SCALE VALIDITY: AN EXAMINATION OF EVIDENCE FOR FACTOR STRUCTURE AND POSSIBLE CLINICAL IMPLICATIONS

by

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(Under the Direction of Brian A. Glaser, Ph.D.)

ABSTRACT

The purpose of this dissertation is to provide evidence for instrument validation through the assessment of psychometric properties. Specifically, it will demonstrate methods for validating the structural aspect of validity on two scales intended to provide measurement of psychological constructs within the juvenile offender population. To do this, two separate studies were conducted. In study one, factor structure of the Burns Brief Mood Survey (BMS) was tested through the use of exploratory factor analysis. For study two, confirmatory factor analysis was used to assess the hypothesized factor structure of the Juvenile Offender Parent Questionnaire (JOPQ). In study one, data analysis yielded a simple five factor structure for the BMS; however, this factor structure differed from the hypothesized factor loadings. These results bring to light the importance of structural validation when utilizing an instrument on a specialized population. Results of study two confirmed the hypothesized six factor structure of the JOPQ. The model demonstrated an adequate level of fit, but item level analysis and examination of the modification indices suggested changes to the structure of the instrument that may improve model fit.

INDEX WORDS: Brief mood survey, Juvenile offender parent questionnaire, Juvenile, Adolescent, Delinquency, Offender, Parent, Validity, Factor analysis

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DEDICATION

I would like to dedicate this dissertation to my son. While I know that I am still several months away from meeting you, you have forever changed me. I will always work to improve myself and be the father you deserve. I feel that the completion of this document is the first step in the journey of our lives.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Assessment and psychometrics are not new to the field of Counseling Psychology. For example, Milton E. Hahn's Presidential Address of 1954 noted that assessment and appraisal of human traits for educational, vocational, and social living are among the unique functions of Counseling Psychologists. The work of early scientists and psychologists such as Wundt and Cattell demonstrate the urge for science to quantitatively explain mental processes that cannot be directly observed (Benjamin, 2007). Watkins (1992) discusses in detail the importance of the psychometrics movement on the development of assessment and measurement procedures for psychological constructs. With the continued emphasis of assessment and testing for psychologists, this issue remains salient within the profession of psychology.

This emphasis on measurement and psychometrics in the history of psychology has led to advances in measurement techniques and improvements in scale design. However; valid measurement of psychological constructs continues to be a difficult task. Crocker & Algina (2008) detail limitations of all instruments designed to measure psychological attributes. The problem of valid measurement of psychological constructs was also recognized by the American Psychological Association, who formed the APA Committee on Psychological Tests from 1950-1954 (Cronbach & Meehl, 1955). This committee was established to identify several different types of validity, and delineate types of research necessary to validate score interpretation. Traditionally, validity has been thought of in terms of content, criterion-related, and construct validity; however, contemporary validity theorists tend to adopt a unified construct-based model

of validity. Messick (1995) details this model, and specifies six aspects of validity to be tested: content, substantive, structural, generalizability, external, and consequential.

Psychological instruments remain commonplace in the field, and provide measurements of constructs such as intelligence, achievement, personality, mood, and emotions. Interpretation of the scores provided by these instruments can heavily influence treatment decisions or consequences for the individual being evaluated. Instruments administered without appropriate validity evidence may direct clinicians to inappropriate interpretations of scores, leading to unsuitable treatments or consequences.

This illuminates the necessity of valid instrumentation, especially within specialized populations. Messick (1995) understood that differences in population groups may result in variation among scores, and therefore suggested the generalizability aspect in his conceptualization of validity. One such population group is the adolescent offender population. This population has received considerable attention in the literature, with several studies assessing potential treatments and etiological variables. According to government research, juveniles account for 16% of all violent crime arrests and 26% of all property crime arrests in the United States in 2008 (Puzzanchera, 2009). Treatment and placement recommendations for these individuals may rely heavily upon results of psychological measurements, reiterating the need for accurate and valid interpretations.

Purpose of the Study

The purpose of this dissertation is to provide evidence for instrument validation through the assessment of psychometric properties. Specifically, it will demonstrate methods for validating the structural aspect of validity on two scales intended to provide measurement of psychological constructs within the juvenile offender population. Additionally, this dissertation

will discuss the clinical utility of these instruments for mental health professionals in treatment planning.

To achieve this, two separate studies have been conducted. These studies are intended to provide structural validity evidence for the use of scales with the juvenile offender population through the use of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The first study will utilize EFA to determine the factor structure of an instrument intended to measure various aspects of mood with incarcerated adolescents, and the second study will use CFA to confirm the hypothesized factor structure of an instrument intended to measure parental attitudes regarding their child's delinquent behaviors. Within each study, specific clinical implications will be explored.

Definition of Terms

A definition of several significant terms discussed throughout this dissertation is warranted at this point:

Assessment: For the purposes of this dissertation, assessment refers to any instrument intended to measure a psychological construct. Throughout this document, the terms assessment, instrument, and scale will be used interchangeably.

Factor Analysis: A technique used for analyzing the interrelationships among a large number of variables and condensing that information into a smaller set of underlying factors (Gorsuch, 1983).

Indicator: Any variable that loads onto a factor in factor analysis. For the purposes of this dissertation, the terms indicator and item will be used interchangeably.

Latent variable: A psychological construct that a scale intends to reflect, but can not be measured directly. Measurement occurs through the observation of specific behaviors theorized to be associated with the construct.

Loading: This term refers to the correlation between a factor and an indicator.

Delinquency: For the purposes of this dissertation, the term delinquency means any act that is nonconforming to the norms and laws of society. Kazdin (1994) provides additional guidance with this term, stating "[t]here are several specific acts that can be referred to as delinquent. This includes index offenses that are considered criminal if committed by anyone (e.g. homicide, robbery), as well as status offenses that include a variety of behaviors that are illegal because of the age of the youth (e.g. use of alcohol, driving a car, not attending school)."

Research Question

In study one, the factor structure of the Burns Brief Mood Survey (BMS; Burns, 2002) with the incarcerated adolescent population was assessed. The intended structure of this instrument contains five factors, Depression, Suicidal Urges, Anxiety, Anger, and Positive Feelings. Evidence for the validity of this instrument with this specific population is missing from the literature; therefore, this study intends to determine the factor structure of the BMS with this specialized population.

Study two seeks to provide confirmatory evidence for the factor structure of the Juvenile Offender Parent Questionnaire (JOPQ; Rose, 2004), an instrument intended to measure attitudes of parents of juvenile offenders. The initial factoring of this instrument provided a six factor solution. These factors include: Exasperation in Regard to the Child, Mistrust of the Juvenile Justice System, Fear of the Child, Shame over Parenting Self-Efficacy, Parent Perceptions of the Child's Exposure to Violence, and Parental Monitoring. Confirmatory factor analysis is used to

test the hypothesized factor structure of the JOPQ. Additionally, changes to the model structure will be assessed and discussed.

Research Hypothesis

In study one it is hypothesized that the exploratory factor analysis will yield the original five factor solution for the incarcerated adolescent population. It is also hypothesized that analysis will yield simple structure, indicating no cross loading items.

In study two it is hypothesized that the confirmatory factor analysis will confirm the proposed six factor solution, and demonstrate a good model fit. It is also hypothesized that the Lie/Infrequency factor does not contribute to the proposed structure, and should therefore be omitted from model testing.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

Validity in Measurement of Psychological Constructs

Assessment and psychometrics have a rich history in the field of counseling psychology, and have helped to shape its academic and professional identity (Watkins, 1992). Dating back to the 19th century with practices such as phrenology and extending into psychophysics and Wundt's laboratory in the early 20th century, psychologists have attempted to provide empirical measures for psychological activities (Benjamin, 2007). These early theories have evolved into sophisticated attempts to measure psychological attributes such as personality, intelligence, motor functioning, and emotion.

While assessment and measurement have a rich history in the field of psychology, measurement of psychological attributes continues to be a difficult process. Unlike physical attributes, such as weight or height, psychological attributes of an individual cannot be directly measured. They can be understood in terms of constructs, hypothetical concepts derived out of theories for explaining human behaviors (Crocker & Algina, 2008). A construct can provide an efficient and convenient method for labeling a behavior or number of similar behaviors. Crocker & Algina (2008) noted five measurement problems common to all psychological assessments:

- *No single approach to the measurement of a construct is universally accepted.* Because a construct is based on theory and indirectly observed through behaviors, it is reasonable to believe that two or more researchers would measure a construct

through differing behaviors. This difference in theory may lead to results that are inconsistent with other measures of the same construct.

- *Psychological measurements are usually based on limited samples of behavior.* Crocker & Algina (2008) discuss this problem by stating "[d]etermining the number of items and the variety of content necessary to provide and adequate sample of the behavioral domain is a major problem in developing a sound measurement procedure (pg. 6)." In other words, it is difficult for an assessment to contain enough items to accurately measure all aspects of a construct.
- *The measurement obtained is always subject to error.* Due to variables often outside the control of the assessor (e.g. fatigue, boredom, time of day, etc), individual's scores on psychological instruments often fluctuate. These sources of error remain a persistent problem in the accurate measurement of psychological constructs.
- *The lack of well-defined units on the measurement scales.* This can be understood in terms of intelligence testing. If individual 1 obtains an IQ score of 100, individual 2 obtains an IQ score of 110, and individual 3 obtains an IQ score of 90, can it be assumed that the difference in abilities between individuals 1 and 2 is the same as those between 1 and 3. Developing the properties of the measurement scale and the interpretations of the results are issues that must be considered when developing an instrument intended to measure a psychological construct.
- *Psychological constructs cannot be defined only in terms of operational definitions but must also have demonstrated relationships to other constructs or*

> *observable phenomena.* Lord and Novick (1968) touched on this by stating that a useful construct must be defined on two levels: it must be operationally defined and the meaningfulness or importance of the construct must also be made explicitly clear. If no relationship exists between the measured construct and other constructs in the same theoretical field, the measurement has no value.

These problems speak to the need for the appropriate validation of instruments intended to measure psychological constructs. Cronbach (1971) refers to validation as the process by which a test developer or user collects evidence to support the inferences that are drawn from the scores. To test the validity of a scale, Kane (1992) and Chapelle, Enright, & Jamieson (2010) suggest an argument based approach to validity. In this approach, interpretive arguments should be clear, coherent, and demonstrate plausible assumptions, and take into consideration several categories of inference such as observation, generalization, extrapolation, and theory. Validation studies have traditionally been thought of in terms three distinct types of validity: content validity, criterion-related validity, and construct validity.

Content validity focuses on the match between items or tasks in the measure and the content domain in which generalization is sought (Hoyt, Warbasse, & Chu, 2006). In other words, the assessor hopes to draw an inference from the test taker's score to a larger domain. This type of validity evidence is commonly sought in educational or achievement testing. For example, a test designed to assess proficiency at using multiplication should contain items that are primarily associated with different types of multiplication such as whole numbers, fractions, and decimals. Crocker & Algina (2008) suggest four steps when considering content validation: define the performance domain of interest, select a panel of qualified experts in the content

domain, provide a structured framework for the process of matching items to the performance domain, and collecting and summarizing the data from the matching process.

The second type of validity, criterion-related, is derived from the use of assessment scales in applied settings to predict future performance (Hoyt, Warbasse, & Chu, 2006). Criterion-related validity is thought of in terms of predictive validity and concurrent validity. Predictive validity refers to the degree to which scale scores can predict criterion measurements that will be made some time in the future (Crocker & Algina, 2008). For example, the Scholastic Aptitude Test (SAT) is used by college admissions committees as evidence for future academic success. Concurrent validity refers to the relationship between scale scores and criterion measurements made at the same time as the assessment is given. An example of concurrent validity would be a written test for a driver's license. A positive correlation between the written test and the road test would provide evidence for the concurrent validity of the written test. Criterion-related validation entails the following steps: identify a suitable criterion behavior and a method for measuring it; identify an appropriate sample of examinees representative of those for whom the test will ultimately be used; administer the test and keep a record of each examinee's score; when the criterion data are available, obtain a measure of performance on the criterion for each examinee; and determine the strength of the relationship between test scores and criterion performance (Crocker & Algina, 2008).

The third type of validity historically discussed in the literature is construct validity. As noted previously, a construct provides an efficient and convenient method for labeling a behavior or a number of behaviors. Psychological constructs are abstractions that can only be assessed indirectly, and Hoyt, Warbasse, & Chu (2006) describe construct validity as "an ongoing, theory guided inquiry into systematic determinants of test scores." The process of construct validation

should consist of the following steps: formulate one or more hypotheses about how those who differ on the construct are expected to differ on other characteristics or measures; select or develop a measurement instrument which consists of items representing behaviors that are specific, concrete manifestations of the construct; gather empirical data which will permit the hypothesized relationships to be tested; and determine if the data are consistent with the hypotheses (Crocker & Algina, 2008). Additionally, it is important to develop rival theories or alternative explanations for the observed findings.

Messick (1989) introduced the contemporary model of validity, the unified construct-based model of validity, which has since been adopted by the Standards for Educational and Psychological Testing (APA, 1999). Messick defined validity as "an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment (1989, p.13)." Messick (1995) went on to specify six aspects of the unified conception of construct validity including: content (evidence of relevance, representativeness, and technical quality), substantive (theoretical rationales for the observed consistencies in responses), structural (the fidelity of the scoring structure to the structure of the construct domain), generalizability (extent to which score properties and interpretations generalize across groups and/or settings), external (evidence from multitrait-multimethod comparison), and consequential (value implications of score interpretations) aspects.

A purpose of this dissertation is to explore the structural aspect of the unified construct-based model of validity. Evidence for this aspect is sought by correlational and measurement methods such as factor analysis (Dimitrov, 2010). Factor analysis describes a set of related techniques rather than a single method. Factor analysis describes how a small number of latent

(i.e., not directly measurable) constructs might explain covariation among a larger number of measurement variables. It can also identify common factors among people or common factors among occasions of measurement (Kahn, 2006). In factor analysis, multiple variables, or indicators, are used because scores across a set of measures tend to be more reliable and valid than scores on an individual measure. Additionally, multiple indicators may each assess somewhat different facets of the construct, which enhances score validity (Kline, 2005). There are two variations of factor analysis that are commonly used to assess the structural aspect of scale validity; exploratory factor analysis and confirmatory factor analysis.

Exploratory factor analysis (EFA) is a data driven approach to discovering unknown factorial structures (Dimitrov, 2010). The goal of EFA is to identify latent factors that explain covariation among a set of measured variables (Kahn, 2006). Because factor analysis is not an inferential statistical technique, there are no strict assumptions associated with its use; however, Gorsuch (1983) noted several aspects of the data necessary to consider. The first of these is the level of correlation among the variables, which is assessed by utilizing statistical methods such as the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (compares the correlations among pairs of variables to their correlations when the effects of other variables are partialed out) and Bartlett's test of sphericity (tests whether the variables are completely uncorrelated with eachother). Next is sample size. A study by MacCallum, Widaman, Zhang, & Hong (1999) discussed guidelines for determining sample size in factor analysis, suggesting that sample size should be determined through the evaluation of communality values. The third aspect of the data is the distribution of the variables, indicating the importance of assessing for the normality of the variables. The number of variables is another aspect important to consider. This is important because the number of variables interacts with the sample size and level of communality to

determine the stability and accuracy of the factor solution. Finally, it is also important to consider the nature of the variables. Items with four or fewer scale points, are very nonnormally distributed, or have opposite degrees of skew and kurtosis may require statistical transformations to create an appropriate factor structure.

Factor structure is generally thought of in terms of the number of factors and the factor loadings (Gorsuch, 1983). The number of factors on the scale is determined by several means, including statistical methods (Bartlett's tests of sphericity, Minimum Average Partial procedure, and Parallel Analysis), mathematical procedures (eigenvalues > 1), and nontrivial factors procedures (scree plot, percent of variance accounted for, "survival," and replicability). Factor loadings represent the correlations of the variables with the factors, and the goal is to obtain a simple factor structure. A simple structure is obtained if: each factor has at least one nonzero loading, each factor has a set of variables with zero (or close to zero) loadings, each pair of factors has a different pattern of loadings, and each pair of factors should have a small number of cross-loadings.

Confirmatory factor analysis (CFA) is a theory driven approach to confirming hypothesized factorial structures (Dimitrov, 2010). CFA tests theoretically derived hypotheses about how many factors exist and which variables correspond to each factor (Kahn, 2006). This type of analysis is typically a more stringent test of the structural aspect of validity due to the requirement of a priori explication of both the number of factors and their corresponding indicators. If the a priori measurement model is reasonably correct, the following pattern will result: indicators specified to measure a common factor all have relatively high standardized loadings on that factor and estimated correlations between the factors are not excessively high (>.85; Kline, 2005). Consistent with the structural equation modeling assumption of multivariate

normality, testing data fit for a CFA model assumes that the distribution of each observed variable is normal, the joint distributions for all combinations of observed variables are normal, and all bivariate scatter plots are linear and homoscedastic (Hu, Bentler, & Kano, 1992).

Factor model fit is determined through the chi-square goodness of fit test and the examination of several fit indexes. The chi-square goodness of fit test assesses whether the reproduced covariance matrix from the hypothesized model is significantly different from the original covariance matrix. A significant chi-square is an indicator of model misfit; however, the problem of relatively well fitting models being rejected by the chi-square statistic has been well documented in the literature (Bentler & Bonett, 1980; Gerbing & Anderson, 1993; Marsh, Balla, & McDonald, 1988). The fit indexes examined fall into two broad categories, stand alone fit indexes (those that do not compare the specified model with any other model) and incremental fit indexes (the specified model is compared to a null or baseline model; Kline, 2005). In addition to the specific fit indexes, it is also important to examine standardized residual values to assess for any problematic or missing paths.

National Statistics on Juvenile Delinquency

Juvenile delinquency is a topic that has received much attention in the literature and in the media. A recent study conducted by the Office of Juvenile Justice and Delinquency Prevention (OJJDP; Puzzanchera, 2009) illustrates several concerning statistics regarding juvenile arrests in the United States. According the report, in 2008, juveniles accounted for 16% of all violent crime arrests, and 26% of all property crime arrests. The juvenile murder arrest rate in 2008 (3.8 arrests per 100,000 juveniles) ages 10 through 17 years has demonstrated a 17% increase since 2004 (3.3). In addition, in 2008 3,340 juveniles were arrested for rape, 56,000 arrested for aggravated assault, 84,100 arrested for burglary, 324,000 arrested for larceny, and

35,350 were arrested for robbery. Of those juveniles arrested, 22% were handled within law enforcement agencies and released, 66% were referred to juvenile court, and 10% were referred to criminal court; the remaining 2% were referred to welfare agencies. There are also a disproportionate number of minorities represented in these statistics. Although African American youth account for just 16% of the youth population, they are involved in 52% of juvenile violent crime arrests, and 33% of juvenile property crime arrests.

It is also important to note that juveniles are also often the victims of crimes committed in the United States. According to the OJJDP report, in 2008, 11% of all murder victims were younger than age 18, and 38% of those victims are below the age of 5.

The JCAP Model of Delinquency

The target population for this dissertation is one that is similar to those clients served in the Juvenile Counseling and Assessment Program (JCAP). The JCAP Model of delinquency identifies parent, child, family, school, and neighborhood predictor variables of delinquent behaviors (Appendix A). This model is influenced by Bronfenbrenner's (1979) social ecology model which focuses on developing the person and the environment, while also tending to the person-environment interactions. Bronfenbrenner (1979) went on to describe the ecological environment as "set of nested structures, each inside the next" (p.3). This idea was later expanded upon by Berry (1995), who discussed the family as a microsystem providing the main influence on a child's life. Surrounding the family (microsystem) are the mesosystem, exosystem, and then the macrosystem. He referred to the mesosystem as the interrelations of the family and other settings, such as school, work places, friends, and neighbors. The exosystem is concerned with the school system, social welfare system, health care system, or similar systems

that can not directly affect or be affected by the family. Finally, the macrosystem refers to the overarching systems such ethnic or cultural influences or economic and political policy.

Similar to this, the JCAP Model is an expansive, reciprocally interactive, and mulitisystemic causal model of delinquency. The JCAP Model tracks multiple causal pathways of variables useful in the prediction of delinquent behaviors from a multisystemic perspective. As can be seen from Appendix A, the model begins with the youth as an initial point of entry. The middle section of the diagram represents the intrapsychic and behavioral variables such as the child's behaviors, relationships with peers, personality traits, levels of racial and institutional mistrust, and identity development. The outer level of the diagram is representative of the multiple systems that the child is involved in. As previously mentioned, the JCAP Model views delinquency across all systems in a child's life, how those systems affect the youth, and how the systems react to the youth. By utilizing this expansive, interactive, and multisystemic view of the youth's functioning; more comprehensive and individualized treatment plans and recommendations are available to the clinician.

Etiological Factors in Delinquency

Current literature suggests several possible factors that contribute to adolescent conduct problems in the home, school, and community. McCabe, Lucchini, Hough, Yeh, & Hazen (2005) demonstrated that exposure to violence in the home and community each contribute independently to issues with conduct in adolescence. In this study the researchers wanted to test the hypothesis that exposure to community violence, intimate partner violence, and child maltreatment contribute independently to the development of conduct problems over a period of 2 years. The data collected from this study showed that exposure to community violence significantly predicted conduct disorder and externalizing problems even when other factors

were controlled. Child maltreatment predicted conduct disorder, but no externalizing symptomatology. Additionally, exposure to intimate partner violence was not related to either outcome.

Similarly, destructive pressures from the environment occurring concurrently with inadequate parental nurturing can have detrimental effects on the behavioral development in the child (Herrenkohl, Herrenkohl, & Egolf, 1994). Additionally, the researchers were able to identify factors that were found to contribute to resilience in late adolescence. These factors are consistent with the multisystemic understanding of behaviors purported by the JCAP Model, and include supported influences from extended family and community, and a desire to be different from abusive parents.

Connor, Steingard, Cunningham, Anderson, & Melloni(2004) found a relationship between certain variables and proactive and reactive aggression. They defined reactive aggression as an "angry, defensive response to threat, frustration, or provocation." Proactive aggression, on the other hand, is described as "a deliberate, coercive behavior that is controlled by external reinforcements and used as a means of obtaining a desired goal." In other words, reactive aggression comes about in response to stimuli while proactive aggression is meant to assert control or gain some desired end. Results demonstrate the positive relationship demographics, diagnosis, substance use, familial history, history of abuse, self reports of hostile attributes, and behavior have in predicting future aggressive behaviors. Within this data, the research also shows how each these variables correlate to the emergence of reactive and proactive aggressive tendencies.

The influence of pressures from peer groups has been shown to have an adverse effect on behavioral development (Wood, Read, Mitchell, & Brand, 2004). In this study, participants

completed surveys assessing peer influences, parental behaviors, attitudes and values toward drinking, and alcohol-use related consequences. Both active (direct offers or pressure to participate in delinquent acts) and passive (social modeling, perceived norms) pressure were shown to be associated with antisocial acts such as underage alcohol consumption. However, these effects were shown to be moderated by parental influences, such as nurturance and parental monitoring, indicating that parental involvement can exert an influential role on the incidence of antisocial behaviors in adolescents.

Internal factors in the child can also have a significant impact on his/her behaviors. Dadds and Fraser (2005) found predictive validity of callous-unemotional personality traits (characterized by lack of remorse and empathy, and typically manipulative use of others for personal gain) in children as a precursor for the development of conduct disorder and anti-social behaviors. The researchers utilized the callous-unemotional traits factor of the Antisocial Process Screening Device on a sample of 1,359 children (age 4-9 years) and noted significant improvements in the prediction of antisocial behavior in children and adolescents after 12 months.

Several family and parenting factors have been found to be predictive of conduct problems in children, even at an early age. Webster-Stratton (1998) describes family characteristics such as low income, low education, teenage pregnancy, level of stress, isolation, single parenthood, parental psychiatric illness, parental criminal history, substance abuse, marital discord, and depression as possible factors that place a child at risk for developing conduct problems. Others have shown that parenting styles (Joussemet, Landry, & Koestner, 2008), parenting skills (Gardner, Shaw, Dishion, Burton, & Supplee, 2007), parental involvement (Shaw, Dishion, Supplee, Gardner, & Arnds, 2006), maternal depression (Chronis et al, 2007), and discipline

tactics and parental attributions about the child's misbehavior (Snyder, Cramer, Afrank, & Patterson, 2005) are predictive of the behavioral development of the child. Frick et al (1992) found that maternal supervision and persistence in discipline, in addition to paternal antisocial personality disorder and substance abuse were predicting factors in the development of oppositional defiant disorder and conduct disorder in boys.

Burns Brief Mood Survey

The link between mental illness and delinquency as well as the predictive ability of mental illness on offending are areas that have received considerable attention in the literature (e.g. Chitsabesan et al, 2006; Dixon et al, 2004). These relationships become more salient due to the diagnostic frequency of Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD) in children (Webster-Stratton, 1998). Understanding the link between mental illness and delinquency will allow clinicians working with youths in juvenile justice settings to develop treatments that will minimize the risk of reoffending and acting out behaviors. The first step in this process is to identify youth exhibiting mental health related issues in these settings.

One instrument that may be useful for this task is the Burns Brief Mood Survey (BMS; Burns, 2002). This survey was developed to assess for the presence of emotional and behavioral symptoms that have been demonstrated to be related to delinquency. These symptoms are thought to be associated with five overarching constructs, each with a strong base in the delinquency literature. These constructs are: Depression (Wiesner & Kim, 2006; Heaven, Newbury, & Mak, 2003), Suicidal Urges (Suk et al, 2009), Anxiety (Dolan & Rennie, 2006; Nebbit, Lombe, & Williams, 2008; Kubak & Salekin, 2009), Anger (Colder & Stice, 1998; Cornell, Peterson, & Richards, 1999), and Positive Feelings (Carr & Vandiver, 2001). The first

four of these have been demonstrated to be positively correlated with delinquency, while the latter has been shown to be negatively related.

The BMS is divided into five sections, each of which presents a set of questions or symptoms associated with the construct intended to measure. These sections are as follows:

- *Depression* (5 items): Examples of items on this subscale include: "Sad or down in the dumps," and "Discouraged or hopeless"
- *Suicidal Urges* (2 items): Examples of items on this subscale include: "Do you have any suicidal thoughts?" and "Would you like to end your life?"
- *Anxiety* (5 items): Examples of items on this subscale include: "Anxious" and "Worrying about things"
- *Anger* (5 items): Examples of items on this subscale include: "Frustrated" and "Resentful"
- *Positive Feelings* (10 items): Examples of items on this subscale include: "I feel worthwhile" and "I feel close to people"

While the constructs the BMS intends to measure have proven to be related to delinquency, evidence for this scale's validity with the adolescent offender population is not present. The purpose of study one is to provide evidence for the structural validity of the BMS with this unique population. It is hypothesized that the results will confirm the current factor structure of the instrument. To accomplish this, exploratory factor analysis will be utilized to obtain the factor structure and estimates of factor loadings. This type of exploratory analysis will allow variables to demonstrate loading patterns that may be different from those hypothesized, and could illuminate the presence of factors unique to this population.

Juvenile Offender Parent Questionnaire

Parental contributors to adolescent delinquency are a topic that has been well documented in the literature (Hoeve, Dubas, Eichelsheim, van der Laan, Smeenk, & Gerris, 2009). While much of the literature regarding the assessment of antisocial behaviors has focused on characteristics of the child, there is a strong association of family variables with childhood antisocial behavior (Kazdin, 1994). Due to this evidence, it is of paramount importance that clinicians develop valid instruments in order to assess specific parent attributes that either positively or negatively affect their child's behavior.

In an attempt to address some of the concerns raised by studies such as the ones already listed, Rose, Glaser, Calhoun, & Bates (2004) developed the Juvenile Offender Parent Questionnaire (JOPQ) to assess specific attitudes of the parents of juvenile offenders. Exploratory factor analysis with Principal Axis Factoring was used to evaluate the structure of the JOPQ, and yielded a seven factor structure (six clinical scales and one validity scale). The factors are explained as follows (Rose, 2004):

1. *Exasperation in Regard to the Child (PE):* Reported to measure a parent's hopelessness, frustration, resignation, and/or readiness to give up on their child.
2. *Mistrust of the Juvenile Justice System (MJS):* Items focus on court, probation officers, police, the judge, and the system as a whole to provide a measure of trust (or lack thereof) that a parent may have concerning their child's involvement in the justice system.
3. *Fear of the Child (EV):* Items on this factor are reported to measure the parent's fear of some kind of physical violence being perpetrated upon them by their child.
4. *Shame over Parenting Self-Efficacy (SPS):* Self efficacy refers to the degree to which the parent feels competent in raising their child. Items on this factor are

reported to measure feelings of shame, humiliation, embarrassment, and discouragement in regards to their perceived ability to raise their children.

5. *Parent Perceptions of the Child's Exposure to Violence (EV):* Items on this factor are intended to measure the parent's perception of the amount of violence the child has been exposed.
6. *Parental Monitoring (PM):* This factor is intended to illuminate the parent's level of monitoring the child's behavior in the home, school, and community environments.
7. *Lie (L):* These items are intended to measure infrequently endorsed responses, and illuminate possible validity problems on individual administrations.

The clinical utility of the JOPQ can be understood in terms of it's ability to illuminate factors that may place a child/adolescent at risk of developing conduct problems; however, evidence for the validity of this scale are missing in the literature. The goal of the current study is to provide evidence for the structural validity of this scale. To do this, confirmatory factor analysis (CFA) will be used to analyze the latent structure of the instrument to determine if the proposed factor loadings are appropriate.

CHAPTER III

STUDY ONE

The Burns Brief Mood Survey: An Exploration of Factor Structure

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Abstract

The link between mental illness and delinquency has been well documented in the literature. It is imperative for clinicians to accurately identify and diagnose psychological disorders, especially when working with detained clients. In order to assess for the presence of symptoms associated with mental illness, structured questionnaires such as the Burns Brief Mood Survey (BMS) are often utilized. The BMS is a self-report questionnaire intended to measure five aspects of mood associated with pathology. The purpose of this study is to provide initial psychometric evidence for the structural validity of the BMS for the adolescent offender population. While the results provide evidence for a five factor structure, the individual item loadings do not follow the hypothesized structure.

The Burns Brief Mood Survey: An Exploration of Factor Structure

The link between mental illness and delinquency as well as the predictive ability of mental illness on offending are areas that have received considerable attention in the literature (e.g. Chitsabesan et al, 2006; Dixon et al, 2004). These relationships become more salient due to the diagnostic frequency of Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD) in children (Webster-Stratton, 1998). Understanding the link between mental illness and delinquency will allow clinicians working with youths in juvenile justice settings to develop treatments that will minimize the risk of reoffending and acting out behaviors. The first step in this process is to identify youth exhibiting mental health related issues in these settings.

Literature has suggested that the use of self-help products may be useful for the identification and treatment of mental disorders such as depression (Richardson, Richards, & Barkham, 2005). One instrument that may be useful for this task is the Burns Brief Mood Survey (BMS). David D. Burns is well known in the self-help literature. In fact, his book *Feeling good – the new mood therapy* (Burns, 1999) is one of only two self-help books that has been subjected to randomized controlled trials to determine it's efficacy (Anderson et al, 2005). Due to this evidence, it stands to reason that utilizing the BMS with a clinical population may be of considerable use for clinicians attempting to diagnose and treat a range of pathology.

The BMS was developed to assess for the presence of emotional and behavioral symptoms that have been demonstrated to be related to delinquency. These symptoms are thought to be associated with five overarching constructs, each with a strong base in the literature. These constructs are: Depression (Wiesner & Kim, 2006; Heaven, Newbury, & Mak, 2003), Suicidal Urges (Suk et al, 2009), Anxiety (Dolan & Rennie, 2006; Nebbit, Lombe, & Williams, 2008; Kubak & Salekin, 2009), Anger (Colder & Stice, 1998; Cornell, Peterson, &

Richards, 1999), and Positive Feelings (Carr & Vandiver, 2001). The first four of these have been demonstrated to be positively correlated with delinquency, while the latter has been shown to be negatively related.

The BMS is divided into five sections, each of which presents a set of questions or symptoms associated with the construct intended to measure. These sections are as follows:

- *Depression* (5 items): Examples of items on this subscale include: "Sad or down in the dumps," and "Discouraged or hopeless"
- *Suicidal Urges* (2 items): Examples of items on this subscale include: "Do you have any suicidal thoughts?" and "Would you like to end your life?"
- *Anxiety* (5 items): Examples of items on this subscale include: "Anxious" and "Worrying about things"
- *Anger* (5 items): Examples of items on this subscale include: "Frustrated" and "Resentful"
- *Positive Feelings* (10 items): Examples of items on this subscale include: "I feel worthwhile" and "I feel close to people"

While the constructs the BMS intends to measure have proven to be related to delinquency, evidence for this scale's validity with the adolescent offender population is not present. The purpose of this study is to provide evidence for the structural validity of the BMS with this unique population. It is hypothesized that the results will confirm the current factor structure of the instrument. To accomplish this, exploratory factor analysis will be utilized to obtain the factor structure and estimates of factor loadings. This type of exploratory analysis will allow variables to demonstrate loading patterns that may be different from those hypothesized, and could illuminate the presence of factors unique to this population.

Methods

Participants

The BMS was administered to 171 adolescents currently detained in one of seven Youth Development Centers in the state of Georgia. The individuals were asked to complete the survey as part of a mental health screening.

The current sample is made up predominately of males (94.9%), who range in age from 14 to 19.5 years (M = 16.53, s.d.= 1.35). A breakdown of ethnic differences demonstrates that the sample is largely African American (83.1%), followed by Caucasian (16.9%).

Instruments

Burns Brief Mood Survey. The Burns Brief Mood Survey is a 27 item questionnaire intended to provide clinicians with estimates of emotional functioning across five domains. Those domains include: Depression, Suicidal Urges, Anxiety, Anger, and Positive Feelings. The items are placed on a 5 point Likert scale ranging from 0 (Not at all) to 4 (Extremely). The psychometric properties of this scale are largely missing from current literature; however values for Chronbach's Alpha for the proposed subscales on the current sample are as follows: Depression (.868), Suicidal Urges (.630), Anxiety (.829), Anger (.850), and Positive Feelings (.925). As previously mentioned, evidence for the construct validity of this scale is lacking but examination of individual items demonstrates strong face validity for each subscale.

Procedure

This research was conducted within several youth development centers across the state of Georgia. The data were screened for outliers, and fifteen individuals were removed from the study due to values of Mahalanobis distance greater than the established critical value ($F_{27, 132}$ =

53.48). Surveys with missing values (n = 10) were also excluded from the analysis through listwise deletion. Descriptions of the data (N=146) are included in Table 3.1.

TABLE 3.1

Burns Brief Mood Survey Descriptive Statistics

Variable	Mean	S.D.	Skewness	Kurtosis
ITEM1	.83	1.110	1.378	1.188
ITEM2	.68	1.043	1.674	2.294
ITEM3	.55	1.001	2.067	3.688
ITEM4	.36	.847	2.958	8.936
ITEM5	.68	1.087	1.718	2.223
ITEM6	.15	.481	3.592	13.405
ITEM7	.14	.523	4.845	26.778
ITEM8	.80	1.232	1.506	1.129
ITEM9	.35	.807	2.469	5.582
ITEM10	1.71	1.423	.240	-1.254
ITEM11	.92	1.271	1.213	.277
ITEM12	.84	1.169	1.317	.796
ITEM13	1.28	1.323	.724	-.667
ITEM14	1.09	1.159	.735	-.575
ITEM15	.64	1.083	1.629	1.695
ITEM16	1.33	1.315	.569	-.878
ITEM17	.80	1.197	1.405	.840
ITEM18	2.16	1.465	-.072	-1.404
ITEM19	1.95	1.418	.051	-1.303
ITEM20	2.69	1.350	-.679	-.775
ITEM21	2.75	1.325	-.697	-.763
ITEM22	2.38	1.372	-.184	-1.309
ITEM23	2.31	1.416	-.206	-1.348
ITEM24	2.12	1.416	-.152	-1.283
ITEM25	2.32	1.321	-.228	-1.116
ITEM26	2.12	1.466	-.078	-1.405
ITEM27	2.83	1.385	-.784	-.802

Examination of the descriptive statistics illuminates some problematic variable distributions. Values for skew and kurtosis greater than |2| are considered to indicate a non-normal distribution of responses. Items 3, 4, 6, 7, and 9 demonstrate values for skew and kurtosis outside of this cutoff, while items 2 and 5 are highly kurtotic. Examination of the individual items may illuminate possible reasons for these values.

Items 6 and 7 are meant to determine suicidal thoughts or intent. This type of extreme circumstance is expected to have a low base rate, and could explain the problematic distributions for these items. Items 2, 3, 4, and 5 are intended to measure levels of hopelessness, low self-esteem, worthlessness, and loss of satisfaction in life. The response patterns for these items may be due to several causes. Many of the individuals may lack the pathology measured by these items. Alternatively, it could be that individuals are responding in a way that they feel is desirable or to avoid certain consequences. It should be noted that individuals in detention who exhibit behaviors and attitudes that demonstrate a potential risk to themselves or others are given accommodations such as 24 hour surveillance and loss of certain bedding supplies that could be used to assist suicide attempts. These consequences could be seen as undesirable to the individuals and may motivate them to respond in a way that does not endorse depressive symptomatology. Item 9 is intended to measure an individual's level of fear. The tendency for low responses on this item may be indicative of the stigma associated with admission to fear while in detention. Respondents may feel at risk for victimization if levels of fear are admitted and discussed.

Results

Exploratory factor analysis utilizing the Principal Axis Factoring extraction method was used to analyze the data. This method was chosen due to its ability to identify the underlying theoretical constructs in a set of variables. It should also be noted that Tinsley and Tinsley (1987) suggested the use of principle axis factoring when in the initial stages of instrument development. While this instrument has been published, its use with the adolescent offender population has not yet been validated; therefore, it is important to identify items that may be problematic with this population through the use of exploratory techniques.

The items developed for this scale are intended to measure psychological constructs theoretically derived from the presence of specific behavioral and emotional symptoms. The factors were rotated using the Direct Oblimin procedure. This procedure was chosen because of its tendency to minimize cross loadings and to allow factors to correlate. This decision is consistent with previous researchers who suggest the use of oblique rotation methods (Comrey & Lee, 1983; MacCallum & Preacher, 2002).

The number of factors to extract was determined through examination of the eigenvalues, scree plot, and parallel analysis. Results of all these methods indicated extracting a five factor model. This was consistent with the hypothesized model previously discussed. Figure 3.1 represents the scree plot of eigenvalues, and Table 3.2 presents the initial eigenvalues, the sums of squared loadings, and percent of variance accounted for by each factor.

FIGURE 3.1

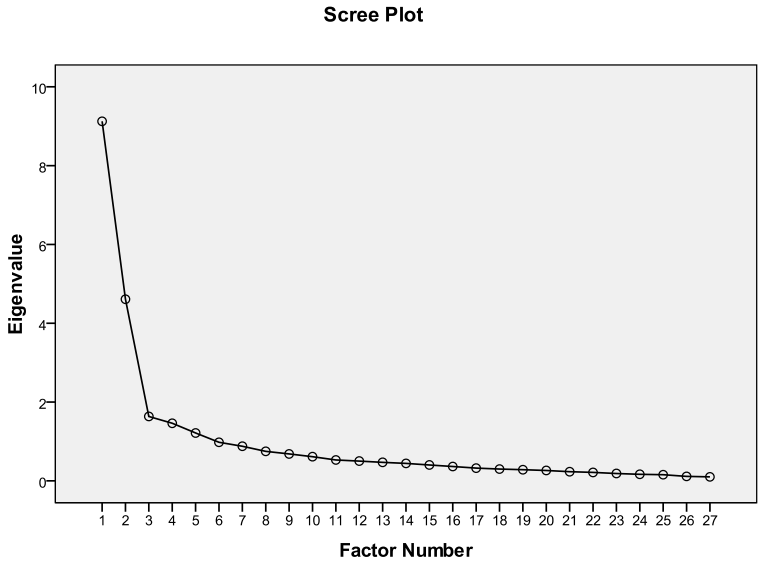

TABLE 3.2: *Initial Eigenvalues*

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.125	33.795	33.795	8.750	32.409	32.409
2	4.609	17.072	50.867	4.203	15.566	47.974
3	1.635	6.055	56.921	1.258	4.661	52.635
4	1.462	5.413	62.335	1.085	4.017	56.652
5	1.214	4.498	66.833	.831	3.077	59.728
6	.979	3.624	70.457			

As can be seen in Table 3.2, this five factor solution accounts for 59.73% of the total variance for the scale. The amount of variance in each variable accounted for by the extracted factors is represented in Table 3.3. These communality values demonstrate an acceptable amount of variance in each item accounted for by the factors.

TABLE 3.3

Item Communalities

Variable	Initial	Extraction
ITEM1	.626	.561
ITEM2	.802	.743
ITEM3	.630	.620
ITEM4	.550	.488
ITEM5	.647	.620
ITEM6	.530	.730
ITEM7	.418	.370
ITEM8	.595	.511
ITEM9	.634	.634
ITEM10	.653	.542
ITEM11	.714	.657
ITEM12	.735	.804
ITEM13	.697	.672
ITEM14	.570	.413
ITEM15	.615	.509

ITEM16	.705	.747
ITEM17	.692	.588
ITEM18	.576	.478
ITEM19	.553	.436
ITEM20	.524	.406
ITEM21	.720	.684
ITEM22	.666	.624
ITEM23	.704	.680
ITEM24	.798	.793
ITEM25	.741	.682
ITEM26	.756	.653
ITEM27	.618	.484

Factor loadings from the pattern matrix, as determined by SPSS 17.0, are presented in Table 3.4. Factor loadings with values over .400 were considered to significantly contribute to each factor. Examination of the factor loadings demonstrates a very good simple structure. Each factor has multiple loadings, has a set of variables with near zero loadings, has a different pattern of loadings, and has no cross loading items.

TABLE 3.4

Factor Loadings

	Factor				
	1	2	3	4	5
ITEM16	.958	-.081	.113	-.052	-.117
ITEM13	.693	-.054	-.103	.068	.076
ITEM17	.684	.116	-.086	.045	.069
ITEM15	.630	.019	-.122	.066	-.012
ITEM8	.582	.096	.025	.081	.243
ITEM14	.538	-.097	-.149	-.083	.023
ITEM10	.415	-.023	-.119	.164	.293
ITEM24	-.043	.837	.226	.016	.163
ITEM23	-.101	.823	-.053	-.026	.061
ITEM25	-.070	.784	-.017	-.080	-.030
ITEM22	-.037	.762	.071	-.045	.075
ITEM26	-.199	.742	-.032	-.047	-.036
ITEM27	.079	.722	.033	.096	.086
ITEM21	-.053	.703	.048	-.082	-.198
ITEM18	-.037	.639	-.062	.027	-.208

ITEM20	.121	.629	-.079	-.022	-.094
ITEM19	.137	.615	.062	-.106	-.008
ITEM3	.000	-.043	-.753	-.149	.097
ITEM5	.017	-.002	-.730	.140	.013
ITEM4	.070	-.023	-.697	-.007	-.120
ITEM2	-.015	.000	-.693	.211	.209
ITEM1	.086	-.021	-.633	-.029	.136
ITEM6	.056	.027	-.097	.829	-.100
ITEM7	-.018	-.156	.057	.561	.000
ITEM12	.107	-.066	-.139	.013	.757
ITEM9	.053	-.090	-.113	-.178	.707
ITEM11	.186	-.018	-.192	.283	.480

The above solution yielded a distinct five factor model. Examination of the individual items per factor supports this conclusion, and each factor seems to measure a unique construct. Factor one included items that attempt to measure an individual's level of Anger. Items that load on this factor assess levels of frustration, annoyance, anger, anxiety, and worry. Factor two provides a measure of Positive Feelings, and includes items to assess feelings of worth, attachments, enjoyment, and hopefulness. Factor three, Depression, includes items that measure whether an individual is sad, hopeless, or lacks pleasure in life. Similar to factor three, items intended to assess Suicidal Urges are located on the fourth factor. Finally, the fifth factor seems to provide a measure of an individual's Fearfulness; with items assessing fear, nervousness, or feeling on edge. The resulting factors have values of internal consistency as follows: Anger (.879), Positive Feelings (.925), Depression (.868), Suicidal Urges (.630), and Fearfulness (.799).

Discussion

The intent of this study was to provide evidence for the structural validity of the BMS that has previously been lacking in the literature. It is imperative for clinicians utilizing the BMS to have an understanding of the results of this evaluation in order to appropriately interpret the data gathered from the instrument. The adolescent offender is a unique population that presents many challenges and barriers to treatment. While the BMS did not factor as hypothesized,

analysis of the instrument resulted in a distinct factor structure that will provide invaluable information on the presence of psychological constructs related to delinquency.

While the results supported a five factor solution, the resulting factor structure yielded a surprising finding. Three of the factors demonstrated the hypothesized loadings (Depression, Suicidal Urges, and Positive Feelings); however, the hypothesized Anxiety and Anger constructs did not factor as expected. Two items initially intended to measure differing aspects of anxiety were shown to load with the items intended to measure levels of anger. The resulting structure changed the definitions of these two factors. While the Anger factor still remains intact, it also appears to encompass some level worry associated with the angry feelings.

The three remaining items initially intended to measure anxiety are primarily focused on levels of fear. Individuals who are *afraid, nervous*, or are *tense and feeling on edge* endorse the items on this factor. While these are symptoms of anxiety, it is difficult to qualify someone as anxious or indicate they have an anxiety disorder based on these items. Therefore, this factor can be better understood as measuring Fearfulness. Therefore, when assessing the validity of this instrument with the adolescent offender population, this instrument's structure may need to be redefined. Results of this analysis provide evidence for five distinct factors that appear to measure Depression, Suicidal Urges, Anger, Fearfulness, and Positive Feelings.

A possible limitation of this study is that it utilized a self report measure, and as previously mentioned some participants may have responded in a way that they feel would be more socially desirable or to avoid some consequence. Another limit to this study is that the respondents were currently placed on the mental health case load at the detention facilities and were participating in some form of treatment. This will make the results difficult to generalize to

the population of detained adolescents because the majority is not receiving mental health treatment.

While the factor structure of the Burns Brief Mood Survey may not match the stated hypothesis, the results suggest a moderately reliable scale that may produce factors that research has demonstrated to be predictive of delinquency. Future research is needed for this scale to reach its potential efficacy. These results need to be cross-validated with further factor analytic research, such as confirmatory factor analysis. Additionally, the constructs that appear to be measured by this scale need further validation through correlational, known groups, or case study analysis. If these further analyses are able to provide evidence for the validity of this scale, it will prove to be extremely useful in predicting acting out or potentially harmful behaviors, and tracking treatment efficacy with the adolescent offender population.

CHAPTER IV

STUDY TWO

The Juvenile Offender Parent Questionnaire: A Structural Validation Study

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Abstract

Parental contributors to adolescent delinquency are a topic that has been well documented in the literature (Hoeve, Dubas, Eichelsheim, van der Laan, Smeenk, & Gerris, 2009). Due to this evidence, it is of paramount importance that clinicians develop valid instruments in order to assess specific parent attributes that either positively or negatively affect their child's behavior. In an attempt to address some of the concerns by previous research, Rose, Glaser, Calhoun, & Bates (2004) developed the Juvenile Offender Parent Questionnaire (JOPQ) to assess specific attitudes of the parents of juvenile offenders. The goal of the current study is to provide evidence for the structural validity of this scale. To do this, confirmatory factor analysis (CFA) will be used to analyze the latent structure of the instrument to determine if the proposed factor loadings are appropriate. Data analysis indicates that the model does have an adequate level of fit, providing cross validation for the original exploratory model. Model modifications and clinical implications are also discussed.

The Juvenile Offender Parent Questionnaire: A Structural Validation Study

Parental contributors to adolescent delinquency are a topic that has been well documented in the literature (Hoeve, Dubas, Eichelsheim, van der Laan, Smeenk, & Gerris, 2009). While much of the literature regarding the assessment of antisocial behaviors has focused on characteristics of the child, there is a strong association of family variables with childhood antisocial behavior (Kazdin, 1994). These issues remain especially important due to the diagnostic frequency of Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD) in children, particularly those from low-income welfare families (Webster-Stratton, 1998). Due to this evidence, it is of paramount importance that clinicians develop valid instruments in order to assess specific parent attributes that either positively or negatively affect their child's behavior.

Current literature suggests several possible factors that contribute to adolescent conduct problems in the home, school, and community. McCabe, Lucchini, Hough, Yeh, & Hazen (2005) demonstrated that exposure to violence in the home and community each contribute independently to issues with conduct in adolescence. The notion of child exposure to violence is a topic that has been well documented in the literature. Kracke & Hahn (2008) discuss some of the detrimental effects this exposure can have on the behavioral development in children, and discuss the necessity for further research on this topic. Obtaining an accurate understanding of the level of and type of violence that children have been exposed will aid clinicians in understanding the etiology of problematic behaviors.

Several family and parenting factors have been found to be predictive of conduct problems in children, even at an early age. Webster-Stratton (1998) describes family characteristics such as low income, low education, teenage pregnancy, level of stress, isolation,

single parenthood, parental psychiatric illness, parental criminal history, substance abuse, marital discord, and depression as possible factors that place a child at risk for developing conduct problems. Additionally, research has suggested a link between parental involvement and monitoring with the development of delinquency in children and adolescents (Shaw, Dishion, Supplee, Gardner, & Arnds, 2006). Frick et al (1992) found that maternal supervision and persistence in discipline, in addition to paternal antisocial personality disorder and substance abuse were predicting factors in the development of oppositional defiant disorder and conduct disorder in boys. A more recent study assessed parental work schedules and the existence of risky behaviors in adolescents (Han, Miller, & Waldfogel, 2010). Through the use of structural equation modeling, these researchers demonstrated the relationship between work schedules that limit the parent's ability to monitor their child (e.g. working at night) and the presence of risky behaviors.

In addition to the detrimental effects that negative parenting can have on children, positive parenting can also serve as a protective factor. Effective boundary setting in the home, respect for the child's individuality, family stability, parental expectations of academic performance, and a home environment free from chronic abuse have been found to contribute to positive behavioral and school performance (Herrenkohl, 1994). Previous research clearly indicates that parents, parenting styles, and parental involvement have a profound effect on behaviors in children and adolescents (Joussemet, 2008; Gardner, 2007; Shaw, 2006).

A possible barrier to this protective influence is the parent's level of fear of their child. Parental abuse is a topic that has received limited exposure, but is becoming illuminated in recent research. According the U.S. Department of Justice (2009) 52% of victims of violence over age 30 were either the offender's parent or stepparent. In crimes committed by juveniles, family

members accounted for 28% of victims of sexual assault and 24% of victims of simple assault. Kennedy, Edmonds, Dann, & Burnett (2010) found that juveniles who assault their parents typically do not come from intact homes, and have difficulties relating to their parents and household members. Additionally, they are significantly more likely to associate with peers who own guns and are in gangs. These factors may lead parents to feel afraid of their own children, and feel as though they are prisoners in their own homes; which would hinder their ability to provide effective parenting practices.

Finally, another factor salient to the understanding of parenting influences on adolescent offenders is level of trust of the justice system. Sprott & Greene (2010) examined this issue and determined that initial perceptions of the legitimacy of the justice system and views of the judge and lawyers significantly affected an offender's final view of the legitimacy of the court setting. Other studies have suggested that individual's who feel unfairly sanctioned can lead to defiance and increased likelihood of future offending (Sherman, 1993; Piquero, Gomez-Smith, & Langton, 2004). These data suggest that an offender's view of legal authorities have significant implications on future behaviors. From this, it can be assumed that a parent's level of mistrust or disdain for the legal system may influence the child's perceptions and lead to behaviors in defiance of the court sanctions.

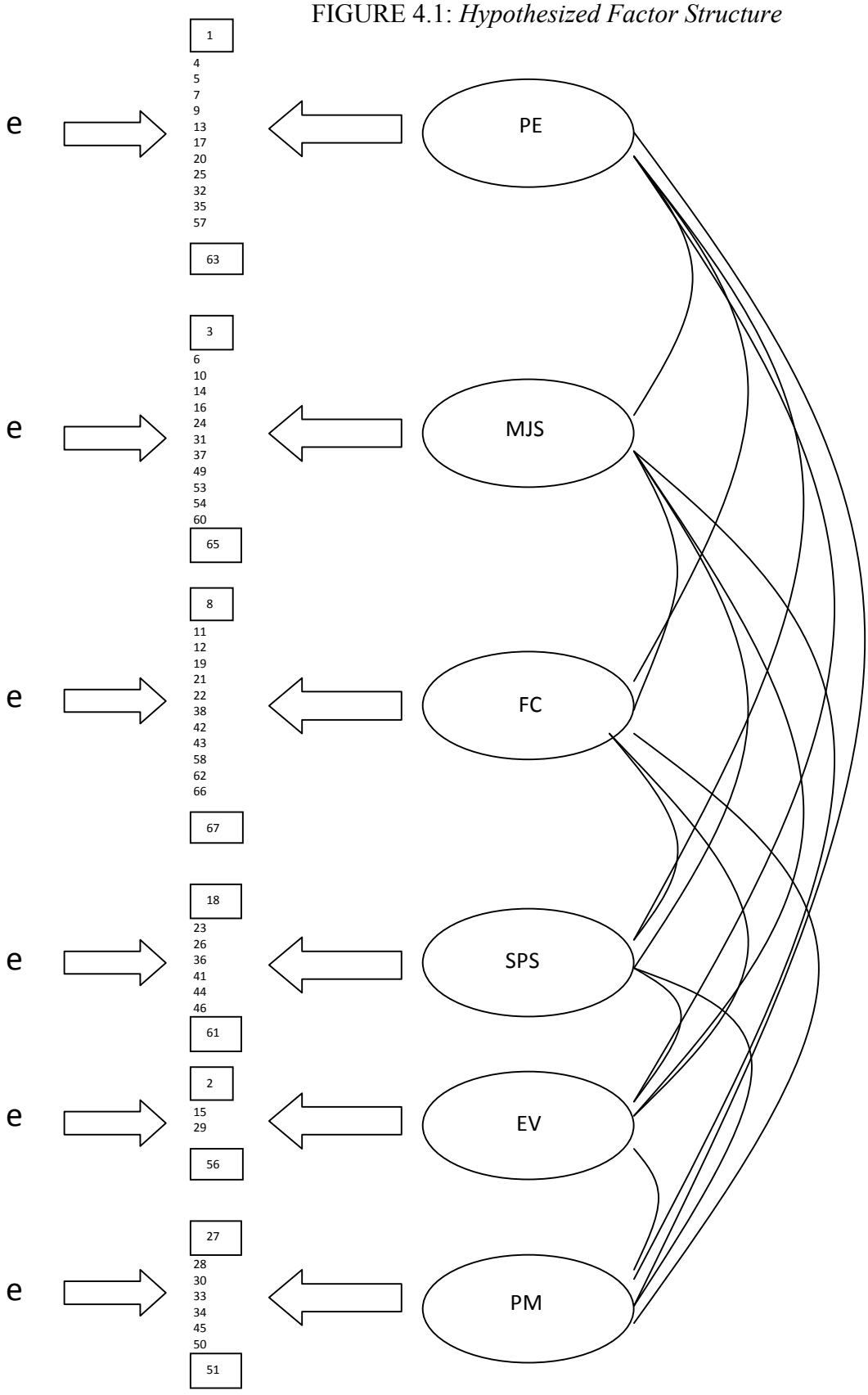
In an attempt to address some of the concerns raised by studies such as the ones already listed, Rose, Glaser, Calhoun, & Bates (2004) developed the Juvenile Offender Parent Questionnaire (JOPQ) to assess specific attitudes of the parents of juvenile offenders. Exploratory factor analysis with Principal Axis Factoring was used to evaluate the structure of the JOPQ, and yielded a seven factor structure (six clinical scales and one validity scale). The factors are explained as follows and sample items are presented in Table 4.1 (Rose, 2004):

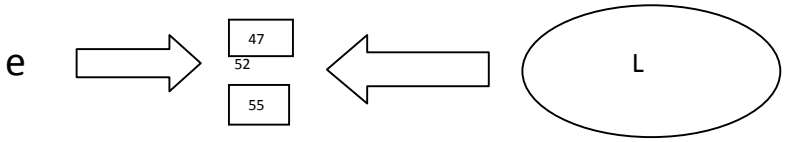
1. *Exasperation in Regard to the Child (PE):* Reported to measure a parent's hopelessness, frustration, resignation, and/or readiness to give up on their child.
2. *Mistrust of the Juvenile Justice System (MJS):* Items focus on court, probation officers, police, the judge, and the system as a whole to provide a measure of trust (or lack thereof) that a parent may have concerning their child's involvement in the justice system.
3. *Fear of the Child (EV):* Items on this factor are reported to measure the parent's fear of some kind of physical violence being perpetrated upon them by their child.
4. *Shame over Parenting Self-Efficacy (SPS):* Self efficacy refers to the degree to which the parent feels competent in raising their child. Items on this factor are reported to measure feelings of shame, humiliation, embarrassment, and discouragement in regards to their perceived ability to raise their children.
5. *Parent Perceptions of the Child's Exposure to Violence (EV):* Items on this factor are intended to measure the parent's perception of the amount of violence the child has been exposed.
6. *Parental Monitoring (PM):* This factor is intended to illuminate the parent's level of monitoring the child's behavior in the home, school, and community environments.
7. *Lie (L):* These items are intended to measure infrequently endorsed responses, and illuminate possible validity problems on individual administrations.

TABLE 4.1: *Proposed Factors and Sample Items*		
Scale	Sample Item	No. of Items
Exasperation in Regard to the Child	I feel like giving up on my child.	13
Mistrust of the Justice System	The court is out to get my child	13
Shame Over Parenting Self-Efficacy	Sometimes I feel like a horrible person for not raising my child better.	8
Parental Monitoring	I never know what my child is doing from day to day.	8
Fear of the Child	Sometimes I am afraid of my child.	13
Parent Perceptions of the Child's Exposure to Violence	The violence in our community has been a bad influence on my child.	4
Lie/Infrequency	I am the inventor of the Ford automobile.	3

The clinical utility of the JOPQ can be understood in terms of it's ability to illuminate factors that may place a child/adolescent at risk of developing conduct problems; however, evidence for the validity of this scale are missing in the literature. The goal of the current study is to provide evidence for the structural validity of this scale. To do this, confirmatory factor analysis (CFA) will be used to analyze the latent structure of the instrument to determine if the proposed factor loadings are appropriate. Figure 4.1 demonstrates the hypothesized factor loadings for the scale.

FIGURE 4.1: *Hypothesized Factor Structure*





Methods

Participants

The JOPQ was administered to 327 parent(s)/guardian(s) of children who were court referred to receive counseling services. The instrument is completed as part of the general clinical intake. These intakes were primarily completed in the juvenile court facilities of a midsized southeastern city.

The majority of respondents were female (87.4%) compared to males (12.6%) and self reported as African American (86.3%), Caucasian (10%), Hispanic/Latino (2.5%), and not reported (1.3%). When asked to report their relationship to the child, 77% responded mother, 12.6% father, 6.9% grandmother, and 3.4% guardian. Ages of the children ranged from 8 to 17 years, and included 54.7% males and 45.3% females.

Instruments

The Juvenile Offender Parent Questionnaire (JOPQ). The JOPQ is a 67 item questionnaire designed to provide a profile for parents of juvenile offenders across 6 factors. Items are placed on a Likert scale, with the response set being: completely false = 1, mostly false = 2, mostly true = 3, and completely true = 4. A copy of the instrument is included as Appendix A. The factors are labeled as Exasperation in Regard to the Child, Mistrust of the Juvenile Justice System, Shame Over Parenting Self-Efficacy, Parental Monitoring, Fear of the Child, and Parent Perceptions of Child's Exposure to Violence (Rose, 2004). The Cronbach alphas for these scales are as follows: Exasperation in Regard to the Child (.92); Mistrust of the Juvenile

Justice System (.82); Shame over Parenting Self-Efficacy (.71); Parental Monitoring (.83); Fear of the Child (.92); Parent's Perception of the Child's Exposure to Violence (.82). These reliability scores support the homogeneity of the scales, and demonstrate a modest to adequate reliability of the total scale. Also included in the JOPQ is a Lie/Infrequency (.31) scale which is intended to measure infrequently endorsed responses and illuminate invalid response patterns. As previously mentioned, aside from the original exploratory factor analysis, evidence for the validity of this scale is missing from the literature.

Procedure

The research was conducted within the juvenile court setting of a midsized southeastern city. The participants completed the assessment as part of a clinical intake for counseling services. All of the youths were court ordered to receive counseling services, and both the child and the parent were provided an Institutional Review Board approved informed consent form. The parents were then asked to complete the JOPQ. The data were screened for outliers and none were detected, and questionnaires with missing values (n = 79) were excluded from the analysis through listwise deletion. The value of the relative multivariate kurtosis (1.107) indicates approximate multivariate normality of the instrument. Descriptions of the data (N=248) are included in Table 4.2.

TABLE 4.2

Juvenile Offender Parent Questionnaire Descriptive Statistics

Variable	Mean	S.D.	Skewness	Kurtosis
ITEM1	1.802	1.036	0.932	-0.515
ITEM2	1.988	1.067	0.589	-1.032
ITEM3	1.444	0.751	1.670	2.068
ITEM4	1.758	0.985	0.912	-0.533
ITEM5	1.782	1.038	1.016	-0.337
ITEM6	3.407	0.819	-1.457	1.664
ITEM7	1.536	0.921	1.552	1.135
ITEM8	3.177	1.163	-1.035	-0.513
ITEM9	2.339	1.152	0.127	-1.445
ITEM10	1.298	0.610	2.214	4.870

ITEM11	2.839	0.881	-0.575	-0.238
ITEM12	1.310	0.717	2.579	6.200
ITEM13	2.343	1.224	0.122	-1.594
ITEM14	1.250	0.605	2.912	9.102
ITEM15	2.073	1.111	0.481	-1.212
ITEM16	1.246	0.623	3.006	9.367
ITEM17	1.702	0.969	1.086	-0.114
ITEM18	3.613	0.694	-2.099	4.595
ITEM19	1.492	0.922	1.805	1.994
ITEM20	1.633	0.981	1.284	0.272
ITEM21	1.956	0.936	0.566	-0.734
ITEM22	1.238	0.658	3.055	8.927
ITEM23	1.722	1.002	1.093	-0.144
ITEM24	1.613	0.888	1.192	0.377
ITEM25	1.851	1.048	0.855	-0.645
ITEM26	1.673	0.897	1.066	0.000
ITEM27	2.230	1.256	0.373	-1.532
ITEM28	2.298	1.034	0.263	-1.082
ITEM29	3.129	1.131	-0.967	-0.578
ITEM30	2.415	1.124	0.144	-1.352
ITEM31	1.867	1.043	0.874	-0.548
ITEM32	2.109	0.948	0.298	-0.994
ITEM33	2.290	1.151	0.265	-1.377
ITEM34	2.335	1.223	0.208	-1.505
ITEM35	1.762	0.946	0.984	-0.148
ITEM36	3.460	0.641	-0.962	0.702
ITEM37	1.758	1.009	1.073	-0.131
ITEM38	1.355	0.797	2.276	4.143
ITEM39	2.641	1.122	-0.262	-1.299
ITEM40	2.024	1.049	0.503	-1.087
ITEM41	2.177	1.054	0.247	-1.260
ITEM42	1.306	0.716	2.537	5.861
ITEM43	1.423	0.910	2.017	2.639
ITEM44	3.770	0.492	-2.484	7.861
ITEM45	2.657	1.224	-0.215	-1.545
ITEM46	1.351	0.669	1.992	3.572
ITEM47	2.827	1.346	-0.433	-1.654
ITEM48	2.230	1.106	0.223	-1.352
ITEM49	1.625	0.931	1.360	0.732
ITEM50	2.274	1.086	0.297	-1.204
ITEM51	2.323	1.163	0.265	-1.395
ITEM52	1.016	0.179	6.815	74.797
ITEM53	1.472	0.824	1.643	1.647
ITEM54	1.702	0.994	1.152	0.112
ITEM55	1.028	0.228	10.345	122.899
ITEM56	2.617	1.232	-0.194	-1.565
ITEM57	1.919	1.110	0.787	-0.854
ITEM58	1.492	0.886	1.714	1.771
ITEM59	2.871	1.068	-0.483	-1.039
ITEM60	3.395	0.847	-1.500	1.707
ITEM61	3.782	0.442	-2.077	5.604
ITEM62	1.230	0.642	3.169	9.853
ITEM63	2.907	0.946	-0.537	-0.597
ITEM64	2.887	0.996	-0.714	-0.473
ITEM65	3.347	0.810	-1.220	1.043
ITEM66	1.823	1.061	0.934	-0.541
ITEM67	1.246	0.742	3.047	8.029

Investigation of the data reveals some possible concerns with individual items. Kline (2005) recommends cut off values of |3| for skewness, and |8| for kurtosis. Using these values, it can be seen that items 16, 22, 52, 55, 62, and 67 have skewness values outside of the recommended cut off; while items 14, 16, 22, 52, 55, 62, and 67 have kurtosis values outside the recommended cut off as well. Examination of these items illuminates possible explanations for some of these concerning values. High values for skew and kurtosis for items 52 and 55 are to be expected since these items are used in the lie scale to illuminate random endorsement of items. Items 22, 62, and 67 are reported to load to the Fear of the Child factor (Rose, 2004), and seem to be worded as critical items. Endorsement may indicate impending danger to the parent, which could require immediate clinical intervention. Because of this, the response patterns seem logical. Rates of parental abuse by their children have been reported to range from 5% (Evans & Warren-Solberg, 1988) to 29% (Livingston, 1986); therefore, the base rate of respondents who are in danger of this type of abuse may be quite low. These rates suggest that the majority of respondents would endorse these items as either mostly or completely false. Items 14 and 16 are both reported to load to the Mistrust of the Juvenile Justice System factor, and may have been affected by environmental variables. As noted earlier, each of the families are referred for counseling services by either juvenile court of the Department of Juvenile Justice (DJJ). The JOPQ is completed by the parent during the intake session, which is often completed at the juvenile court. These variables may make it difficult for the family to see the counselor separate from the juvenile justice system, which could impact the way the parents respond to the instrument.

Results

The initial model tested by this researcher included the six clinical scales listed above, with the exclusion of the lie scale due to it's hypothesized lack of relationship with other factors in the model. However; upon consultation with a reviewer, the model was then tested with the inclusion of the lie scale. Due to the lack of variance of the lie scale items, the model would not converge and resulted in a nonpositive definite Theta Delta matrix. These results support the initial hypothesis, and the lie scale items were removed from the final analysis. The results discussed below are inclusive of only the six clinical scales.

Maximum likelihood estimation was used in this CFA model for parameter estimation. This method was chosen due to the acceptable level of multivariate normality, and the unbiased, consistent, and efficient estimates it produces. Also, due to the limited sample size of the current study, Hu & Bentler (1998) suggest utilizing this estimation method to minimize errors in the calculation of the fit indexes. The hypothesized CFA model was analyzed using LISREL 8.71 (Jöreskog & Sörbom, 1993), with a covariance matrix generated by PRELIS 2.71 (Jöreskog & Sörbom, 1996). No irregularities were noted in the analysis.

The fit indexes chosen in this analysis include the chi-square statistic (χ^2), the Comparative Fit Index (CFI), the Non-Normed Fit Index (NNFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). These fit indices were chosen due to the suggestions of previous literature and their sensitivity to model misspecification (Hu, 1998). A significant chi-square statistic indicates that the estimated covariance matrix produced by the hypothesized model differs significantly from the original covariance matrix, indicating a lack of model fit. Hu & Bentler (1998; 1999) recommend cutoff values of .95 or higher for the CFI and NNFI, .06 or less for the RMSEA, and .09 or less for the SRMR. In addition to the fit indexes list above, inspection of the standardized residuals will also

be utilized to determine appropriate model fit. Standardized residual values greater than |2| are considered to be problematic, and approximately 20% or more problematic residuals provide evidence for model misspecification.

Interpretation of the values of the fit indexes provides mixed results. The values for the RMSEA (.061; 90% C.I. = .058, .064) and the SRMR (.084) indicate good fit for the CFA model; while the values for the CFI (.93) and the NNFI (.93) fall slightly below the suggested cut off. The chi-square statistic ($\chi^2 = 3102.28$; $p = 0.0$) supports the conclusion for lack of model fit; however, the problem of relatively well fitting models being rejected by the chi-square statistic has been well documented in the literature (Bentler & Bonett, 1980; Gerbing & Anderson, 1993; Marsh, Balla, & McDonald, 1988). Inspection of the standardized residuals does provide additional evidence for good overall model fit. While some problematic values were noted (largest positive = 5.90; largest negative = -5.44), these accounted for less than 10% of all residuals. This indicates that over 90% of the reproduced covariances were not significantly different from their original values.

In addition to fit indexes, it is also important to examine path values for each factor. Parameter values, standard errors, t-values, error variance, and R^2 per factor are included in Table 4.3. While the majority of the path values do not seem problematic, some of the values are concerning. Of particular concern are item 60 ($R^2 = .097$) and item 36 ($R^2 = .055$). In addition, the proportion of factor variance explained by items 8, 17, 18, 31, 36, 44, and 61 appear to be very low. These values may indicate that these items are not very highly related to the factors where they are expected to load. Aside from these items, the R^2 values for the remainder of the indicator variables demonstrate an acceptable proportion of explained factor variance.

Additional analysis reveals significant t-values for each item, $p(T > 2.6) = .01$; however, this is not uncommon for CFA models.

TABLE 4.3: *Path Values per Factor*

Factor	*Item*	*Factor Loading*	*S.E.*	*t-value*	*Error Variance*	R^2
Parental Exasperation	1	.81	.056	14.30	.42	.60
	4	.64	.057	11.23	.56	.42
	5	.76	.058	13.01	.51	.53
	7	.68	.051	13.35	.38	.55
	9	.65	.069	9.39	.90	.32
	13	.88	.069	12.85	.72	.52
	17	.74	.053	14.01	.39	.59
	20	.75	.054	13.92	.40	.58
	25	.74	.059	12.49	.55	.50
	32	.54	.057	9.45	.61	.32
	35	.71	.052	13.72	.38	.57
	57	.79	.063	12.60	.61	.51
	63	-.46	.058	-7.97	.68	.24
Mistrust of the Juvenile Justice System	3	.41	.047	8.68	.56	.30
	6	-.44	.052	-8.36	.48	.28
	10	.40	.037	10.84	.21	.43
	14	.33	.038	8.47	.26	.29
	16	.40	.038	10.42	.23	.41
	24	.42	.058	7.28	.61	.22
	31	.45	.068	6.58	.89	.19
	37	.49	.065	7.47	.78	.23
	49	.63	.056	11.19	.47	.45
	53	.43	.053	8.11	.50	.27
	54	.53	.063	8.35	.71	.28
	60	-.26	.057	-4.64	.65	.097
	65	-.44	.051	-8.54	.46	.29
Fear of the Child	8	.41	.074	5.54	1.18	.13
	11	.52	.052	9.97	.50	.35
	12	-.57	.039	-14.54	.20	.62
	19	-.65	.052	-12.41	.43	.50
	21	-.50	.057	-8.79	.63	.29
	22	-.52	.035	-14.79	.16	.64
	38	-.59	.045	-13.16	.29	.54
	42	-.49	.041	-11.85	.28	.46
	43	-.61	.053	-11.52	.46	.44
	58	-.54	.053	-10.25	.50	.37

	62	-.50	.035	-14.35	.16	.61
	66	-.77	.060	-12.93	.53	.53
	67	-.46	.044	-10.52	.34	.39
Shame Over	18	.25	.048	5.26	.42	.13
Parenting Self	23	-.67	.063	-10.59	.56	.44
Efficacy	26	-.68	.055	-12.56	.33	.58
	36	.15	.045	3.37	.39	.055
	41	-.47	.071	-6.65	.89	.20
	44	.16	.034	4.83	.22	.11
	46	-.48	.041	-11.50	.22	.51
	61	.16	.030	5.24	.17	.13
Parent's Perception	2	.71	.070	10.22	.63	.45
of the Child's	15	.88	.072	12.25	.47	.62
Exposure to	29	.46	.078	5.94	1.06	.17
Violence	56	.56	.084	6.65	1.20	.21
Parental Monitoring	27	.82	.073	11.18	.91	.42
	28	.68	.060	11.25	.61	.43
	30	.89	.061	14.70	.47	.63
	33	.91	.062	14.63	.49	.63
	34	1.04	.064	16.34	.41	.72
	45	-.98	.066	-14.81	.54	.64
	50	.81	.060	13.44	.52	.56
	51	.94	.062	15.13	.47	.66

The data seem to indicate that the fit of this model is acceptable; however, some modifications may need to be considered for the model to perform at its optimal potential. The values of the RMSEA, SRMR, and the standardized residuals all point toward good fit; and, while the CFI and the NNFI are outside of the a priori cut offs for these indices, these values are approaching significance. The individual path values are appropriate for the most part, but some items may need to either be modified or omitted to improve fit.

The modification indices provided by LISEL 8.71 suggest allowing several items to load onto multiple factors to decrease the chi-square statistic and increase the overall fit of the model. The suggested modifications may result in decreases in chi-square, ranging from 8.1 to 45.8. The largest of these include creating paths between item 21 and PE ($\Delta\chi^2 = 45.8$), item 11 and PE ($\Delta\chi^2 = 37.6$), item 31 and PE ($\Delta\chi^2 = 31.6$), item 23 and PE ($\Delta\chi^2 = 28.6$), and item 29 and PE ($\Delta\chi^2$

= 28.2). The modification indices also recommend allowing several of the error covariances correlate, with changes in chi-square ranging from 7.9 to 34.9. These values suggest that it may be beneficial to theorize about the possible causes for these values and test additional models to determine the best overall factor structure.

Conclusions

The present study sought to provide evidence for the structural validity for the Juvenile Offender Parent Questionnaire (JOPQ). Data analysis indicates that the model does have an adequate level of fit, providing cross validation for the original exploratory model. However, reevaluation of theory may suggest modifications that will improve model fit. For example, the modification indices state that several items should include an additional loading to the Exasperation in Regard to the Child factor. Conceptually, this makes sense. It seems logical to think that items that point to a parent who is afraid of their child, is unable to monitor their child, or is frequently involved with the juvenile court would be exasperated with their child. However, these suggested modifications may be indicative of factor correlations, and may decrease model fit if implemented. More problematic appear to be the items that demonstrated very low values for R^2. These items may need to be modified or omitted from the JOPQ for improved model fit. Future studies may want to synthesize the information gathered from the present study and theorize additional models to test for improved fit. However, it should be reiterated that the hypothesized factor structure provided a good model fit, and therefore additional modifications may be unnecessary.

In addition, further research is needed to provide validity evidence for the JOPQ. While the current study provides evidence for the factor structure, it does not attend to the validity of the

constructs it is reported to measure. Correlational analysis and known groups studies would help to provide this type of evidence and bolster the clinical utility of the scale.

A possible limitation of this study is that it utilized a self report measure, and as previously mentioned the majority of respondents completed the instrument in the juvenile court setting. This may have made it difficult for the parent/guardian(s) to view the researcher as separate from the court system which could have resulted in response patterns that the participants felt were more socially desirable. Conversely, Bradshaw, Glaser, Calhoun, & Bates (2006) found that parents may over endorse certain critical items as an indication of exasperation with their child's behavior. This pattern of responding may lead to elevated scores on factors that the parent's believe will result in immediate assistance with their child. An additional limitation of the study is that the sample came from a single county, which could make the results difficult to generalize.

The affect parenting can have on the behavioral development of children cannot be understated, especially within the offender population. The literature is rich with studies indicating specific risk and protective factors associated with parenting practices and familial issues. Instruments used to identify specific parenting factors that can either hinder or exacerbate conduct problems are needed to help clinicians, courts, and juvenile justice systems design and implement improved individualized prevention and intervention programs. In addition, instruments such as this allow for increased awareness for parent/guardians allowing for a greater understanding of how their attitudes affect their child's functioning.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Statement of the Problem

Assessment and appraisal of human traits and behaviors are inextricably related to the field of Counseling Psychology. Psychological instruments remain commonplace in the field, and are reported to measure constructs associated with intelligence, achievement, personality, mood, and emotional functioning. The interpretation of the scores provided by these instruments heavily influences treatment, placement, educational, and judicial decisions made about the individual being tested. Administration of instruments without appropriate validity evidence may lead to incorrect interpretations of scores, and unsuitable treatments or consequences.

These factors illuminate the necessity of valid instrumentation, especially within specialized populations. However, valid measurement of psychological constructs continues to be a difficult task. The American Psychological Association first noted the importance of the statistical validation procedures in 1950 with the creation of the APA Committee on Psychological Tests (Cronbach & Meehl, 1955). This committee sought to establish a standard for the types of validity, and to delineate appropriate validation procedures.

Validity theory has since expanded from the traditional notions of validity: content, criterion-related, and construct validity. Contemporary validity theorists adopt a unified construct-based model of validity (Messick, 1989), which specifies six aspects of validity to be tested: content, substantive, structural, generalizability, external, and consequential (Messick, 1995). The purpose of this dissertation was to explore the structural aspect of the unified construct-based model of validity. To do this, factor analytic procedures were utilized and interpreted in two separate studies to examine the factor structure of two instruments used with

the adolescent offender population. The first study used Exploratory Factor Analysis to determine the factor structure of an instrument intended to measure various aspects of mood with incarcerated adolescents. The second study employed confirmatory factor analysis to confirm the hypothesized factor structure of an instrument intended to measure parental attitudes regarding their child's delinquent behaviors.

Statement of Procedures

In study one, the Burns Brief Mood Survey was administered to 171 adolescents detained in one of seven Youth Development Centers in the state of Georgia as a portion of their mental health screening. After screening for outliers and missing data, 146 individuals remained in the study. Individual item level analysis was conducted to inspect for problematic items, and factor structure was assessed utilizing exploratory factor analysis.

In study two, the Juvenile Offender Parent Questionnaire was administered to 327 parent(s)/guardian(s) of children who were court referred to receive counseling services. The instrument was completed as part of the general clinical intake. These intakes were primarily completed in the juvenile court facilities of a midsized southeastern city. The data were screened for outliers and none were detected, and questionnaires with missing values (n = 79) were excluded from the analysis through listwise deletion. Individual item level analysis was conducted to inspect for problematic items, and factor structure was tested utilizing confirmatory factor analysis.

Research Hypotheses

In study one it was hypothesized that the exploratory factor analysis will yield the original five factor solution for the incarcerated adolescent population. It was also hypothesized that analysis will yield simple structure, indicating no cross loading items.

In study two it was hypothesized that the confirmatory factor analysis will confirm the proposed six factor solution, and demonstrate a good model fit. It was also hypothesized that the Lie/Infrequency factor does not contribute to the proposed structure, and should therefore be omitted from model testing.

Conclusions

The results of this dissertation provide support for the necessity of validity testing for instruments intended to measure psychological constructs. The results of each study will be discussed below, and each study provided valuable insight regarding the factor structure of the two instruments.

The intent of study one was to provide evidence for the structural validity of the Burns Brief Mood Scale (BMS) that has previously been lacking in the literature. The study confirmed the secondary hypothesis that the factor analysis will yield a good simple structure. Examination of the factor loadings demonstrated a distinct loading pattern for each factor. There are no cross loading items, and all factors have a set of items with loadings close to zero. Therefore, a distinct five factor structure was extracted.

The resulting five factor structure yielded a surprising finding. Three of the factors demonstrated the hypothesized loadings (Depression, Suicidal Urges, and Positive Feelings); however, the hypothesized Anxiety and Anger constructs did not factor as expected. These results do not support the initial hypothesis that the factor analysis will yield the original five factor solution. Instead, the scale may be better understood as follows.

Two items initially intended to measure differing aspects of anxiety were shown to load with the items intended to measure levels of anger. The resulting structure changed the definitions of these two factors. While the Anger factor still remains intact, it also appears to

encompass some level worry associated with the angry feelings. The three remaining items initially intended to measure anxiety are primarily focused on levels of fear. Individuals who are *afraid, nervous*, or are *tense and feeling on edge* endorse the items on this factor, and may be better understood as measuring Fearfulness. Therefore, when assessing the validity of this instrument with the adolescent offender population, this instrument's structure may need to be redefined. Results of this analysis provide evidence for five distinct factors that appear to measure Depression, Suicidal Urges, Anger, Fearfulness, and Positive Feelings.

In study two, a confirmatory factor analysis (CFA) was conducted to confirm the factor structure of the Juvenile Offender Parent Questionnaire. Data analysis confirms the first hypothesis, and indicates that the model does have an adequate level of fit, providing cross validation for the original exploratory model. Additionally, the second hypothesis was also confirmed through model testing with the inclusion of the Lie/Infrequency factor. Due to the lack of variance of the lie scale items, the model would not converge and resulted in a nonpositive definite Theta Delta matrix.

While the model testing in study two does indicate good overall fit, examination of the modification indices and individual item performance suggests some amendments that may improve the overall performance of the scale. The modification indices provided by LISEL 8.71 suggest allowing several items to load onto multiple factors to decrease the chi-square statistic and increase the overall fit of the model. For example, it was suggested that several items should include an additional loading to the Exasperation in Regard to the Child factor. However, it should be noted that these suggested modifications may be indicative of factor correlations, and may decrease model fit if implemented. More problematic appear to be the items that demonstrated very low values for R^2. These items may need to be modified or omitted from the

JOPQ for improved model fit, but it should be reiterated that the hypothesized factor structure provided a good model fit, and therefore additional modifications may be unnecessary.

Implications

The studies incorporated in this dissertation bring to light several findings that are salient for both practitioners and scholars. Perhaps the most critical of these is the importance of instrument validation prior to use with specialized populations. This is abundantly clear in study one.

The Burns Brief Mood Survey was developed with the intent to measure mood across five factors: Depression, Suicidal Urges, Anxiety, Anger, and Positive Feelings. Consistent with Watkins's (1992) assertion regarding the usage of statistical procedures for the validation of psychological instruments, factor analysis revealed a slightly different factor structure with the adolescent offender population than the originally intended structure of the instrument. This new pattern of item loadings changed two of the factors, and seems to measure different constructs than those hypothesized. The Anxiety factor demonstrated the most drastic change, appearing to now measure Fearfulness within the adolescent. It is critical for practitioners working with this population to be aware of this new structure when interpreting the scores obtained on the BMS. Without consideration of these data, improper treatment decisions could be made, and the individual needs of each child might be neglected.

The knowledge gained from this study is especially important due to the relationship between fear regulation and delinquency (Kramer & Zimmermann, 2009). The data gathered from the BMS will be useful in the identification of psychologically vulnerable youth, allowing for more proactive and preventive measures to be taken to ensure the safety of the youth. The BMS can also provide the clinician with evidence for psychological resilience factors related to

positive behaviors (Carr & Vandiver, 2001). Having an understanding of this new factor structure will help clinicians accurately implement targeted therapeutic interventions with adolescents in the detention setting.

Study two provided further validation for the JOPQ, a psychological instrument intended to measure the attitudes of parents of juvenile offenders. Confirmatory factor analysis validated the hypothesized six factor structure of the instrument. Additionally, the goal of study two was to demonstrate the stringent requirements of the CFA model. As previously mentioned, CFA is a theory driven approach to instrument validation, and requires well a thought out and sound theoretical basis for good model fit. This is quite different from the data driven exploratory methodology utilized in study one. While the exploratory analysis is useful in the initial construction of psychological instruments, CFA requires more precise analysis and provides stronger evidence for the structural aspect of scale validity.

Study two also yields important clinical implications. Valid measurement of parenting factors related to delinquency will offer a plethora of information for practitioners. The contributions of parenting style on the behavioral development of adolescents have been well documented in the literature (Hoeve et al., 2009). Vetere (2010) noted the effectiveness of multi-systemic and family based treatment with the offender population. The data obtained from the JOPQ will provide insight into the child and parent's experiences and the family's contributions to the child's behaviors. These insights can guide the clinician in therapy, allowing for greater understanding and connection with parent. Etiological factors of the child's behaviors can be inferred that may not be easily accessed through speaking with child or parent; for example, lack of consistent parental monitoring (Shaw et al., 2006).

Additionally, the JOPQ will be helpful in working through parental resistance. A parent who is mistrustful of the justice system might demonstrate increased defiance and resistance to fully engage in mandated treatment (Piquero et al., 2004). Additionally, parents who are afraid of their children could feel as though engaging in treatment and implementing behavioral strategies in the home will put them in danger. Obtaining measures of these constructs will allow clinicians ample time to plan for and develop useful strategies to confront these issues.

Instruments, such as the BMS and JOPQ, intended to measure factors that can either hinder or exacerbate conduct problems are needed to help clinicians, courts, and juvenile justice systems design and implement improved individualized prevention and intervention programs. The literature is rich with novel instruments being developed to measure a wide range of psychological constructs. However, the five problems common to all psychological assessments noted by Crocker & Algina (2008) are still present, and illustrate the necessity of validity testing and psychometrics. It was the hope of this dissertation to present such evidence, and to make clear the value of psychometrics on treatment planning and interventions.

Recommendations for Further Research

Both the Burns Brief Mood Survey and the Juvenile Offender Parent Questionnaire require additional evidence to be consistent with the argument based approach to validity (Kane, 1992).

While the Burns Brief Mood Survey may not match the stated hypothesis, the results suggest a moderately reliable scale that produced a distinct simple factor structure. In order for this scale to reach its potential efficacy these results need to be cross-validated with further factor analytic research, such as confirmatory factor analysis. This stringent analysis will provide more

convincing evidence of the BMS's factor structure, and allows the researcher to test multiple hypothesized factor models.

With regard to the JOPQ, future studies may want to synthesize the information gathered from study two and theorize additional models to test for improved fit. This may include the addition of multiple factor loadings and the deletion of low performing items.

In addition, further research is needed to provide validity evidence for both the BMS and the JOPQ. While this dissertation provides evidence for the factor structures, it does not attend to the validity of the constructs these instruments are reported to measure. Correlational analysis and known groups studies would help to provide this type of evidence and bolster the clinical utility of these scales. For example, outcomes research for individuals in detention settings should provide evidence for the consequential aspect of validity of the BMS. Additional evidence for the various aspects of validity as discussed by Messick (1995) and adopted by the American Psychological Association (1999) will improve the overall understanding of and utility for the factors measured by the BMS and JOPQ.

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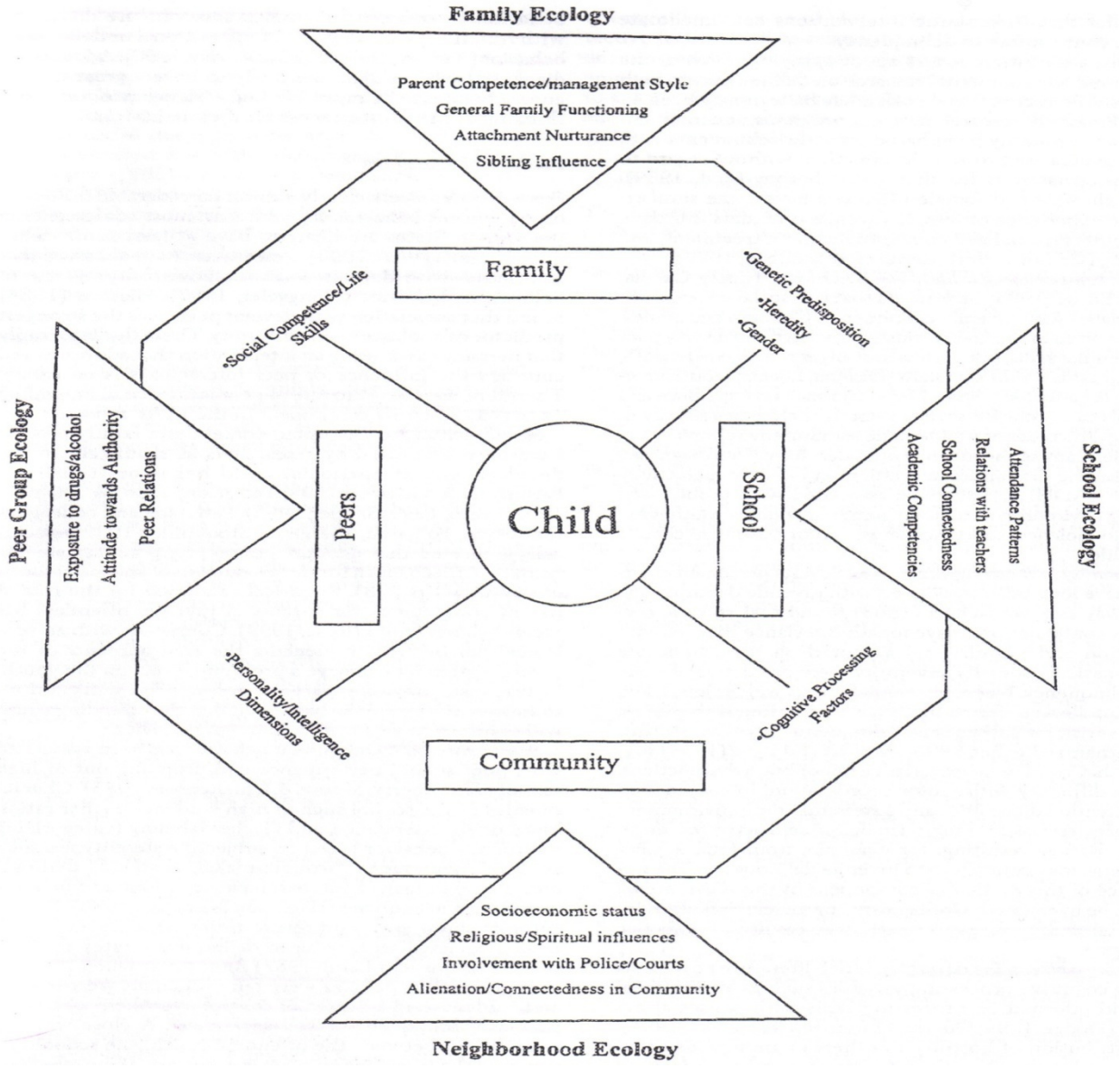
APPENDIX A

JCAP MODEL


Family Ecology
Parent Competence/management Style
General Family Functioning
Attachment Nurturance
Sibling Influence
Family
•Social Competence/Life Skills
•Genetic Predisposition
•Heredity
•Gender
Peer Group Ecology
Exposure to drugs/alcohol
Attitude towards Authority
Peer Relations
Peers
Child
School
School Ecology
Attendance Patterns
Relations with teachers
School Connectedness
Academic Competencies
•Personality/Intelligence Dimensions
•Cognitive Processing Factors
Community
Socioeconomic status
Religious/Spiritual influences
Involvement with Police/Courts
Alienation/Connectedness in Community
Neighborhood Ecology

APPENDIX B

JUVENILE OFFENDER

PARENT QUESTIONNAIRE

~ Parent/Guardian Questionnaire (PGQ) ~

When you are ready to begin, please read each sentence and choose an answer.
There are four possible answers for each statement:

Completely False = 1, Mostly False = 2, Mostly True = 3, and Completely True = 4.

For each item that describes a set of thoughts or feelings that you may have toward this child **now or within the past year**, please circle the number to the right of the question. For example, if a statement is **Completely True**, as applied to you, circle the **4** to the right of the question**.** Try to respond to every statement

	Completely False	Mostly False	Mostly True	Completely True
1. I have had it with my child.	1	2	3	4
2. The violence in our community has been a bad influence on my child.	1	2	3	4
3. The court system works against my child.	1	2	3	4
4. The future looks bad for my child.	1	2	3	4
5. My anger with my child is interfering with my relationship with him/her.	1	2	3	4

6. The court wants to help my child.	1	2	3	4
7. I feel like giving up on my child.	1	2	3	4
8. My child would not hurt me.	1	2	3	4
9. I still get angry when I think of the bad things that my child has done.	1	2	3	4
10. The court system treats my child poorly because of who he/she is.	1	2	3	4
11. My child listens to me.	1	2	3	4
12. I think my child could seriously hurt me.	1	2	3	4
13. It bothers me that I can't trust my own child.	1	2	3	4
14. They are out to get my child.	1	2	3	4
15. I find it stressful to raise a child with all the violence in our community.	1	2	3	4

16. The court is out to get my child.	1	2	3	4
17. When it comes to my child, I feel hopeless.	1	2	3	4
18. In spite of my child getting in trouble I know that I've been a good parent.	1	2	3	4
19. I'm afraid to turn my back on my child when he/she is angry.	1	2	3	4
20. Sometimes I wonder if my child should live some place else.	1	2	3	4
21. My child will mess up again.	1	2	3	4
22. My child physically threatens me.	1	2	3	4
23. Sometimes I feel like a horrible person for not raising my child better.	1	2	3	4
24. The court misunderstands what it is like for my child.	1	2	3	4
25. I am angry with my child.	1	2	3	4

26. I am the one to blame when it comes to my child.	1	2	3	4
27. I know if my child is late coming home.	1	2	3	4
28. I understand my child.	1	2	3	4
29. I am tired of him/her getting into trouble.	1	2	3	4
30. My child keeps me informed about where he/she is going.	1	2	3	4
31. If they will leave us alone, then things will turn out okay for my child.	1	2	3	4
32. I lose my temper with my child.	1	2	3	4
33. I know the names of the kids who my child hangs out with.	1	2	3	4
34. My child lets me know when he/she will be home from school.	1	2	3	4
35. I get so angry with my child that I can't deal with him/her.	1	2	3	4

36. I stay on top of how my child is doing in school.	1	2	3	4
37. I think they are making too big a deal out of what my child has been accused.	1	2	3	4
38. Sometimes I am afraid of my child.	1	2	3	4
39. My child's lip (backtalk) makes me very angry.	1	2	3	4
40. I have heated arguments with my child.	1	2	3	4
41. I should have spent more time with my child.	1	2	3	4
42. My child threatens or bullies me to get what he/she wants.	1	2	3	4
43. Sometimes I feel like a prisoner in my own home because of my child.	1	2	3	4
44. I have raised my child the best way that I know how.	1	2	3	4
45. I never know what my child is doing from day to day.	1	2	3	4
46. It's my fault my child is in	1	2	3	4

trouble.				
47. My child just doesn't know the difference between right and wrong, and that's why they are in trouble.	1	2	3	4
48. Sometimes I think my child does things to make me angry.	1	2	3	4
49. Sometimes I get the feeling that people in the court see everyone as guilty.	1	2	3	4
50. I know the types of television shows that my child watches.	1	2	3	4
51. I will know if my child has gotten into a fight.	1	2	3	4
52. I am the inventor of the Ford automobile.	1	2	3	4
53. My child is being unfairly accused.	1	2	3	4
54. The police don't treat people like us very well.	1	2	3	4

55. My child plays for the New York Yankees.	1	2	3	4
56. I worry about the influence of gangs on my child.	1	2	3	4
57. I feel all alone in raising this difficult child.	1	2	3	4
58. If I make my child tell me where he/she is going we would fight all the time.	1	2	3	4
59. My child has an attitude.	1	2	3	4
60. The probation officer cares about my child.	1	2	3	4
61. Others who know me think I am a good parent.	1	2	3	4
62. I fear that my child will physically hurt me.	1	2	3	4
63. I know how to help my child deal with his/her problems.	1	2	3	4
64. My child irritates me when he/she misbehaves.	1	2	3	4

65. The people in the court system treat my child with respect.	1	2	3	4
66. Sometimes my child explodes with anger and it scares me.	1	2	3	4
67. My child has hit me within the past year.	1	2	3	4