CONCURRENT VALIDITY OF PARENT REPORTS REGARDING THE FAMILY/PARENTING DIMENSION OF A GLOBAL RISK ASSESSMENT DEVICE FOR COURT-INVOLVED ADOLESCENTS AND THEIR FAMILIES

A Dissertation

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ABSTRACT

This study advances recent efforts to validate the use of a global risk assessment device, hereafter referred to as the "GRAD," an actuarial measure intended to assess levels of risk/need for adolescents who have had contact with the juvenile justice and other social service systems (e.g., mental health, substance abuse, educational, and family services). The GRAD is intended to do two things: (1) identify the most "causal" factors related to adolescents' risk of not making an age-appropriate transition to adulthood, and (2) provide key information to social service professionals who will, in turn, design strategic interventions and/or make appropriate referrals for services.

The present effort provides concurrent validity evidence of parent reports of the family/parenting domain of the GRAD by illustrating how levels of risk within this dimension are related to other established family measures, including parent and adolescent perspectives of: (1) the "unpleasant family events" subscale of the Family Events Checklist, (2) the Family Intrusiveness Scale and (3) the Perceived Social Support from the Family scale.

Data gathered from a sample of <u>N</u>=102 court-involved adolescents and adult family members who attended a family-based diversion program were analyzed to evaluate the dimensionality of parent reports of the family/parenting domain of the

GRAD. Confirmatory factor analyses were conducted, testing the relative fit of unidimensional vs. multidimensional models of the GRAD family/parenting domain. The results of the confirmatory factor analyses supported the use of a tridimensional model composed of items measuring disruptive "responses to parental monitoring," the extent to which parent/caretakers "tip-toe" and fail to discipline their young person for fear of reprisal, and parent/caretakers' concerns that their young person will "retaliate" when disciplined and victimize siblings or other family members. Further multivariate tests of the GRAD family/parenting domain were conducted utilizing this tridimensional model.

Concurrent validity was evaluated by comparing the fit of structural equation models hypothesized to confirm specified relationships between the GRAD family/parenting domain and the other established family measures. Statistically controlling for demographic differences, adult reports of the Unpleasant Family Events Checklist and the Perceived Social Support from the Family Scale were significantly and positively related to the GRAD family/parenting domain.

The results of this study confirm the findings of an earlier concurrent validity study on the positive relationship between adult reports of the GRAD family/parenting domain and adult reports of unpleasant family events. In addition, adult reports of perceived social support also were related to GRAD scores, providing further concurrent validity evidence. However, youth reports of both unpleasant family events and perceived social support from the family were unrelated to adult GRAD scores,

iii

suggesting that GRAD scores may represent adult perceptions of family/parenting factors, yet may not represent youth perceptions of the same family functioning issues. Finally, significant measurement issues warrant further research that is more precise, which will answer many of the questions that this study raised.

DEDICATION

To Laura, of course,

And to our children: Abby, Nick and Joe. You bring wonder and joy to my life.

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Final thanks to my advisor and good friend Steve Gavazzi, without whom I would never, ever, have arrived here.

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FIELDS OF STUDY

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TABLE OF CONTENTS

Abstractii
Dedicationv
Acknowledgmentsvi
Vitavii
List of Tablesxv
List of Figuresxvii
Introduction1
Chapter 1 Rationale for the Research8
"At-Risk" Youth and Their Involvement in the Juvenile Court
Precision in Risk/Need Assessment and Program Effectiveness11
Assessment Methods12
Assessing Client Risks/Needs with the Global Risk Assessment Device16
Description of the Research21
Chapter 2 Review of the Literature
Family/Parenting Factors and Court-Involved Adolescents
Parental Discipline, Monitoring, and Supervision
Parent/Child Attachment36
Parents of Adolescents

Parental Support vs. Parental Intrusiveness	38
Perceived Parental Support	38
Parental Intrusiveness	39
Findings from Evaluation Research of Family-Based Programs	40
Development of the GRAD Family/Parenting Domain (GRAD)	43
Concurrent Validity of the GRAD Family/Parenting Domain	48
Unpleasant Family Events	49
Family Intrusiveness	50
Perceived Social Support	50
Variations between Sources of Data	53
Youth Self-Reports	54
Parent/Caretaker Reports	54
Use of Multiple Perspectives in "Family" Measures	55
Multivariate Analytical Techniques with Family Data	56
Chapter 3 Methodology	57
The Sample	57
Instruments	61
The Family/Parenting Dimension of the Global Risk Assessment De (GRAD)	vice 61
The Unpleasant Family Events Checklist (FEC)	62
The Family Intrusiveness Scale (FIS)	63
The Perceived Social Support from the Family Scale (PSS-FA)	65

Univariate and Bivariate Analyses	66
Multivariate Analyses: Confirmatory Factor Analyses of the GRAD	68
Multivariate Analyses: Concurrent Validity Analyses of the GRAD	69
Multivariate Analyses: Analytical Approaches	70
RMSEA	71
The Bollen-Stine Bootstrap	72
Controls for Shared Method Variance	74
Utilization of Results	75
Chapter 4 Results	76
Confirmatory Factor Analyses of the GRAD Family/Parenting Domain:	
Unidimensional Model	76
Confirmatory Factor Analyses of the GRAD Family/Parenting Domain:	
Bidimensional Model	77
Confirmatory Factor Analyses of the GRAD Family/Parenting Domain:	
Tridimensional Model	78
Concurrent Validity Analyses: The GRAD and the FEC	80
Concurrent Validity Analyses: The GRAD and the FIS	81
Concurrent Validity Analyses: The GRAD and the PSSFA	82
Chapter 5 Discussion	84
Summary of Rationale, Methodology, and Pertinent Results	84
Multidimensionality of the GRAD Family/Parenting Domain	84

Multidimensionality of the GRAD Family/Parenting Domain in the Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews (2003) study, and the Slade (2002) Study85
Concurrent Validity of the GRAD Family/Parenting Domain: Main Findings89
Concurrent Validity Analyses: The GRAD and the PSSFA
Concurrent Validity Analyses: The GRAD and the FEC91
The Family Intrusiveness Scale92
Youth vs. Parent Reports94
Parent Reports95
Summary of Findings96
Gender and Ethnic Differences97
Limitations of the Study100
Rater Bias101
Range Restriction102
Low Sample Size and Statistical Power102
Multidimensionality of the GRAD104
Confounding Effects of the Quality of Parent-Child Relationships105
Validity of the GRAD Family/Parenting Domain: Implications for Practice107
Refinement of GRAD Cut-Off Scores108
Suggestions for Future Research112
The New GRAD113
Implications for Practitioners115

Conclusions: Implications for the Use of Parent Reports of the GRAD
References118
Appendix A: List of Measures
The GRAD Family/Parenting Domain
The Unpleasant Family Events Checklist
The Family Intrusiveness Scale (Adult)
The Family Intrusiveness Scale (Adolescent)
The Perceived Social Support from the Family Scale (Adult)
Appendix B: Telephone Interview Protocol143
Appendix C: Model 1—The GRAD Family/Parenting Domain Confirmatory Factor AnalysisUnidimensional Model145
Appendix D: Model 2—The GRAD Family/Parenting Domain Confirmatory Factor AnalysisBidimensional Model147
Appendix E: Model 3—The GRAD Family/Parenting Domain Confirmatory Factor AnalysisTridimensional Model149
Appendix F: Model 4—The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist
Appendix G: Model 5—The GRAD Family/Parenting Domain and the Family Intrusiveness Scale153
Appendix H: Model 6—The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale15
Appendix I: Model 1 Results—The GRAD Family/Parenting Domain Confirmatory Factor AnalysisUnidimensional Model157
Appendix J: Model 2 Results—The GRAD Family/Parenting Domain Confirmatory Facto AnalysisBidimensional Model
Appendix K: Model 3 Results—The GRAD Family/Parenting Domain Confirmatory Factor AnalysisTridimensional Model167

Appendix L: Model 4 Results—The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist163
Appendix M: Model 5 Results—The GRAD Family/Parenting Domain and the Family Intrusiveness Scale166
Appendix N: Model 6 Results—The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale169

LIST OF TABLES

Table 1.	Annual Household Income60
Table 2.	Adolescent Gender by Self-Reported Ethnicity61
Table 3.	Descriptive Statistics for Study Variables67
Table 4.	Pearson Product-Moment Correlations68
Table 5.	Fit Indices for GRAD Confirmatory Factor Analyses80
Table 6.	Fit Indices for GRAD Concurrent Validity Models103
Table 7.	Pearson Correlations including Sub-Domains105
Table 8.	Items comprising the New GRAD Family/Parenting Domains— Adult Report114
Table 9.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisUnidimensional Model Regression Estimates158
Table 10.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisUnidimensional Model Variance Estimates158
Table 11.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisBidimensional Model Regression Estimates160
Table 12.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisBidimensional Model Variance Estimates160
Table 13.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisTridimensional Model Regression Estimates162
Table 14.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisTridimensional Model Covariance and Correlation Estimates

Table 15.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisTridimensional Model Variance Estimates162
Table 16.	The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist: Regression Estimates164
Table 17.	The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist: Covariance and Correlation Estimates164
Table 18.	The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist: Variance Estimates165
Table 19.	The GRAD Family/Parenting Domain and the Family Intrusiveness Scale: Regression Estimates167
Table 20.	The GRAD Family/Parenting Domain and the Family Intrusiveness Scale: Covariance and Correlation Estimates
Table 21.	The GRAD Family/Parenting Domain and the Family Intrusiveness Scale: Variance Estimates168
Table 22.	The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale: Regression Estimates170
Table 23.	The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale: Covariance and Correlation Estimates
Table 24.	The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale: Variance Estimates

LIST OF FIGURES

Figure 1.	The Theoretical Model70
Figure 2.	The Final Model98
Figure 3.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisUnidimensional Model146
Figure 4.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisBidimensional Model148
Figure 5.	The GRAD Family/Parenting Domain Confirmatory Factor AnalysisTridimensional Model150
Figure 6.	The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist152
Figure 7.	The GRAD Family/Parenting Domain and the Family Intrusiveness Scale154
Figure 8.	The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale156

INTRODUCTION

In the United States, social service organizations are currently experiencing increased scrutiny regarding the effectiveness of their programs in meeting the needs of "at-risk" youth and families. As a result, continued funding of social service programs increasingly is tied to the achievement of program outcomes or performance measures. Since a necessary condition for program effectiveness with at-risk youth and their families involves targeting the appropriate needs of individual clients, effective programs must address the needs of individuals that are most "causally" related to the negative developmental trajectory for which the client is "at-risk" (Andrews & Bonta, 1998). Thus, it follows that the utilization of a reliable and valid assessment of client needs is a necessary first step in providing effective services. Unfortunately, while most programs probably assess client needs in some form, it is unlikely that most of the assessment measures used in the United States meet appropriate reliability and validity conditions.

This paper advances recent efforts to validate the use of a global risk assessment device, hereafter referred to as the "GRAD," an actuarial measure intended to assess levels of risk for adolescents who have had contact with the juvenile justice system and/or mental health, substance abuse, educational and family social service systems (Gavazzi, Novak, Yarcheck, & DiStefano, 2004; Gavazzi & Lim, 2003; Gavazzi, Lim, Yarcheck, & Eyre, 2003; Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003).

The GRAD is an actuarial risk assessment device that collects interval data on eleven different domains, including prior offenses, family/parenting, education/vocation, peer relations/intimate relationships, substance abuse, leisure time, personality/behavior, psychopathy, accountability, traumatic events and health-related risks (Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003). Further, a variety of important demographic characteristics of the youth and family members are collected (e.g., ethnicity, age, education level) as well as household information (e.g., annual household income, total number of persons living in the household). Finally, the number and type of recent transitions for the family (e.g., change of residence, loss of job, etc.) within the past year also are collected (Gavazzi, Novak, Yarcheck, & DiStefano, 2004).

The basis for the GRAD's multidimensional structure is the common, widely recognized finding that "at-risk" youth and their families often have multiple needs that a single agency cannot adequately address on its own. Thus, individual social service agencies have need of a multidimensional measure that accurately assesses client needs and informs the agency's efforts to either organize interventions or refer clients to other, more appropriate services.

Such an assessment must estimate the needs of a client in multiple domains of his/her lived experience related to his/her being "at risk," including factors in the client's social environment such as peers/intimate relationship factors, family/parent factors, education/employment factors, and access to health services (Bogenschneider, 1996). Further, characteristics of the individual's own personality and behavior should be

assessed, including individual temperamental factors, substance abuse, illegal behaviors, and leisure activities. Finally, the client's past history should be assessed as well, such as the client's experience of traumatic events (Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996; Jessor, Turbin, & Costa, 1998; Lerner & Castellino, 2002; Sampson, Morenoff, & Earls, 1999).

The eleven domains of the GRAD were chosen to represent the most common ecological systems wherein adolescent problem behavior is known to develop, including involvement in delinquent behaviors (Andrews & Bonta, 1998; OJJDP, 1995), factors related to the adolescent's family relationships and parenting behaviors (Andrews, Soberman, & Dishion, 1995; Krohn, Stern, Thornberry, & Jang, 1992; Patterson, Crosby, & Vuchinich, 1992; Patterson, Reid, & Dishion, 1992), peer relations/intimate relationships (Dishion & Andrews, 1995; Dishion, Andrews, Kavanagh, & Soberman, 1996; Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996), individual personality and behavioral factors (Achenbach, 1991; Derogatis, 1993), and individual psychopathy (Bijttebier, Vasey, & Braet, 2003; Frick, Cornell, Barry, Bodin, & Dane, 2003; Frick, Cornell, Bodin, Dane, Barry, & Loney, 2003; Vasey, Dangleish, & Silverman, 2003).

A number of studies have begun to document reliability and validity evidence for the GRAD. Two studies, one by Slade (2002) and another by Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews (2003) conducted confirmatory factor analyses, verifying the psychometric structure of the GRAD across two separate samples (N= 248 and N=373) of court-involved adolescents. Gavazzi, Lim, Yarcheck, and Eyre (2003) analyzed the relationship between GRAD risk scores and subsequent referrals to

services for a sample of 244 court-involved adolescents. A significant, positive relationship was found between risk scores and the intensity of services to which adolescents were referred. Gavazzi and Lim (2003) provided preliminary evidence of the concurrent validity of the GRAD in a sample of court-involved adolescents by revealing significant associations between the family/parenting, substance abuse and personality/behavior domains of the GRAD with other theoretically related measures. Most recently, Gavazzi, Yarcheck, and Chesney-Lind (2006) identified significant gender differences between multiple domains of the GRAD, and significant differences in GRAD scores between status-offending youth and more serious delinquents also have been reported (Gavazzi, Yarcheck, & Lim, 2005).

This effort represents a logical advancement toward establishing the concurrent validity of the GRAD for court-involved adolescents by rigorously evaluating the validity of its family/parenting dimension. Chapter 1 of this study begins with an elucidation of the link between precision in client risk/need assessment and the effectiveness of social service programming. Limitations in the precision of commonly utilized measures and the likely negative consequences of such measurement error for clients are discussed.

Next, an evaluation of the debate between the relative advantages of utilizing actuarial vs. clinical assessment devices in the social service system is established, followed by a rationale for the recommendation of actuarial assessment in identifying individual client risks/needs. It is argued that, while there is no compelling evidence that one of the two approaches to assessment has greater validity (if done well), the social service system currently lacks the resources (i.e., education, training and time) needed

for rigorous clinical assessment. As a more efficient use of limited resources, actuarial assessments are recommended as first screenings of individual risks/needs. Following such an initial screening of client needs, further assessment (clinical or actuarial) in specifically targeted domains (e.g. substance use, metal health, etc.) may be warranted.

Following the recommendation for the use of actuarial assessment devices in the social service system, it is argued that any utilized assessment device must possess solid quantitative reliability and validity evidence if it is to identify individual client risks/needs across single or multiple social service organization(s). The consequences of utilizing invalid and/or unreliable measures with clients are discussed. Chapter 1 ends with a description of how this study will test for the reliability and validity of the family/parenting domain of the Global Risk Assessment Device.

The rationale for why the family/parenting dimension is particularly relevant to the assessment of court-involved adolescents is discussed in Chapter 2. A review of multidisciplinary empirical studies that have tested particular hypotheses tied to existing theories establishes the links between measures of family functioning, parenting factors and adolescent antisocial behaviors related to court involvement.

Chapter 3 begins with a discussion of issues related to the use of "family" data particularly in regards to multiple perspectives (e.g. adult vs. adolescent perspectives). A rationale for the use of specific multivariate analytical methods appropriate for the analysis of family data follows, establishing structural equation modeling as an appropriate analytical technique for family data.

Chapter 3 continues with a description of characteristics of the sample of adolescents and family members who provided the data, including salient demographic characteristics, and draws comparisons between characteristics of the sample and characteristics of samples used in previous GRAD validity studies. Reliability statistics for the GRAD Family/Parenting domain and the other family measures demonstrate appropriate properties for further analysis.

Multivariate data analyses are then illustrated in Chapter 3. First, confirmatory factor analyses test the dimensionality of GRAD family/parenting domain, and suggest a dimensional structure that best fits the data. Next, a series of structural equation models are used to test for the concurrent and discriminant validity between the GRAD, the Family Events Checklist (FEC), the Family Intrusiveness Scale (FIS), and the Perceived Social Support from the Family Scale (PSSFA). Maximum likelihood estimation (MLE) is used in all multivariate normal models, while the Bollen-Stine Bootstrap is utilized for models that deviate from multivariate normality.

Chapter 4 begins with a discussion of the results of the multivariate analyses used to test for the concurrent validity of the GRAD Family/Parenting domain. The results for each model, including fit statistics, regression estimates, variance, and covariance estimates are illustrated. After the results are listed, a discussion follows regarding the implications of the fit of each specified model in terms of the evidence each model provides to the underlying constructs that the GRAD family/parenting domain is thought to measure.

Chapter 5 begins with a discussion of the implications of this study for the assessment of family/parent risks/needs for court-involved adolescents. Conclusions regarding the construct validity of the GRAD Family/Parenting domain are drawn from the results of these analyses that suggest the concurrent validity of the GRAD in relation to the other family measures. Conclusions regarding the concurrent validity of the GRAD are also discussed in terms of the limitations of the study, including sample size and power, and variations in model complexity. Finally, the results of this study suggest recommendations for future validity studies of the GRAD and other assessment devices.

CHAPTER 1

RATIONALE FOR THE RESEARCH

"At-Risk" Youth and Their Involvement in the Juvenile Court

The social service profession has become acutely aware that a large population of "at-risk" youth (and their families) exist, who have needs that usually necessitate their involvement in multiple human service systems that address problem behaviors, including juvenile courts, mental health agencies, alcohol and drug abuse agencies, child and family service agencies, and alternative educational programs. Most definitions of "at-risk" youth indicate that such youth are "at-risk" of not maintaining a normative developmental path that will facilitate their successful transition to adulthood. In the United States, common markers of normative adolescent development include (1) progress toward graduation from high school and later transition to higher education/training or employment, and (2) mature, prosocial attitudes and behaviors that facilitates the young person's successful relationships with authority figures, friends, family, intimate partners, and, perhaps, offspring in early adulthood.

The challenges related to meeting the multiple needs of at-risk youth are particularly evident in the juvenile courts. Recent federal studies reveal than 50% of male adolescents, and nearly 75% of female adolescents held in juvenile detention have at least one diagnosable psychiatric disorder. Further, 50% of detained youth abuse or are addicted to drugs, over 40% meet criteria for the disruptive behavior disorders

(conduct disorder, oppositional defiant disorder), and approximately 17% of males and 26% of females meet the criteria for major depression (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). These estimates are substantially higher than the general population, where 15-22% of the children in the United States meet the criteria for diagnosable psychiatric illness (Weissberg, Caplan, & Harwood, 1991).

Consequently, juvenile justice professionals must simultaneously manage these "extra-legal" problem behaviors of adolescents entering the court in addition to addressing the delinquent behaviors that necessitated a young person's involvement in the juvenile justice system to begin with. In order for juvenile justice professionals to adequately intervene or make referrals for non court-related problem behaviors, they must be able to identify correctly the most salient risk/needs of the young person.

For a number of reasons, this is a challenging task for the juvenile justice system. Using a daily average, it is estimated that every day in the United States 152 juveniles are arrested for homicide, rape or robbery, 600 more are arrested for assault, and another 5000 juveniles are arrested daily for property crimes and other offenses (Lynch, 2002; Snyder & Sickmund, 1995; 1999). Juvenile courts process approximately 2 million cases annually (Puzzanchera, Stahl, Finnegan, Tierney, & Snyder, 2003), and the median caseload for probation/intake officers is 40 active cases--approximately 10 cases higher than what is usually desired optimal (OJJDP, 1996).

It is likely that these patterns will continue in the future. For nearly two decades in the United States, research has demonstrated that approximately one-third of US males have been arrested for criminal activity, and four-fifths have had contact with law

enforcement for minor offenses (Farrington, 1989; Farrington, Ohlin, & Wilson, 1986 cited in Moffitt, 1993). Further, offenses involving offenders under the age of 18 continue to account for approximately twenty percent of the overall crime index (Federal Bureau of Investigation, 1995; 1996; 2000). Finally, at least 30% of all arrests nationally for assault are committed by juveniles, and of those arrests, half are for aggravated assault (Lynch, 2002; Snyder & Sickmund, 1995; 1999). Given the population served, the daily work of the probation/intake officer is, of course, challenging. Thirty percent of juvenile probation officers report being assaulted on the job and approximately 40% report daily concerns with their personal safety (OJJDP, 1996).

Another challenge in meeting the needs of at-risk youth and families in the juvenile justice system—and the social service system in general--regards the general absence of evaluation activities. Although millions of federal, state and local dollars have been spent annually on juvenile crime prevention programming (Coordinating Council on Juvenile Justice and Delinquency Prevention, 1995), few delinquency prevention or intervention programs have *ever* been rigorously and systematically evaluated at the local level (Lipsey, 2001). A predictable result of the lack of evaluation activities is that poor planning and decision-making become more frequent, and errors become non-random and repetitive (Deming, 1986), leading to high levels of duplicative and non-effective effort. These factors serve to slowly erode the energy and motivation of juvenile probation/intake officers, and underscore their need for technical assistance.

Precision in Risk/Need Assessment and Program Effectiveness

The response of the social service system to evidence that at-risk youth and/or their family members have multiple needs has been to call for either tailoring existing services to meet clients' needs, or referring clients to other services that will more appropriately meet their needs. This is particularly true for the juvenile justice system. For nearly ten years, the US Department of Justice's Office of Juvenile Justice and Delinquency Prevention (OJJDP) has endorsed a set of "Comprehensive Strategies" for juvenile courts, the application of which is thought to: (1) improve the juvenile justice system's response to delinquent youth by applying a system of graduated sanctions while simultaneously utilizing a continuum of treatment alternatives that address the developmental needs of youth related to their offending, and (2) prevent at-risk youth from becoming delinquent by utilizing programs that most effectively address their specific developmental needs (OJJDP, 1995).

OJJDP's position on assessment of clients draws heavily from literature supporting the idea of a "risk principle" in case classification and justice programming. The risk principle generally proposes that positive intervention outcomes are most strongly potentiated when the intervention is tailored to the specific needs of the individual related to the problem behavior in question (Andrews, Bonta, & Hoge, 1990; Hoge, 2002; Lipsey & Wilson, 1998).

This principle is based, in part, on the results of multiple systems of empirical research spanning over twenty years that have identified common risk domains that are consistently related to the prediction of problem behaviors (Farrington, 1997; Hoge,

2002; Lipsey & Derzon, 1998; Loeber & Dishion, 1983). Since these risk factors are consistently associated over time and place with poor client outcomes, it would follow that interventions that target such "causal" factors should benefit clients the most, and, in turn, interventions that do not address such "causal" factors will benefit clients the least. Finally, evaluation studies have begun to document how the outcomes of interventions are more effective when the intervention targets the particular risks of the individual (Andrews, Bonta, & Hoge, 1990; Hoge, 2002; Lipsey & Wilson, 1998; Loeber & Farrington, 1998).

One result of these calls to target specific client needs has been a more focused attention on the use and/or creation of reliable and valid risk/need assessment devices that can identify promising targets of intervention. Recent efforts in the juvenile justice literature have begun to articulate necessary components of structured assessments of client risks/needs and the appropriate application of assessment results in meeting client needs (Ferguson, 2002; Hoge, 2002; MacKinnon-Lewis, Kaufman, & Frabutt, 2002), and recent research also has begun to document the empirical links between appropriate risk/need assessment and the effectiveness of juvenile justice programming (see e.g. (Andrews, Bonta & Hoge, 1990; Hoge, 2002; Lipsey & Wilson, 1998).

Assessment Methods

For decades, scholarly and clinical literature has clearly specified that structured risk/need assessment methods have higher levels of reliability and validity than unstructured risk/need assessment methods (Gottfredson, 1987; Meehl, 1954; Sawyer,

1966). The term "unstructured assessment methods" usually refers to individual judgments of client risks/needs based on an intuitive, "clinical" understanding of client needs following an interview. While such unstructured methods are sometimes referred to as "clinical" methods, this is probably a misnomer. "Clinical" assessment methods often include rigorous structured interviews that require intensive training and, usually, substantial time to administer (1-2 hours). Further, ample reliability and validity evidence exists for such methods (Grisso & Underwood, 2003; Webster, Hucker, & Bloom, 2002). Thus, rather than arguing against "clinical" assessments, a better articulation of the issue is that a key component of valid assessment of client risk/needs is a preconceived, logical structure of the instrument that is able to be replicated reliably and rigorously.

Clinical methods often are contrasted with actuarial assessment methods. While structured clinical methods involve qualitative judgments that usually are made by trained clinicians, actuarial methods refer to risk/need assessment methods that are composed of quantitative, usually closed-ended items and scripts or directions that allow professionals to administer the device with relatively little training and experience, or potentially allow clients to self-administer the assessment instrument. Thus, the terms "clinical" and "actuarial" can be usefully thought of as two poles of a continuum, with fully clinical methods requiring high levels of training and experience necessary to make accurate qualitative judgments of client risk/need, and fully actuarial methods involving relatively little training needed since the items in such assessment devices typically have close-ended Likert-style response schemes and few qualitative judgments are made.

This conceptualization of "fully actuarial" assessment devices is similar to the definition of "screening" devices (as opposed to "assessment" devices) that has been articulated in recent juvenile justice and mental health efforts (see e.g. Grisso & Underwood, 2003). Screening devices have been defined as relatively brief (less than an hour) yet comprehensive assessments of the most common threats to the normative development of clients. One of the primary goals of screening devices is to identify areas of client risk/needs that warrant further assessment that is more thorough.

In contrast, one notable example of a structured clinical assessment is the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge, 2002; Hoge & Andrews, 2002), a risk assessment tool that is mainly used to predict offender recidivism and identify promising targets of intervention. The YLS/CMI is used to assess adolescents entering the juvenile court for risks/needs in eight domains: (1) prior and current offenses/dispositions, (2) family circumstances/parenting, (3) education/employment, (4) peer relations, (5) substance abuse, (6) leisure/recreation, (7) personality/behavior, and (8) attitudes/orientation (Hoge & Andrews, 1996; 1997). While described as an actuarial assessment device, in that it requires assessors to code risk levels in each domain and create resulting summary risk scores, the YLS/CMI gathers information in a structured interview process, and requires hours of training and/or experience to make accurate qualitative judgments of risk in each domain (Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003).

It is widely acknowledged that when intake/probation officers have adequate training and experience, assessment devices such as the YLS/CMI can be utilized

reliably and validly in the assessment of client risk/needs related to recidivism (Hoge, 2002; Hoge & Andrews, 2002). However, most "assessment" that occurs in the juvenile court is of the unstructured "clinical" variety, and lacks the necessary rigor to meet virtually any reliability/validity standard (Hoge, 2002; Minor, Hartmann, & Terry, 1997; Sanborn, 1996; Schissel, 1993). The consequences of decisions based on such imprecision in measurement have been documented thoroughly, including system-level bias, inequities, and decisions made that are counter to the historical goal of the juvenile court; namely, to assist delinquent youth in resuming a normative developmental path and ultimately to integrate them into mainstream society (Lewis, 1999).

Given the typical training and experience of juvenile court probation/intake officers and the large numbers of youth that enter the typical juvenile court system, the time and resources needed to train court workers to conduct structured clinical assessments is usually prohibitive. Most juvenile courts in the United States currently present with substantial structural barriers to implementing instruments such as the YLS/CMI and, conceivably, other measures of similar form. Thus, it is argued that until conditions change in the juvenile court, a more effective use of resources would be to first utilize an assessment device that minimizes the amount of training and judgment needed to evaluate client risks/needs. Then, further assessment that is more intensive should be conducted when warranted.

Assessing Client Risks/Needs with the Global Risk Assessment Device

The Global Risk Assessment Device (GRAD; Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003) was developed to assist juvenile court intake/probation officers in making appropriate intervention referrals for court-involved youth and families. This is accomplished by providing professionals with reliable and valid information on ecological risks in the lives of youths (and their families) that are known to influence negatively the transition of adolescents into adulthood (Farrington, 1997; Hoge, 2002; Lipsey & Derzon, 1998; Loeber & Dishion, 1983).

The GRAD collects interval data in eleven different domains, including prior offenses, family/parenting, education/vocation, peer relations/intimate relationships, substance abuse, leisure time, personality/behavior, psychopathy, accountability, traumatic events, and health services. Further, a variety of demographic characteristics of youth and family members are collected, as well as measures of recent transitions for the family within the past year. The domains of the GRAD were specified to represent the most common ecological factors known to be related to adolescent problem behaviors (e.g., Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996; Jessor, Turbin, & Costa, 1998; Lerner & Castellino, 2002).

The instrument's format is highly actuarial. The items that comprise each of the domains are statements with three–point fixed response categories. Respondents are asked to indicate how true each item in the GRAD is for them during a specified time period (e.g. "during the past six months"), by endorsing one of three possible responses:

"Not true" (0), "Sometimes true" (1), or "Often true" (2). Statements are written in an age-appropriate manner depending on the intended audience (i.e. adult vs. youth).

Each item is designed to be read verbatim as a statement from the instrument by the intake/probation officer who then records the young person's and/or his or her parent/caretaker's (hereafter referred to as "parent") response. Clear instructions for the intake/probation officer are included in the body of the instrument, as well as scripts that can be used as an additional aid in the administration of the assessment. With this design, data can be rapidly collected by intake/probation officers with minimal training. Further, in all cases, court officers are encouraged to consider corroborating information when making response decisions for each item, including parent/caretaker information, school records and/or other official documents (Gavazzi, Novak, Yarcheck, & DiStefano, 2004).

The decision process for the inclusion of items into each domain of the GRAD first involved a thorough review of existing measures thought to assess phenomena related to each GRAD domain. Next, for domains that evidenced an abundance of existing measures, only measures with the strongest empirical support for the longitudinal prediction of risk were selected for review. For domains with few existing measures, theory played a larger role in deciding whether to consider using items from existing measures, or to create new items.

The construction of the version of the GRAD used in this study also involved thorough reviews and alterations of the items that made up each GRAD domain, in terms of maximizing their usefulness in assessing the different experiences of at-risk

adolescent males and females. In the development of the instrument, it was thought that gender socialization determines, at least in part, the context wherein adolescent problem behaviors occur, as well as the particular expression of problem behaviors. Thus, items that were more or less specific for males or females were included in each GRAD domain, while items that were gender specific were avoided. In this fashion, items were decided upon that would more accurately assess the experiences of males and females alike, while maintaining the construct validity for each domain regardless of gender.

Next, the context (i.e., the assessment of court-involved youth and their parents by juvenile court intake/probation officers) wherein assessments would occur was considered in making further decisions that narrowed the range of items to be used for each domain. In particular, the potential for unintentional and intentional bias in the responses of youth and/or parents was minimized by choosing items that assessed salient phenomena each respondent would most likely be aware of, and would most likely disclose truthfully. Finally, items were modified based on the feedback from respondents during pilot testing and social service professionals both in terms of the clarity of each item, and its predictive usefulness in risk assessment and treatment referral. In most cases, this process ultimately resulted in the creation of unique items of particular use to local county courts and service providers (Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003).

Juvenile court professionals collect GRAD data through approximately 20 to 30minute face-to-face screenings of adolescents and/or their parents/caretakers (hereafter referred to as "parents"). Information is first collected about the young person's (and/or
his or her parent's) perception of his/her levels of risk. Next, the juvenile court professional considers available corroborating information as well as other information that the young person disclosed to the intake/probation officer. Finally, the juvenile court professional used a user-friendly web-based interface to record the resulting responses (Gavazzi, Novak, Yarcheck, & DiStefano, 2004).

Each domain of the GRAD is currently comprised of several items that have empirically (and meaningfully) "loaded" on latent variables of each respective GRAD domain across multiple samples (Gavazzi & Lim, 2003; Gavazzi, Lim, Yarcheck, & Eyre, 2003; Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003). In turn, composite (summed) scores for each domain are trichotomized into "high risk," "medium risk" and "low risk" categories.

Initial levels of risk are assigned using professional inter-rater agreement of risk level cutoff scores based on the theoretical range of each domain. After pilot data are collected (usually 100 or more youths), new cutoff scores are calculated based on the distribution of scores, with "low risk" being one standard deviation below the mean, and "high risk" being one standard deviation above the mean. Then the "empirical" cutoff scores for each domain are compared to the theoretical scores, and modifications to the assigned cutoffs are made.

The cut-off scores resulting from this process are based on the idiosyncratic mean and standard deviation of the sample and its subpopulations (e.g., different cut-off scores may result for males and females separately). This process has successfully

been implemented, and is currently ongoing, at multiple juvenile courts in urban, midsize, and rural communities (Gavazzi, Yarcheck, Edelblute & Webb, 2005).

After a young person has been identified as high, medium, or low risk in each GRAD domain, the GRAD system provides links to brief interpretations of the youth's scores. Interpretations of scores are based on substantive knowledge of phenomena in each domain the GRAD is designed to assess. From the interpretation of scores, links to intervention recommendations are then available to guide the human service professional's decision(s) for intervention referrals (Gavazzi, Novak, Yarcheck, & DiStefano, 2004).

GRAD referral recommendations are based on two criteria: (1) the "causal" structure underlying GRAD domains and their relations to adolescent problem behaviors, and (2) longitudinal evidence of positive outcomes of participants in specific types of programs that have a program component that specifically targets the "causal" links between (GRAD) risk domains and adolescent problem behaviors. Thus, at the conclusion of the assessment, the social service professional is given eleven different interpretations and recommendations—one for each GRAD domain—based on the above criteria.

Social service professionals are trained to use the results of the GRAD to help inform their professional judgment, and thus to make referral decisions more likely to result in positive outcomes. After the GRAD assessment, the web-based interface prompts the social service professional to decide on a referral for the youth (and/or his/her family) and then document the professional's rationale for the referral decision.

The GRAD system provides social service professionals with unique identifiers for each youth and/or family member. Professionals can use this identifier to assess the youth again later, and/or can pass on the youth's unique identifier to another human service agency to record follow-up data on a youth. In this way, the development of youth can be tracked longitudinally and important decisions can be made about service providers, including efficacy and service gaps. The GRAD system is built such that referral decisions and their rationale must be documented before the social service professional can continue using the GRAD.

Description of the Research

To date, five published studies have established validity and reliability evidence of the GRAD. Gavazzi, Slade, Buettner, Partridge, Yarcheck, and Andrews (2003) replicated a confirmatory factor analysis of the psychometric structure of the GRAD across two independent samples: a sample of adolescents who participated in a familybased diversion program (\underline{N} = 248) and a sample of court-involved adolescents (\underline{N} =373). While the GRAD allows reports from both youth and parents/caretakers, data from both samples were collected from parents/caretakers' perspectives of their young persons.

For the sample of <u>N</u>=248 youth, subscale Cronbach alphas ranged from .63 (Peer Relationships) to .90 (Family/Parenting) and mean item-to-total correlations ranged from .31 (Personality/Behavior) to .55 (Substance Use/Abuse). Confirmatory factor analyses that specified the multidimensional structure of the GRAD were largely supported. The RMSEA was .07 (90% CI = .071 to .076) for the model (power = 1.0; <u>df</u>

= 3578), and all confirmatory factor loadings were statistically significant (\underline{p} < .05). Mean confirmatory factor loadings ranged from .42 (Prior Offenses) to .63 (Substance Use/Abuse; Attitude/Orientation).

For the sample of <u>N</u>=373 youth, subscale Cronbach alphas ranged from .87 (Prior Offenses) to .97 (Family/Parenting) and mean item-to-total correlations ranged from .53 (Prior Offenses) to .83 (Attitudes/Orientation). Confirmatory factor analyses that specified the multidimensional structure of the GRAD were also largely supported. The RMSEA was .06 (90% CI = .068 to .070) for the model (power = 1.0; <u>df</u> = 6412), and all confirmatory factor loadings were statistically significant (<u>p</u> < .05). Mean confirmatory factor loadings ranged from .42 (Prior Offenses) to .63 (Substance Use/Abuse; Attitude/Orientation).

A subsample of <u>N</u> = 37 respondents from the sample of <u>N</u> = 248 youth described in the Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews (2003) study, were further analyzed by Gavazzi and Lim (2003) to establish preliminary evidence of the concurrent validity of the Family/Parenting, Substance Use/Abuse and Personality/Behavior subscales with other, related and established measures. A significant association (\underline{r} = .39; \underline{p} < .05) was found between the Family/Parenting subscale with an established measure of "unpleasant family events" (e.g. tension, conflict, etc), the Family Events Checklist from the Oregon Social Learning Center (Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992).

Significant associations ($\underline{p} < .05$) were also found between the GRAD Substance Use/Abuse domain and the Youth Risk Behavior Survey from the US Centers for

Disease Control (CDC; Brener, Collins, Kann, Warren, & Williams, 1995; Brener, Kann, McManus, Kinchen, Sundberg, & Ross, 2002; Kolbe & Collins, 1993) of alcohol use (\underline{r} = .40), marijuana use (\underline{r} = .66) and cocaine use (\underline{r} = .35). Finally, a significant relationship was found between the GRAD Personality/Behavior domain and an established measure of negative psychological symptoms (\underline{r} = .35)--the Brief Symptom Inventory (BSI; Derogatis, 1993).

A third study (Gavazzi, Lim, Yarcheck, & Eyre, 2003) utilized a subsample of \underline{N} = 244 respondents from the sample of \underline{N} = 373 youth described in the Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews (2003) study discussed above. Tests for preliminary predictive validity evidence were accomplished by analyzing the relationship between parent-reported GRAD risk scores and the intake officer's subsequent referral to services for the target youth and his/her family. All less intensive and non-mental health referrals were categorized as "low" in intensity, while all mental health and therapy referrals were coded as "high" in intensity.

A significant, positive relationship was found between GRAD risk scores and the intensity of services to which adolescents were referred. T-tests revealed that adolescents referred to mental health ("intensive") services had significantly ($\underline{p} < .001$) higher GRAD risk scores than adolescents referred to less intensive services. Further, a discriminant analyses was conducted to assess whether youth referred to intensive services based on their GRAD risk scores.

Results of the analysis revealed that a significant discriminant function (Wilks Lambda = .848; p < .001) accounted for 15% of the variance in referral intensity. Seventy-two percent of the cases were correctly classified, while 22% of the youth who scored high on the GRAD were not referred to intensive services, and 6% of the cases were referred to intensive services even though they scored low risk on the GRAD domains. The study's authors note that, while the findings provide some predictive validity for the GRAD, other factors beyond the GRAD, specifically professional (clinical) referral decision-making and the unavailability of desired services, are likely playing powerful roles in the intensity of service youth a referred to following GRAD assessment.

Two of the most recent GRAD studies have begun to rigorously test for demographic differences across samples of court-involved youth assessed with the GRAD. Gavazzi, Yarcheck, & Lim (2005) identified significant gender differences between multiple domains of the GRAD, as well as significant differences in youthreported GRAD scores between status-offending youth and delinquents that are more serious. Gavazzi, Yarcheck, and Chesney-Lind (2006) provided further, compelling evidence that youth-reported GRAD risk/need scores differ appreciably depending on youth gender.

While these recent efforts have provided preliminary validity evidence for the GRAD, and the multidimensional structure of the GRAD generally has been confirmed, to date no thorough concurrent validity tests for individual subscales have been published. Because such evidence is essential to know the efficacy of the GRAD in

terms of its use in case management, this study will specifically focus on advancing knowledge of the concurrent validity of select GRAD domains.

The Need for Validity

Validity studies of measures are important, because the validity of any research finding is only as good as the measures used to produce it. Further, since a primary goal in the construction of most measures is to predict future events or behaviors, there is, of course, a need to establish the extent to which a measure can predict behaviors or events that the measure is intended to predict. Yet, if the measure is not associated in a logically consistent way with the construct it is intended to measure, causal inferences drawn from predictive associations are invalid. Therefore, the validation process of a measure must include both concurrent and predictive validity (Borsboom, Mellenbergh & Van Heerden, 2004).

Establishing concurrent validity includes confirming hypothesized associations (i.e., "convergent" validity) as well as ruling out illogical associations (i.e., "divergent" validity). Both are needed to confirm the underlying logic that is necessary to make logical, score-based inferences. An often-overlooked factor is the need for control variables in concurrent validity studies. Historically, zero-order correlations have been used to identify validity evidence, despite longstanding agreement among experts that such unanalyzed relationships are spurious (Jaccard, Turrisi, and Wan, 1990; Kraemer, Stice, Kazdin, Offord, and Kupfer, 2001) and call into question any score-based inferences that are made.

As discussed above, prior research has focused on validating (among others) the Family/Parenting domain of the GRAD. Across both samples in the Gavazzi, Slade, Buettner, Partridge, Yarcheck, and Andrews (2003) study, Cronbach alphas for the Family/Parenting domain were .90 ($\underline{N} = 248$) and .97 ($\underline{N} = 373$). Further, a small but significant association (.39; $\underline{p} < .05$) was found between the Family/Parenting domain of the GRAD and the "unpleasant family events" subscale of the Family Events Checklist – an established measure of family functioning (Gavazzi & Lim, 2003).

To continue these preliminary efforts, the current study will address two key issues necessary for a thorough analysis of concurrent validity claims regarding the Family/Parenting domain. First, the relative fit of competing models of the GRAD Family/Parent domain and other established family measures will be tested for concurrent and discriminant validity utilizing confirmatory factor analyses. Validity evidence is generated when specified models fit as hypothesized. Second, both parent and youth reports of the other established family measures thought to be related to the GRAD Family/Parent domain also will be utilized in model specification. If models utilizing both youth and parent/caretaker reports of established family measures are both related to the GRAD in a theoretically consistent manner, validity evidence is thought to be strengthened.

Thus, consistent with Gavazzi and Lim (2003), this study will continue to further these efforts by assessing the concurrent validity of the GRAD Family/Parenting domain with three other more established family measures, including parent and adolescent perspectives of: (1) the "unpleasant family events" subscale of the Family Events

Checklist (Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992), (2) the Family Intrusiveness Scale (Gavazzi, Reese, & Sabatelli, 1998), and (3) the Perceived Social Support from the Family scale (Procidano & Heller, 1983).

CHAPTER 2

REVIEW OF THE LITERATURE

Family/Parenting Factors and Court-Involved Adolescents

While multiple factors in the ecologies of adolescents have been linked to adolescent development (e.g. community, neighborhood, school, peer, family etc.), within the last few decades, agreement among different social science disciplines appears to have been reached regarding the salient impact of family/parenting factors on the development and maintenance of antisocial behavior in adolescence. Notably, empirical research findings in both developmental psychology and criminology have converged, specifying similar causal models that confirm the powerful influences of family/parenting variables on the longitudinal prediction of antisocial behavior across contexts (Loeber & Dishion, 1983; Loeber & Stouthamer-Loeber, 1986; McCord, 1983; Patterson, Reid, & Dishion, 1992).

In particular, the program of research ongoing at the Oregon Social Learning Center (Patterson, Reid, & Dishion, 1992) has been instrumental in developing and testing theories related to the development and maintenance of child antisocial behavior. Their research supports a social-interactional model that links coercive parent-child interactions to the child's interaction with his/her social environment. Specifically, antisocial children engage in coercive parent-child exchanges ("power struggles") that tend to disrupt parents' strategic responses to their child's misbehaviors and instead

result in harsh and/or inconsistent parenting. Repetition of such a pattern of exchanges over time establishes an escape conditioning sequence for parents of antisocial children: parents avoid disciplining their child for fear of punishing interactions with them, (Capaldi & Patterson, 1996; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Patterson, Reid, & Dishion, 1992).

Youth who engage in coercive exchanges with family members also tend to carry these behaviors into their social environment, engaging in similar interactions with other adults in positions of authority (e.g., teachers) as well as their peers. In turn, youth who continue to engage in coercive exchanges with peers are typically rejected by the normative peer group due to the aversive nature of their coercive interactions. Further, those antisocial youths rejected from the normative peer group tend to associate with each other, thereby reinforcing their negative behaviors. The disruptions that these antisocial youth provoke in the classroom and with peers usually make academic instruction of such youths highly challenging, and most fall behind their peers in terms of their academic performance (Andrews, Soberman, & Dishion, 1995; Capaldi & Patterson, 1996; Dishion & Andrews, 1995; Dishion, Patterson, Stoolmiller, & Skinner, 1991).

Similar to the social-interactional model, criminology models also measure family/parenting variables, yet also typically control for larger social forces (income, neighborhood, etc.) beyond family functioning and the peer group (see e.g., Furstenberg, 1993; Sampson, 1997; Sampson, Raudenbush, & Earls, 1997; Wilson, 1987). For example, Robert Sampson's important (1987) study on the affect of male

joblessness and family disruption on urban black juvenile violence revealed that the effect of male joblessness on urban black violence was mediated by family disruption. Male joblessness predicted increases in single mother-headed families, which in turn reduced the number of parents that other adults in the community could network with to supervise and monitor the neighborhoods' youth. This in turn led to increases in opportunities for violence perpetrated by and against (mostly) young males. Because of the lack of adult supervision and monitoring of these males in the neighborhood, their interpersonal conflicts were much more likely to erupt into violence, including assaults, aggravated assaults, and homicides.

While different social science theories posit varying causal models of the influence of parenting, their central assumptions are quite similar, stressing the critical importance of parents and other caretakers in the normative socialization of their adolescents. Efforts in criminology (Gorman-Smith, Tolan, & Henry, 2000; Gorman-Smith, Tolan, Sheidow, & Henry, 2001; Henry, Tolan, & Gorman-Smith, 2001; Tolan, Gorman-Smith, Huesmann, & Zelli, 1997), family psychology (Dakof, 1996), and family studies (Bray, 1995; Sabatelli & Bartle, 1995) have articulated complementary models specifying how parent/family variables impact adolescent development, and should accordingly impact the development and maintenance of antisocial behavior. This focus on parent/family factors in the prediction of youth problem behaviors is not uncommon, because many of the theories driving such research have long considered parenting practices and parent-child relationships to be proximal causes of the development of

antisocial behavior in children and youth (see e.g., Elliott, Ageton, & Canter, 1979; Hirschi, 1969; Patterson, Reid, & Dishion, 1992; Thornberry, 1987).

Empirical research studying the impact of parenting/family relationships on adolescent antisocial behaviors continues to be a frequent subject of scholarly inquiry (Ellis and Walsh, 1999). Variables related to parenting have been extensively studied empirically (Loeber & Dishion, 1983; McCord, 1983; Reid, Kavanagh, & Baldwin, 1987; Simons, Wu, Conger, & Lorenz, 1994), and their salient influences on child and adolescent antisocial behavior have been replicated over time and across contexts, suppressing the effects of other salient risk factors, including family structure, antisocial peers, socioeconomic status and neighborhood crime (Farrington, 1994; Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; Krohn, Stern, Thornberry, & Jang, 1992; Patterson & Dishion, 1985).

A definition of "family" consistent with most empirical findings regarding the salient influence of family/parenting factors on adolescent behavior has been articulated by family scientists as: An interdependent group of individuals who (1) have a shared sense of history, (2) experience some degree of emotional bonding, and (3) devise strategies for meeting the needs of individual family members and the group as a whole (Anderson & Sabatelli, 1995; Sabatelli & Bartle, 1995). For the purposes of the GRAD family/parenting domain, a minimum standard for meeting the definition of "family" is one adult and youth who meet the above requirements.

Research on parenting and adolescent antisocial behavior has mainly focused on two related yet different factors: (1) parental discipline (Henry, Moffit, Robins, Earls, &

Silva, 1993; Lansford, Criss, Pettit, Dodge, & Bates, 2003; Simons, Whitbeck, Conger, & Conger, 1991; Simons, Wu, Conger, & Lorenz, 1996), and (2) parental monitoring/supervision (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Farrington, 1990; Sampson & Laub, 1993; Snyder & Patterson, 1987). The effect of parent-child attachment on the effectiveness of parental discipline and monitoring/supervision also has been a subject of scholarly inquiry, though it has typically been studied as a control variable and not as a potential target for intervention as parenting variables have (Johnson & Pandina, 1991; LeBlanc, 1992; Rankin & Kern, 1994; Simons, Robertson, & Downs, 1989).

In addition, caregivers who have strong, secure attachments with their children that have developed over time, tend to be more successful in their parenting efforts because their child is more likely to (1) understand from the parent what is expected from him/her and (2) accept the parent's expectations because the caregiver is perceived by the child as having legitimate authority over him/her (Baumrind, 1991; Grusec & Goodnow, 1994; Rankin & Kern, 1994). Thus, parent/caretakers of youth engaging in delinquent behaviors that do not have strong attachments to their children have limited ability to effectively discipline their children and prevent further problem behaviors. Yet, because attachment relationships usually develop over the course of several months or years, the promotion of parent-child attachment is typically not a focus of intervention with court-involved adolescents.

Parental Discipline, Monitoring, and Supervision

Most programs of research that have established parental discipline, monitoring and supervision as salient explanatory variables in adolescent development share common theoretically related principles—most drawn heavily from learning theories. Discipline generally refers to the parent/caretaker's strategic use of reinforcement and punishment to shape behavior over time in order to potentiate the prosocial development of the young person and/or the furthering of his/her well-being (Barber, 1997; Barber & Olsen, 1997; Gartstein & Fagot, 2003; Hirschi, 1969). A parent/caretaker's strategic use of reinforcement and punishment depends in large part on his/her ability to (1) empathize with his/her child and anticipate his/her developmental needs (hence the attachment link), and (2) inhibit an emotional reaction to their child's wrongdoing in favor of strategic discipline (Baumrind, 1991; Gartstein & Fagot, 2003; Grusec & Goodnow, 1994).

Most theories of effective parental discipline stress the importance of discipline as a primary method for teaching the importance of prosocial norms (Barber & Olsen, 1997; Baumrind, 1991; Hirschi, 1969). The successful use of reinforcement and punishment over time to shape prosocial behavior depends on the ability of the parent/caretaker to empathize with his/her youth and provide the young person with ample opportunities to allow his/her developmental needs to be met. Primary parent/caretakers who are unable to empathize with their child and formulate strategies to help meet his/her developmental needs will largely fail to shape the behavior of the young person over time (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Patterson & Dishion, 1985; Patterson, Reid, & Dishion, 1992; Snyder & Patterson, 1987).

In addition to discipline, parental monitoring and supervision are thought to be critical for effective parenting. Supervision refers to a parent/caretaker's physical presence and attentiveness to the behaviors of his/her young person, while monitoring refers to the parent/caretaker's knowledge of the young person's whereabouts and activities without a necessary physical presence (Dishion, Nelson & Kavanagh, 2003; Laird, Pettit, Bates, & Dodge, 2003; Lansford, Criss, Pettit, Dodge, & Bates, 2003; Loeber, Drinkwater, Yin, Anderson, Schmidt, & Crawford, 2000).

Effective parental discipline and monitoring/supervision are thought to be significantly and positively correlated (Lansford, Criss, Pettit, Dodge, & Bates, 2003; Loeber, Drinkwater, Yin, Anderson, Schmidt, & Crawford, 2000). Knowledge of the young person's whereabouts and activities is necessary for the parent to make informed decisions when disciplining (Brown, Mounts, Lamborn, & Steinberg, 1993; Dishion, Nelson & Kavanagh, 2003; Sampson, 1987; Sampson & Laub, 1994). Further, effective parental monitoring/supervision prevents exposure to antisocial peers (Simmons-Morton & Chen, 2005; Stoolmiller, 1994) and reduces the quantity of time spent with antisocial peers, thus reducing opportunities to engage in problem behaviors (Barrera, Biglan, Ary, & Li, 2001; Clark, Thatcher, & Maisto, 2004; Stoolmiller, 1994).

The impact of parental monitoring and supervision on the number and severity of various adolescent problems behaviors has been documented empirically, including: delinquent behavior (Laird, Pettit, Bates, & Dodge, 2003; Stoolmiller, 1994),

externalizing, antisocial behavior in school (Lansford, Criss, Pettit, Dodge, & Bates, 2003), the progression of alcohol consumption (Simmons-Morton & Chen, 2005), the incidence of alcohol use disorders (Clark, Thatcher, & Maisto, 2004; Thomas, Reifman, Barnes, & Farrell, 2000), and illicit drug use (Dishion, Nelson & Kavanagh, 2003).

Further, multiple studies have identified the dynamic links between parental monitoring/supervision and associations with antisocial peers. Effective parental monitoring/supervision is thought to mediate the effect of antisocial peer associations on adolescent problem behavior levels (see e.g., Clark, Thatcher, & Maisto, 2004; Lansford, Criss, Pettit, Dodge, & Bates, 2003; Sampson, 1987; Simmons-Morton & Chen, 2005). Effective monitoring/supervision limits the time spent with antisocial peers as well as reducing the number of associations, thus reducing levels of problem behavior (Stoolmiller, 1994). In addition, several studies have identified a main effect of parental monitoring/supervision on adolescent problem behaviors as well (Barrera, Biglan, Ary, & Li, 2001; Patterson, Reid, & Dishion, 1992; Thornberry, 1987).

Ample data suggests that effective monitoring/supervision of adolescents is a powerful protective factor for most adolescents. The positive effects of effective parental monitoring/supervision—especially in regards to reductions in the influence of antisocial peers-- have been found for Native American, Hispanic, and Caucasian groups (Barrera, Biglan, Ary, & Li, 2001). Evidence also suggests that effective parental monitoring/supervision suppresses the impact of demographic variables on adolescent problem behavior, including age and gender (Richards, Miller, O'Donnell, Wasserman, & Colder, 2004). Finally, few differences between family structures (e.g., married,

biological families vs. stepfamilies) have been found, with the exception of the number of adults in the household (i.e. one vs. two parent households). In general, two-parent households tend to do a better job in monitoring their adolescents than single-headed parent families (Fisher, Leve, O'Leary, & Leve, 2003; Sampson & Laub, 1993).

Monitoring and supervision remain established as salient predictors of youth prosocial and antisocial behavior, and social forces that impede the ability of parents to monitor and supervise their adolescents historically have been the subject of multiple intervention efforts, mostly in terms of efforts to limit the impact of antisocial peers on adolescent problem behavior (see e.g., Elliott, Ageton, & Canter, 1979; Krohn, 1986; Patterson, Reid, & Dishion, 1992; Thornberry, 1987).

Parent/Child Attachment

It has been well established that effective parents/caretakers have healthy attachments to their children (Rankin & Kern, 1994; Sampson & Laub, 1994). Attachments--enduring emotional bonds that exist within parent-child relationships-foster the development of trust and personal autonomy in children (Rankin & Kern, 1994). The parent/caretaker's effective use of discipline, monitoring, and supervision depends in large part on healthy parent-child attachment.

The healthier the parent-child attachment bond, the better the parent will likely be in empathizing with his/her young person and, in turn, utilizing effective discipline strategies in shaping the prosocial behavior of the young person and monitoring his/her whereabouts. While few would dispute the salient impact that parent-child attachment has on parenting behaviors, and while attachment has historically been studied in scholarly research, it has not been a target variable for intervention as parenting has (Grusec & Goodnow, 1994; Hirschi, 1983; Rankin & Kern, 1994).

Parents of Adolescents

While parenting remains a salient force for pro-social development throughout childhood, the advent of adolescence brings new challenges to families in that the adolescent must begin to develop a more mature sense of identity in preparation for his/her transition to adulthood. For most adolescents, this typically involves a new sense of autonomy from his/her parents (Allison & Sabatelli, 1988) in the service of identity development. While adolescents cannot achieve full behavioral autonomy from parents until they are legally adults, they can and should develop a sense of psychological autonomy from parents—the ability to think more independently for him/herself and be less governed by the directives of the parent (Anderson & Sabatelli, 1990; Bowen 1976, 1978; Kerr & Bowen, 1988). While effective parents of adolescents must continue to shape prosocial behavior in their adolescents by utilizing age-appropriate discipline, monitoring and supervision, these efforts must be conducted in a manner that simultaneously allows the emergence of psychological and behavioral autonomy (Allison & Sabatelli, 1988; Anderson & Sabatelli, 1990; Bowen 1978; Kerr & Bowen, 1988).

Successful parenting of adolescents remains a formidable challenge for even the most accomplished parent/caretaker. Because parenting essentially involves adult control over the behaviors of the young person, parents must carefully balance their

efforts to control their young person's behavior with the provision of opportunities for their young person to develop individuality-enhancing experiences during their transition to adulthood (Anderson & Sabatelli, 1990; Bowen 1976; Gavazzi & Sabatelli, 1990). Parents' failure to appropriately supervise/monitor and discipline their adolescent can result in their young person's deviance from pro-social development. Yet, failure to allow opportunities for their young person to develop individuality also likely results in their young person's delayed development in making the transition to adulthood (Allison & Sabatelli, 1988; Gavazzi, 1993; 1994).

Parental Support vs. Parental Intrusiveness

Perceived parental support of adolescents long has been linked to healthy adolescent development (Davies & Windle, 2001; Farrington, 1994; Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; Henggeler, Melton, & Smith, 1992), and studies utilizing representative samples of general populations consistently have found that parental monitoring/supervision and support are both important predictors of the development and maintenance of adolescent antisocial behavior (Barnes & Farrell, 1992; Cauce, Felner, & Primavera, 1982; Griffin, Botvin, Scheier, Diaz, & Miller, 2000; McCord, 1996), even when controlling for other salient ecological variables (e.g., demographic, family history, peer, etc). Thus, in addition to parenting effectively, parents/caretakers must be able to tolerate and support their adolescent's efforts toward—ultimately—the achievement of a mature sense of individuality. For families with children entering adolescence, a gradual renegotiation of interpersonal distance must occur over time, such that the typical asymmetrical authority of parents during early and middle childhood is gradually replaced by a more symmetrical pattern of interaction that mirrors the peer-peer mutuality experienced by youth during late adolescence and adulthood. This renegotiation is thought to match the progressive evolution of the adolescent's identity that accompanies individuation (Allison & Sabatelli, 1988; Anderson & Sabatelli, 1990; Gavazzi, 1993; 1994).

Parental intrusiveness refers to non-legitimate behaviors of family members who attempt to limit their adolescent's developmentally necessary moves toward individuality. Intrusive parent/caretakers can unintentionally motivate their adolescents to seek out individuality experiences in the social environment (in particular the peer group), while simultaneously distancing him/herself from the influence of parents and other family members who should be necessary socializing agents (Cohen, Vasey, & Gavazzi, 2003; Gavazzi, 1993; Gavazzi, Anderson & Sabatelli, 1993; Gavazzi, Reese, & Sabatelli, 1998). Since less parental monitoring, supervision, and guidance will occur in such situations, peers (for better or for worse), instead of family, will set the markers for the adolescent's transition from child to adult.

Further, such families may hinder their adolescent's opportunities to experience various workplaces and social settings, thus limiting the youth's ability to "network" their way into a job or higher education in early adulthood (Cohen, Vasey, & Gavazzi, 2003; Gavazzi, 1993; Gavazzi, Anderson & Sabatelli, 1993; Gavazzi, Reese, & Sabatelli, 1998). In short, an adolescent whose family members are limited in their support for

his/her individuality/autonomy experiences will likely experience maturational delays that can hinder the young person's successful transition to adulthood (Anderson & Sabatelli, 1990; Bowen 1976, 1978; Kerr and Bowen, 1988).

Findings from Evaluation Research of Family-Based Programs

In additional to empirical research on family/parenting factors, evaluations of family-based programs have revealed that some of the most effective interventions with adolescents occur with their family members. For instance, multi-site evaluations of Functional Family Therapy (FFT) with families of adolescents exhibiting problem behaviors have documented reductions in adolescent antisocial behaviors relative to controls and alternative interventions including individual counseling, 24-hour group home programming, and probation services. Overall, these studies have provided evidence that the improvements in adolescent behaviors were potentiated by altering family interactions such that defensive communications were reduced, and supportive communications were increased (Barton, Alexander, Waldron, Turner, & Warburton, 1985; Gordon, Arbuthnot, Gustafson & McGreen, 1988; Gordon, Graves, & Arbuthnot, 1995; Klein, Alexander & Parsons, 1977).

More specifically, supportive communication was indicated when family members responded empathically to each other, provided helpful information for problem solving and evidenced good communication skills such as waiting for a family member to finishing talking before contributing to the conversation. Defensive communication was indicated when a family member showed indifference, placed unreasonable demands on

or was highly critical of other family members. Further, while families with delinquent youth were attentive to defensive interactions and reciprocated them, families with nondelinquent youth reciprocated supportive interactions and ignored defensive communications (Barton, Alexander, & Turner, 1988; Barton, Alexander, Waldron, Turner, & Warburton, 1985; Waldron, Turner, Alexander, & Barton, 1993).

The FFT process focused on training parents to identify and change faulty communication patterns, define house rules and enforce house rules appropriately. The training of parents included role-playing and modeling of appropriate communication patterns by therapists, and teaching parent/caretakers behavior management skills such as behavioral contracting (Alexander, 1973; Parsons & Alexander, 1973). Families who participated in FFT evidenced higher levels of supportive communications between parents and adolescents and lower levels of defensive communications at post-test. Further, FFT families have significantly lower levels of delinquent activity than groups of court-involved adolescents and their families who participated in other intervention efforts and who served as controls. The recidivism rate for FFT program participants (27%) was approximately half the county base rate of 51% (Gordon, Arbuthnot, Gustafson, & McGreen, 1988; Gordon, Graves, & Arbuthnot, 1995). Finally, evidence of a larger family system effect was presented in one study (Klein, Alexander, & Parsons, 1977), such that the siblings of FFT participants evidenced higher levels of supportive communications, lower levels of defensive communications, and lower levels of delinguent behavior relative to controls and families involved in non-FFT programs.

Further, evaluations of Multisystemic Therapy also have documented significant improvements in adolescent behavior relative to controls, and have provided evidence that behavioral improvements are related to the provision of intensive home-based family therapy services that strive to alter both parenting practices and family dynamics. Consistent results on the efficacy of Multisystemic Therapy have been demonstrated in outcome studies in comparison to alternative interventions, including individual counseling, probation, incarceration, and/or referral for mental health, educational or vocational services (Henggeler, 1996; Henggeler, 1997; Henggeler, Borduin, Melton, Mann, Smith, Hall, Cone & Fucci, 1991; Henggeler, Melton, & Smith, 1992). The authors' interpretations of these results suggest that programs utilizing a "family" component have higher success levels that programs that treat individual youth.

Delinquent behavior recidivism rates are significantly lower (26%) for MST participants compared to (71%) controls (Borduin, Mann, Cone, Henggeler, Fucci, Blaske & Williams, 1995). Improvements in adolescent behaviors are thought to result, in part, from intervening in the family environment. MST utilizes a "family preservation" model that teaches parenting skills to caretakers for managing normative adolescent problem behaviors, as well as reducing conflict within the family. There is some evidence to support this thinking. Relative to controls, participation in MST has been associated with higher levels of supportiveness and lower levels of conflict-hostility within families, and these changes in family dynamics are though to play causal roles in reductions of adolescent problem behaviors (Henggeler, 1997; Borduin, Mann, Cone, Henggeler, Fucci, Blaske & Williams, 1995).

Development of the GRAD Family/Parenting Domain (GRAD)

Since theory, empirical evidence, and evaluation research suggest the salient influence of family/parenting factors in adolescent development, assessment of family/parenting factors utilizing a theoretically consistent and valid measure should be a priority in the assessment of court-involved adolescents. Thus, the goal in the creation of the family/parenting dimension of the Global Risk Assessment Device was to assess threats to the development and well-being of court-involved adolescents by tapping constructs that are supported by family-based theory, research, and evaluation studies. The decision to initiate use of this measure also was generated by feedback from primary referral agents regarding the need to gather information about specific characteristics of families that could be used to help make appropriate referral decisions.

To guide the development of the items to be used, a thorough review was conducted of existing measures validated for use with antisocial or otherwise courtinvolved adolescents. Established measures of problems with parental monitoring/supervision and effective parental discipline primarily were reviewed, as these measures had been utilized in many of the existing studies that linked parenting behaviors to adolescent court involvement and other problem behaviors. Of the measures reviewed, three were chosen as models: the delinquency subscale from the Child Behavior Checklist (CBCL; Achenbach, 1991), the Overt-Covert Aggression Questionnaire (OCAQ; Patterson, Crosby, & Vuchinich, 1992; Patterson & Yoerger 1999), and the Countercontrol Scale (Krohn, Stern, Thornberry, & Jang, 1992).

Data gathered from parents using the CBCL have a long validation history, with established validity for American (Achenbach, 1991) and European samples (Novik, 1999; Schmeck, Poustka, Doepfner, Plueck, Berner, Lehmkuhl, Fegert, Lenz, Huss, & Lehmkuhl, 2001). Scores on the CBCL consistently have been found to discriminate between "referred" (for mental health services) and "non-referred" children and adolescents (Achenbach, 1991). The CBCL also has strong concurrent validity with other measures of child/adolescent psychopathology, including the Diagnostic Interview Schedule for Children (DIS-C), the Conners Parent Questionnaire, and the Quay-Peterson Revised Behavior Problem Checklist (Achenbach, 1991; Jensen, Watanabe, Richters, Roper, Hibbs, Salzberg, & Liu, 1996).

More specifically, the delinquency subscale of the CBCL was used to help formulate items, as this subscale measures adult assessment of the extent to which people are engaged in non-aggressive antisocial behaviors (e.g., lying, stealing, substance use, disobedience to authority, truancy, runaway, and other violations of social norms). The delinquency subscale of the CBCL has been utilized extensively in research assessing antisocial behavior and court involvement among adolescents (Lerman, 1995; Patterson, Reid & Dishion, 1992).

A second measure considered was the Overt-Covert Aggression Questionnaire (OCAQ; Patterson, Crosby, & Vuchinich, 1992; Patterson & Yoerger, 1999), a behavioral checklist (similar in format to the CBCL) that assesses parents' perceptions of the extent of antisocial behaviors obvious to other people (i.e., in plain view), as well as behaviors that occur surreptitiously (i.e., usually hidden from the view of others). Some evidence

of the predictive validity of this measure exists. For instance, parent ratings of overt and covert behaviors over a 10-year period contributed to the prediction of both juvenile and (later) adult arrests, and youth categorized as high-risk using these measures had higher levels of re-arrest (49% vs. 16%) than youth categorized as moderate risk (Patterson & Yoerger, 1999).

The third measure used in the construction of the family/parenting risk domain of the GRAD was the Countercontrol Scale (Krohn, Stern, Thornberry, & Jang, 1992). This measure (also similar in form to the CBCL) assesses parents' perceptions of the extent to which their young person attempts to thwart parental disciplinary efforts by introducing and/or escalating aversive behaviors in the family environment. Scores on the Countercontrol scale have been significantly related to both official (i.e., court records) and self-reported delinquency (Krohn, Stern, Thornberry, & Jang, 1992). Items in this instrument clearly tapped problems with effective parental discipline, and mapped closely to the kinds of parenting problems found with families of antisocial youth.

The final set of items used to begin this work consisted of 12 items derived from these measures (see APPENDIX A) that addressed family/parenting issues known to be correlated with adolescent antisocial behaviors, including disruptions in parental discipline and monitoring/supervision. The first set of items focused on difficulties the care-taking adult has in terms of monitoring or otherwise keeping track of the referred adolescent. The following three items comprised the youth's disruptive "Responses to Parental Monitoring" factor:

1. My adolescent is hard to keep track of.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

2. When told to stay put, my adolescent leaves anyway.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

3. My adolescent takes off without permission.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

The second set of items focused on the extent to which the referred adolescent attempts to thwart efforts by the parents or caretakers to discipline him or her (items 4-

10). The following nine items comprised the factor indicating problems with parental discipline:

1. My adolescent is disobedient at home.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

2. When I punish my adolescent, s/he gets worse and harder to control.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

3. I am concerned about how to deal with my adolescent without making him/her more stubborn.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

4. I feel like tip-toeing around my adolescent in order not to upset him/her.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

5. In order to keep the peace I do not ask my adolescent to do things.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

6. It is easier just to do things myself instead of asking my adolescent to do them.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

7. When my adolescent is very grouchy or irritable, it is best just to leave him/her alone.

"Not true" (0) "Sometimes true" (1) "Often true" (2)

- 8. I fear that my adolescent is going to hurt someone when I enforce the rules with him/her.
- "Not true" (0) "Sometimes true" (1) "Often true" (2)
- 9. I am worried about my adolescent taking it out on other kids when I try to make him/her obey me.
- "Not true" (0) "Sometimes true" (1) "Often true" (2)

This study, in part, represented an extension of an unpublished study that identified the dimensionality of the GRAD family/parenting domain (Slade, 2002). Utilizing the same two samples of adolescents that Gavazzi, Slade, Buettner, Partridge, and Andrews utilized in their 2003 study, Slade (2002) found that the items in the GRAD family/parenting domain fit a multidimensional model better than a unidimensional model. However, unlike the Slade (2002) study, the sample utilized for the present study was much smaller and had a more limited pool of GRAD items. Thus, full replication of the dimensions of the Slade (2002) study was not possible.

The sample used for the purposes of the present study was a sub-sample of the larger group of court-involved adolescents who were referred to family-based services, whereas the Slade (2002) study utilized data on all families referred to services whether or not they attended. However, since this sample drew from the same pool of families, it was hypothesized that a multidimensional model would fit better than a unidimensional model. Thus, attention was paid to the factors identified in the Slade (2002) study.

Concurrent Validity of the GRAD Family/Parenting Domain

As discussed earlier, existing research has identified partial validity evidence for the Family/Parenting domain of the GRAD. Across both samples in the Gavazzi, Slade, Buettner, Partridge, Yarcheck, and Andrews (2003) study, Cronbach alphas for the Family/Parenting domain were .90 ($\underline{N} = 248$) and .97 ($\underline{N} = 373$). Further, a small, but significant association (.39; $\underline{p} < .05$) was found between the Family/Parenting domain of the GRAD and the "unpleasant family events" subscale of the Family Events Checklist – an established measure of family functioning (Gavazzi & Lim, 2003). Finally, higher family/parenting scores were associated with subsequent referral to mental health vs. non-mental health services following court processing (Gavazzi, Lim, Yarcheck & Eyre, 2003).

This study continued these efforts by assessing the concurrent validity of the GRAD Family/Parenting domain with three established family measures, including both parent and adolescent perspectives of: (1) the "unpleasant family events" subscale of the Family Events Checklist (Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992), (2) the Family Intrusiveness Scale (Gavazzi, Reese, & Sabatelli, 1998), and (3) the Perceived Social Support from the Family scale (Procidano & Heller, 1983). The concept of validity for this study is consistent with the classic definition of a valid test measuring what it purports to measure (Borsboom, Mellenbergh & Van Heerden, 2004). The existence of correlations between the GRAD Family/Parenting Domain with other, established measures of family thus will serve as validity evidence.

Unpleasant Family Events

The "unpleasant family events" subscale of the Family Events Checklist (FEC; Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992) has published confirmatory factor analyses supporting the measure's hypothesized structure, assessing both interpersonal tension and parent-child problems in the context of the family. Because problems with parental discipline and monitoring among adolescents typically co-vary with significant levels of family conflict (Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992), logically the FEC should correlate with the GRAD.

Further, a review of the items comprising the FEC (see APPENDIX A) reveals consistent conceptual overlap between its items and the items comprising the GRAD family/parenting domain. While GRAD (Parental Discipline) items measure levels of disrupted parenting such as "When my adolescent is very grouchy or irritable, it is best just to leave him/her alone," and "In order to keep the peace I do not ask my adolescent to do things," the FEC asks if "There was a tense situation that occurred between you and another member of your family" and if "A family member other than you was in a bad mood." Thus, it is reasonable to expect that scores on the FEC should nomonologically be correlated with scores on the GRAD. Further, since parental discipline and monitoring/supervision have been found to covary so strongly (Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992), it was expected that GRAD discipline and monitoring items would be significantly related to levels of unpleasant family events.

Family Intrusiveness

The Family Intrusiveness Scale (see APPENDIX A) was utilized to assess parent/caretaker's non-legitimate attempts to limit the individuality enhancing experiences of their adolescents (FIS; Cohen, Vasey, & Gavazzi, 2003; Gavazzi, 1993; Gavazzi, Anderson & Sabatelli, 1993; Gavazzi, Reese, & Sabatelli, 1998). As discussed earlier, parents' attempts to limit their adolescents' developmentally appropriate individuality-enhancing experiences are likely to lead to marked reductions in the ability of parents to monitor and discipline their young persons effectively. Thus, it was expected that FIS scores would be positively and significantly related to GRAD family/parenting scores.

Perceived Social Support

Perceived social support from parents was measured utilizing The Perceived Social Support from the Family Scale (PSSFA; Procidano & Heller, 1983). Since parental support for their young persons has been linked to positive adjustment (Davies & Windle, 2001; Farrington, 1994; Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; Henggeler, Melton, & Smith, 1992), and since parental support has long been articulated as a necessary component of effective parenting (Baumrind, 1991; Gartstein & Fagot, 2003; Grusec & Goodnow, 1994), it was expected that parental support would be significantly correlated with scores on the GRAD family/parenting domain—for both monitoring and discipline items. Thus, if the GRAD family/parenting domain measures difficulties in parenting an adolescent, including monitoring the young person and providing effective discipline, then it is reasonable to expect that GRAD family/parenting scores would be significantly correlated with levels of unpleasant family events, levels of family intrusiveness and levels of perceived social support. Parents who have difficulty supporting their adolescents' individuality moves theoretically should experience disruptions in parenting. If scores on the GRAD covary as expected with the FEC, the FIS and the PSS-FA, it will provide additional validity data that the GRAD truly measures disruptions in parenting problems. Thus, the establishment of evidence for the validity of the GRAD Family/Parenting domain rests on three main hypotheses:

Hypothesis 1: GRAD family/parenting scores will be positively and significantly correlated with a measure of unpleasant family events.

- Hypothesis 2: GRAD family/parenting scores will be positively and significantly correlated with a measure of family intrusiveness.
- Hypothesis 3: GRAD family/parenting scores will be negatively and significantly correlated with a measure of perceived social support from the family.

As the purpose of this study was to assess the concurrent validity of the GRAD Family/Parenting domain with other established measures of family functioning, significant associations between the GRAD and the other study variables will provide concurrent validity evidence that the GRAD family/parenting domain measures disruptions in parenting, including disruptive responses to parental monitoring and discipline. In turn, Gavazzi and Lim's (2003) preliminary evidence regarding the concurrent validity of the GRAD—reporting on the moderate association ($\underline{r} = .39$; $\underline{p} < .05$) found between adults' reports of the GRAD Family/Parenting domain and the Unpleasant Family Events Checklist--would be substantially strengthened by evidence of a similar association between adult reports of the GRAD and youth reports of the Unpleasant Family Events Checklist. Such evidence would serve to eliminate the concern that the moderate association between adults' reports. Shared method variance, including the a priori use of similar methods in data collection for variables thought to be correlated, often results in the inflation of correlations due to respondent bias.

Gavazzi and Lim's (2003) study did reduce such concerns to some extent in terms of data generated from the use of other domains of the GRAD. For instance, significant associations ($\underline{p} < .05$) were found between adult reports of the GRAD Substance Use/Abuse domain and youth self-reports of the Youth Risk Behavior Survey from the US Centers for Disease Control, including youth reports of alcohol use ($\underline{r} = .40$), marijuana use ($\underline{r} = .66$) and cocaine use ($\underline{r} = .35$). In addition, a significant relationship was found between adult reports of the GRAD Personality/Behavior (i.e. mental health issues) domain and youth reports of negative psychological symptoms ($\underline{r} = .35$) via the Brief Symptom Inventory (Derogatis, 1993).

Variations between Sources of Data

Since all data come through the "lens" of human perception, different groups of people ("reporters") may idiosyncratically record a single source of information that they have observed (Epstein & Loos, 1989; Renk, 2005; Von Glaserfeld, Yalom, 1980). For example, youth, parents, and teachers will as distinct groups report different perceptions of phenomena that they observe. Consider trying to assess the incidence of "assault" in a community. Youth, parents, and teachers are likely to define an "assault" in different ways unless the researcher has carefully constructed questions in advance to avoid bias. A common error in data analysis is the failure to take into account these group differences in data reporting. Expectedly, when precautions are not taken and/or when information is collected from different reporters and/or in different contexts, different data results often emerge from the process. Thus, one must be very careful when attempting to compare data generated by different reporters.

Some of the most rigorously constructed and evaluated assessment devices have been unable to demonstrate high levels of parent/youth agreement (Achenbach, 1991, Elliott & Huizinga, 1983; Huizinga & Elliott, 1986). Rather than arguing from the position of attempting to identify a "best" (i.e. most accurate) reporter, it is argued that a more useful way to think about multiple perspectives of similar phenomena is to identify the relative strengths and weaknesses of each reporter's perspective, and allow this information to guide analyses and interpretations of the data. For the purposes of this study, the perspectives of parents/caretakers and identified youths are of interest.

Youth Self-Reports

Reports of phenomena are affected by (1) levels of disclosure and (2) levels of knowledge. In terms of a youth's perception of his/her behaviors and or family members' behaviors over a specified period of time, if a youth is assured that his/her responses will be anonymous and/or that she/he will not be sanctioned for responding, youth will often report on all specified behaviors requested (see e.g., Elliott & Huizinga, 1983; Elliott, Huizinga, & Ageton, 1985; Elliott, Huizinga, & Morse, 1986; Huizinga & Elliott, 1986). That is, in terms of disclosure, adolescents can be honest reporters if they are assured that the information they provide will not be used against them for sanctioning.

However, adolescents may not identify requested phenomena accurately and honestly, if they do not define certain behaviors in the same way that the researcher/evaluator does. For example, assaulting siblings would likely not be reported as an "assault" unless specified by the researcher. Thus, youth may under-report certain phenomena if they are not clearly defined. While good survey design and implementation can counter these tendencies, youth (mis)perceptions may still present as a source of error.

Parent/Caretaker Reports

In many cases, parent/caretaker reports of youths' behaviors are moderately correlated, at best, with youth's own self-reports. This is probably not because parents and/or youth are "inaccurate" reporters, but because parents and youth report different samplings of youth behaviors. Parents observe their young person only in certain
contexts. In particular, parents and other caretakers have a unique perspective in terms of their observations of their young person within the context of the family environment.

This contextual effect can present as a weakness, in that parents/caretakers are limited in the times that they can typically observe their young person. Thus, parents may be unable to answer questions related to youth behaviors outside the family environment for lack of knowledge. In addition, like most adults, parents and other caretakers will tend to give socially desirable responses even if anonymity is assured particularly regarding the behavior of their own children.

Use of Multiple Perspectives in "Family" Measures

A multiple perspective approach to measurement is recommended when questions exist regarding the validity of a single reporter. This is particularly salient regarding "family" measures that purport to measure family-level phenomena. The measurement of constructs such as "family support" and "family intrusiveness" necessitate utilizing the perspectives of multiple family members. Instead of attempting to identify the most "accurate" measure, a more useful approach to establishing the validity of a family construct involves the correlation of measures from two or more family members. This approach is consistent with the classic definition of construct validity, and is analogous to the intersections of multiple variables illustrated by Venn diagrams.

In short, because the perception of a single family-member is usually conceptually inadequate in the measurement of family-level processes, the assessment of family phenomena usually involves the collection of data from multiple family members. When multiple perspectives of measures thought to assess a family-level construct covary, causal inference is strengthened since—compared to utilizing single perspectives---it is less likely that correlations in multiple measures are due to problems with reliability and/or validity--or due to chance alone (Cook, Kenny, & Goldstein, 1991; Sabatelli & Bartle, 1995).

Multivariate Analytical Techniques with Family Data

Within the last decade, the use of structural equation modeling (SEM; Bollen, 1989; Hair, Anderson, Tatham, & Black, 1998; Joreskog, 1993) has become a generally accepted method of analyzing family-level data (Cook, Kenny, & Goldstein, 1991; Sabatelli & Bartle, 1995). Most applications of SEM seek to explain variance in one or more variables by specifying specific causal paths that are based on substantive theory. Unlike typical Ordinary Least Squares (OLS) regression models, most applications of SEM provide a means of evaluating more than one continuous, dependent variable while statistically partialling the effects of competing explanatory variables when calculating effect sizes of the independent variables of interest.

Consistent with most applications of SEM, this study first will attempt to identify the dimensionality of the GRAD family/parenting domain through a series of a priori confirmatory factor analyses. The model representing the best fit of the data then will be utilized in subsequent analyses assessing the concurrent validity of the GRAD with the other utilized family measures.

CHAPTER 3

METHODOLOGY

The Sample

The intent of this study was to provide concurrent validity evidence of the family/parenting domain of the GRAD. The sample for the study is composed of <u>N</u>=102 families residing in a large Midwestern United States city who agreed to participate in a research project on parent-adolescent relationships. Each family consisted of one adolescent between the ages of 12-17 and at least one parent or other significant adult playing a major caretaking role in the life of the adolescent. All families were referred to the project by local juvenile court line staff following the processing of the adolescent's case in the court's intake/diversion department. As an incentive for participation, families were offered family-based diversion programming for their delinquent adolescent free of charge. Those who chose to attend comprised the sample for this study.

Data from the family/parenting dimension of the GRAD were collected during a phone conversation with the referred adolescent's parent/caretaker (see APPENDIX B for a description of these procedures). All other data were collected at the family-based diversion program site (located near a major land-grant university) through face-to-face interviews. In all cases, project staff interviewed each family individually and privately to ensure the confidentiality of each family member's responses. In addition, project staff

read the items of each scale aloud to each family member in order to overcome any literacy difficulties. Further, Likert-style response choices were enlarged and printed on ledger-sized charts to assist family members in their response selection during these interviews.

Adolescents and parents (or other adult caretakers) were interviewed separately and privately as noted above. Further, family members were informed in advance that individual family members' responses during interviews would not be shared with other family members. This procedure resulted in family relationship data being collected from adolescents and their attending parents (or other adult caretakers) through an individual interview format.

The following family structures comprised the full sample: 33 single motherheaded households (32.3%), 28 stepfamily households (27.5%), 21 married biological parent households (20.6%), 10 single father-headed households (9.8%), and 10 "other" households (9.8%). The 10 "others" were composed of three non-residential mothers, one adult female relative, one non-residential father, one adopted father, and four residential mothers in unconventional household arrangements. <u>T</u>-tests revealed significant mean differences between single and two parent households, such that adolescents from two-parent households reported higher levels of unpleasant family events than adolescents from single-parent households (<u>t</u>=-2.31, <u>p</u><.05).

There are many possible interpretations for this finding. First, adolescents from two-parent households may have more opportunities for adult-adult conflicts that

interfere with parenting practices than adolescents from single-parent families. In addition, adolescents from two-parent households tend to have larger numbers of persons who have contact with the household, possibly increasing opportunities for negative family events. Further, most theories of family functioning (Anderson & Sabatelli, 1995; Barber & Olsen, 1997; Kerr & Bowen, 1988; McCord, 1996) emphasize the impact of family relationships, rather than family structure (e.g. "single motherheaded" vs. "intact (biological) nuclear family") on well-being, and usually propose that family dynamics is a salient predictor of success in parenting. In response to this finding, a dichotomous observed variable of single vs. two-parent households was included in multivariate analyses as a statistical control.

The mean/median household income interval for the sample fell in the \$35,000-\$44,999 income interval (see Table 1 for the full range of income intervals). <u>T</u>-tests revealed significant differences between households above and below the mean/median income for the sample on the study variables (<u>t</u>=-3.13, <u>p</u><.05), such that parents and adolescents from households with lower incomes report higher levels of GRAD family/parenting problems. In response to these results, an observed, interval variable of household income was included in multivariate analyses as a statistical control.

The ethnic makeup of adolescents was as follows: 79 Caucasian (77.4%), 17 African-American (16.7%), 4 Hispanic (3.9%), 1 Asian (1%), and 1 "other" (1%). In terms of gender, there were 50 males (49%) and 52 females (51%). Adolescent gender by ethnic makeup for the sample is illustrated in Table 2. The mean age for both male and female adolescents was 15 years (range = 12-17). Among the study variables, <u>T</u>-

tests revealed no significant mean differences for older vs. younger adolescents. However, <u>T</u>-tests revealed significant ethnic differences, such that the parent/caretakers of minority adolescents reported significantly higher levels of intrusiveness (i.e., lower levels of individuality tolerance) than the parents of Caucasian adolescents did (<u>t</u>=-3.88, <u>p</u><.001). One possible interpretation of this finding was that parents of minority adolescents may have perceived that higher levels of the FIS indicated higher levels of positive parenting, and thus escalated their responses in a socially desirable way. To account for this potential confounding influence, race/ethnicity was included in multivariate analysis as a statistical control.

	Frequency	Percent
(1) \$0 - \$4,999	3	2.9
(2) \$5,000 - \$14,999	3	2.9
(3) \$15,000 - \$24,999	18	17.6
(4) \$25,000 - \$34,999	16	15.7
(5) \$35,000 - \$44,999 (mean/median)	14	13.9
(6) \$45,000 - \$54,999	19	18.6
(7) \$55,000 - \$99,000	25	24.5
(8) \$100,000 or more	4	3.9
Total	102	100

Table 1. Annual Household Income

In addition, significant gender differences were found, such that female adolescents reported significantly higher levels of intrusiveness (\underline{t} =-3.80, \underline{p} <.001) and lower levels of support (\underline{t} =2.18, \underline{p} <.05) than the parents of male adolescents did. Further, the parent/caretakers of male adolescents reported significantly higher levels of support than the parents of females did (\underline{t} =2.71, \underline{p} <.01). These findings are consistent with previous research. Substantial gender differences have been identified across several of the GRAD domains, including the family/parenting domain as well as prior offenses, mental health, traumatic events, health-related risks, psychopathy, accountability, and peer relationships (Gavazzi; 2006; Gavazzi, Yarcheck & Chesney-Lind, 2006), underscoring a common empirical finding that court-involved females present with a qualitatively different constellation of risks than males (Chesney-Lind, 1997; Chesney-Lind & Okamoto, 2001; Chesney-Lind & Shelden, 1998). In response to this evidence, gender was included as a statistical control in multivariate analyses.

Ethnicity							Total
		White	African-	Hispanic	Asian	Other	
			American				
Gender	Male	41	8	0	0	1	50
	Female	38	9	4	1	0	52
Total		79	17	4	1	1	102

Table 2. Adolescent Gender by Self-Reported Ethnicity

Instruments

The Family/Parenting Dimension of the Global Risk Assessment Device (GRAD)

The GRAD Family/Parenting Domain consisted of 12 items (see APPENDIX A) that addressed family/parenting issues known to be correlated with adolescent antisocial behaviors, including: (1) difficulties the care-taking adult has monitoring and otherwise keeping track of the referred adolescent due to his/her disruptive responses (items 1-3), and (2) the extent to which the referred adolescent attempts to thwart efforts by the

parent or caretaker to supervise and discipline him or her (items 4-12). All questions were asked to the primary parent or caretaker over their home or work phone. The average time that it took to answer these questions was five to ten minutes. Coefficient Alpha for this sample was .86 for the observed variable.

The Unpleasant Family Events Checklist (FEC)

The first goal in this study was to assess the concurrent validity of the GRAD family/parenting domain using multiple perspectives of an established family/parenting measure. Because items in the GRAD family/parenting domain indicated difficulties adults had monitoring and disciplining their adolescents—in part because of the negative emotional climate in the family that may result from parents' disciplinary efforts—parent and adolescent measures of levels of unpleasant family events were used to establish concurrent validity of the GRAD family/parenting domain.

The Family Events Checklist (FEC; Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992) was used to assess levels of unpleasant family events happening in families as well as emotional tension resulting from such events. Both youth and adults were asked how often the ten events listed had happened in the family during the past month. Both could choose a response that ranged from (1) "Never" to (6) "Every Day." Responses to the ten FEC items were summed to create an interval measure. Since adults and adolescents responded to the same items on the same measure, in addition to Coefficient Alpha, an intraclass correlation was calculated to assess reliability. For this sample, the intraclass correlation between the adult and adolescent measures was

moderately substantial at .61. Coefficient Alpha was .71 and .78 for adolescents and adults respectively.

Validity evidence for the FEC is considerable. Families drawn from higherrisk/higher stress samples consistently score higher on the FEC than lower risk families, FEC scores are moderately correlated with all four dimensions of the Dyadic Adjustment Scale, and scores on the FEC are significantly associated with measures of relationship intimacy. Finally, internal consistency has ranged from .66 to .78 across several samples and respondents (Forgatch & DeGarmo, 1999; Fisher, Fagot & Leve, 1998; Garstein & Fagot, 2003).

The Family Intrusiveness Scale (FIS)

Family members' perspectives of individuality tolerance were measured utilizing the Family Intrusiveness Scale (FIS; Gavazzi & Sabatelli, 1990; Gavazzi, Reese, & Sabatelli, 1998). The FIS is a 13-item survey instrument that assesses family members' perceptions of the degree to which focal family members attempt to regulate their adolescent's lives. Responses to each item are arranged in a five-point Likert scale ranging from "never" (1) to "always (5) and the resulting scores are then summed to create an interval measure. High scores on the FIS are thought to represent nonlegitimate attempts by family members to influence adolescents' interpersonal moves toward individuality.

For this study, the perspectives of adolescents were surveyed in terms of their assessment of the degree to which "family members" intrude in their lives. In contrast,

parents/caretakers reported on their own behaviors regarding the degree to which they attempted to intrude on their adolescents' lives (see APPENDIX A for a list of the items comprising each measure). The FIS was originally developed and has historically been used to assess adolescents' perspectives of family members' levels of intrusiveness. The use of adolescent (rather than adult) perspectives has yielded highly reliable results, with coefficient alpha averaging .90 across four studies (Gavazzi & Sabatelli, 1990; Gavazzi, Reese, & Sabatelli, 1998), while more recent efforts have utilized parent/caretaker perspectives of the extent to which "family members" attempt to regulate their adolescents' lives (Cohen, Vasey, & Gavazzi, 2003). Coefficient alpha for this study was .90 for youth reports and .74 for adult reports.

Only one published study has utilized both parent and adolescent reports of the FIS. Cohen, Vasey, & Gavazzi (2003) observed moderate correlations between adolescent and parent reports of the FIS, with mothers reports correlating more strongly (\underline{r} =.36; \underline{p} <.01) than fathers (\underline{r} =.30; \underline{p} <.01). Mother and father reports correlated at approximately the same level (\underline{r} =.32; \underline{p} <.01).

For this study, however, the correlation between adolescent and parent/caretaker reports on the FIS approached zero (\underline{r} =.01; \underline{p} <.97). One possible explanation for this unexpected result has to do with the use of personal interviews of families seeking services to collect data. While the Cohen, Vasey, & Gavazzi (2003) study utilized survey measures that were mailed to parents at their homes, this study utilized personal interviews to collect data. Anecdotal evidence suggests that minority parent/caretakers perceived at least some items of the FIS as measures of effective parenting, and thus

responded in socially desirable ways (i.e. escalating responses). This explanation would account for the observed mean differences between minority and Caucasian parents on the FIS as discussed earlier in Chapter 3. Nevertheless, since at least one study established a link between adult and youth reports of the FIS, the parent report was included in future analyses.

The Perceived Social Support from the Family Scale (PSS-FA)

Levels of family support for adolescents were assessed with the Perceived Social Support from the Family scale (PSSFA; Procidano & Heller, 1983). Similar to the use of the FIS in this study, two versions the PSSFA were used to assess: (1) adolescents' perspectives of support from their "family," and (2) parents' self-reports of levels of support they gave to their adolescent.

The PSS-FA has been validated with confirmatory factor analysis procedures with large samples of adolescent males and females (e.g., <u>N</u>=975), and has been significantly correlated to measures of adolescent alcohol use/abuse and delinquent activity (Windle & Miller-Tutzauer, 1992). Possible responses for all 20 items of the PSSFA were "Yes," "No," or "Don't know." Consistent with the scale developers' method, positive endorsement (i.e. "Yes") of an item was quantified as a "1," while negative or ambivalent (i.e. "Don't know") responses were quantified as a "0." Next, the responses to all 20 items were summed. This process resulted in the creation of an interval measure of support with a theoretical range of 0-20. Higher scores indicate

lower levels of support. Coefficient alpha for this study was .86 for adolescents and .86 for adults.

Only one published study has utilized both parent and adolescent reports of the PSSFA. Cohen, Vasey, & Gavazzi (2003) observed moderate correlations between adolescent and parent reports of the PSSFA, with mothers' reports correlating more strongly (\underline{r} =.43; \underline{p} <.01) than fathers (\underline{r} =.30; \underline{p} <.01). Mother and father reports correlated moderately (\underline{r} =.39; \underline{p} <.01). Similar to Cohen, Vasey, & Gavazzi (2003), for this study, adolescent and parent/caretaker reports on the PSSFA correlated moderately at (\underline{r} =.31; \underline{p} <.001).

Univariate and Bivariate Analyses

Descriptive statistics for all study variables are displayed in Table 3, including coefficient alphas, while zero-order correlations for all study variables are displayed in Table 4. All bivariate correlations in Table 4 are Pearson Product-Moment correlations. With the exception of demographic variables, all study variables evidenced acceptable levels of univariate normality and internal consistency.

Bivariate correlations (see Table 4) revealed significant associations between the GRAD family/parenting observed variable and parent/caretaker reports of the PSSFA (<u>r</u>=.33; <u>p</u><.001), parent/caretaker reports of the FEC (<u>r</u>=.46; <u>p</u><.001), youth reports of the FEC (<u>r</u>=.28; <u>p</u><.01), and household income (<u>r</u>=-.26; <u>p</u><.01). Further, as expected, a significant association (<u>r</u>=-.36; <u>p</u><.001) was evidenced between the parent report of the FIS and race/ethnicity (coded as "1" for Caucasian and "2" for minority), suggesting that

minority parents interpreted FIS items as indicators of effective parenting. Finally, a significant relationship (\underline{r} =-.45; \underline{p} <.001) was found between household income and the number of parents in the household (coded as "1" for one and "2" for two). As one would expect, households with two residential adults had higher annual household incomes than did households with only one residential adult.

While these correlations provide some concurrent validity evidence of the GRAD, these results are inadequate for a number of reasons. First, bivariate correlations do not partial out the variance of other competing explanatory variables. A more thorough test of concurrent validity would include all variables of interest in a single common model— thus statistically "controlling" for associations between all competing variables. In addition, bivariate correlations such as these utilizing an observed variable do not allow an estimation of the relative impact of multidimensional domains of the GRAD. Only a single, summed observed variable is utilized.

Variable	Mean	SD	Range	Alpha	Kurtosis*	Skew**
GRAD	11.55	5.52	24	.86	665	.172
FIS-Youth	36.97	11.50	50	.90	468	.056
FIS-Adult	26.20	4.70	28	.74	1.15	047
PSSFA-Youth	11.97	5.04	19	.86	-1.01	321
PSSFA-Adult	8.70	4.92	19	.86	987	.046
FEC-Youth	19.62	9.27	45	.72	274	.355
FEC-Adult	22.78	10.31	47	.79	550	.196
Adolescent Gender	1.51	.502	1	-	-2.03	040
Household income	5.07	1.77	7	-	853	328
One or Two Parent(s)	1.48	.502	1	-	-2.03	.080
Ethnicity	1.22	.419	1	-	227	1.33

*SE Kurtosis = .474; **SE Skewness = .239

Table 3. Descriptive Statistics for Study Variables (N=102 Parent and Adolescent Reports)

Multivariate Analyses: Confirmatory Factor Analyses of the GRAD

Multivariate analyses began with a series of confirmatory factor analyses, assessing the relative fit of unidimensional and multidimensional models of the GRAD. The GRAD item contributing most to coefficient alpha and correlating most highly with the GRAD observed variable was fixed to "1" as required for model identification. The specified unidimensional and multidimensional models are illustrated in Appendixes C, D, & E. The referencing item in the unidimensional model (specified in APPENDIX C) was: "It is easier just to do things myself instead of asking my adolescent to do them."

	1	2	3	4	5	6	7	8	9	10	11
1. GRAD	1.00	.194	.004	.085	.334***	.275**	.455***	.135	258**	.070	046
2. FIS-Youth		1.00	.004	.523***	.222*	.464***	.123	.355***	026	.040	.034
3. FIS-Adult			1.00	016	034	.036	.134	154	020	.134	.362***
4. PSSFA-Youth				1.00	.311***	.259**	.037	.213*	.050	006	.003
5. PSSFA-Adult					1.00	.272**	.394***	.262**	113	115	107
6. FEC-Youth						1.00	.463***	.188	.078	.226*	149
7. FEC-Adult							1.00	.056	151	.026	.025
8. Adolescent Gender								1.00	034	.001	.107
9. Household income									1.00	.447***	024
10.One or Two Parents										1.00	002
11.Ethnicity											1.00

*<u>p</u>< .05 level (2-tailed) **<u>p</u>< .01 (2-tailed) ***<u>p</u><.001 (2-tailed)

Table 4. Pearson Product-Moment Correlations for N=102 Parent-Adolescent Dyads

APPENDIX D illustrates the hypothesized bidimensional model consistent with Slade's (2002) analyses. First, nine GRAD family/parenting items were grouped into a factor named "Tiptoe," representing parents' reluctance to discipline their adolescent for fear of their adolescent's negative behaviors in response to discipline. Again, the referencing item was "It is easier just to do things myself instead of asking my adolescent to do them." Second, three items were grouped into a "disruptive responses to parental monitoring" factor which represents problems parents/caretakers have with appropriately keeping track of their adolescents' whereabouts and activities. For the "disruptive responses to parental monitoring" factor, the referencing item was "My adolescent takes off without permission."

APPENDIX E illustrates a possible tridimensional model, grouping two of the "tiptoe" items into a third factor named "retaliate," which represents parents' fears that discipline of their adolescents will result in domestic violence. The referencing item for this factor was "I fear that my adolescent is going to hurt someone when I enforce the rules with him/her." The items comprising the "disruptive responses to parental monitoring" factor were identical to the bidimensional model. The remaining items loaded on the "tiptoe" factor.

Multivariate Analyses: Concurrent Validity Analyses of the GRAD

Following the identification of the best fitting model of the GRAD, other, established family measures utilized in this study to assess the concurrent validity of the GRAD are specified. Three structural equation models, utilizing parent and adolescent reports of (1) The Perceived Social Support from the Family Scale (PSSFA), (2) The Family Intrusiveness Scale (FIS) and the (3) Unpleasant Family Events Checklist (FEC) were specified with identified demographic controls included in each respective model (See Appendixes F, G & H). Since all three of the measures utilized to establish the concurrent validity of the GRAD are fairly well established, observed variables of each measure were utilized in all concurrent validity models. See Figure 1 for a theoretical model of the hypothesized relationships between the GRAD and the other concurrent validity measures.



Figure 1. The Theoretical Model

Multivariate Analyses: Analytical Approaches

For all structural equation models, statistical power was calculated utilizing the NIESEM software package (Dudgeon, 2003). Because the calculation of any given fit index in structural equation modeling is usually affected, in part, by sample size and model complexity (i.e. degrees of freedom in the model), the use of multiple fit indices is a necessary practice to establish confidence in the estimation of model fit (Bollen & Long, 1993; Browne & Cudeck, 1989; Browne & Cudeck, 1993; MacCallum, 1990). For this study, two particular fit indices were of particular interest: the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993; Steiger & Lind, 1980) and the Bollen-Stine Bootstrap (Bollen & Stine 1992; Bollen & Long, 1993).

<u>RMSEA</u>

The Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993; Steiger & Lind, 1980) is a well established fit index that, assuming multivariate normality, is relatively unaffected by model complexity (though it will tend to favor models with many parameters). While the likelihood of type one errors increases as degrees of freedom in the model increase when utilizing such indices as the Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI), the RMSEA is widely utilized and established as a fit index in structural equation modeling that is relatively unaffected by model complexity (i.e., increases or decreases in degrees of freedom).

Browne & Cudeck (1993) state their recommendations for interpreting levels of the RMSEA as such:

Practical experience has made us feel that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom. This figure is based on subjective judgment. It cannot be regarded as infallible or correct, but it is more reasonable than the requirement of exact fit with the RMSEA = 0.0. We are also of the opinion that a value of about 0.08 or less for the RMSEA would indicate a reasonable error of approximation and would not want to employ a model with a RMSEA greater than 0.1 (p. 144).

Persons interested in the statistical theory and mathematics that generates the RMSEA are strongly recommended to read Browne and Cudeck's original study (Browne & Cudeck, 1993).

The Bollen-Stine Bootstrap

Despite its robust qualities relative to other, traditional fit statistics, the RMSEA is vulnerable to multivariate non-normality in that the likelihood of Type II Errors is increased. Because the models in this study evidenced substantial levels of multivariate non-normality, a second established fit index—the Bollen-Stine Bootstrap (Bollen & Stine 1992; Bollen & Long, 1993)--was used as an established measure for multivariate non-normal data. However, as discussed below, the calculation of the Bollen-Stine Bootstrap deviates from the classic theoretical sampling distribution and thus is thought to be a "non-parametric" fit index.

While the Chi-square test is often utilized in practice to assess model fit, when normality assumptions are violated, the Chi-square test tends to produce biased results, significantly increasing the likelihood of Type II errors. The traditional approach to dealing with non-normality has been to transform non-normal variables utilizing a natural log function. Often, log transformations are successful. However, in this case the log transformation applied to the non-normal variables in this study did not yield normative results. Log transformations of the adolescent gender and "one vs. two parent" variables were unsuccessful (kurtosis \approx -2.04), as well as the FIS-Adult variable (kurtosis = 1.87).

One alternative to utilizing both the Chi-square test and/or the log transformation of variables is utilization of the Bollen-Stine Bootstrap (Bollen & Stine 1992; Bollen & Long, 1993) an available method to deal with relatively small samples and/or nonnormality of variables (violations of the theoretical sampling distribution). Bootstrapping in general is an analytic method that provides a way to evaluate the empirical sampling distribution of parameter estimates, which is then utilized in a similar manner as the theoretical sampling distribution is used in conventional multivariate analyses (Hancock & Nevitt, 1999). The Bollen-Stine bootstrap calculates parameter estimates of the covariance matrix by sampling the empirical data (typically) thousands of times with replacement in order to obtain a normative sampling distribution, then fitting the specified model to each of the samples. The distribution of the parameter estimates that result from this process represents the empirical sampling distribution.

Because it resamples observed data, the Bollen-Stine bootstrap is often thought of as a "non-parametric" fit index. Associations revealed in models utilizing the Bollen-

Stine bootstrap only may be generalizable to the idiosyncratic characteristics of the sample, and in this sense, the Bollen-Stine bootstrap is vulnerable to Type I Errors (Bollen & Stine 1992; Bollen & Long, 1993). The Bollen-Stine Bootstrap is utilized to estimate a bootstrapped correction to the Chi-square test when normality assumptions are violated, by dividing the number of bootstrap samples that provide better estimates of model fit than the parameters of the study sample, by the number of requested bootstrap samples. Thus, a <u>p</u> value is obtained by examining the proportion of bootstrap estimates that are larger than the observed estimates (Bollen & Stine 1992; Bollen & Long, 1993).

In sum, since the multivariate non-normality in this sample's data made the RMSEA vulnerable to Type II errors, and since the Bollen-Stine Bootstrap is thought to be vulnerable to Type I errors, the use of both indexes would allow a fair evaluation of the fit of the models. Because the strengths and limitations of both indices were known in advance, evaluative judgments could be made with some confidence. Evidence of good fit would be manifest by high levels of both fit indices, and low fit would be evidenced by low levels of both indices. Results should be viewed with caution and skepticism if only one index evidenced acceptable levels of fit.

Controls for Shared Method Variance

To reduce doubts due to threats of shared method variance, multiple perspectives of concurrent validity measures were utilized. If both adult and youth reports of family measures are systematically correlated with the GRAD in expected directions, confidence in the results would be increased. Further, since concurrent validity data were collected chronologically later than GRAD data from parents, it reduces the likelihood of parent idiosyncratic responses based on time of assessment.

Utilization of Results

This analysis of data gathered from a sample of <u>N</u>=102 court-involved adolescents and adult family members who attended a family-based diversion program is expected to reveal how risk scores on the family/parenting domain of the GRAD are significantly related to parent and adolescent reports of unpleasant family events, intrusiveness, and perceived support. The presence or absence of covariation with concurrent validity measures will be utilized in order to draw inferences regarding the specific phenomena that the GRAD family/parenting domain assesses.

For this study, the specified analyses of covariance structures provide rigorous validity tests. The assumptions of such analyses closely match the definition of construct validity. Further, the data used in the analyses were collected in a rigorous fashion and possess a structure that is appropriate for such a test. Finally, demographic controls (gender, household income, single vs. two-parent family) are specified as observed variables in all proposed analyses since they are theoretically and empirically related to the study variables and may suppress the relationship between the GRAD family/parent domain and the other study variables.

CHAPTER 4

RESULTS

The purpose of this study was to assess the concurrent validity of the GRAD Family/Parenting domain with other, established measures of family functioning. First, a priori models specifying unidimensional and multidimensional confirmatory factor analyses were specified based on the constructs the GRAD Family/Parenting domain was thought to measure, as well as previous empirical research supporting the multidimensional nature of the GRAD Family/Parenting domain (Slade, 2002).

Next, structural equation models were specified, linking scores on the GRAD Family/Parenting domain to adult and adolescent reports of the Unpleasant Family Events Checklist (FEC; Dishion & Andrews, 1995; Patterson, Reid, & Dishion, 1992), the Family Intrusiveness Scale (FIS; Gavazzi & Sabatelli, 1990; Gavazzi, Reese, & Sabatelli, 1998), and the Perceived Support from the Family Scale (Procidano & Heller, 1983). The AMOS 5 (Arbuckle, 2003) software package was utilized to analyze all structural equation models for this study.

<u>Confirmatory Factor Analysis of the GRAD Family/Parenting Domain:</u> <u>Unidimensional Model</u>

The confirmatory factor analysis model specifying a unidimensional GRAD ("Family/Parenting") demonstrated a significant deviation from multivariate normality

(multivariate kurtosis = 12.374); thus, the Bollen-Stine bootstrap was utilized to assess model fit. The results of the Bollen-Stine Bootstrap analysis (\underline{p} = .001) suggested a poor fit of the model to the data. Further, the Root Mean Square Error of Approximation (RMSEA) for the unidimensional model was .154 (90% CI = .130 to .179), also indicating a poor fit of the model to the data relative to the degrees of freedom in the model (54).

The results of the unidimensional model analysis, including regression estimates and variance estimates are displayed in APPENDIX I. Standardized regression estimates for each item of the unidimensional model ranged from .45 to .65, with the lowest loadings found for the "disruptive responses to parental monitoring" items (GRAD 1-3). These findings supported testing the hypothesized bidimensional model, respecifying GRAD family/parenting items 1-3 as a separate factor ("Disruptive responses to parental monitoring") and the formation of a second factor ("Tiptoe") with the remaining GRAD Family/Parenting items.

Confirmatory Factor Analysis of the GRAD Family/Parenting Domain: Bidimensional Model

The confirmatory factor analysis model specifying a bidimensional GRAD also demonstrated a significant deviation from multivariate normality (multivariate kurtosis = 12.374), thus, the Bollen-Stine bootstrap was utilized to assess model fit. The results of the Bollen-Stine Bootstrap analysis (\underline{p} = .003) suggested a poor fit of the model to the data. Further, the Root Mean Square Error of Approximation (RMSEA) for the

bidimensional model was .107 (90% CI = .080 to .134), also indicating a poor fit of the model to the data relative to the degrees of freedom (53) in the model.

The results of the bidimensional model analysis, including regression estimates and variance estimates, are displayed in APPENDIX J. Relative to the unidimensional model, the decrease in RMSEA for the bidimensional model indicated an improvement in model fit. Covariance estimates between the two GRAD factors were significant (<u>p</u><.001) and the estimated correlation between the two factors was moderate (.485). Standardized regression estimates for each item of the bidimensional model ranged from .54 to .91 across both factors, with the highest loadings found for the "disruptive responses to parental monitoring" items (GRAD 1-3), ranging from .64 to .91. Further, one of the lowest loadings (.55) was found for one of the two items hypothesized to form the third factor ("Retaliate") in the tridimensional model. These findings justified a formal test of the tridimensional model, forming three factors: "Disruptive responses to parental monitoring." "Tiptoe" and "Retaliate."

Confirmatory Factor Analysis of the GRAD Family/Parenting Domain: Tridimensional Model

The confirmatory factor analysis model specifying a tridimensional GRAD also demonstrated a significant deviation from multivariate normality (multivariate kurtosis = 12.374), thus, the Bollen-Stine bootstrap was utilized to assess model fit. The results of the Bollen-Stine Bootstrap analysis (\underline{p} = .123) suggested a good fit of the model to the data. Further the Root Mean Square Error of Approximation (RMSEA) for the

tridimensional model improved to .074 (90% CI = .040 to .105), indicating a moderate fit of the model to the data relative to the degrees of freedom (51) in the model.

The results of the tridimensional model analysis, including regression estimates, covariance estimates, and variance estimates are displayed in APPENDIX K. Decreases in the Bollen-Stine bootstrap estimate and RMSEA for the tridimensional model, relative to both the unidimensional and bidimensional models, indicated an improvement in model fit. Estimates between the three GRAD factors were positive and significant, and ranged from .360 (\underline{p} <.01) between "Disruptive responses to parental monitoring" and "Retaliate," to .637 (\underline{p} <.001) between "Retaliate" and "Tip-Toe."

Standardized regression estimates for each item of the tridimensional model ranged from .54 to .91 across all three factors. The highest loadings were found for the "Retaliate" items (GRAD 11-12), ranging from .74 to .91, followed by the "Disruptive responses to parental monitoring" items (GRAD 1-3) ranging from .64 to .91. Parameter estimates for the "Tip-Toe" items (GRAD 4-10) ranged from .54 to .70.

Fit indices for all three GRAD confirmatory factor analysis models are displayed in Table 5. As discussed earlier, specification of latent variables with less than four indicators—evident in the bidimensional and tridimensional models—often introduces significant levels of unreliability in the calculation of covariance estimates. Further, low levels of power were evident across all three models (see Table 5).

Yet, despite low levels of power, the tridimensional model was the only model that evidenced an acceptable level of fit. Further, the only other existing study that analyzed the GRAD Family/Parenting domain's psychometric structure also provided evidence of a tridimensional model (Slade, 2002). Thus, despite the possibility that the statistical tests performed are invalid, to continue this inquiry, the tridimensional model was utilized in subsequent concurrent validity test of the GRAD Family/Parenting domain.

Model	RMSEA	90% Confidence Interval	Degrees of Freedom	# of Distinct Parameters	Power
Unidimensional	.154	(.130; .179)	54	24	.3416
Bidimensional	.107	(.080; .134)	53	25	.3378
Tridimensional	.074	(.040; .105)	51	27	.3299

Table 5. Fit Indices for GRAD Confirmatory Factor Analyses

Concurrent Validity Analyses: The GRAD and the FEC

The model specifying relationships between the GRAD and the FEC demonstrated a significant deviation from multivariate normality (multivariate kurtosis = 5.268), thus, the Bollen-Stine bootstrap was utilized to assess model fit. The results of the Bollen-Stine Bootstrap analysis (\underline{p} = .225) suggested a good fit of the model to the data. Further, the RMSEA was .056 (90% CI = .024 to .081), indicating an acceptable fit of the model to the data relative to the degrees of freedom (98).

The results of the model analysis, including regression estimates, covariance estimates, and variance estimates are displayed in APPENDIX L. Factor loadings for the three GRAD domains were significantly and positively associated with the latent GRAD Family/Parenting variable. In descending order, the loadings included "Tip-Toe" (Standardized Loading = .934; \underline{p} <.001), "Retaliate" (Standardized Loading = .665; \underline{p} <.001), and "Monitoring problems" (Standardized Loading = .514; \underline{p} <.001), suggesting the relative importance of each of the domains for the model.

Statistically controlling for the influence of demographic variables (i.e. household income, one vs. two-parent household, gender, ethnicity), FEC-adult reports were significantly and positively related to the GRAD (Standardized Loading = .433; \underline{p} <.001), while FEC-youth reports were not. However, youth and adult reports of the FEC were significantly correlated at .46 (\underline{p} <.001), suggesting that moderate levels of agreement existed between adults and the young persons regarding levels of unpleasant family events in the household. The squared multiple correlation estimate for the GRAD was .314, comprised of variance explained by the FEC-adult report (Standardized Loading = .433; \underline{p} <.001) and Household Income (Standardized Loading = -.318; \underline{p} <.01) exogenous variables.

Concurrent Validity Analyses: The GRAD and the FIS

The model specifying relationships between the GRAD and the FIS also demonstrated a significant deviation from multivariate normality (multivariate kurtosis = 5.420), thus, the Bollen-Stine bootstrap was utilized to assess model fit. The results of the Bollen-Stine Bootstrap analysis (p = .221) suggested a good fit of the model to the data. Further, the RMSEA was .054 (90% CI = .026 to .077), indicating a close fit of the model to the data relative to the degrees of freedom (128) in the model.

The results of the model analysis, including regression estimates, covariance estimates, and variance estimates are displayed in APPENDIX M. Factor loadings for the three GRAD domains were significantly and positively associated with the latent GRAD Family/Parenting variable. In descending order, the loadings included "Tip-Toe" (Standardized Loading = .889; \underline{p} <.001), "Retaliate" (Standardized Loading = .706; \underline{p} <.001), and "Monitoring problems"" (Standardized Loading = .530; \underline{p} <.001), suggesting the relative importance of each of the domains for the model.

Statistically controlling for the influence of demographic variables, neither FIS-adult reports not FIS-youth reports were significantly related to the GRAD. Parents and youth reports of the FIS also failed to correlate significantly. The squared multiple correlation estimate for the GRAD was .182, comprised of variance explained by the demographic variables Household Income (Standardized Loading = -.405; \underline{p} <.01) and One vs. Two Parent Households (Standardized Loading = .263; \underline{p} <.05).

Concurrent Validity Analyses: The GRAD and the PSSFA

The model specifying relationships between the GRAD and the PSSFA also demonstrated a significant deviation from multivariate normality (multivariate kurtosis = 5.078), thus, the Bollen-Stine bootstrap was utilized to assess model fit. The results of the Bollen-Stine Bootstrap analysis (\underline{p} = .362) suggested a good fit of the model to the data. Further the RMSEA was .044 (90% CI = .000 to .069), indicating a close fit of the model to the data relative to the degrees of freedom in the model (128).

The results of the model analysis, including regression estimates, covariance estimates, and variance estimates are displayed in APPENDIX M. Factor loadings for the three GRAD domains were significantly and positively associated with the latent GRAD Family/Parenting variable. In descending order, the loadings included "Tip-Toe" (Standardized Loading = .968; \underline{p} <.001), "Retaliate" (Standardized Loading = .653; \underline{p} <.001), and "Monitoring problems"" (Standardized Loading = .496; \underline{p} <.001), suggesting the relative importance of each of the domains for the model.

Statistically controlling for the influence of demographic variables, PSSFA-adult reports were significantly and positively related to the GRAD (Standardized Loading = .367; \underline{p} <.001), while PSSFA-youth reports were not. While the youth PSSFA was not significantly related to the GRAD, adult and youth PSSFA reports were significantly correlated at .311 (\underline{p} <.01), suggesting that moderate levels of agreement existed between adults and their young persons regarding the level of support the parent (and other family members) provided to their young person. The squared multiple correlation for the GRAD was .253, with the PSSFA-adult report (Standardized Loading = .367; \underline{p} <.001), Household Income (Standardized Loading = -.356; \underline{p} <.01) and One or Two Parent Household (Standardized Loading = .284; \underline{p} <.05) variables explaining the variance.

CHAPTER 5

DISCUSSION

Summary of Rationale, Methodology, and Pertinent Results

The purpose of this study was to test the concurrent validity of the GRAD family/parenting domain with other, more established, measures of family functioning. Results of confirmatory factor analyses supported the use of a tridimensional model of the GRAD family/parenting domain, composed of items assessing levels of disruptions to parent/caretaker monitoring, "tip-toeing," and concerns that their young person will retaliate if disciplined. Results indicated that parent/caretaker reports of unpleasant family events (FEC) and perceptions of the extent to which he/she provided support for his/her young person (PSSFA) were significantly related to parent/caretaker reports of GRAD family/parenting risks, even when controlling for salient demographic factors. Marginal levels of model fit and low levels of statistical power threaten the results of this study. Yet, the larger findings provide guidance for more focused future research in the validation of the GRAD.

Multidimensionality of the GRAD Family/Parenting Domain

Of the three confirmatory factor analyses of the GRAD family/parenting domain, the fit indices and standardized loadings of the tridimensional model fit the data best. Model fit increased even with the inclusion of latent variables with fewer than four indicators. However, as discussed below, the inclusion in the model of factors evidencing less than four indicators carries with it significant threats to model stability. One cannot rule out the possibility that the factor loadings for "Monitoring problems"" and "Retaliate" are significantly influenced by idiosyncrasies of the study sample, and thus have limited generalizability.

The relative loadings of the three GRAD factors in the tridimensional model maintained the same pattern across all three concurrent validity analyses. In descending order, the "Tip-Toe" factor had the highest loading and "Monitoring problems"" had the lowest loading on the latent GRAD Family/Parenting domain. While it is tempting to suggest that this pattern of rankings indicates the relative importance of each of the factors for the GRAD family/parenting domain, it must be emphasized that while "Tip-Toe" was composed of seven items, "Monitoring problems"" was comprised of only three items, and "Retaliate" only two. One cannot rule out the strong possibility that the high loadings of the "Tip-Toe" factor are affected in large part by the number of items comprising the factor.

Multidimensionality of the GRAD Family/Parenting Domain in the Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews (2003) study, and the Slade (2002) Study

Another source of evidence for the multidimensionality of the GRAD family/parenting domain is the Slade (2002) study. Listed below are the items that formed each of the three factors specified by Slade as sub-dimensions of the GRAD family/parenting domain. Possible responses for each item were similar to the current

study's responses, ranging from zero ("0--Not a problem at all/I'm not concerned") to two

("2—Very much a problem/I'm definitely concerned").

Parent-Adolescent Conflict

- 1. Conflict with your son/daughter
- 2. Difficulty disciplining your son/daughter
- 3. Son/daughter argues a lot
- 4. How you are able to get help for your son/daughter

Negative Family Environment

- 1. Runs away from home
- 2. Difficulty keeping track of your son/daughter
- 3. Disobedient at home
- 4. Your adolescent getting worse or harder to control after he/she is punished
- 5. Your son/daughter leaving after he/she has been told to stay put
- 6. Your son/daughter taking off without permission
- 7. Swears or uses obscene language

Parent Tiptoe

- 1. Feeling like you need to tiptoe around your son/daughter in order not to upset him/her
- 2. Having to tell other family members not to upset your son/daughter
- 3. Not asking your son/daughter to do things in order to keep the peace
- 4. Being worried about your son/daughter taking it out on other kids when you try to make him/her obey you
- 5. Finding it easier to control your son/daughter only when another adult is present
- 6. Finding it easier to do things yourself instead of asking your son/daughter to do them
- 7. Having to leave your son/daughter alone because he/she is often grouchy

As illustrated above, while item similarity is apparent for this study and the Slade

(2002) study, there are numerous inconsistencies. First, the items comprising Slade's

"parent tiptoe" factor are highly similar to the "tiptoe" factor in this study, except that in this study, the retaliatory items were split to form another factor. Second, some items for Slade's (2002) other two factors, "parent-adolescent conflict" and "negative family environment" are found in the "Monitoring problems" and "tiptoe" factors specified in this study. Finally, Slade's "negative family environment" factor does not seem conceptually unidimensional, with both parental monitoring and discipline items, along with some disruptive youth behaviors listed.

Yet, the Slade (2002) study utilized a representative sample of a juvenile court intake unit, while the sample for this study was a sub-sample of families and adolescents who were referred to family-based programming by a juvenile court intake unit and subsequently attended. Only 105 of the 248 families (42%) who were referred to familybased services attended services and were assessed with the GRAD. Anecdotal evidence suggests that the 143 referred families did not attend services for a number of reasons.

One of the more frequent reasons for non-attendance was what appeared to be alienation from the university campus wherein services were provided. Multiple families expressed fear and/or discomfort, or otherwise implied the presence of psychological barriers to attending services at what they perceived was an alien environment. Other barriers to attending included transportation issues (e.g. had to take a two-hour bus ride), financial issues (e.g. parents/caretakers were working more than one low or moderate wage job to support the household), childcare issues, and issues related to high levels of conflict and disorder in the household. Thus, the dimensions specified in

the Slade (2002) study probably have more generalizability than the dimensions specified in this study. The results of the concurrent validity analyses of this study are likely only generalizable to the kinds of families that this sample represents.

Again, because of the limited number of items for the latter two factors in this study, inferences regarding the tridimensional structure of the GRAD family/parenting domain are probably premature. Further research testing the fit of models specifying a priori dimensions of the GRAD Family/Parenting domain will help to answer the question of what subscales should be formed utilizing the GRAD family/parenting domain.

It should be mentioned that it is possible that additional domains could have been constructed utilizing the modification indices included in the AMOS software package (Arbuckle, 2003). However, such an "empirical" approach to model specification, with less attention to theoretical specification a priori, has long been discouraged (see e.g., Joreskog, 1993; Mulaik & Quartetti, 1997; Pearl, 2000), since it capitalizes on idiosyncrasies within the sample and limits generalizability.

The replication of the multidimensional structure of the GRAD family/parenting domain across this study and the Slade (2002) study generally is consistent with the theory that guided the development of the family/parenting domain. Thus, the evidence presented across these two studies suggests that the items comprising the family/parenting domain more accurately should be thought of as assessing multiple constructs, rather than a unidimensional construct that is to be inferred from the use of the unidimensional GRAD "family/parenting" subscale in practice. Given this evidence, it seems appropriate to debate the relative costs and benefits of operationalizing the items

in the GRAD family/parenting domain as different, correlated subscales, rather than the unidimensional "family/parenting" subscale that has been utilized in previous research. This discussion occurs later in this document.

Concurrent Validity of the GRAD Family/Parenting Domain: Main Findings

Fit indices for the three concurrent validity models are listed in Table 6. All three models demonstrated acceptable levels of fit, suggesting that coefficients were reliably estimated. In the PSSFA model, the squared multiple correlation for the GRAD was .253, with the PSSFA-adult report (Standardized Loading = .367; p<.001), Household Income (Standardized Loading = -.356; p< .01) and One or Two Parent Household (Standardized Loading = .284; p<.05) exogenous variables explaining the variance. In the FEC model, the squared multiple correlation estimate for the GRAD was .314, comprised of variance explained by the FEC-adult report (Standardized Loading = .433; p<.001) and Household Income (Standardized Loading = .318; p<.01) exogenous variables.

Concurrent Validity Analyses: The GRAD and the PSSFA

Higher GRAD family/parenting scores, representing problems in disciplining (i.e. "tiptoe," "retaliate") and monitoring adolescents, were significantly related to adult reports of social support for their adolescents. Specifically, adults reporting higher levels of discipline/monitoring problems also tended to report lower levels of support for their adolescents (Standardized Loading = .367; \underline{p} <.001). Further, adults reporting higher

GRAD scores reported lower levels of household income (Standardized Loading = -.356; \underline{p} < .01). Finally, adults reporting higher GRAD scores tended to come from two-parent households, including married biological-parent households and stepfamilies (Standardized Loading = .284; \underline{p} <.05).

These results are consistent with previous research (Dishion, Patterson, Stoolmiller & Skinner, 1991; Krohn, Stern, Thornberry & Jang, 1992; Patterson & Dishion, 1985). Managing the disruptive behaviors of adolescents consumes inordinate levels of mental energy, "wearing down" parents over time and reducing their capacity to provide support to their adolescents. In turn, parents reporting low levels of support for their adolescent may be unable to provide the appropriate levels of reinforcement needed for effective parenting and behavior change (Reid & Dishion, 1992; Snyder & Patterson, 1987).

The significant influence of household income on GRAD levels suggests that income is nearly as influential in explaining problems with discipline (i.e. "tiptoe," "retaliate") and monitoring, as perceived levels of social support. This finding is consistent with many years of empirical research that implicates the role of economic stress in reducing the ability of parents to monitor and/or discipline their adolescents (Furstenberg, 1993; Sampson, 1997; Sampson, Raudenbush, & Earls, 1997; Wilson, 1987). Parenthetically, levels of income falling below the mean/median reported by families seem to fall below virtually any definition (Dechter & Smock, 1994, Frazer, 1994; Kimmel, 1998; Schrock, 1998) of a family wage (e.g. at least \$30-35,000 annually for a household composed of two adults and one dependent child).
The finding that two-parent families reported higher levels of GRAD family/parenting problems than single-parent families also suggests that family dynamics plays a significant role in GRAD levels. This is consistent with a main tenant of most theories of family functioning (see e.g., Anderson & Sabatelli, 1995; Barber & Olsen, 1997; Kerr & Bowen, 1988; McCord, 1996), namely that family dynamics is a salient predictor of success in parenting. The addition of another adult in the household among the higher-scoring GRAD family/parenting families suggests that—at least among families represented by this sample--it is necessary to understand the relationships among multiple family members when assessing problems with discipline and monitoring.

Concurrent Validity Analyses: The GRAD and the FEC

In the FEC model, the squared multiple correlation estimate for the GRAD was .314, comprised of variance explained by the FEC-adult report (Standardized Loading = .433; p<.001) and Household Income (Standardized Loading = -.318; p<.01) exogenous variables. These findings suggest that disruptions in discipline and monitoring are related to increases in levels of tension and conflict within families. Further, the stress that results from inadequate household income also is significantly related to higher levels of monitoring and discipline (i.e. "tiptoe," "retaliate") problems in families.

Interestingly, neither adult nor youth reports of the FEC were significantly related to levels of household income (Standardized Loading < .04; \underline{p} <.80 for both variables). These findings suggest that income problems do not directly contribute to levels of

unpleasant family events. Rather, income problems may decrease the ability of parent/caretakers to parent adolescents in this sample effectively, and the target adolescent contributes significantly to levels of tension (e.g. "There was a tense situation that occurred between family members not including you") and conflict (e.g. "There was a conflict between an adult and a kid over homework experienced by the family").

Consistent with a large body of research (Furstenberg, 1993; Sampson, 1997; Sampson, Raudenbush, & Earls, 1997; Wilson, 1987), the above findings suggest that processes within families (i.e. disruptions in parenting, levels of support and family tension/conflict) have more explanatory power than "structural" processes such as household income. However, structural factors such as low levels of household income can suppress the ability of families to parent their offspring and manage family process tasks.

The Family Intrusiveness Scale

Both adult and youth reports of family intrusiveness were unrelated to GRAD scores. One explanation for this unexpected finding regards the theoretical nature of the construct underlying the development of the FIS. The FIS was originally constructed to represent one dimension of a bidimensional construct of family process, composed of family intrusiveness and support (e.g., the PSSFA), namely, Family Differentiation (see e.g., Cohen, Vasey, & Gavazzi, 2003; Gavazzi, 1993; Gavazzi, Anderson & Sabatelli, 1993; Gavazzi, Reese, & Sabatelli, 1998). A recent study provides evidence that model fit increases substantially when the FIS is specified as one dimension—and the PSSFA

a second dimension--of a bidimensional construct in latent variable models (Cohen, Vasey, & Gavazzi, 2003).

Of course, this study did not specify a model utilizing the FIS and PSSFA as bidimensional measures of a common construct. Thus, it could be that the lack of linear relationships between the FIS and the other study variables may be explained, in part, by misspecification of the theoretical construct underlying the measure. Future research linking the GRAD family/parenting domain with the family differentiation construct can help answer this question.

Another related explanation for the lack of association between the FIS and the other study variables is that the FEC may either suppress or amplify the relationship between the FIS and the other study variables. Specifically, the FEC could either mediate or moderate (Baron & Kenny, 1986) the relationship between the FIS and the GRAD Family/Parenting domain. However, the models specified in this study did not formally test these hypotheses. As the data are currently available for further analysis, future research formally testing the above hypotheses can help answer these questions.

Another explanation for the lack of association between the FIS and the GRAD family/parenting domain is that family intrusiveness may be unrelated to the phenomena that the GRAD family/parenting domain assesses, namely disruptions in parental discipline and monitoring. Family intrusiveness may be a family process phenomenon that is independent of parenting. That is, intrusiveness may represent an element of "family process," assessing the perceived emotional climate of the family that is

qualitatively different from the phenomena that the construct "parenting" encompasses. If so, an observed relationship might be expected to be absent.

Further research with a larger and more representative sample may be able to answer some of the questions raised in this study. In particular, future research on the relationship between the PSSFA and the FEC with the GRAD in a common model may be able to partial out their relative influences. Another study could test for the mediating effect of family processes (e.g., PSSFA) on the relationship between household income and GRAD family/parenting scores. Finally, models utilizing both the PSSFA and the FIS could test for the mediating effect of the FIS on the relationship between the GRAD and the PSSFA.

Youth vs. Parent Reports

Youth reports of unpleasant family events, perceived social support from the family, and family intrusiveness were unrelated to parent/caretaker reports of GRAD family/parenting risks. These results support the proposition (stated earlier in Chapter 3) that adult reports of the GRAD family/parenting domain have the potential to be related to other valid measures of specific adult-reported family/parenting factors, but are probably not valid measures of youth perspectives of the same phenomena.

While both adult and adolescent perspectives of the FEC and PSSFA were significantly associated, the noted lack of relationship between adult perspectives of the GRAD and adolescent perspectives of the FEC, PSSFA, and FIS suggests that parent reports of the GRAD family/parenting domain may be idiosyncratically different from

youth reports of the same GRAD items. While future studies utilizing adult and youth reports of the GRAD parent/family domain may reveal significant associations between both perspectives, in this study, the two reporters' interpretations of the specific family/parenting phenomena probably differ appreciably.

It is likely that—at least for this sample--youth and parent reports of the GRAD family/parenting domain represent idiosyncratic perspectives of the same phenomena. That is, if the youth GRAD perspective were included in future analyses, it is hypothesized that youth would report on a sampling of "family" phenomena that are relevant to the youth's lived experience (e.g., as an individuating adolescent), while parents would report on the sampling of behaviors that are related to the parent's lived experience (e.g. monitoring an individuating adolescent while allowing individuality tolerance). Thus, youth and parent perspectives of parenting problems illustrated in the GRAD probably differ appreciably, and it is hypothesized that the two perspectives would no more than moderately correlate in future studies.

Parent Reports

At the same time, however, the presence of significant correlations among adult reports of the GRAD, the FEC, and the PSSFA suggests that parent reports of the GRAD family/parenting domain are a valid measure of phenomena related to the likelihood of unpleasant family events occurring in families and consequent decreases in parent reports of the extent to which that parent provides support for his/her adolescent. It should be noted that the data collection process of this study strengthens these findings. The PSSFA and FEC data were collected chronologically later, and in a personal interview, rather than on the phone and at the point at first contact with the research team as was the GRAD. Thus, it is less likely that the significant associations found in this study were strongly influenced by the idiosyncratic responses of parents/caretakers or by common method variance. That is, the time delay in data collection increases the likelihood of psychological distance between responses to the GRAD and the other measures, as well as an erosion of memory in responses to GRAD items when completing the other family/parenting measures. Together, such differences in data collection procedures serve to ameliorate response bias.

Summary of Findings

Overall, the present results are consistent with the findings of previous studies. Parents experiencing disruptive behaviors from their adolescents when attempting to discipline and/or monitor them also must manage the consequences of their adolescents' behaviors on the family environment (Patterson, Reid & Dishion, 1992; Snyder & Patterson, 1987). Because their adolescents' disruptive behaviors create negative tension and conflict in the family environment, parents of disruptive adolescents probably consume high levels of mental energy in managing the family environment. In addition, because an inordinate amount of mental energy is used to manage family disruptions related to dealings with the adolescent, parents probably find themselves lacking the mental energy needed to sustain high levels of support for their disruptive adolescents (Dishion, Patterson, Stoolmiller & Skinner, 1991; Krohn, Stern, Thornberry & Jang, 1992; Patterson & Dishion, 1985).

Thus, the results of this study suggest that parent/caretaker reports of the GRAD family/parenting domain may measure parent/caretaker perspectives of disruptions in the family environment that lead to tension, conflict, and a lack of support for disruptive adolescents. (See Figure 2 below for an illustration of a summary of the findings of all concurrent validity analyses.) The lack of association between parent/caretaker reports of the GRAD and adolescent reports of the FEC and PSSFA suggest that the perspectives of family members probably differ appreciably, and it is unlikely that parent and youth reports of the phenomena that the GRAD family/parenting domain assesses would fit well as a single latent variable.

Gender and Ethnic Differences

Contrary to recent research, neither gender nor ethnicity differences were significant in this study. The lack of significant gender differences in this study could very well be due to idiosyncrasies in this relatively small, clinical study's sample. The \underline{N} =52 females in this study represent approximately half of the pool of referrals. It is possible that females from poorer families under stress were not able to participate in the study due to transportation difficulties, and that such females would have scored higher on the GRAD family/parenting domain than the sample . It is also possible that females with parents resistant to participating would have scored higher on the GRAD family/parenting domain.



Figure 2. The Final Model

Unlike the findings in this study, current, published studies on the GRAD Family/Parenting Domain have identified complex links between it, adolescent gender, and ethnicity in relation to outcome variables (Gavazzi, 2006; Gavazzi, Yarcheck, & Chesney-Lind, 2006; Gavazzi, Yarcheck, & Lim, 2005; Gavazzi, Yarcheck, Sullivan, Jones, & Khurana, In press). For example, in two samples of court-involved youth in a large, urban court, Gavazzi, Yarcheck, & Lim (2005) found that female youth from both the court's status-offender population, and the court's at-large population scored significantly higher on the GRAD family/parenting domain than males. This finding was replicated in another study of a juvenile detention sample of 305 youth, Gavazzi, Yarcheck, & Chesney-Lind (2006).

Further, in a combined sample of 1,609 court-involved youth from four county juvenile courts, Gavazzi (2006) found that females scored significantly higher than males on the GRAD family/parenting domain, and that females scoring high risk on the GRAD family/parenting domain had rates of prior offenses as high as males. Finally, in a sample of 2,549 court-involved youth, Gavazzi, Bostic, Lim, & Yarcheck (In press) identified a significant ethnicity by gender interaction, such that the relationship between gender and mental health problems was mediated by the GRAD family/parenting domain for African-American youth, but not for Caucasian youth.

The authors' interpretation of the prevalence of gender differences in levels of the GRAD family/parenting domain draws from criminological research indicating that courtinvolved females present with a qualitatively different constellation of risks than males, and that the family environment plays a more influential role in pathways to female delinquency (Chesney-Lind, 1997; Chesney-Lind & Okamoto, 2001; Chesney-Lind & Shelden, 1998).

The lack of ethnicity findings in the GRAD Family/Parenting Domain in this study is less interesting since only one study (Gavazzi, Bostic, Lim, & Yarcheck, In press) has

demonstrated a significant ethnic difference in the GRAD family/parenting domain—and only in an interaction effect with gender. In addition, the Gavazzi, Bostic, et al (In press) study did not control for socioeconomics, and admitted as much. The ethnic differences found in the Gavazzi, Bostic, et al (In press) study could be a function of socioeconomic factors, for example, household income as found in this study. Future research controlling for socioeconomic factors can help answer this question.

Limitations of the Study

The findings reported in this study are generalizable to court-involved adolescents attending family-based services with at least one attending family member. The use of such a "clinical" sample presents multiple threats to external validity when extrapolating beyond these parameters (Campbell & Stanley, 1966; Hair, Anderson, Tatham & Black, 1998; Neale & Liebert, 1986). Since the option to decline participation in family-based programming existed for the larger pool of study participants, and the data analyzed in this study were only representative of those families who actually participated in family-based programming, parent/caretakers in this study may have responded differently than the larger pool of potential participants would have.

While speculative, parent/caretakers represented in this study's sample may have escalated their responses to the GRAD items either because they were in crisis, or to gain access to services, while other parents who did not attend may have chosen not to disclose information to avoid participation in family-based services. A consequence of this could be that the study sample may have had a more restricted variability in

responses compared to the larger pool of candidates. Replication of this study with a larger and/or more representative sample is necessary to support any inferences made beyond the parameters of the study sample.

Rater Bias

It must be noted that one cannot rule out the possibility that the significant associations between the GRAD family/parenting domain and parent/caretaker reports of the PSS and the FEC are influenced by rater bias. Youth and adult reports of the PSSFA ($\underline{r} = .31$; \underline{p} <.001) and FEC ($\underline{r} = .46$; \underline{p} <.001) are both significantly correlated, yet only adult reports of both measures are significantly related to the GRAD. This suggests that the observed relationships may be influenced by how adults responded to the items in both measures, rather than "true" measurement. Future research utilizing youth and adult perspectives of the GRAD in concurrent validity studies can help to answer this important question.

If parent GRAD family/parenting scores are significantly related to parent and youth scores on other family functioning instruments, then it can be inferred that the parent GRAD is not significantly influenced by rater bias. Another scenario is that only parent GRAD scores will be related to other parent family functioning measures, and only youth GRAD scores will be related to youth family functioning measures. This perspective is consistent with this study's proposition that parents and youth have differing perspectives of family/parenting issues.

Range Restriction

In related fashion, this study may also be limited in regards to issues with range restriction (Sackett, Laczo, & Arvey, 2002; Stoolmiller, 1998; 1999). Range restriction refers (in this case) to a reporter's inability to distinguish a "true" range of performance. Because the families represented in this study were from a specific population, (i.e. court-involved adolescents and their families who choose to attend family-based services), parents, and/or adolescents may have responded in a more restricted fashion to item response categories. Specifically, the responses of families in this study may have clustered at the higher end of response categories, while a sample from a more normative population may have responded with a more normal distribution. Since range restriction tends to attenuate observed relationships, the use of a more normative population may have resulted in significantly higher standardized loadings, potentially influencing the interpretations of this study.

Low Sample Size and Statistical Power

Another limitation of this study regards its relatively low sample size and accompanying low levels of statistical power (see Table 6). Significant findings in this study must be interpreted with caution since low levels of power are related to an increased likelihood of Type II Errors. That is, the likelihood of rejecting the null hypothesis when it is true is increased when statistical power is low. Small sample sizes and low levels of power will undermine virtually any statistical test. An additional limitation related to statistical power concerns the limited number of indicators for two of the three GRAD factors. Because two of the three GRAD family/parenting factors (i.e. "Monitoring problems"" and "retaliate") were comprised of fewer than four indicators, caution must be exercised in interpreting the tridimensional factor structure utilized in this study. Statistical tests utilizing latent variables with fewer than four indicators--and the resulting limited degrees of freedom—are subject to increased odds of Type II Errors (Bollen, 1989; Mulaik & Quartetti, 1997). While the evidence provided in this study and the Slade (2002) study supports a multidimensional factor structure of the GRAD family/parenting domain, a larger pool of items is needed in future studies to support inferences made in relation to the tridimensional factor structure of the GRAD family.

Model	RMSEA	90% Confidence Interval	Degrees of Freedom	# of Distinct Parameters	Power
FEC	.056	(.024; .081)	98	38	.4968
FIS	.054	(.026; .077)	128	43	.5845
PSSFA	.044	(.000; .069)	128	43	.5845

Table 6. Fit Indices for GRAD Concurrent Validity Models

The limits to this study in regards to low sample size and power raise serious questions about the generalizability of the observed associations. While this may seem to be a major oversight in study design, it should be noted that this endeavor did not begin as a basic scientific study. Rather, the best available evidence from an ongoing, applied initiative was utilized to advance efforts to validate the GRAD.

Multidimensionality of the GRAD

Table 7 below displays the correlation matrix for this study, and included within it are the three subscales of the GRAD Family/Parenting domain as separate (summed) measures. While the GRAD Family/Parenting domain has been used historically as a single, aggregate score, Table 7 suggests that the GRAD's precision would be increased by utilizing the three, separate sub domains of the Family/Parenting domain, rather than the single, aggregate measure.

For example, while the GRAD Family/Parenting domain's unidimensional measure is marginally related to adolescents' reports on the FIS ($\underline{r} = .194$; $\underline{p} = .051$), its "Response to Parental Monitoring" sub domain is significantly related to adolescents' reports on the FIS (r = .256; p < .01). Further, while the GRAD Family/Parenting domain's unidimensional measure is unrelated to adolescents' reports on the PSSFA (r = .085; p = .397), its "Response to Parental Monitoring" sub domain go domain is significantly related to adolescents' reports on the PSSFA (r = .085; p = .397), its "Response to Parental Monitoring" sub domain is significantly related to adolescents' reports on the PSSFA ($\underline{r} = .198$; $\underline{p} < .05$).

Further, a review of Table 7 reveals that, with the exception of the adult version of the Family Events Checklist, the three sub domains are not correlated to any of the other study variables in the same manner. For example, while the "Responses to Monitoring" measure is significantly related to adolescents' reports on the FIS and the PSSFA, "Tiptoe" and "Retaliate" are not. Further, while the "Tiptoe" and "Monitoring" measures are significantly related to adults' reports on the PSSFA and adolescents' reports on the FEC, the "Retaliate" sub domain is significantly related to neither.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	GRAD	1.00	.684***	.917***	.709***	.194	.004	085	334**	.275**	.455***	.135	258**	.070	046
2.	Response to Monitoring		1.00	.413***	.329**	.256**	.025	198*	240*	.261**	.296**	.183	167	.030	.022
3.	Tiptoe			1.00	.531***	.147	078	033	348***	.271**	.450***	.130	227*	.068	096
4.	Retaliate				1.00	.053	.178	.009	119	.057	.260**	035	220*	.063	.031
5.	FIS-Youth					1.00	.004	523***	222*	.464***	.123	.355***	026	.040	.034
6.	FIS-Adult						1.00	.016	.034	.036	.134	154	020	.134	.362***
7.	PSSFA-Youth							1.00	.311**	259**	037	213*	050	.006	003
8.	PSSFA-Adult								1.00	272**	394***	262**	.113	.115	.107
9.	FEC-Youth									1.00	.463***	.188	.078	.226*	149
10.	FEC-Adult										1.00	.056	151	.026	.025
11.	Adolescent Gender											1.00	034	.001	.107
12.	Household Income												1.00	.447***	024
13.	One or Two Parents													1.00	002
14.	Adolescent Ethnicity														1.00
* <u>p</u> <	*pc .05 level (2-tailed) **pc .01 (2-tailed) ***pc.001 (2-tailed)														

Table 7. Pearson Product-Moment Correlations Including Sub Domains

These findings support previous studies that have also found evidence of the multidimensionality of the GRAD family/parenting domain (Gavazzi, Slade, Buettner, Partridge, Yarcheck, & Andrews, 2003; Slade, 2002). Thus, the evidence suggests that aggregating the GRAD Family/Parenting domain's items unidimensionally attenuates precision, and that use of the sub domains would be a more valid use of the assessment device.

Confounding Effect of the Quality of Parent-Child Relationship(s)

A source of systematic error that may have contributed to the lack of relationship between the GRAD Family/Parenting Domain and the Family Intrusiveness Scale (FIS) could be group differences related to the quality of the parent-child relationship. Recall that the GRAD Family/Parenting Domain measured youths' responses to parental monitoring and discipline, while the FIS measured the extent to which family members intruded on their young persons' individuality-enhancing experiences.

The underlying hypothesis is that families who do not tolerate their young persons' developmentally appropriate individuality-enhancing experiences are likely to have youth who respond disruptively to parental monitoring. (Since this study only utilized a unidimensional family/parenting measure, one can only speculate the extent to which this might be true.) However, it is also possible that families with antisocial youth develop poor parent-child relationships over time, and such families will have parents who (reasonably) monitor their youth more heavily. In turn, such antisocial youth will respond disruptively.

This hypothesis is supported by recent research on parental monitoring that describes how monitoring is shaped over time by the quality of the parent-child relationship (Patrick, Snyder, Schrepferman, & Snyder, 2005). "Warm" parent-child relationships over time encourage children to provide information willingly to parents. However, parent-child relationships in families with antisocial youth are more at risk of developing more poorly, inhibiting disclosure and promoting enhanced monitoring.

If the latter were true, then significant group differences in the quality of the parent-child relationship may attenuate the association between the FIS and parental

monitoring. True monitoring may have a curvilinear relationship with parental intrusiveness for prosocial kids (i.e. monitoring beyond an optimal point is intrusive), while it may have a linear relationship with antisocial kids. That is, the highest levels of parental monitoring will not be applicable for youth on a normative developmental trajectory, while the full range will be applicable—and adaptable—for youth on an antisocial developmental pathway.

Thus, it is possible that since the quality of the parent-child relationship was not included in this study, then the relationship between the FIS and the GRAD Family/Parenting Domain was be attenuated. Future research utilizing the FIS and/or the GRAD Family/Parenting Domain should include the quality of the parent-child relationship to control for this alternative explanation.

Validity of the GRAD Family/Parenting Domain: Implications for Practice

The results of this study suggest that parent's reports of the GRAD Family/Parenting domain are valid measures of disruptions in discipline (i.e., "tiptoe," "retaliate") and monitoring in the family. Juvenile justice professionals should note that parents scoring high on this domain are likely in need of either additional resources in parenting their adolescent, and/or are in need of family-based services, which target factors that ameliorate levels of disruption on the part of the adolescent and improving the effectiveness of parental discipline (i.e., "tiptoe," "retaliate") and monitoring.

It is important to note that additional measures (e.g. FIS/PSSFA/FEC) are needed to establish the validity of a measure and aid in the interpretation of scores. The Slade (2002) study did not utilize additional measures, and thus was essentially a study of the dimensional structure of the GRAD. However, both the Slade study and this study consistently identified multiple factors among the items comprising GRAD Family/Parenting Domain.

This finding suggests that the practitioner's use of a summed, unidimensional GRAD Family/Parenting domain—as has been historically utilized in making referrals---may not be the most useful method of presenting family/parenting data for the juvenile justice professional. It may be more useful for the practitioner to view the multiple subscales (e.g., "Monitoring problems," "Tiptoe") of the GRAD Family/Parenting Domain for families scoring "high" on the unidimensional measure. This would allow professionals to target the particular risks (e.g. "Monitoring problems" vs. ""discipline") that an adolescent presents with more accurately.

Refinement of GRAD Cut-Off Scores

The use of multiple domains of the GRAD Family/Parenting Domain would likely increase the precision of the instrument, reducing errors in interpretation and assisting juvenile court staff in making better referrals for services that will meet a youth's identified needs. However, this does not address another substantial source of error related to the criteria for establishing cut-points for risk scores.

Individual GRAD score risk level classifications have historically been calculated based on the idiosyncratic mean of a local sample (i.e. youth coming into contact with a local juvenile court). Youth scoring above one standard deviation are considered "high risk," and those below one standard deviation are considered "low risk." This usage has an intuitive appeal, and it has been useful insofar as it has reliably identified a relatively low proportion of "high risk" (11%) and "low risk" (11%) youth. One of the benefits of using the standard distribution to assign cut-off scores is that it minimizes the odds of incorrectly identifying "high risk" and "low risk" youths. (The standard deviation does not allow it mathematically.)

However, utilizing one or more standard deviations to assign risk scores does have one significant limitation. Utilizing one or more standard deviations ensures that the vast majority of youth (68% or more) will fall into the "moderate risk" category, leaving most youth without a meaningful risk score and raising serious questions about the usefulness of the risk classification system itself. In such cases, referral agents are likely to revert to using clinical judgments, increasing the odds that youth will be "overprogrammed" (i.e. receives services too intensive for their needs), or "underprogrammed" (i.e. does not receive services intensive enough for their needs).

One possible solution to this issue is to split the "moderate risk" group based on the mean (or the median in cases where the "moderate risk" group is too small). This strategy produces a four-level, rather than a three-level ("high," "medium," and "low") risk classification system, consisting of "high," "medium high," "medium low," and "low" risk youth. This four-level classification system reduces the odds that youth in the "middle" range will not be "over programmed" or "underprogrammed." More intensive services can be directed to youth in the "medium-high" risk level, while less intensive services can go to youth the in the "medium low" risk level.

Questions regarding the incremental validity of three vs. four level classification systems can best be answered in future research efforts. For example, Structural Equation Modeling (SEM) can be used to test incremental model fit of three vs. four level classification systems in establishing the concurrently or predictive validity of these measures.

There is clearly a need for further validation and use of actuarial assessment devices such as the GRAD. As discussed earlier, court-involved youth and their families usually present with multiple needs that span several social service systems. Further, most "assessment" that occurs in the juvenile court is of the unstructured "clinical" variety, and lacks necessary levels of reliability and validity (Hoge, 2002; Minor, Hartmann, & Terry, 1997; Sanborn, 1996; Schissel, 1993). The consequences of referral decisions based on assessment errors have been documented thoroughly, including system-level bias, inequities, and decisions made that are counter to the historical goal of the juvenile court; namely, to assist delinquent youth in resuming a normative developmental path and ultimately to integrate them into mainstream society (Lewis, 1999).

Further, there is precious little program evaluation occurring in the juvenile court and other social service systems (Lipsey, 2001), leading predictably to poor organizational planning and decision making, non-random, repetitive organizational errors, and duplications of efforts (Deming, 1986). The proper use of actuarial assessment methods such as the GRAD will begin to form the logical organization and structure sorely needed in the juvenile justice system.

While other methods, including rigorous clinical assessments, are available to meet this need, the resources needed to implement these complex devices simply are not available in most juvenile courts. In particular, factors related to compensation of the juvenile court probation/intake officer's position present the most substantial challenges to utilizing structured clinical assessment devices in order to meet the multiple needs of at-risk youth and their families.

In particular, while most juvenile court probation/intake officers have at least some college education and between 5-10 years of experience in the field, national estimates indicate that approximately 50% of them earn less than \$30,000 a year—lower than virtually any formal definition of a minimum family wage with one dependent (e.g. Dechter & Smock, 1994, Frazer, 1994; Kimmel, 1998; Schrock, 1998). Further, while most juvenile court probation/intake officers receive adequate benefit packages, less than 30% of them regularly receive annual salary increases (OJJDP, 1996).

Heads of households who do not earn a family wage at a single occupation either must find another, better paying occupation, or must take on a second job to help finance the household. Adults working more than one job usually grow fatigued in time, and their performance suffers. If the juvenile court is interested in attracting career professionals to meet the challenging needs of its clients, it must also meet the needs of its court officers who are raising families and/or caring for dependents. Currently, most juvenile justice professionals with families either retain a second job to meet the household's income requirements, or their spouses work outside of the home and pay for childcare. For professionals who must prioritize their family first, these economic

factors seriously undercut their motivation and focus needed to do the job well. Given the challenges inherent in the position, action needs to be taken to provide juvenile justice professionals with a family wage.

Finally, it should be noted that it is a mistake to assume that the conclusions of this study hold indefinitely into the future. Because social contexts change so rapidly, establishing validity is an ongoing process and replication is necessary. Further analysis of the factor structure of the GRAD Family/Parenting Domain will be needed as the GRAD is utilized over time and across contexts.

Suggestions for future research

Future research efforts that attempt to answer some of the questions raised in this study should focus on a number of issues. First, since the use of a unidimensional GRAD Family/Parenting Domain is inconsistent with the results of this study and others, future validation efforts should specify Structural Equation Models with separate latent variables that represent each sub-domain of the family/parenting measure (in this case, "Tiptoe," "Retaliate," and "Responses to Monitoring"), rather than the single, unidimensional latent variable specified in this study.

Second, the use of a larger sample in future studies will be necessary to improve both statistical power and confidence in the generalizability of results. Ideally, the collection of GRAD data with state and/or national probability samples would allow one to estimate norms for the US population and its demographic groups. Such norms of the US population and its subgroups would immensely improve confidence in the precision of cut-off scores in GRAD risk levels. However, studies utilizing data sets with larger samples (i.e. hundreds of cases) will also improve the precision of such estimates, and will of course increase confidence in the generalizability of study findings.

A third way to advance validation studies is to include in structural equation models all other salient variables necessary to make the inferences one needs from the results of the study. This study could have been improved by including a measure of the quality of the parent-child relationship. The inclusion of this variable in this study's concurrent validity models may have significantly altered the observed relationships between the GRAD Family/Parenting Domain and the other family variables. Only future research can answer these questions.

The New GRAD

For another reason, validation work must continue regarding juvenile court utilization of the GRAD within the last three years. Following the GRAD's pilot phase, the GRAD Family/Parenting domain (as well as many of the other GRAD domains) was modified to reflect various concerns expressed by juvenile justice professionals utilizing the assessment tool in practice. For example, additional items were constructed to address concerns with the potential for family violence, to assess the quality of the adolescent's relationship with other family members, as well as to measure general levels of family stress related to economic issues. The new items of the GRAD family/parenting domain are found in Table 7.

As listed above, there have been substantial changes to the instrument since it was first developed. While four "tiptoe" items remain (9, 10, 11, & 13), there is now only

one "Monitoring problems" item (2) and one item (6) that assesses parental discipline

practices. Other items assess the potential for family violence (1, 5, 7, 8, 12, & 16), the

quality of the adolescent's relationship with other family members (3, 4, & 14), and levels

of family stress related to economics (15). Clearly, there is an immediate need to

validate the new GRAD Family/Parenting Domain with additional samples.

1. How often do family members get into fights with your adolescent?

2. How much of the time do you NOT know the whereabouts of your adolescent?

3. Are family members ever too critical of your adolescent?

4. Does your adolescent ever feel that he\she is not welcome to stay in your home?

5. Is your adolescent at-risk of harm or physical danger in your home?

6. When your adolescent is punished for his/her behavior, is it harsh (the punishment is worse than the behavior) or inconsistent (the punishment is never the same twice for the same behavior)?

7. How often has your adolescent been involved in a physical fight (shoving, hitting, punching etc.) with an adult family member as a result of something he/she did wrong?

8. How often are adults who live in your home verbally abusive to your adolescent (swearing, calling him/her names etc.)?

9. Does your adolescent ever become more uncontrollable after he/she has been punished?

10. Do family members ever seem to go out of their way NOT to upset your adolescent?

11. Does it ever seem like family members tip-toe around your adolescent (so they don't upset him/her)?

12. How often does your adolescent fight with his/her brothers and sisters?

13. Does it seem like the adults in your home do things themselves instead of asking your adolescent to do them?

14. Does your relationship with your adolescent ever feel not so good?

15. Does your family have a hard time paying bills and buying food?

16. Has your family been contacted by a social service agency because of something happening in your home?

Table 8. Items comprising the New GRAD Family/Parenting Domains—Adult Report

Implications for Practitioners

Earlier, it was established that one of the assumptions driving most assessment methods—termed the "risk principle" by criminologists –is that positive intervention outcomes are most strongly potentiated when the intervention is tailored to the specific risks/needs of the individual related to the problem behavior in question (Andrews, Bonta, & Hoge, 1990; Hoge, 2002; Lipsey & Wilson, 1998). The risk principle's underlying assumption is consistent with most scientific definitions of causality (e.g. see Pearl, 2000); namely, that knowledge of factors most "causally" related to specified outcomes is useful because--it is assumed—interventions that limit the effects of causal factors should in turn limit causal effects.

This is almost certainly true for preventive efforts. Compelling data exist for the effectiveness of early identification and intervention in the lives of youth who are at-risk for beginning a negative developmental trajectory, and these ideas have served as the foundation for the US Office of Juvenile Justice and Delinquency Prevention's "Comprehensive Strategies" initiative (OJJDP, 1995). However, most of the youth entering the juvenile court have already evidenced behaviors that they were "at-risk" of earlier in their lives, and thus their negative developmental trajectories cannot be prevented. These youth not only need interventions that specifically target and seek to reduce or eliminate problem behaviors that already are occurring, they also need ancillary services that address the effects of their negative behaviors on their environments and themselves over time.

That is, in addition to knowing about salient risks, intervention programs must also take into account the developmental consequences of the presence of these risks over time in the lives of youth. Because of this, the interventions that juvenile justice professionals refer to based on GRAD scores may or may not be sufficient to have the desired effects. In a discussion of this very issue, the late Joan McCord wrote: "Unhealthful experiences leave their residues, and it is a mistake to assume that knowledge about the effectiveness of restorative interventions follows from knowledge about causes" (McCord, 1996; p. 152). While it is reasonable to expect that there should be some relationship between the activities of effective programs that prevent problem behaviors and the activities of programs that eliminate existing problem behavior, this remains an empirical question that can only be answered by rigorous evaluation research and is certainly beyond the scope of this study.

Conclusions: Implications for the Use of Parent Reports of the GRAD Family/Parenting Domain

Based on the results of this study, parent reports of the GRAD family/parenting domain may be useful for identifying disruptions in the parenting (i.e., discipline and monitoring) of adolescents which are related to the occurrence of unpleasant events (e.g., tension, conflict) in the family environment and a lack of parent/caretaker support for disruptive adolescents. Parent reports of youth scoring high-risk on the GRAD family/parenting domain may thus be utilized to (1) assess the youth and his/her family members more thoroughly in regards to the proximal causes of these problem

behaviors—possibly by examining subscales with the larger GRAD Family/Parenting Domain--and (2) identify appropriate services that will target the proximal causes of these problem behaviors and thus serve to ameliorate them. Since users of the GRAD in the social service system should be aware of what the family/parenting domain measures (and does not measure), the results of this study could be utilized to train users in interpreting GRAD family/parenting scores for an individual client and making appropriate referrals. Further validity studies of this kind are very much needed in order to improve the effectiveness of the juvenile court in the United States.

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APPENDIX A

LIST OF MEASURES

GRAD Family/Parenting Domain

"I'm going to read some statements that describe adolescents. Please take a moment and decide how well each statement describes your own adolescent **now or within the past 6 months**. Please tell me if the statement is either <u>not true</u>, <u>somewhat or sometimes true</u>, or <u>very true</u> of your adolescent."

1. My adolescent is hard to keep track of.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
2. When told to stay put, my adolescent leaves anyway.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
3. My adolescent takes off without permission.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
4. My adolescent is disobedient at home.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
5. When I punish my adolescent, s/he gets worse and harder to control.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
6. I am concerned about how to deal with my adolescent without making him/her more stubborn.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
7. I feel like tip-toeing around my adolescent in order not to upset him/her.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
8. In order to keep the peace I do not ask my adolescent to do things.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
9. It is easier just to do things myself instead of asking my adolescent to do them.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
10. When my adolescent is very grouchy or irritable, it is best just to leave him/her alone.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
11. I fear that my adolescent is going to hurt someone when I enforce the rules with him/her.
"Not true" (0) "Sometimes true" (1) "Often true" (2)
12. I am worried about my adolescent taking it out on other kids when I try to make him/her obey me.
"Not true" (0) "Sometimes true" (1) "Often true" (2)

Unpleasant Family Events Checklist

"Here are some statements about events that happen in families. Please listen to each statement carefully and decide how often it happened in your own family <u>during the past month</u>."

	This never happened in the last month.		This happened once or twice.		This happened fairly often.		This happened every day.
1. There was a tense situation that occurred between family members not including yourself.	0	1	2	3	4	5	6
2. A family member came home late, or didn't come home at all.	0	1	2	3	4	5	6
3. There was a conflict between adults who live in the house.	0	1	2	3	4	5	6
4. There was a tense situation that occurred between you and another member of your family.	0	1	2	3	4	5	6
5. A family member other than you was in a bad mood.	0	1	2	3	4	5	6
6. There was a conflict between an adult and a kid over homework.	0	1	2	3	4	5	6
7. One or more kids came home in an upset mood.	0	1	2	3	4	5	6
8. The school contacted an adult family member about a problem one of the kids was having.	0	1	2	3	4	5	6
9. There was a physical fight between two family members.	0	1	2	3	4	5	6
10. You felt real emotional for one or more days	0	1	2	3	4	5	6

FIS-Adult

"Please indicate how often you say or do the following things to your adolescent. Keep in mind there are no correct answers."

		I	RESPONSE CH	IOICES		
	1	2	3	4	5	
Ne	ever	Rarely	Sometimes	Almost Always	Always	
1. I tell	my adolescer	nt that he/sh	e has not been	a responsible fami	ly member.	
	I	Ζ	3	4	5	
2. I crit	icize the way	my adolesce	ent runs his/her	life.		
	1	2	3	4	5	
3. I tell	my adolescer	nt that there	are certain obli	gations he/she has	to our family.	
	1	2	3	4	5	
4. I tell	mv adolescer	nt that he/sh	e does things a	member of our far	nilv shouldn't do.	
	1	2	3	4	5	
5. I tell	mv adolescer	nt how he/sh	ne should use h	is/her time and ene	rav.	
	1	2	3	4	5	
C. Laure	ation my ada	laacant ⁱ a lay		h.,		
o. I que	1	2	ally to our lami	iy. 4	5	
		-	·		-	
7. I try	to influence th	ne decisions	my adolescent	makes about his/h	er life.	
	1	Ζ	3	4	5	
8. I tell	my adolescer	nt how he/sh	e should spend	d money.		
	1	2	3	4	5	
9 I tell	my adolescer	nt what he/s	he should he w	hen he/she hecome	es an adult	
0. 1 ton	1	2	3	4	5	
10. I tel	I my adolesce	nt that there	are certain tim	es he/she should b	e with our family.	
	1	2	0	-	0	
11. I ge	t involved in w	ho my adol	escent is friend	s with.		
	1	2	3	4	5	
12. I try	to influence v	vho my adol	escent chooses	s to date or have ar	n intimate relationsh	nip with.
,	1	2	3	4	5	
13 rei	mind my adole	escent of his	/her obligations	to our family		
10.110	1	2	3	4	5	

FIS-Adolescent

Please indicate how often your family members say or so the following things to you. Keep in mind there are no correct answers.

			RESPONSE CHO	DICES	
	1 Never	2 Rarely	3 Sometimes	4 Almost Always	5 s Always
1.	Family members 1	tell me I have 2	not been a respons 3	sible family membe 4	er. 5
2.	Family members 1	criticize the w 2	ay I run my life. 3	4	5
3.	Family members 1	tell me there a 2	are certain obligatio 3	ns I have to the fa 4	mily. 5
4.	Family members 1	tell me I do th 2	ings a member of o 3	ur family shouldn'i 4	t do. 5
5.	Family members 1	tell me how I = 2	should use my time 3	and energy. 4	5
6.	Family members 1	question my le 2	oyalty to the family. 3	4	5
7.	Family members 1	try to influenc 2	e the decisions I ma 3	ake about my life. 4	5
8.	Family members 1	tell me how I = 2	should spend my m 3	oney. 4	5
9.	Family members 1	tell me what I 2	should be doing wi 3	th my career. 4	5
10.	Family members 1	tell me there a 2	are certain times I s 3	hould be with then 4	n. 5
11.	Family members 1	interfere with 2	my friendships. 3	4	5
12.	Family members 1	try to influenc 2	e my intimate relatio 3	onships. 4	5
13.	Family members 1	remind me of 2	my obligations to th 3	ne family. 4	5

PSSFA-Adult

The statements below refer to feelings and experiences that occur to most people at one time or another with their family. For each statement you may answer "Yes," "No," or "I don't know." There are no correct answers.

YES	NO	DON'T KNOW	1. I give my adolescent the support he/she needs.
YES	NO	DON'T KNOW	2. Most people are closer to their adolescent than I am.
YES	NO	DON'T KNOW	3. My adolescent enjoys hearing about what I think.
YES	NO	DON'T KNOW	4. My adolescent comes to me when they have problems.
YES	NO	DON'T KNOW	5. My adolescent relies on me for emotional support.
YES	NO	DON'T KNOW	If I felt that my adolescent were upset with me, I'd just keep it to myself
YES	NO	DON'T KNOW	7. My adolescent shares many of my interests.
YES	NO	DON'T KNOW	 My adolescent could come to me if he/she was just feeling down, without feeling funny about it later.
YES	NO	DON'T KNOW	9. My adolescent and I are very open about what we think.
YES	NO	DON'T KNOW	10. I am sensitive to my adolescent's personal needs.
YES	NO	DON'T KNOW	11. My adolescent comes to me for emotional support.
YES	NO	DON'T KNOW	12. I am good at helping my adolescent solve problems.
YES	NO	DON'T KNOW	13. I have a deep sharing relationship with my adolescent.
YES	NO	DON'T KNOW	 My adolescent gets good ideas about how to do or make things from me.
YES	NO	DON'T KNOW	15. My adolescent seems uncomfortable confiding in me.
YES	NO	DON'T KNOW	16. My adolescent seeks me out for companionship.
YES	NO	DON'T KNOW	 I think that my adolescent feels I'm good at helping him/her solve problems.
YES	NO	DON'T KNOW	18. I don't have a relationship with my adolescent that is as close as other people's relationships with their adolescents.
YES	NO	DON'T KNOW	 I recently gave my adolescent a good idea about how to do something.
YES	NO	DON'T KNOW	20. I wish my relationship with my adolescent was much different.

PSSFA-Adolescent

The statements below refer to feelings and experiences that occur to most people at one time or another with their family. For each statement you may answer "yes," "no," or "I don't know." There are no correct answers.

YES	NO	DON'T KNOW	1.	My family gives me the support I need.
YES	NO	DON'T KNOW	2.	Most people are closer to their family than I am.
YES	NO	DON'T KNOW	3.	My family enjoys hearing about what I think.
YES	NO	DON'T KNOW	4.	Certain family members come to me when they have problems.
YES	NO	DON'T KNOW	5.	I rely on my family for emotional support.
YES	NO	DON'T KNOW	6.	If I felt that one or more family members were upset with me, I'd just keep it to myself.
YES	NO	DON'T KNOW	7.	Family members share many of my interests.
YES	NO	DON'T KNOW	8.	There is a family member I could go to if I were just feeling down, without feeling funny about it later.
YES	NO	DON'T KNOW	9.	My family and I are very open about what we think.
YES	NO	DON'T KNOW	10.	My family is sensitive to my personal needs.
YES	NO	DON'T KNOW	11.	Family members come to me for emotional support.
YES	NO	DON'T KNOW	12.	My family is good at helping me solve problems.
YES	NO	DON'T KNOW	13.	I have a deep sharing relationship with my family.
YES	NO	DON'T KNOW	14.	Family members get good ideas about how to do or make things from me.
YES	NO	DON'T KNOW	15.	When I confide in family members, I feel uncomfortable.
YES	NO	DON'T KNOW	16.	Family members seek me out for companionship.
YES	NO	DON'T KNOW	17.	I think that my family feels I'm good at helping them solve problems.
YES	NO	DON'T KNOW	18.	I don't have a relationship with a family member that is as close as other people's relationships with their family members.
YES	NO	DON'T KNOW	19.	I've recently gotten a good idea about how to do something from a family member.
YES	NO	DON'T KNOW	20.	I wish my family was much different.

APPENDIX B

TELEPHONE INTERVIEW PROTOCOL

Procedures used to contact subjects and gather GRAD data

Listed below is a chronological description of the system used to collect GRAD data from parents:

(1) The interviewer receives a phone call from a juvenile court referral agent, who requests that the interviewer return their call for information regarding a referred family. In most cases, the family has sought the assistance of the referral agent to either aid them in dealing with illegal behaviors their adolescent has already engaged in, or help them divert their adolescent from further illegal behaviors.

(2) The interviewer contacts the referral agent via phone call to ensure that the referred family meets specified criteria, specifically: the youth is between the ages of 12-17, one significant adult has committed to attending the program with the youth, and the youth has engaged in illegal activity within the last six months.

(3) When it is assured that the family meets the specified criteria, the interviewer contacts the significant adult over the telephone. The interviewer informs the adult family member that a referral agent contacted them and asked that their young person be assessed. The adult is asked for their consent. If the adult is interested in the assessment and services for their adolescent, they are asked to answer the GRAD questions in the following manner:

"With your permission, I would like to ask you some questions about problems that parents sometimes have with their adolescents who have gotten involved in delinquent behaviors. Your responses to these questions will help the facilitator working with your family identify areas where your adolescent may particularly be at risk. You are not by any means required to answer these questions, and you can tell me to stop asking them at any time. Most people are able to answer these questions in approximately 15-20 minutes. Would it be OK if I asked you these questions now?"

(If yes)

"I'm going to read some statements that describe adolescents. Please take a moment and decide how well each statement describes your own adolescent now or within the past 6 months. Please tell me if the statement is very true or often true, somewhat or sometimes true or not true of your adolescent. Please respond to all statements as best you can, even if some do not seem to apply to your adolescent." [Read GRAD items]

(If no)

"When would be a better time for me to call you and ask these questions?"

It is again emphasized that for a family to participate in the project and program, at least one significant adult and the referred adolescent must both wish to participate. Thus, when either declines participation in the project or program, the family's involvement is immediately terminated.

APPENDIX C

MODEL 1: THE GRAD FAMILY/PARENTING DOMAIN

CONFIRMATORY FACTOR ANALYSIS--UNIDIMENSIONAL MODEL



Figure 3: GRAD Family/Parenting Domain Confirmatory Factor Analysis: Unidimensional Model

APPENDIX D

MODEL 2: THE GRAD FAMILY/PARENTING DOMAIN

CONFIRMATORY FACTOR ANALYSIS--BIDIMENSIONAL MODEL



Figure 4: GRAD Family/Parenting Domain Confirmatory Factor Analysis: Bidimensional Model

APPENDIX E

MODEL 3: THE GRAD FAMILY/PARENTING DOMAIN

CONFIRMATORY FACTOR ANALYSIS--TRIDIMENSIONAL MODEL



Figure 5: GRAD Family/Parenting Domain Confirmatory Factor Analysis: Tridimensional Model

APPENDIX F

MODEL 4: THE GRAD FAMILY/PARENTING DOMAIN AND THE UNPLEASANT

FAMILY EVENTS CHECKLIST



Figure 6: The GRAD Family/Parenting Domain and the Unpleasant Family Events Checklist

APPENDIX G

MODEL 5: THE GRAD FAMILY/PARENTING DOMAIN AND THE FAMILY

INTRUSIVENESS SCALE



Figure 7: The GRAD Family/Parenting Domain and the Family Intrusiveness Scale

APPENDIX H

MODEL 6: THE GRAD FAMILY/PARENTING DOMAIN AND THE PERCEIVED SOCIAL

SUPPORT FROM THE FAMILY SCALE



Figure 8: The GRAD Family/Parenting Domain and the Perceived Social Support from the Family Scale

APPENDIX I

MODEL 1 RESULTS: THE GRAD FAMILY/PARENTING DOMAIN CONFIRMATORY FACTOR ANALYSIS--UNIDIMENSIONAL MODEL

Observed, Endogenous Variables	Factor	Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	Ρ
GRAD5	Family/Parenting	.635	1.078	.200	5.404	.001
GRAD6	Family/Parenting	.618	.918	.174	5.287	.001
GRAD7	Family/Parenting	.604	.953	.184	5.184	.001
GRAD8	Family/Parenting	.639	.955	.176	5.433	.001
GRAD9	Family/Parenting	.645	1.000			
GRAD10	Family/Parenting	.512	.762	.169	4.501	.001
GRAD12	Family/Parenting	.560	.863	.177	4.863	.001
GRAD11	Family/Parenting	.639	1.133	.209	5.435	.001
GRAD4	Family/Parenting	.644	.941	.172	5.469	.001
GRAD1	Family/Parenting	.445	.733	.185	3.969	.001
GRAD2	Family/Parenting	.491	.748	.172	4.337	.001
GRAD3	Family/Parenting	.521	.770	.169	4.569	.001

Table 9. Unidimensional Model Regression Estimates

Unobserved, Exogenous Variables	Estimate	S.E.	C.R.	Р
Family/Parenting	.220	.064	3.415	.001
e12	.358	.054	6.599	.001
e11	.409	.065	6.338	.001
e10	.359	.053	6.711	.001
e9	.308	.049	6.312	.001
e8	.291	.046	6.339	.001
e7	.348	.054	6.469	.001
e6	.300	.047	6.419	.001
e5	.379	.060	6.356	.001
e4	.275	.043	6.317	.001
e3	.350	.052	6.692	.001
e2	.386	.057	6.753	.001
e1	.478	.070	6.832	.001

Table 10. Unidimensional Model Variance Estimates

APPENDIX J

MODEL 2 RESULTS: THE GRAD FAMILY/PARENTING DOMAIN CONFIRMATORY FACTOR ANALYSIS--BIDIMENSIONAL MODEL

Observed, Endogenous Variables	Factor	Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	Р
GRAD1	Monitoring Problems	.640	.782	.127	6.163	.001
GRAD2	Monitoring Problems	.735	.831	.120	6.923	.001
GRAD3	Monitoring Problems	.911	1.000			
GRAD5	Tip-Toe	.635	1.055	.193	5.463	.001
GRAD6	Tip-Toe	.634	.922	.169	5.462	.001
GRAD7	Tip-Toe	.627	.968	.179	5.406	.001
GRAD8	Tip-Toe	.676	.988	.172	5.755	.001
GRAD9	Tip-Toe	.659	1.000			
GRAD10	Tip-Toe	.544	.792	.166	4.780	.001
GRAD12	Tip-Toe	.554	.835	.172	4.853	.001
GRAD11	Tip-Toe	.652	1.132	.202	5.589	.001
GRAD4	Tip-Toe	.611	.874	.165	5.292	.001

Table 11. Bidimensional Model Regression Estimates

Unobserved, Exogenous Variables	Estimate	S.E.	C.R.	Р
Monitoring Problems	.399	.079	5.021	.001
Tip-Toe	.230	.066	3.497	.001
e12	.362	.055	6.586	.001
e11	.397	.064	6.232	.001
e10	.342	.052	6.611	.001
e9	.298	.048	6.197	.001
e8	.267	.044	6.113	.001
e7	.332	.052	6.342	.001
e6	.290	.046	6.311	.001
e5	.379	.060	6.310	.001
e4	.294	.046	6.402	.001
e3	.081	.045	1.817	.069
e2	.234	.045	5.198	.001
e1	.352	.057	6.157	.001

Table 12. Bidimensional Model Variance Estimates

APPENDIX K

MODEL 3 RESULTS: THE GRAD FAMILY/PARENTING DOMAIN

CONFIRMATORY FACTOR ANALYSIS--TRIDIMENSIONAL MODEL

Observed,	Factor	Standardized	Unstandardized	S.E.	C.R.	Р
Endogenous Variables		Estimate	Estimate			
GRAD1	Monitoring	.639	.781	.127	6.146	.001
	Problems					
GRAD2	Monitoring	.736	.831	.120	6.903	.001
	Problems					
GRAD3	Monitoring	.911	1.000			
	Problems					
GRAD11	Retaliate	.912	1.000			
GRAD12	Retaliate	.742	.707	.120	5.904	.001
GRAD4	Tip-Toe	.604	.828	.155	5.355	.001
GRAD5	Tip-Toe	.642	1.024	.181	5.654	.001
GRAD6	Tip-Toe	.639	.890	.158	5.625	.001
GRAD7	Tip-Toe	.647	.957	.168	5.690	.001
GRAD8	Tip-Toe	.696	.976	.161	6.065	.001
GRAD9	Tip-Toe	.688	1.000			
GRAD10	Tip-Toe	.542	.756	.156	4.849	.001

Table 13. Tridimensional Model Regression Estimates

Variable 1	Variable 2	Correlation Estimate	Covariance Estimate	S.E.	C.R.	Р
Monitoring Problems	Tip-Toe	.462	.146	.043	3.401	.001
Monitoring Problems	Retaliate	.360	.172	.058	2.958	.003
Retaliate	Tip-Toe	.637	.241	.057	4.209	.001

Table 14. Tridimensional Model Covariance and Correlation Estimates

Unobserved, Exogenous Variables	Estimate	S.E.	C.R.	Р
Monitoring Problems	.399	.080	5.012	.001
Retaliate	.575	.126	4.562	.001
Tip-Toe	.250	.068	3.672	.001
e12	.234	.053	4.458	.001
e11	.116	.083	1.393	.163
e10	.343	.052	6.580	.001
e9	.278	.047	5.964	.001
e8	.253	.043	5.911	.001
e7	.318	.051	6.193	.001
e6	.287	.046	6.233	.001
e5	.373	.060	6.215	.001
e4	.298	.047	6.377	.001
e3	.081	.045	1.808	.071
e2	.234	.045	5.181	.001
e1	.353	.057	6.155	.001

Table 15. Tridimensional Model Variance Estimates
APPENDIX L

MODEL 4 RESULTS: THE GRAD FAMILY/PARENTING DOMAIN AND THE

UNPLEASANT FAMILY EVENTS CHECKLIST

Endogenous Variables	Exogenous Variables	Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	Ρ
GRAD Family/Parenting	Household Income	318	083	.030	- 2.740	.006
GRAD Family/Parenting	One or Two Parents	.198	.181	.103	1.763	.078
GRAD Family/Parenting	FEC-Adult	.433	.019	.005	3.549	.001
GRAD Family/Parenting	FEC-Youth	.084	.004	.006	.757	.449
Monitor	GRAD Family/Parenting	.514	.702	.194	3.621	.001
Retaliate	GRAD Family/Parenting	.665	1.075	.259	4.143	.001
Tip-Toe	GRAD Family/Parenting	.934	1.000			
GRAD1	Monitor	.639	.787	.128	6.140	.001
GRAD3	Monitor	.907	1.000			
GRAD11	Retaliate	.898	1.000			
GRAD12	Retaliate	.749	.727	.125	5.790	.001
GRAD4	Tip-Toe	.610	.846	.158	5.371	.001
GRAD5	Tip-Toe	.636	1.026	.184	5.572	.001
GRAD6	Tip-Toe	.643	.906	.161	5.624	.001
GRAD7	Tip-Toe	.631	.944	.171	5.528	.001
GRAD8	Tip-Toe	.673	.954	.163	5.854	.001
GRAD9	Tip-Toe	.681	1.000			
GRAD10	Tip-Toe	.527	.746	.159	4.703	.001
GRAD2	Monitor	.735	.836	.121	6.896	.001
GRAD Family/Parenting	Household Income	318	083	.030	- 2.740	.006
GRAD Family/Parenting	One or Two Parents	.198	.181	.103	1.763	.078

Table 16. Regression Estimates for the GRAD and the FEC Model

Variable 1	Variable 2	Correlation Estimate	Covariance Estimate	S.E.	C.R.	Ρ
FEC-Adult	FEC-Youth	.462	43.781	10.383	4.216	.001
Household Income	One or Two Parents	.448	.395	.096	4.107	.001
FEC-Adult	One or Two Parents	.005	.027	.405	.067	.947

Table 17. Covariance and Correlation Estimates for the GRAD and the FEC Model

Variable	Estimate	S.E.	C.R.	Р
FEC-Adult	105.322	14.821	7.106	.001
FEC-Youth	85.195	11.989	7.106	.001
Household Income	3.111	.438	7.106	.001
One or Two Parents	.250	.035	7.106	.001
z4	.144	.052	2.742	.006
z2	.030	.038	.804	.421
z3	.306	.097	3.145	.002
z1	.288	.066	4.337	.001
e12	.227	.053	4.266	.001
e11	.132	.083	1.593	.111
e10	.347	.052	6.626	.001
e9	.278	.046	6.020	.001
e8	.263	.043	6.064	.001
e7	.324	.052	6.279	.001
e6	.280	.045	6.223	.001
e5	.371	.059	6.254	.001
e4	.290	.046	6.363	.001
e3	.084	.044	1.903	.057
e2	.233	.045	5.186	.001
e1	.351	.057	6.148	.001

Table 18. Variance Estimates for the GRAD and FEC Model

APPENDIX M

MODEL 5 RESULTS: THE GRAD FAMILY/PARENTING DOMAIN AND THE FAMILY

INTRUSIVENESS SCALE

Endogenous	Exogenous	Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	Р
GRAD Family/Parenting	Household Income	405	101	.033	-3.100	.002
GRAD Family/Parenting	Ethnicity	098	104	.122	849	.396
GRAD Family/Parenting	One or Two Parents	.263	.232	.110	2.115	.034
GRAD Family/Parenting	FIS-Adult	.011	.001	.011	.097	.923
GRAD Family/Parenting	FIS-Youth	.160	.006	.004	1.371	.170
GRAD Family/Parenting	Gender	.056	.049	.102	.484	.628
Tip-Toe	GRAD Family/Parenting	.889	1.000			
Monitor	GRAD Family/Parenting	.530	.757	.214	3.541	.001
Retaliate	GRAD Family/Parenting	.706	1.209	.305	3.963	.001
GRAD1	Monitor	.641	.784	.127	6.187	.001
GRAD3	Monitor	.911	1.000			
GRAD11	Retaliate	.909	1.000			
GRAD12	Retaliate	.744	.711	.120	5.939	.001
GRAD4	Tip-Toe	.604	.832	.156	5.341	.001
GRAD5	Tip-Toe	.640	1.025	.182	5.620	.001
GRAD6	Tip-Toe	.640	.897	.160	5.621	.001
GRAD7	Tip-Toe	.649	.965	.170	5.689	.001
GRAD8	Tip-Toe	.695	.980	.162	6.041	.001
GRAD9	Tip-Toe	.684	1.000			
GRAD10	Tip-Toe	.542	.761	.157	4.841	.001
GRAD2	Monitor	.734	.830	.120	6.938	.001

Table 19. Regression Estimates for the GRAD and FIS Model

Variable 1	Variable 2	Correlation	Covariance	S.E.	C.R.	Р
		Estimate	Estimate			
FIS-Adult	FIS-Youth	.062	3.348	4.664	.718	.473
FIS-Youth	Gender	.367	2.114	.609	3.472	.001
FIS-Adult	Ethnicity	.362	.709	.207	3.429	.001
One or Two	Household	.447	.394	.096	4.099	.001
Parents	Income					

Table 20. Covariance and Correlation Estimates for the GRAD and FIS Model

Variable	Estimate	S.E.	C.R.	Р
FIS-Adult	21.954	3.088	7.110	.001
FIS-Youth	132.483	18.632	7.111	.001
Gender	.250	.035	7.106	.001
Ethnicity	.175	.025	7.106	.001
One or Two Parents	.250	.035	7.106	.001
Household Income	3.111	.438	7.106	.001
z4	.159	.059	2.720	.007
z1	.287	.067	4.260	.001
z2	.052	.042	1.228	.219
z3	.286	.102	2.803	.005
e12	.233	.052	4.448	.001
e11	.120	.082	1.453	.146
e10	.343	.052	6.586	.001
e9	.280	.047	6.001	.001
e8	.253	.043	5.930	.001
e7	.317	.051	6.195	.001
e6	.286	.046	6.237	.001
e5	.374	.060	6.238	.001
e4	.298	.047	6.387	.001
e3	.082	.044	1.836	.066
e2	.235	.045	5.225	.001
e1	.351	.057	6.153	.001

Table 21. Variance Estimates for the GRAD and FIS Model

APPENDIX N

MODEL 6 RESULTS: THE GRAD FAMILY/PARENTING DOMAIN AND THE

PERCEIVED SOCIAL SUPPORT FROM THE FAMILY SCALE

Endogenous	Exogenous	Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	Р
GRAD Family/Parenting	One or Two Parents	.284	.271	.110	2.475	.013
GRAD Family/Parenting	PSSFA-Adult	.367	.036	.011	3.216	.001
GRAD Family/Parenting	PSSFA-Youth	051	005	.010	486	.627
GRAD Family/Parenting	Ethnicity	057	065	.113	579	.563
GRAD Family/Parenting	Household Income	356	096	.032	-3.02	.002
GRAD Family/Parenting	Gender	.033	.031	.098	.319	.750
Monitor	GRAD Family/Parenting	.496	.656	.188	3.488	.001
Тір-Тое	GRAD Family/Parenting	.968	1.000			
Retaliate	GRAD Family/Parenting	.653	1.035	.257	4.020	.001
GRAD1	Monitor	.640	.784	.127	6.165	.001
GRAD3	Monitor	.911	1.000			
GRAD11	Retaliate	.911	1.000			
GRAD12	Retaliate	.742	.708	.122	5.818	.001
GRAD4	Tip-Toe	.610	.846	.157	5.375	.001
GRAD5	Tip-Toe	.649	1.047	.184	5.679	.001
GRAD6	Tip-Toe	.650	.917	.161	5.686	.001
GRAD7	Tip-Toe	.634	.950	.171	5.565	.001
GRAD8	Tip-Toe	.682	.968	.163	5.932	.001
GRAD9	Tip-Toe	.679	1.000			
GRAD10	Tip-Toe	.541	.765	.158	4.826	.001
GRAD2	Monitor	.734	.831	.120	6.908	.001

Table 22. Regression Estimates for the GRAD and the PSSFA Model

Variable 1	Variable 2	Correlation Estimate	Covariance Estimate	S.E.	C.R.	Р
PSSFA-Adult	PSSFA-Youth	.311	7.629	2.559	2.981	.003
PSSFA-Youth	Gender	.213	.535	.255	2.095	.036
PSSFA-Adult	Gender	.262	.640	.252	2.543	.011
One or Two Parents	Household Income	.447	.394	.096	4.099	.001

Table 23. Covariance and Correlation Estimates for the GRAD and the PSSFA Model

Variable	Estimate	S.E.	C.R.	Р
PSSFA-Adult	23.972	3.373	7.106	.001
PSSFA-Youth	25.166	3.541	7.106	.001
One or Two Parents	.250	.035	7.106	.001
Gender	.250	.035	7.106	.001
Ethnicity	.175	.025	7.106	.001
Household Income	3.111	.438	7.106	.001
z4	.170	.061	2.780	.005
z1	.299	.068	4.421	.001
z2	.015	.042	.362	.718
z3	.328	.103	3.200	.001
e12	.234	.053	4.415	.001
e11	.117	.085	1.376	.169
e10	.343	.052	6.605	.001
e9	.283	.047	6.061	.001
e8	.261	.043	6.045	.001
e7	.326	.052	6.290	.001
e6	.279	.045	6.218	.001
e5	.366	.059	6.223	.001
e4	.294	.046	6.388	.001
e3	.082	.045	1.831	.067
e2	.234	.045	5.206	.001
e1	.351	.057	6.148	.001

Table 24. Variance Estimates for the GRAD and PSSFA Model