sample size in the present study ($n = 783$) is considered acceptable by the standards discussed by Comrey and Lee (1992).

MacCullum et al. (1999) concluded that the necessary sample size is dependent on several aspects of a study, including the level of communality of the variables and the level of overdetermination of the factors. Overdetermined factors were defined as factors that exhibit high loadings on a substantial number of variables (at least three or four). When communalities are high, good recovery of population factors can be achieved with relatively

small samples; however, when communalities are low, recovery of population factors is difficult to achieve unless the sample size is large. In addition, the effects of sample size on the recovery of population factors are more dramatic when factors are not overdetermined. Under the worst conditions of low communalities and a large number of weakly determined factors, the recovery of population factors requires large samples (MacCullum et al., 1999).

Singularity and multicollinearity. Singularity refers to redundancy among the variables, while multicollinearity indicates that the variables are too highly correlated. Singularity and multicollinearity present problems by making it difficult to determine the unique contribution of an item to a component. To investigate if singularity or multicollinearity is present, the squared multiple correlations (SMC) for each variable were examined (Tabachnick & Fidell, 2001). Singularity is present when variables are perfectly correlated ($SMC = 1.0$) with each other, and high degrees of multicollinearity are present when variables are very highly correlated ($SMC > .9$). An examination of the squared multiple correlations (SMC's) of the correlation matrix in the present study indicated that singularity and multicollinearity were not present.

Factorability of the correlation matrix. In order for a correlation matrix to be factorable, the factor matrix should include reliable and sizable correlations. Tabachnick and Fidell (2001) recommend that a factor matrix should include at least one correlation in the matrix that is greater than .30. Bartlett's (1954) test of sphericity can be used as a more formal test of the correlation matrix. The Bartlett's test of sphericity tests the hypothesis that all of the correlations in the matrix are zero (Tabachnick & Fidell, 2001). A significant result, $p < .05$, is considered necessary. In addition, the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy (Kaiser, 1974) establishes whether the correlations present in data matrix

are sufficiently high. The KMO compares the observed correlation matrix to the partial correlation matrix. This test computes a ratio of the sum of squared correlations to the sum of squared partial correlations (Tabachnick & Fidell, 2001). When the partial correlations are small in comparison to the observed correlations, then the KMO value will be high. A value of .6 or above indicates that the data are suitable (Tabachnick & Fidell, 2001). Bartlett's Test of Sphericity ($p < .05$) and the KMO test value (.7) indicate that the present data is suitable for principal component analysis.

Factor Model

There are two factor models available when examining the intercorrelations among variables: principal component analysis (PCA) and common factor analysis (FA). Both models can be used to reduce a large number of observed variables to a small number of components or factors. Mathematically, the difference between these models lies in the variance that is analyzed. In FA, only the variance that each observed variable shares with other observed variables is analyzed. Variance that is due to error and variance that is unique to each variable is estimated and eliminated. In PCA, all the variance in the observed variables is analyzed. In PCA each variable contributes a unit of variance by contributing a one to the positive diagonal of the correlation matrix. In contrast, with FA shared variance is estimated by inserting communalities in the diagonal of the correlation matrix (Tabachnick & Fidell, 2001).

Theoretically, the difference between PCA and FA is based upon variables being associated with factors or components. FA produces factors, which are considered to produce scores on the variables and are based on theory. PCA produces components, which are

defined as aggregates of correlated variables. In PCA there is no underlying theory about which variables should be associated with which factors (Tabachnick & Fidell, 2001).

Researchers have identified both advantages and disadvantages to using PCA and FA. With PCA, the factor scores are a linear combination of the variables of which there is only one set. In FA however, communalities must be estimated, which results in a set of solutions that fit the data equally well. PCA also has the advantage of being considered more parsimonious due to its simpler equation (Gorsuch, 1983). Advantages to FA include research that suggests that when the analysis includes relatively few variables, FA is best to avoid inflated factor loadings and misinterpretations of the data (Floyd & Widman, 1995).

Research suggests that PCA and FA frequently provide empirically convergent solutions (Velicer & Fava, 1987; Velicer, Peacock, & Jackson, 1982). Gorsuch (1983) reported that, “As the number of variables increase, communality estimates and the method by which exploratory factors are extracted both become less important” (p.123). Once 30 variables have been reached, Gorsuch (1983) reported that the differences between the two methods are small and unlikely to lead to different interpretations. In their study using 36 variables, Velicer et al (1982) concluded that FA and PCA produce results which are equivalent. Given that the current study includes 203 variables, it can be hypothesized that the results using PCA and FA would be comparable.

For the present study, a PCA model was chosen in order to compare the results of this study to the results obtained by Mordell and McDermott (2001). With both studies using similar factor models, comparability of the solutions is enhanced. PCA was also chosen due to the variables in this study being dichotomous, and therefore failing to meet the assumptions of normality and multicollinearity. The empirical approach of PCA depends less

on these assumptions then FA. Tabachnick and Fidell (2001) reported that multicollinearity or singularity is a problem for the estimation of factor scores in any form of FA; however, multicollinearity is not a problem in PCA because there is no need to invert a matrix.

Extraction Method

To remain consistent with the PCA model and prior research (Mordell & McDermott, 2001) principal components was selected as the method of extraction. With this extraction method the first component is formed by the linear combination of observed variables that maximizes the variance of subject's component scores. The second component is formed from residual variables and extracts maximum variability uncorrelated with the first component. Subsequent components continue to extract maximum variability from residual correlations. The PCA solution is mathematically unique and if all components are retained will reproduce the observed correlation matrix (Tabachnick & Fidell, 2001).

Component Retention

Another important decision to make is the number of components to retain, as both underfactoring and overfactoring can distort the solutions. When too few components are retained, variables may falsely load on components and underlying components may not be revealed. Conversely, retaining too many components can result in the failure to identify a common component and lead to difficulty in interpreting the solution (Fabrigar et al., 1999). Several criteria are available to help determine the number of components to retain and avoid underfactoring and overfactoring: Kaiser-Guttman unity-eigenvalue rule (Kaiser, 1960), the scree test (Cattell, 1966), parallel analysis (Horn, 1965) and previous research results (Tabachnick & Fidell, 2001).

The unity-eigenvalue rule (Kaiser, 1960) states that components with eigenvalues greater than or equal to one should be retained for analysis. The unity-eigenvalue rule has several limitations, including that the rule is somewhat arbitrary, and has been demonstrated to often result in substantial over-retention of components and occasional underretention (Fabrigar et al.; Tabachnick & Fidel, 2001). As a result of the inaccuracy of this procedure, some researchers (Fabrigar et al.; Floyd & Widaman, 1995) have recommended using other retention methods.

Alternatively, Cattell's (1966) scree test can be applied to determine the most appropriate number of components to retain. The scree test involves plotting the number of components in order of extraction on the horizontal axis and their corresponding eigenvalues on the vertical axis. The slope of the line connecting the eigenvalues and components is then examined to identify where the line bends. According to theory, an appropriate solution would consist of the number of components prior to the plateau in eigenvalues. Due to the subjectivity that is involved in analyzing a scree test, it is recommended that it not be used as the only criterion for component retention (Zwick & Velicer, 1986).

A third test for determining the number of components to retain is parallel analysis. Parallel analyses compare the eigenvalues from completely random data to the eigenvalues obtained from the sample data. The suggested number of components would be marked the point where components extracted from the real data account for no more variance than that generated by random data (Fabrigar et al., 1999). Although studies have revealed that parallel analyses tend to overestimate the number of components to retain, it is more accurate than the scree test and eigenvalue greater than one rule (Zwick & Velicer, 1986).

Another method to consider for component extraction is previous research and relevant theory (Tabachnick & Fidell, 2001). In order to represent the constructs of a theory, the component structure should match the logic of that theory (Field, 2000). It is recommended by researchers that multiple criteria be used when determining the number of components to retain (Fabrigar et al.; Zwick & Velicer, 1986). The current study therefore employed numerous methods (scree test, parallel analysis, and previous research) to determine the number of components to retain for the ASCA:P.

Component Rotation

Rotation serves to facilitate the interpretation of the solution by rotating the components simultaneously to maximize the loading of each variable on one of the extracted components, while also minimizing the loading on all other components (Fabrigar et al.). The two types of rotations are orthogonal and oblique (Tabachnick & Fidell, 2001). In orthogonal rotation the components stay at right angles to each other because they are assumed to be uncorrelated. Different procedures are possible for orthogonal rotation, including varimax, quartimax and equamax. In exploratory factor analysis, orthogonal rotation using varimax procedure is the most commonly used, and produces reasonable simple structure in most situations (Floyd & Widaman, 1995). Some caution should be applied when using equamax, which can behave erratically unless the number of components can be specified with confidence (Tabachnick & Fidell, 2001)

In contrast with orthogonal rotation, oblique rotation components are assumed to be correlated with each other (Fabrigar et al., 1999). Different procedures of oblique rotation include orthoblique, quartimin and promax. Of the different oblique rotation procedures, promax is the most commonly used to rotate orthogonal components to the oblique positions.

Although oblique rotations are more difficult to interpret they account for the fact that many constructs that are examined in psychology have dimensions that are correlated with each other (Tabachnick & Fidell, 2001). Some research supports a slight superiority of oblique rotations over orthogonal rotations in terms of factor replicability (Dielman, Cattell, & Wagner, 1972; Gorsuch, 1970).

In the research performed by Mordell and McDermott (2001) equamax rotation procedures were employed to maintain simple structure. The final orthogonal solution was then subjected to oblique (promax) rotations at variable levels of power. The best promax solution was compared to the original orthogonal solution. Promax rotation was also used to determine if the structure remained stable with the oblique solution. This rotation method was considered in the present study in order to remain consistent with prior research on the ASCA: P.

Component Interpretation

Component interpretation is based on the examination of the components and the underlying construct that unifies the group of variables loading on it (Tabachnick & Fidell, 2001). Variables with significant or salient loadings on a component are identified. When an item loads saliently on more than one component, it is recommended that the item be assigned to the component on which it has its highest loading (Gorsuch, 1997). General guidelines for interpretation include that component loadings greater than .32, accounting for 10% of the variance, can be interpreted, and that components should have at least three salient variables (Tabachnick & Fidell, 2001). These guidelines were applied for the present study.

Component interpretation also requires the researcher to consider prior research and theory and balance the need for simple structure (i.e., a model with relatively few common components) against the need for parsimony (i.e., a model with a sufficient number of common components to adequately account for the correlations among measured variables). Simple structure implies that items load highly on one or perhaps two components and have near zero loading on the remaining components. If many variables are complex (i.e., tap into more than a single trait) then an interpretable simple structure may not be possible. Although true simple structure is often highly elusive (Guilford & Zimmerman, 1963), it is recommended that researchers inspect factor plots for obvious departures from simple structure (Reise, Waller & Comrey, 2000).

Second-Order Component Analysis

In order to determine whether the syndromes could be further factored into one or two global syndromes as discussed in the prior study on the ASCA: P (Mordell & McDormett, 2001), a second-order component analysis was conducted. Unit-weighted raw scores were calculated for each component derived in the exploratory analysis. Dawes (1979) reported that under general conditions, equally weighted predictors are just as good as predicting real world criteria as is a model containing predictors whose weights are more precisely estimated from an original sample. Equal weighting also has the benefit of being insensitive to outliers and non-normality and is very robust. Wainer (1976) argues that if the predictors are intercorrelated, then variability in the weights makes little difference and equal unit weighting is appropriate. After scoring each syndrome, principal components analysis was then conducted for both one and two components. Intercomponent correlations and communality was examined.

Reliability of the ASCA: P Component Scores for Children in Trinidad

Cronbach's alpha was used to compute reliability estimates for the scales that were created based on the component analyses. Cronbach's alpha provides a conservative estimate of a scale's reliability and yields the average correlation between each possible split half of the items. Cronbach's alpha is generally recommended over the other two methods for measuring internal consistency reliability, split-half and Kuder Richardson (Sattler, 1992).

Depending on the use of an assessment, measurement specialists have different suggestions on the minimum reliability coefficient a test should demonstrate. It is often recommended that if tests are to be used to make important decisions about individuals then they should demonstrate high reliability coefficients of .90 to .95. Sattler (1992) stated that for most tests of cognitive and special abilities, a reliability coefficient of .80 or higher is generally considered to be acceptable. Therefore, if a test is to be used as a screening instrument to identify students in need of further assessment, a reliability coefficient of at least .80 is generally considered necessary.

Significant Differences between Demographic Variables across the ASCA: P Syndromes

Significant age, gender, ethnicity, and parent education differences were investigated within the ASCA: P syndromes using analysis of variance (ANOVA). A multivariate analysis of variance (MANOVA) could also be used but is not recommended if the dependent variables are uncorrelated or if they are factor or component scores (Tabachnick & Fidell, 2001). The only advantage to MANOVA over separate ANOVAs on each dependent variable is control of family-wise Type I error. This error rate however can be controlled by applying a Bonferroni correction to each test in a set of separate ANOVAs on each dependent variable. The Bonferroni adjusts the alpha level thereby raising the standard of

proof needed when looking at a wide range of hypotheses simultaneously (Tabachnick & Fidell, 2001).

Prior to conducting the ANOVAs, total raw scores for each syndrome were converted into *T* scores, using area transformation. Demographic variables were then divided into groups to remain consistent with prior research from Mordell and McDermott (2001) and to create groups close in sample size. Age was divided into two groups: early childhood (ages 5-9) and preadolescents/adolescents (ages 10-16). Ethnicity was divided into three groups: African, East Indian and Mixed. Mother's and father's education level was also divided into two groups with the first group containing children whose parents' highest level of education was completed primary or some primary. In the second group, the highest level of parental education obtained was Form 3 through a technical/professional degree. Finally, the sample was divided by gender (boys vs. girls).

A variety of post-hoc tests are available to assess mean differences across demographic groups, including Scheffe, Duncan, and Tukey's HSD. Post-hoc procedures are valuable to limit the probability of making a type I error (finding significant differences when there are none). Unlike other post-hoc methods the Scheffe procedure can be used with unequal *n*'s. Scheffe's procedure also has the advantage of being robust to respect to non-normality and is considered one of the most flexible and conservative post-hoc methods available (Kirk, 1982). Consequently, post-hoc analyses using Scheffe's test were applied when necessary to assess demographic group differences on respective ASCA: P syndromes. Reliability, coefficient alphas and comparisons of means and standard deviations of scores for demographic graphics were examined.

To assess the degree to which the independent and dependent variables are related, effect size was calculated. The effect size measures the magnitude of a difference between groups independent of sample size. To assess the proportion of total variability attributable to a component, partial η^2 (eta squared) was calculated. Partial η^2 is the ratio of the variation accounted for by an individual independent variable to the sum of the variation accounted for the independent variable and the variation unaccounted for the model as a whole (SPSS 10.0). Results of partial η^2 can be interpreted as follows: an effect size of .01 is considered small, an effect size of .06 is medium, and an effect size of .14 or above is large (Cohen, 1988).

RESULTS

The technical properties of the Adjustment Scale for Children and Adolescents: Parent Edition (ASCA: P) were investigated to answer the three research questions in this study. Specially, analyses were conducted to determine the component structure and internal consistency reliability of the ASCA: P, and significant differences across the ASCA: P syndromes based on various demographic variables. The results can be used to help determine if the ASCA: P can demonstrate adequate psychometric properties when testing children from the Republic of Trinidad and Tobago. Prior research on the ASCA: P (Mordell & McDermott, 2001) was used as a guide for comparability purposes.

Principal Component Analysis of the ASCA: P

Prior to analysis, several items were deleted due to irrelevance, inconsistency with prior research, or technical difficulties. Twenty-nine of the original 203 items on the ASCA: P were considered to represent positive behavior, and were removed prior to statistical analysis. These 29 items had a prevalence of over 50%, indicating typical behavior in the population. The ASCA: P was designed to identify emotional and behavioral difficulties in children and adolescents and therefore an analysis of positive behaviors would contradict the purpose of the instrument. Additionally, 38 items were deleted due to their very low rate of prevalence (behavior found in only one percent of the sample or less). These invariant items lowered reliability and, as done in prior research (Mordell & McDermott, 2001), were deleted from further analysis. Of these items, 12 items fell under the category of Troublesome and Illicit Activities, and included such behaviors as using drugs and alcohol, attacking other children and deliberately damaging property. Eleven of these low frequency items fell under the category of Other Behaviors that Cause Concern and included such behaviors as eating non-

edible materials, running away from home and setting fires. The remaining 15 low frequency items were scattered, with no noticeable pattern, throughout the ASCA: P. Principal component analysis with promax rotation was implemented to discern if the low frequency items could be a factorable data set. Two of the 38 items were first removed due to having zero variance. A scree plot and parallel analysis indicated that the low frequency items should not be reduced into any less than four components. In a four-component structure, one component only had two items with component loadings greater than .32 and reliability coefficients for these four components was very poor (.21-.58), as was the internal consistency reliability for the entire data set of 36 items (.52). It was therefore concluded that the low frequency items were not a factorable data set. Finally, the remaining 10 items included under the category of Other Behaviors that Cause Concern were removed. These items did not include situational indicators and therefore did not fit the format of the instrument and were inconsistent with prior research on the ASCA: P (Mordell & McDermott, 2001).

Table 10 contains the means, standard deviations, skewness, and kurtosis values for the remaining 126 ASCA: P items. The lowest item mean was .02 (item 134, 165 and 193) and the highest item mean was .47 (item 30). Approximately 57% of items had kurtosis above 7 and skewness greater than 2. Due to the rare occurrence of psychopathology, it is expected that some scores on the ASCA: P would be positively skewed.

Component Extraction

To determine the optimal component structure of the ASCA: P with the current sample, principal components analyses with promax and equamax rotation were conducted with the remaining 126 items. Scree test (Cattell, 1966) and past research (Mordell & McDermott,

Table 10

Skewness, Kurtosis, Means and Standard Deviation Values for the ASCA: P Items

Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
2	.13	.34	2.20	2.85	45	.30	.46	.88	-1.23
3	.11	.31	2.57	4.59	46	.12	.33	2.29	3.24
4	.03	.18	5.22	25.32	47	.28	.45	.98	-1.05
5	.02	.14	7.03	47.53	48	.40	.49	.43	-1.82
6	.32	.47	.78	-1.40	50	.02	.15	6.58	41.35
7	.26	.44	1.11	-.77	52	.16	.37	1.82	1.33
8	.16	.37	1.86	1.47	53	.04	.20	4.65	19.64
10	.08	.27	3.19	8.19	55	.23	.42	1.30	-.30
11	.02	.14	6.79	44.25	56	.05	.22	4.21	15.76
13	.04	.19	5.01	23.16	57	.19	.39	1.56	.44
14	.05	.22	4.03	14.25	59	.14	.35	2.09	2.37
15	.10	.31	2.59	4.70	62	.17	.38	1.76	1.11
16	.32	.47	.77	-1.41	63	.12	.32	2.40	3.77
17	.11	.31	2.57	4.59	64	.11	.32	2.44	3.96
18	.06	.24	3.76	12.17	65	.14	.35	2.09	2.37
19	.04	.19	4.91	22.19	66	.03	.17	5.59	29.27
21	.02	.14	6.79	44.25	68	.23	.42	1.26	-.41
23	.13	.33	2.27	3.16	69	.04	.19	4.91	22.19
24	.41	.49	.38	-1.86	70	.22	.42	1.32	-.26
26	.07	.26	3.26	8.64	72	.04	.19	4.91	22.19
27	.05	.22	4.03	14.25	74	.05	.21	4.34	16.91
28	.07	.25	3.41	9.64	75	.10	.30	2.68	5.19
30	.47	.50	.11	-1.99	76	.03	.18	5.22	25.32
31	.03	.18	5.34	26.53	77	.07	.26	3.26	8.64
33	.02	.15	6.58	41.35	78	.03	.17	5.72	30.82
34	.03	.17	5.46	27.84	80	.06	.24	3.76	12.17
36	.20	.40	1.54	.37	82	.13	.34	2.20	2.85
37	.12	.32	2.40	3.77	83	.09	.28	2.91	6.49
38	.23	.42	1.30	-.32	85	.10	.31	2.59	4.70
39	.35	.48	.65	-1.58	87	.26	.44	1.08	-.84
41	.06	.24	3.71	11.81	88	.27	.44	1.05	-.90
42	.04	.19	4.82	21.28	89	.05	.21	4.34	16.91
43	.03	.16	5.87	32.53	90	.12	.33	2.29	3.24
44	.18	.39	1.66	.75	91	.07	.25	3.49	10.20

Table 10 (continued)

Skewness, Kurtosis, Means and Standard Deviation Values for the ASCA: P Items

Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
94	.27	.44	1.06	-.87	140	.04	.18	5.11	24.20
95	.24	.43	1.21	-.54	142	.06	.24	3.62	11.13
97	.23	.42	1.26	-.41	144	.08	.27	3.09	7.57
98	.06	.24	3.67	11.46	146	.46	.50	.17	-1.98
99	.05	.22	4.21	15.76	148	.04	.20	4.73	20.44
101	.36	.48	.59	-1.66	149	.04	.19	4.91	22.19
102	.13	.33	2.25	3.08	150	.03	.18	5.22	25.32
103	.04	.20	4.49	18.20	151	.16	.37	1.86	1.47
104	.09	.29	2.88	6.33	153	.04	.20	4.73	20.44
106	.05	.21	4.34	16.91	155	.04	.20	4.73	20.44
107	.04	.19	5.01	23.16	157	.22	.41	1.36	-.14
108	.17	.37	1.77	1.15	158	.04	.19	4.82	21.28
110	.07	.25	3.41	9.64	159	.02	.14	6.79	44.25
111	.15	.36	1.97	1.89	160	.06	.24	3.76	12.17
113	.02	.15	6.58	41.35	162	.02	.13	7.29	51.28
114	.10	.30	2.73	5.45	164	.04	.19	4.82	21.28
115	.09	.29	2.78	5.73	165	.02	.13	7.58	55.61
117	.04	.20	4.57	18.90	172	.05	.22	4.15	15.23
118	.04	.21	4.42	17.50	174	.04	.20	4.73	20.44
119	.17	.37	1.77	1.15	175	.02	.15	6.38	38.78
121	.04	.20	4.65	19.64	176	.14	.35	2.09	2.37
122	.02	.15	6.58	41.35	179	.05	.23	3.97	13.80
123	.14	.35	2.04	2.18	180	.06	.24	3.67	11.46
124	.04	.19	5.01	23.16	181	.08	.28	3.03	7.19

2001) indicated that three components should be retained. Parallel analysis did not support a three component structure and instead indicated that as many as seven components should be retained. To avoid under- or over-extracting components, separate analyses were conducted with the retention of three through seven components, and the adequacy of the respective solutions were compared. The seven- component structure failed to converge in 25 iterations with equamax rotation and was therefore removed from further analysis. In each of the four through six-component structures there were components with reliability at or below .60 – far below the recommended reliability for screening and individual decision making (Salvia & Ysseldyke, 2001). In addition, for the structures with four through six components, there was at least one component that retained only a small number (6-10) of items. Consequently, structures retaining four through six components were rejected. The percent variance explained, number of salient loadings and alpha coefficients for solutions with three through six components are detailed in Table 11.

The three-component structure was identified as most adequately meeting the criteria for component retention. Promax and equamax rotation procedures produced three similar syndromes. Specifically, with the equamax rotation the first component had three additional items and the second component had one less item. The equamax model was chosen as the final solution due to the higher item coverage and to remain consistent with prior research (e.g., Mordell & McDermott, 2001). Each of the syndromes in the three-component structure retained an adequate number of items. Specifically, the first syndrome retained 28 items, the second syndrome retained 18 items and the third syndrome retained 16 items. Adequate simple structure was maintained, with items significantly loading onto only one syndrome. The three-component solution demonstrated the best internal consistency reliability of all the

Table 11

Summary of Percent Variance Explained, Number of Salient Items and Alpha Coefficients for Three-through Seven-Component Solutions

Component Solution	% Variance	Number of Salient Items	Alpha Coefficients
6 Component Solution	18.99	62	.81
Component 1	7.68	14	.71
Component 2	3.19	12	.70
Component 3	2.78	7	.53
Component 4	1.85	11	.64
Component 5	1.80	9	.51
Component 6	1.70	9	.49
5 Component Solution	17.30	59	.81
Component 1	7.68	23	.77
Component 2	3.19	11	.66
Component 3	2.77	9	.55
Component 4	1.85	10	.52
Component 5	1.80	6	.46
4 Component Solution	15.50	63	.84
Component 1	7.68	26	.81
Component 2	3.19	15	.73
Component 3	2.78	12	.65
Component 4	1.85	10	.60
3 Component Solution	13.65	62	.84
Component 1	7.68	28	.82
Component 2	3.19	18	.75
Component 3	2.78	16	.68

solutions examined. The three extracted syndromes accounted for 13.7% of the common variance. The correlations among the components were as follows: Syndrome I-Syndrome II = .35, Syndrome I-Syndrome III = .22 and Syndrome II-Syndrome III = .20.

Component Interpretation

To explore the psychological meaningfulness of the resolved structure, items assigned to each syndrome were examined and compared to the components of the ASCA: P in prior research (Mordell & McDermott, 2001). The items comprising each syndrome are presented in Tables 12 through 14. The first syndrome includes 28 items indicating attention seeking behaviors, impulsivity and restlessness. This syndrome corresponds to the syndrome named Restless Impulsivity in the research by Mordell and McDermott (2001). There were four items found in this syndrome in both studies: “Misbehaves when you are attending to other things,” “Does things in front of you that he knows are wrong,” “Greets you loudly,” and “Answers before he has time to think.” Due to the low number of over-lapping items in this syndrome between the current research and the research by Mordell and McDermott (2001) the syndrome was renamed Attention Seeking/Impulsive.

The second syndrome is comprised of 18 items describing aggressive and anti-social behaviors. This syndrome corresponds to the syndrome titled Unsocialized in the prior research by Mordell and McDermott (2001). The three items found in this syndrome in both studies include: “Fights physically with others,” “Takes others things without permission”, and “Quarrels, provokes others.” Due to the low number of repeated items between the two studies, the syndrome was re-titled Aggression.

The third syndrome includes 16 items, describing withdrawn and timid behaviors (e.g., Too shy to greet other adults, “Tends to go off by himself and play alone,” “Never any

Table 12

Attention Seeking/Impulsive Syndrome Item Loadings and Communalities

Item	Component			h^2
	I	II	III	
Has trouble waiting his turn	.53	.00	-.01	.28
Uses various ways to get other adults attention	.41	.02	.01	.18
Much too talkative	.48	-.02	.14	.25
Becomes restless and fidgety in line	.45	-.01	-.02	.20
Sometimes lies to avoid blame or punishment	.41	.21	.02	.21
Poor loser (causes a disturbance)	.41	.21	-.03	.21
Misbehaves when you are attending to other things	.41	.19	-.11	.22
Uses various ways to get parent attention	.50	.02	-.07	.26
Argues and complains about waiting in line	.40	.13	.12	.19
Greets you loudly	.40	-.16	.07	.19
Improves for the moment to correction but doesn't last	.39	.25	-.01	.21
Wants to dominate and have his own way in play	.39	.20	-.00	.19
Seeks help when not needed	.39	-.01	.14	.17
Constantly restless at meal time	.39	.11	-.04	.17
Argues and talks back but will eventually do what you say	.39	.10	.03	.16
Constantly distracted so he is not ready on time	.39	.12	-.05	.17
Clowns around, plays silly tricks	.39	.04	.13	.17
Tries to dominate others of his age	.39	-.02	-.01	.15
Attacks others physically if provoked	.37	.29	.01	.22
Throws tantrums at bedtime	.37	.04	.04	.14
Does things in front of you that he knows are wrong	.35	.25	.09	.19
Inclined to cheat in games	.34	.16	-.03	.13
Answers before he had time to think	.35	.09	.03	.13
Rather loud but not disruptive	.34	-.03	-.12	.13
Sometimes in an unfriendly mood	.33	.19	.16	.17
Charges in without thinking or following instructions	.32	.20	.01	.14
Welcomes other adults loudly	.33	-.07	-.05	.11
Becomes upset if does not perform well on first try	.39	-.09	.28	.24

Table 13

Aggressive Syndrome Item Loadings and Communalities

Item	Component			h^2
	I	II	III	
Starts fights and rough play	.08	.54	.06	.30
Disobedient, difficult to control	.21	.53	.09	.33
Overly rough with smaller or weaker children	.05	.46	.13	.23
Lies about homework assignments	.08	.46	-.03	.22
Fights physically with others	.16	.46	.01	.24
Answers back aggressively, makes threats	-.01	.41	.10	.18
Disturbs others' fun	.11	.40	.00	.17
Disrupts by fooling around	.19	.38	.00	.18
Speaks in a rude or angry tone	.18	.38	.14	.20
Distant, makes no effort to relate to parent	-.03	.35	.11	.14
Associates with troublesome children	.02	.38	.06	.15
Quarrels, provokes others	.25	.35	.03	.19
Takes others things without permission	.26	.36	-.08	.20
Freezes up and has trouble answering questions	.01	.33	.22	.16
Listless, too unconcerned with homework	.06	.34	-.05	.12
Steals from home	.03	.32	.03	.10
Has intentionally hurt animals	.00	.33	.00	.11
Refuses to take care of hygiene	.23	.32	-.01	.16

Table 14

Withdrawn Syndrome Item Loadings and Communalities

Item	Component			h^2
	I	II	III	
Too shy to interact with other adults	.05	.02	.48	.23
Too shy to greet other adult	.01	.07	.46	.22
His feelings are easily hurt	.18	-.11	.43	.24
Overly dependent (clings to you)	.19	-.01	.41	.21
Tends to go off by himself and play alone	.08	.04	.40	.17
Seems fearful of other adults	.06	.08	.40	.17
Needs encouragement to join in games	-.08	-.02	.36	.14
Overly fussy about his things	.30	-.12	.36	.23
Shy but not unfriendly	-.02	.07	.35	.13
Will let others push ahead of him in line	.04	.01	.36	.13
Never any trouble because he's so timid	-.12	.00	.35	.13
Never seeks help even if needed	.05	.09	.35	.13
Rarely offers answer to questions	.02	.05	.32	.11
Waits for adults to greet him first	.13	.06	.34	.13
Does not stand up for himself	.08	.04	.32	.11
Allows himself to be bullied	.09	-.02	.32	.11

trouble because he's so timid.") In contrast, the final syndrome (Avoidant) in the research by Mordell and McDermott (2001) included behaviors indicating disconnection and noncompliance (e.g., "Throws a tantrum at bedtime", "Associates with troublesome children" and "Fearful to go to school"). Only one item in this syndrome was shared in both studies ("Never seeks help, even if needed"). There were two behaviors in the Avoidant syndrome that were removed from the ASCA:P data prior to analysis in the present study ("Makes excuses to avoid games" and "Needlessly repeats what others say.") The third syndrome was labeled Withdrawn to reflect the behaviors described by its items.

Second-Order Component Analysis

A second-order component analysis was conducted to determine if the syndromes could be further factored into one or two global components as discussed in prior research on the ASCA: P (Mordell & McDermott, 2001). Unit-weighted raw scores were first calculated for each component derived in the exploratory analysis. After a score for each of the three components was calculated, principal components analysis with equamax rotation was conducted. Only two components had adequate correlations with one global component (.83, .83 and -.06) and the solution explained 46.9% of the variance. However, the two global components solution explained a greater percentage of variance (79.0%) and had greater component correlations. The Attention Seeking/Impulsive syndrome (.84) and the Aggressive syndrome (.84) loaded on one global component while the Withdrawn syndrome created a second global component (1.0). These findings are a departure from past research on the ASCA: P, where a second-order component analysis revealed only one global component (Mordell & McDermott, 2001).

Reliability

Cronbach's alpha coefficients were calculated for each of the three syndromes and the two global components. The alpha coefficients were as follows: Attention Seeking/Impulsive (.82), Aggressive (.76), Withdrawn/Internalizing Global Component (.68) and Externalizing Global Component (.84). The Aggressive and Withdrawn syndromes failed to meet the minimal level of reliability of .80 suggested by Salvia and Ysseldyke (2001). An analysis of the reliability of each syndrome broken down by gender, ethnicity, age and parent education level is presented in Table 15. Particularly low reliability was found for the Aggressive syndrome among females, the Mixed/Other ethnic group, and youth with mothers who had beyond a primary level of education.

ANOVA Results on Demographic Group Differences

ANOVA Assumptions

Prior to investigating demographic differences within the ASCA: P syndromes, the data were analyzed to determine whether the assumptions of an ANOVA were met. Standard *T* scores were calculated from the raw syndrome scores using area conversion. ANOVA is robust to some deviations of the assumptions; therefore, while it is ideal for all the data assumptions to be met, it is not always mandatory (Tabachnick & Fidell, 2001). The first assumption for an ANOVA is that the observations must be randomly sampled and independent of one another. Given that there is no systematic relationship between the groups being studied and the data collection process involved random selection, the first assumption has been met.

Table 15

Coefficient Alphas by Gender, Ethnicity, Age, and Parent Education Level

Demographic Group	<i>n/N</i>	Attention Seeking/Impulsive	Aggressive	Withdrawn
Gender				
Males	390	.81	.81	.68
Females	376	.82	.54	.68
Ethnicity				
East Indian	286	.80	.83	.67
African	295	.82	.73	.63
Mixed/Other	166	.79	.53	.72
Age				
Ages 5-9	416	.83	.71	.67
Ages 10-16	310	.77	.81	.70
Mother Education Level				
Primary	232	.75	.83	.63
Beyond Primary	312	.82	.58	.67
Father Education Level				
Primary	234	.79	.75	.66
Beyond Primary	268	.81	.76	.68
Total Sample	783	.82	.76	.68

Assumption of normality

Another assumption of an ANOVA is that the distributions of scores on the dependent variable must be normal in the population from which the data were sampled. After applying the data, each of the syndromes were determined to have adequate skewness (less than 2) and kurtosis (less than 7), and therefore met the assumption of normality.

Assumption of variances

The third assumption of an ANOVA is that the distribution of scores on the dependent variable has equal variances. Homogeneity of variance was tested by Levene's Test for Equality of Variances. The Levene test of homogeneity indicated the groups have equal variances for the Attention Seeking/Impulsive syndrome, but not the Aggressive or Withdrawn syndromes. Homogeneity of variance was also assessed with F_{max} in conjunction with sample-size ratios. F_{max} is the ratio of the largest cell variance to the smallest. Tabachnick and Fidell (2001) posited that if the sample sizes are relatively equal (within a ratio of 4 to 1), an F_{max} as great as 10 is acceptable. The F_{max} for each of the three components was less than 10, therefore indicating acceptable homogeneity of variance.

Demographic Differences in Child Behavior

After the data were analyzed regarding the ANOVA assumptions, significant age, gender, ethnicity, and parent education differences were investigated for each ASCA: P syndromes using SPSS 10.0. Three ANOVAs were conducted using the general linear model, with each component as a dependent variable and the demographic variables as the fixed factors. Because multiple ANOVAs were conducted, the Bonferroni correction was applied to adjust for inflated Type I error. Accordingly, alpha levels for each test were set at .01 to maintain an

experiment-wide alpha level of .05. A summary of the alpha levels for all ANOVAs examining the scores within the different demographic groups is presented in Table 16. Scores between demographic groups were also analyzed within each factor and no significant effects were found ($p > .01$). Table 17 illustrates sample sizes, means scores and standard deviations for all demographic variables. Table 18 presents the alpha levels, means and standard deviations for the Externalizing global scale. The information for the Internalizing global scale can be found under the Withdrawn syndrome in Table 16 and 17.

Syndrome Score Differences Between Ages

The ASCA: P scores of younger students (ages 5-9) were compared to scores of older adolescent/preadolescent students (ages 10-16) for each of the three syndromes and global components using ANOVAs. The differences between each age group were compared for statistical significance based on the alpha level with the Bonferroni correction ($p < .01$). No significant differences in ASCA: P scores based on age were found within any of the three syndromes or global components ($p > .01$).

Syndrome Score Differences Between Gender

ANOVA tests and effect sizes were also calculated between male and female student's scores on the three ASCA: P components. Analyses revealed that boys had significantly higher scores than girls for attention seeking/impulsive behavior, $F(10.32) = 1788.69$, $p < .00$. However, the effect size for gender was small ($\eta^2 = .03$), suggesting that the gender difference in attention seeking/impulsive behavior is only minimal. As shown in Table 17, the mean and standard deviation differences between the T scores for the sexes was one point or less. A significant but small ($\eta^2 = .02$) difference was also found in the global Externalizing scale, where boys scored higher than girls.

Table 16

Alpha Levels for ANOVA tests for each Syndrome Across Gender, Ethnicity, Age, Mother Education and Father Education

ANOVA test	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	η^2
Syndrome I (Attention Seeking/Impulsive)					
Gender	1	1788.69	1788.69	10.32**	.03
Ethnicity	2	2151.39	1075.69	6.21**	.03
Age	1	704.59	704.59	4.07*	.01
Mother Education	1	1753.00	1753.00	10.11**	.03
Father Education	1	1092.46	1092.46	6.30*	.02
Syndrome II (Aggressive)					
Gender	1	178.64	178.64	1.85	.01
Ethnicity	2	28.62	14.31	.15	.00
Age	1	25.41	25.41	.26	.00
Mother Education	1	8.21	8.21	.09	.00
Father Education	1	87.85	87.85	.91	.00
Syndrome III (Withdrawn)					
Gender	1	20.40	20.40	.21	.00
Ethnicity	2	202.78	101.39	1.06	.01
Age	1	26.42	26.42	.28	.00
Mother Education	1	163.73	163.73	1.71	.00
Father Education	1	14.34	14.34	.15	.00

Note. * $p < .05$, ** $p < .01$ after Bonferonni correction

Table 17

Sub-Sample Sizes, Means and Standard Deviations for the Three ASCA: P Syndromes across Gender, Age, Ethnicity and Parent Education Levels

Demographic	<i>n</i>	<i>Attention Seeking/Impulsive</i>		<i>Aggressive</i>		<i>Withdrawn</i>	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender							
Males	390	52.3	14.2	51.2	12.4	49.8	9.9
Females	376	50.5	13.9	49.2	7.0	50.2	10.1
Ethnicity							
African	286	51.9	14.2	50.8	10.4	48.9	9.0
East Indian	295	48.5	12.9	49.7	11.2	50.4	10.1
Mixed	166	54.3	14.1	49.9	7.5	51.1	11.1
Age							
Ages 5-9	416	53.6	15.1	50.2	9.6	50.7	10.2
Ages 10-16	310	48.9	12.2	50.4	11.6	49.3	10.1
Mother Education							
Primary	232	49.7	12.0	51.2	13.1	50.5	9.6
Beyond Primary	312	51.7	14.3	50.0	7.1	48.8	9.4
Father Education							
Primary	234	50.6	13.3	50.4	10.4	50.8	10.0
Beyond Primary	268	50.8	13.6	49.3	9.4	48.8	9.6

Table 18

ANOVA Test Results, Means and Standard Deviations for Externalizing Global Component Scores based on Demographic Groups

Demographic Groups	<i>M</i>	<i>SD</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	η^2
Gender			3097.46	3097.46	8.88**	.02
Males	103.5	22.4				
Females	99.7	18.1				
Ethnicity			2468.71	1234.36	3.54*	.02
African	102.7	20.4				
East Indian	98.2	19.8				
Mixed/Other	104.2	18.7				
Age			462.32	462.21	1.32	.00
Ages 5-9	103.9	21.1				
Ages 10-16	99.3	20.0				
Mother Education			1521.02	1521.02	4.36*	.01
Primary	101.0	20.9				
Beyond Primary	101.0	18.3				
Father Education			1799.44	1799.44	5.16*	.01
Primary	101.0	18.9				
Beyond Primary	100.1	19.3				

Note. * $p < .05$, ** $p < .01$ after Bonferonni correction

Syndrome Score Differences Between Ethnic Groups

ANOVAs were used to investigate significant differences between the ASCA: P scores between different ethnic groups (African, East Indian and Mixed/Other). A significant difference between the ethnic groups was found in the Attention Seeking/Impulsive factors, $F(6.21) = 1075.69, p < .01$. Post-hoc analyses using the Scheffe test indicated that the students from the Mixed/Other culture had significantly higher Attention Seeking/Impulsive scores than the East Indian students ($p < .01$). However, effect sizes between the different ethnic groups indicated only a small difference in scores ($\eta^2 = .02$). The difference in scores between the ethnic groups on the global Externalizing scale was not significant.

Syndrome Score Differences Between Parent Education Levels

ANOVAs were also performed to determine whether significant ASCA: P score differences exist for students based on parents' levels of education. The scores for children whose mothers and fathers had lower levels of education attainment (completed primary or some primary school) were compared to scores for children whose parents held higher levels of education attainment (Completed Form 3 through a technical/professional degree). ANOVA results indicated that students whose mothers earned higher levels of education had significantly higher Attention Seeking/Impulsive scores than those whose mothers had lower levels of education, $F(10.11) = 1753.00, p < .01$. ANOVA results based on father's level of education were not significant with the Bonferroni correction. Effect sizes indicated that the Attention Seeking/Impulsive scores for students with different level's of mother education was small ($\eta^2 = .02$). On the global Externalizing scale, scores based on mother and father education were not significantly different.

DISCUSSION

The technical properties of the Adjustment Scale for Children and Adolescents: Parent Edition were investigated to answer the three research questions in this study. Specially, analyses were conducted to determine the component structure and internal consistency reliability of the ASCA: P, and significant differences across the ASCA: P syndromes based on the demographic variables of gender, age, ethnicity and mother and father education level. These results are important to help determine if the ASCA: P demonstrates adequate psychometric properties when testing children from the Republic of Trinidad and Tobago. While previous research on the ASCA: P in the Republic of Trinidad and Tobago has not been conducted, findings from research on the ASCA: P in the United States (Mordell & McDermott, 2001) and on the ASCA in Trinidad (Grim, 2002; Menaker, 2003) can be used for comparability purposes.

Component Structure

The three component ASCA: P structure found in the U.S. (Mordell & McDermott, 2001), including provocative, noncompliant and restless behaviors, was expected to emerge in the present study in Trinidad. Research on the ASCA (Grim, 2002; Menaker, 2003) has identified these behavior problems as existing in Trinidad, thus supporting the hypothesis that the component structure on the ASCA: P would remain consistent across the two countries. Research findings in the present study, however, did not fully support this hypothesis. Between the two studies, the Aggressive and Unsocialized syndromes and the Attention Seeking/Impulsive and Restless Impulsivity syndromes included similar behaviors. However, the Avoidant syndrome, as described in the study by Mordell and McDermott (2001) did not emerge clearly as a component in the present research. Unlike the Avoidant

syndrome as determined on the ASCA: P in the US, the Withdrawn syndrome in the present study not did include outward behaviors of refusal or noncompliance. This is illustrated by the two items on the Avoidant syndrome that appeared in other syndromes in the present study. Specifically, “Throws a tantrum at bedtime” was on the Attention Seeking/Impulsive syndrome and “Associates with troublesome children” was on the Aggressive syndrome.

The findings are complicated by varying definitions of the syndrome termed Avoidant. While the Avoidant syndrome in the ASCA:P research (Mordell & McDermott, 2001) was defined as behaviors indicating disconnection and noncompliance, the Avoidant syndrome on the ASCA (McDermott, Marston & Stott, 1993) refers to items that are indicative of withdrawn behavior and purposeful evasion of communication. The Withdrawn syndrome in the present study is comprised of items better fitting the description of the Avoidant syndrome in the ASCA.

The differences between the Avoidant syndrome in the ASCA: P research (Mordell & McDermott, 2001) and the Withdrawn syndrome in the present study may have contributed to the differences in the second-order component analysis findings between the two studies. Mordell and McDermott (2001) reported that overactive Avoidant items (e.g., “Destroys own things” and “Throws a tantrum at bedtime”) may have complicated the differentiation between internal/external syndromes, which resulted in the finding of only one general component. The two global components solution in the present study is consistent with research on the ASCA and the behavioral dichotomy represented in the literature, characterized by the distinction between external behavioral problems and internal problems (Achenbach et al., 1987; Hagekull & Bohlin, 1994; McDermott, 1994).

Only 49% of the 126 analyzed items attained salient loadings on one of the three components. Items retained in the solution resided in 26 of the 33 analyzed contextual indicators. The seven unused contexts were comprised of questions pertaining to coping with household jobs or chores, participating in organized activities (clubs, sports, etc.), working with hands (artwork, crafts, etc.), attending school, engaging in illicit activities, having nervous habits or fear and making sudden outbursts. These contexts should be further examined for cultural relevance.

Reliability

The second research question focused on the internal consistency reliability of each of the syndromes on the ASCA: P. It was predicted that the ASCA: P in the present study would demonstrate adequate reliability (coefficient alphas of at least .80) similar to the adequate reliability demonstrated on the ASCA: P by Mordell and McDermott (2001) and previous research on the ASCA in Trinidad and Tobago (Menaker, 2003). This hypothesis was not affirmed, as two of the syndrome's psychometric properties failed to meet the recommendations of Salvia and Ysseldyke (2001) among certain subsamples. The Attention Seeking syndrome met the recommended coefficient alpha (.82) and the Aggressive syndrome fell slightly short of the guideline (.76). Particularly low reliability was found within the Aggressive syndrome for females, the Mixed/Other ethnic group and for children of mothers with beyond a primary level of education. The alpha coefficient for the Withdrawn syndrome was lower than the other two components (.68) and below the recommended standards (Salvia & Ysseldyke, 2001). The effect of removing individual items on component reliability was examined and it was determined that no item significantly lowered the coefficient alpha for any component.

Previous studies on parental reports of children's behavior also have encountered problems of low reliability, particularly for underactive problems (Burns, Walsh, Patterson, Holte, Sommers-Flanagan, & Parker, 1997; Shaffer & Richters, 1994). As underactive problems lack the visibility of outward behaviors, parents' reports of these issues are more vulnerable to biases in perception, thereby increasing the risk of inaccurate reporting. The presence of fewer underactive problems on the Avoidant syndrome in the research by Mordell and McDermott (2001), may partly explain the difference in the reliability of the Withdrawn and Avoidant syndromes in the ASCA: P studies. The present study's reliability findings reflect the difficulties discussed in the literature on parent assessment of behavioral problems, particularly, internalizing problems. Despite these difficulties, parent rating scales have been developed with adequate reliability, such as the CPRS: R (Conners, 1985) and the CBCL (Achenbach, 1991). Given the value of parent information, continued research on ways to improve the reliability of the ASCA: P needs to be conducted.

Demographic Variables and ASCA: P Scores

Ethnic and Gender Differences within the ASCA: P

Based on research findings in Trinidad (Grim, 2002; Menaker, 2003) it was hypothesized that males and students of African and Mixed ethnic descent in the present study would score higher on components related to overactivity and aggression than East Indian and female students. Part of this hypothesis was supported and congruent with past Trinidad research, whereas other findings were inconsistent. Similar to past research in Trinidad, boys and Mixed and African descent students showed higher scores on the Attention Seeking/Impulsive component than girls and East Indian students. Contrary to past research,

boys and African and Mixed descent students did not score significantly higher on the Aggressive syndrome.

The higher scores for male students on the Attention Seeking/Impulsive component may be in congruence with some of the child-rearing practices in Trinidad, including expecting boys to be more assertive, while girls are given less free reign (Advameg, Inc., 2007). Particularly in the East Indian culture, girls are expected to be obedient and comply with directives from adults and males (Douillet, 2005). The Attention Seeking/Impulsive of boys may also be related to their higher rates of imprisonment and lower educational performance in Trinidad (Hutchinson, 2005; Niles, 2004). Analysis of committed felons in Trinidad shows greater rates of crime with Afro-Trinidadians (Hutchinson, 2005), thus possibly coinciding with the present findings of their greater rates of impulsivity. The inconsistency in the research findings on gender and ethnicity on the Aggressive syndrome requires further examination of the cultural differences across Trinidad and Tobago.

The research findings on gender are more comparable to the previous study on the ASCA: P from the United States (Mordell & McDermott, 2001). This study revealed a main effect for gender for overall adjustment; however, significant differences across boys and girls disappeared when broken down across the three behavioral syndromes. It was noted by Mordell and McDermott (2001) that the minimal variation for gender across the behavioral syndromes corresponds to research findings that gender accounts for only very small proportions of the variation in behavioral adjustment (McDermott, 1995; Trites, Blouin & Laprade, 1982).

Age and Parent Education Differences within the ASCA: P

Current findings on age differences across scores on the syndromes are inconsistent with Grim's (2002) ASCA study in Trinidad, but similar to the research by Menaker (2003), no significant differences were found for age. In the research by Mordell and McDermott (2001) in the United States, preadolescents displayed higher levels of restless impulsivity and overall adjustment problems than did adolescents. The differences in the research findings between the countries regarding age and behavioral difficulties in children suggest a possible difference in the manifestation or perception of psychopathology between the United States and Trinidad. Such differences stress the importance of establishing the psychometric properties of an instrument indigenous to the country in which it is going to be used.

Information was also collected on mother's and father's education attainment. It was hypothesized that lower parent education attainment would be correlated with more behavioral difficulties. This hypothesis was based on research findings that education attainment is correlated with income level (Koball & Douglas-Hall, 2004) and that child behavior problems are correlated with low family income (Bor et al., 1997; Chase-Lasdale et al., 2002). Previous research on the relation between children's behavior problems in Trinidad and parent education has not been conducted. Findings from the present research however, indicated that students whose mothers earned higher levels of education had significantly higher Attention Seeking/Impulsive scores. Further exploration with studies in Trinidad is needed to determine if mothers with higher education levels are more aware and knowledgeable of psychopathology and/or are less tolerant of aggressive and impulsive behaviors in their children.

Limitations of the Present Study

One limitation of the present research is the lack of consistency regarding which caregiver completed the ASCA: P. As illustrated in Table 1, 82% of the respondents were parents, 10% were relatives or guardians (including siblings, aunts, and grandparents) and 7% did not report their relation with the child. Information is not available as to whether the informant lives with the child or is the primary caregiver. Due to the lack of control over how the instrument was completed at the respondent's home, it is also possible that multiple family members provided input into the measure, thus changing the outcome. Another issue to consider is the possibility that parents may not have had full comprehension of the written items. Literacy issues could pose an important problem for parent-report rating scales. Neglect of literacy issues may lead to nonrepresentation or inaccurate representation of families in the greatest need.

Another limitation in the present study is the low reliability on the Withdrawn syndrome and the reliability difficulties within the Aggressive component for females, mother education and the Mixed/Other ethnicity. Although the current sample size met the criteria outlined by Velicer and Fava (1998), to counteract reliability problems, researchers using parent reports may be compelled to use larger sample sizes. Large samples will help to strengthen parent-report instruments' empirical properties, and help provide more reliable measures.

The present study's inability to calculate coefficients of congruence with past research on the ASCA: P (Mordell & McDermott, 2001) is another limitation. The congruence coefficient is a measure of the similarity of the factor patterns for different samples of subjects. It is a descriptive statistic that compares the two sets of factor loadings in terms of

both the pattern and magnitude of the loadings (Broadbooks & Elmore, 1987). Due to the differences in the factor structure between the present study and the previous research on the ASCA: P (Mordell & McDermott, 2001) this statistic could not be calculated.

Further limitations of the present study involve the need for additional reliability and validity evidence of the ASCA: P. This study only examined the internal consistency and component structure of the ASCA: P but further evidence needs to be collected in such areas as predictive validity, inter-rater agreement and criterion related validity. Unlike previous research on the ASCA: P in United States (Mordell & McDermott, 2001), this study did not assess concurrent criterion validity of the ASCA syndromes. In addition, ASCA: P ratings were not collected at two points in time on the same group of children so that their stability could be analyzed.

Implications for Further Research

In the present study, approximately 13% of the informants were fathers and 68% were mothers. Studies have shown disagreement between parents on ratings of children's behavior. Rowe and Kandel (1997) found that mothers and fathers ratings correlated only weakly, with fathers being worse at identifying underactive symptoms. A study of inter-rater agreement on the ASCA: P would shed light on the consistency with which parents provide the same ratings of children's behaviors. Specifically needed are inter-rater studies in Trinidad and Tobago, as this country's unique cultural and ethnic climate may produce findings contrary from those found in the US.

Future research is also needed to investigate the lower reliability found for certain subgroups on the ASCA: P. A suggestion for future research would be to administer the ASCA: P to a relatively large random sample of Mixed ethnicity children that is stratified for

age, gender, and parent education. The present study had scores with lower reliability for this subgroup and previous research conducted in Trinidad found generalizability problems for Mixed descent students (Grim, 2002). A more detailed analysis of the different ethnic groups included in the Mixed/Other category may be needed.

In addition to further research on the validity and reliability of the ASCA: P in Trinidad, future research is also needed to address intercultural differences between the ethnic groups that comprise these islands. Information on general cultural views and expectations of youth among the specific demographic groups is not readily available. It would be valuable to identify social and cultural variables that have an effect of the expression of behavioral pathology among children of different ethnic groups. Such insight into sociocultural differences would help to understand the differences among the problem behaviors between the ethnic groups and would provide a richer context in which to interpret the findings.

To understand the cultural differences across Trinidad and Tobago it was recommended by Grim (2002) that ethnographic research be utilized to explore cultural practices and daily living activities. Such a study would help to determine whether ASCA: P items adequately represent the scope of behavioral problems present within Trinidad. There may be other behaviors known more locally to residents of the islands that they often associate with maladjusted behavior in children. Ethnographic research could assess negative behavioral patterns recognized in Trinidad or different cultural climates that exist within the islands themselves.

Because the contextual method breaks down behavior into specific situations and environments, it is particularly helpful in analyzing cultural differences in the perception of pathology. Comparison of ASCA: P findings between countries may identify specific

situations in which behavior problems are perceived to be more prevalent. For example, in Trinidad great importance is placed in children's completion of chores. This cultural value may affect parents' ratings in this related area. Future research of specific items and their degree of cultural relevance is important for interpretation and item modifications may help to improve the reliability of the scales.

Conclusion

The findings of the current study build upon the research by Mordell and McDermott (2001) and suggest that the ASCA: P has promise as a useful tool for screening behavior pathology in Trinidad and Tobago. Additional evidence is needed in the reliability and validity of this scale in Trinidad and the unique ethnic and cultural influences in Trinidad that affect the manifestation or perception of pathology. With the provision of added research, the ASCA: P stands as a unique and helpful instrument. The contextually based ASCA: P provides situational information to help understand children's behavior within the context of their social environments, and thus is beneficial in the development of interventions. The ASCA: P addresses the lack of an available contextual approach to collect information from the home. Despite the difficulties faced in gathering reliable parental reports, their input in assessment is essential as parents are the primary decision makers for their children and have unique knowledge and observations of children's behavior in multiple contexts. Although subject to the reliability difficulties commonly found in parent reports, the ASCA: P was designed to strengthen parent reports through the inclusion of contextual data and a dichotomous format. With additional research and needed modifications to improve its technical properties, the ASCA: P is a potentially usefully tool to advance our understanding

and identification of behavior pathology in Trinidad and is a step toward the ultimate goal of improving children's mental health.

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Appendix: Adjustment Scale for Children and Adolescents: Parent Edition (ASCA: P)

Relationship with Parent**How does she greet you as her parent?**

- Greets as most other children do
- Clings to you or shows tears
- Waits for you to greet her first
- Seems too unconcerned about you to greet
- Responds with an angry look or turns away
- Greets you loudly

How does she answer questions?

- Answers before she has had time to think
- Not shy but rarely offers an answer
- Answers if she can
- Freezes up and has trouble answering

How does she seek your help?

- Lacks the energy to ask
- Asks for help when she needs it
- Too timid to ask
- Never seeks help even if needed
- Seeks help when not needed

How does she talk with you?

- Much too talkative
- Tends to have untalkative moods
- Speaks in a rude or angry tone
- Distant, seldom says anything
- Uses dirty words or offensive language
- So timid it's difficult to get her to speak to you at all
- Talks freely

How does she seem to value the attention you give her?

- Wants your interest but holds back
- Uses various ways to get your attention
- Likes to be praised
- Quite unconcerned whether she gets any of your attention or not

- Sometimes seems to seek disapproval

Is she truthful?

- Tells tall tales about herself or her friends
- Does not generally tell untruths
- Sometimes lies to avoid blame or punishment
- Doesn't hesitate to lie

What is her general manner with you?

- Friendly, smiles readily
- Distant, makes no effort to relate to you
- Rarely smiles
- Has a dejected look
- Overly dependent (clings to you, does not like to leave your side, etc.)
- Sometimes in an unfriendly mood
- Shy but not unfriendly

How does she behave at home?

- Misbehaves when you are attending to other things
- Well behaved
- Never any trouble because she's so timid
- Disobedient, difficult to control
- Doesn't seem to have enough energy to misbehave
- Does things in front of you she knows are wrong

How does she react to correction?

- Improves for the moment but it does not last for long
- Takes correction badly (sulks, mutters under her breath, etc.)
- Argues and talks back but will eventually do what you say
- Her feelings are easily hurt
- Accepts correction without fuss
- Answers back aggressively, makes threats or creates a disturbance

Relationship with Other Adults**How does she greet other adults?**

- Greets as most other children do
- Waits for adults to greet her first
- Seems too unconcerned about people to greet
- Responds with an angry look or turns away
- Welcomes them loudly
- Seems fearful of other adults
- Too shy to greet other adults

How does she get along with other adults?

- Uses bad language that offends them
- Too shy to interact with other adults
- Is rude
- Well behaved with other adults
- Uses various ways to get their attention
- Seems unconcerned whether she gets their attention or not

Relationship with Children**Who are her companions?**

- Sometimes wanders off by herself
- Prefers adults to others her own age
- Associates with troublesome children
- Has one or more companions with whom she gets along
- Prefers younger children to others her own age
- Is a loner, prefers not to associate with other children

Appendix continued: Adjustment Scale for Children and Adolescents: Parent Edition

How does she get along with others of her age?

- Clowns around, plays silly tricks
- A good mixer
- Cannot keep a friend for long
- Unkind to weaker children
- Quarrels, provokes others
- Tries to dominate
- Fights physically with others

Does she respect other children's belongings?

- Takes others' things without permission
- Snatches objects away from children
- Has deliberately destroyed others' belongings
- Too uninterested in other children to notice their belongings
- Respects others' property

Can she stand her ground?

- Does not stand up for herself
- Attacks others physically if provoked
- Stands up for herself when she has to
- Allows herself to be bullied

Coping with Responsibilities**How does she care for her belongings?**

- Takes care of her things
- Often loses her belongings
- Overly fussy about her things
- Destroys her belongings purposely

How does she cope with a new task?

- Charges in without taking time to think or follow instructions
- Won't even attempt it if she senses difficulty
- Cannot work up the energy to face anything new
- Approaches a new task with caution but gives it a try
- Becomes visibly upset if she does not perform well on the first try

How does she cope with household jobs or chores?

- Helps unless in a bad mood
- Willing or eager
- Asks to be given jobs but often doesn't finish them
- Appears too withdrawn to offer help
- Refuses to help

How does she cope with waiting in line?

- Waits patiently
- Becomes restless and fidgety
- Argues and complains about waiting
- Tries to push ahead
- Will let others push ahead of her
- Gets into fights with others in line

Daily Living**What are her sleeping patterns?**

- Throws tantrums at bedtime
- Stays in bed to avoid responsibilities
- Has trouble sleeping unless she is near parent
- Goes to bed without too much fuss
- Sleeps more than most children but is still tired all the time

How does she behave at meal times?

- Refuses to eat
- Appropriately eats the food served
- Starts arguments or fights
- Constantly restless (gets out of seat, plays with utensils or food)
- Loses temper if she doesn't get what she wants

How is her personal cleanliness?

- Similar to most other children of her age
- Seems to lack the energy to take care of herself
- Refuses to care for her hygiene (bathe, brush teeth, comb hair, etc.)

Spare Time Activities**How does she take part in games (card games, pickup sports games, sports games, board games, etc.)?**

- Needs encouragement to join in
- Too disinterested to play games
- Disrupts by fooling around
- Won't get involved
- Has trouble waiting for her turn
- Inclined to cheat
- Poor loser (causes a disturbance when the game goes against her)
- Joins in eagerly
- Doesn't seem to have fun even in games she used to enjoy

Does she participate in organized activities (clubs, sports, etc.)?

- Enjoys club or team activities
- Refuses to take part in any formal club, sport or team activity
- Lacks the energy to take part
- Has been expelled from organized activities for misbehavior

How is she at informal or unorganized play?

- Rather loud but not disruptive
- Is too timid to join in
- Disturbs others' fun
- Wants to dominate and have her own way
- Engages in sensible activities
- Starts fishes and rough play
- Tends to go off by herself and play alone
- Overly rough with smaller or weaker children

How does she work with her hands (artwork, crafts, etc.)?

- Seems afraid to try
- Sticks to her activity

- Fools around
- Has ruined her work on purpose
- Very slow and never seems to finish
- Lacks physical energy
- Very concerned about mistakes

School

How does she get ready for school?

- Appropriately
- Appears fearful of going to school
- Moody and uncooperative
- Too disinterested to get ready
- Constantly distracted so she is not ready on time

Does she attend school regularly?

- Skips school with friends
- Stays home
- Attendance has been good except for absences due to illness, etc.

How does she cope with homework?

- Listless, too unconcerned
- Generally does homework on her own
- Asks for help even when it is not needed
- Lies about assignments
- Destroys her school materials or defaces them with scribbling, drawing, etc.
- Often loses or forgets her books, writing materials, assignments, etc.

Troublesome and Illicit Activities

Has she engaged in troublesome activities?

- Makes sexually offensive gestures or remarks
- Has intentionally hurt animals
- Participates in fights with a gang
- Threatens to hurt others if she doesn't get what she wants
- Steals from home

Has she engaged in illicit activities?

- Uses dangerous drugs without a doctor's prescription
- Supplies dangerous drugs to others
- Regularly drinks alcoholic beverages
- Has carried a dangerous weapon in the neighborhood or school
- Has stolen from a store, building, or car
- Has deliberately damaged property (cars, houses, schools, etc.)

Does she have any nervous habits or fears?

- Makes sudden inappropriate noises
- Hurts herself by scratching, picking, or biting
- Often cries for no apparent reason
- Her actions are constantly interrupted by involuntary movements
- Panics in response to unexpected noises or events

Does she have sudden outbursts?

- Has made unprovoked attacks on you
- Has made sudden unprovoked attacks on other children
- Without warning or apparent reason she may throw an object across the room, sweep things onto the floor, etc.
- Rushes about shouting madly
- Wets the bed
- Other (please describe)

Other Behaviors that Cause Concern

- Has been suspended or expelled from school for misbehavior
- Speaks normally at home but refuses to speak at school
- Regularly smokes or chews tobacco
- Says that other people can read her mind or control her thoughts
- Accuses others of spying on her or plotting against her

- Responds to voices that no one else can hear or understand
- Controls weight by starving, throwing up, or taking laxatives
- Persistently eats nonedible materials (dirt, paint, hair, etc.)
- Claims that she is famous or has some kind of special powers no one else has
- Talks about hurting or killing herself
- Gets very agitated if she doesn't check things over and over (door locked, stove off, etc.)
- Expresses extreme fear of common animals (dog, cat, mice, etc.)
- Expresses extreme fear of medical situations (blood, doctors, needles, dentists, etc.)
- Expresses extreme fear of injury or death (not being able to breathe, AIDS, being kidnapped, etc.)
- Expresses extreme fear of certain places (crowded places, large open spaces, elevators, etc.)
- Gets very upset if things are not arranged in the right order
- Often says that she is stupid or dumb
- Runs away from home
- Sets fires without permission
- Constantly talks about germs and disease
- Has very noticeable muscle twitches (tics) that she can't control

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Stirling University, Scotland, U.K: Studied abroad fall semester fall semester, 1998

Certification:

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Related Work Experience:

School Psychologist: Utilizes skills in consultation, intervention and assessment as a school psychologist for a high school, middle school and elementary school at West Shore School District (2003-Current)

Mobile Therapist: Conducted family and individual therapy to children for Northwestern Human Services (2002-03)

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Home Based Worker for Association for Retarded Citizens (ARC): Taught life skills to a child with mental retardation at the ARC (2000-01)

Therapeutic Support Staff: Taught academic and life skills to an autistic child at Northwestern Human Services (2000)

Student Teacher of Kindergarten Classroom: Responsible for teaching, lesson plans, grading, and special events for two kindergarten classrooms at Milton Elementary School, Milton, PA (Spring 1999)

Research Assistant: Worked as assistant in the Psychology Department at Bucknell University. Helped to create and analyze surveys, conduct interviews and observational studies at day care centers (Summer 1998)